The Use of Media Technology in Foreign Language Teaching and Learning at University Level:
A Study of teachers' attitudes in Korea

by

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A Thesis Submitted for the Degree of
Doctor of Philosophy

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England

1997

ABSTRACT

Despite the potential and increased availability of media technology, including advanced technologies such as computers and CD-ROM multimedia, teachers' actual use of technology, and particularly of the advanced technologies, in FLT/L in higher education in Korea still tends to be limited. The purposes of this study were, therefore: 1) to investigate the current patterns and contexts of teachers' (and for reference, students') use of media technology and their attitudes towards its use in FLT/L at university level in Korea; 2) to examine the cause of problems and the possibilities of improvement in its use in FLT/L; and 3) based on these findings, to suggest some solutions and strategies for applying them to the Korean context.

Quantitative and qualitative research methods were adopted, i.e., questionnaires, interviews, and classroom observations were used to collect the data required for this study. The subjects consisted of forty-eight teachers who teach English (and 535 students) at twelve universities in the central districts in Korea. In addition, workshop-based experiments were carried out to gather additional data on teachers' opinions and to evaluate the implications of the study.

This study shows that the majority of Korean teachers (and students) have positive attitudes towards the use of media technology in FLT/L, with generally no significant gender and years of teaching experience (and academic years) differences, although they make little use of it. The study suggests that the availability of media technology equipment and appropriate materials in particular, teachers' knowledge of it, and proper teacher training have a positive impact on teachers' attitudes towards its use, and are, in addition to their positive attitudes, the other main factors influencing its successful implementation in FLT/L. It is concluded that to provide the teachers with sufficient knowledge of the capabilities of media technology and to encourage wider use, more access to hardware and software is necessary, and training to familiarise teachers with the hardware and software and its potential for language teaching is essential. Therefore, suggestions are made for the effective use of existing facilities, and for a model that could be adopted for teacher training courses.

ACKNOWLEDGEMENTS

There have been many people who have supported and encouraged me during my period of study. I would like to thank them all. Especially, I would like to express my gratitude to the following.

Very many thanks to my supervisor, Scott Windeatt who offered me *everything,* without whom this research would not have been possible. I am also very grateful to my other supervisor, Madelene Atkins, head of the School of Education for her guidance and helpful advice over the years.

I would like to thank to Mrs. Barbara Wickham, the former deputy director of the British Council in Korea, who gave me financial assistance at the beginning of this research.

I would like to thank the staff of the Language Centre, especially Philip Shaw, Francis Jones, and Derek Green, who were always supportive and helpful when necessary, and sometimes pushed me to get on in the academic world.

I am grateful to all of the teaching staff, particularly Prof. Boup Hong, Prof. Hyesook Hwang, Prof. Chongil Kang and Prof. Inwoong Park, and technicians at the Foreign Language Center of Inha University in Korea who have helped, in many ways, during my study.

Finally, many thanks go to my family, especially my mother and wife for their encouragement and patience throughout.

I dedicate this thesis to my late father

This thesis I dedicate to all professors and lecturers who helped me in collecting the data required for the study and to all language teachers in their efforts to implement media technology in foreign language teaching and learning, particularly in Korea.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This study is concerned with the patterns and contexts of teachers' (and for reference, students') use of media technology and their attitudes towards the use of it in foreign language teaching and learning (FLT/L) in higher education in Korea. In this study, the term 'teachers' refers to 'professors' or 'lecturers' who work in higher education or at university level, except for chapter 3, section 3.4. where it also includes primary and secondary school teachers. The term, 'media technology' refers to modern teaching and learning machines (e.g., audio, TV, video, computers, etc.) for supporting teaching and learning in education, by delivering or transmitting media (e.g., sound, vision, text, etc.), or, in other words, modern aids which can be used by teachers and learners to attain certain educational objectives in FLT/L.

This chapter presents: 1) The background to this study; 2) A statement of the problem to be investigated; 3) The purposes of the study; 4) The significance of the study; 5) The limitations and delimitations of the study; 6) The structure of the study.

1.2 Background to this study

The use of media technology in FLT/L is not new. Language teachers and learners have used audio, video, and recently computers as a result of developments in technology and in language teaching methods, e.g., the Audiolingual Method in the 1960s and Communicative Language Teaching (CLT)[1] in the 1970s. However, some

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[1] CLT generally implies language teaching that focuses on encouraging students to *use* foreign languages to communicate (Hymes 1979, Johnson 1981, Richards and Rodgers 1986). It has been interpreted in various ways by many writers, such as, Canale (1983), Finnocchiaro and Brumfit (1984), Hymes (1972, 1979), Johnson (1981, 1982), Littlewood (1981), Swan (1985a, 1985b), Widdowson (1978), etc. An important characteristic of the CLT is that it takes account of the functional and social aspects of language in the classroom. Littlewood (1981: 1)

teachers have been sceptical about the use of media technology and reluctant to use it in schools, particularly new (or advanced) technologies based on computers and microelectronics technology, probably because in their view its use is not conducive to a humanistic approach to language learning and teaching. They also think it is difficult to apply in communicative approaches to language learning and teaching. However, a number of research studies have recently suggested that media technology can be used for a variety of approaches, i.e., not only grammar-translation, but humanistic and communicative approaches (Cook 1985, 1988, Garrett 1991, Hardisty 1987, Phillips 1985, Stevens 1989, 1992). Such sceptical views are, in addition, changing with the development of new software and methodological approaches which can be used to practise all four language skills, reading, writing, listening, and speaking. Unlike teachers, on the other hand, for students media technology seems to be an exciting and useful classroom resource, and they enjoy it and accept it readily in language learning (Harvey and Wilson 1985, Johnston 1985, Knezek et al. 1993).

All media technologies including hi-tech technologies such as computers and CD-ROM multimedia appear to be available now to some extent at all levels, particularly in higher education, due to developments in technology and rapid expansion in their use in today's society over the past decade. The majority of teachers and students seem to have realised the potential and value of media technologies, to, for example, assist in the preparation, management and organisation of lesson and teaching materials (Wilson 1990), and have recently become interested in using them in the language classroom. Despite their increased accessibility and interest, however, teachers' actual use of the technologies, particularly the advanced technologies, in the language classroom is still frequently reported as low (Higham 1992, Oliver 1994, Wild 1996). This means that the potential and value of media technology have not been fully realised. Many research studies report that teachers' negative attitudes towards the use of media technology, together with some other influencing factors, such as lack of hardware and (appropriate) software, lack of experience, lack of knowledge (e.g., knowledge of how

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stated that "one of the most outstanding features of CLT is the way it pays systematic attention to the functional as well as structural aspects of language, combining them into a more communicative view".

to use media technology, how it works, and how it can be used for language teaching), and lack of teacher training, appear to inhibit the implementation of media technology in the language classroom. Therefore, teachers' attitudes towards the use of media technology and these other factors play a vital role in the success or failure of its implementation in language teaching and learning (Fox et al. 1990, Garrett 1991, Harrison and Hodgkinson 1995, Johnson 1993, Pelgrum and Plomp 1991).

In particular, the current trend in education at all levels in Korea has put an emphasis on the need to learn a foreign language (mostly English), and particularly on acquiring communicative skills and improving oral proficiency under the banner of 'Segaewha' i.e., 'globalisation' or 'globalism' throughout the nation. In this respect, CLT and individualisation (or learner-centred or humanistic approaches) in FLT/L assumes greater importance, and there is no doubt that there is a need for natural language learning strategies and more open-ended types of activities, such as role-plays, information gap activities, and simulations in a communicative situation, in order to meet the objectives. Teachers also agree that for effective foreign language learning, learners need to be actively involved in an interesting and entertaining way in the learning process (Laurillard 1987). However, EFL (English as a foreign language) teaching materials in Korea are usually inflexibly structured, based on written texts or worksheets, and focusing on acquiring linguistic competence. Therefore, most teachers and students seem to feel that there is a need to make increased use of media technology, particularly video, computers and CD-ROM multimedia in FLT/L in higher education in Korea. This is probably because they think that, unlike written texts, media technology materials are flexible, interesting, and entertaining.

1.3 Statement of the problem

Without exception, media technology has not been widely used at school or even at university level in Korea, although there has been an increase in the availability of both hardware and software, including the hi-tech media technologies due to a considerable amount of investment in it over the years. However, lots of equipment and materials which have been bought are simply not being used in the classroom. During the survey, the researcher found that all the colleges and institutes, and most Modern Languages departments of universities, have a considerable amount of good quality audiovisual and computer equipment and materials (with a small number of CD-ROM multimedia), although they were often not being used for FLT/L in the classroom. Furthermore, most of the departments were in the process of acquiring more high quality computers and CD-ROM multimedia. However, only a small number of teachers, particularly younger teachers who are interested in or committed to it, tend to use it in the language classroom. Older teachers seem to believe that they are not well prepared for classroom use of media technology, particularly hi-tech media technologies. The majority of teachers have been waiting for other teachers and university authorities to provide evidence of the practical benefits of using these technologies. Despite the lack of interest among teachers, a small but significant number of students were listening to audio and watching audiovisual materials in self-access, and using word processing to improve the presentation of their work. This suggests that the students enjoy working with media technology and seem to believe it can help them in FLL.

Why do most language teachers not use media technology in the language classroom? Do the teachers naturally have negative attitudes towards media technology (particularly the advanced technologies) and its use? Do they still have sceptical views about the use of media technology in FLT/L? Do they have problems in using it in the language classroom? The results of the teachers' interviews in the pilot study supported the findings of a number of research studies as mentioned in the preceding section, 'Background to this study'. For example, one teacher's response from the interviews speaks for the importance of teachers' attitudes in the use of media technology, and of the differences between users and non-user:

> I am personally interested in the use of media technology myself and in language teaching. I think teachers' personal attitudes have influence on the success or failure of using media technology, and divide teachers into users and non-users besides some practical problems, e.g., lack of availability of equipment and materials, lack of experience and knowledge, lack of teacher training, etc. For

> example, one of my colleagues used to say, "Well, forget it, though it may be true some teachers claim that media technology can help a lot in FLT/L. As you know, people spoke and wrote foreign languages a long time ago, when there was neither audio nor video. There has recently been a tendency to depend too much on it, particularly the computer as an omnipotent. I have tried it several times in language teaching, but it was just a tool like other materials." He seems not to be interested in the use of media technology in language teaching.

Do, then, all Korean language teachers in higher education have the same attitudes towards the use of media technology in FLT/L as the teacher quoted above? Or, have the teachers recently become more interested in the use of media technology in the language classroom, due to the increased availability of the equipment and materials of both low-tech and hi-tech media technologies, and to the development of methodological solutions which can be applied to a variety of approaches? On the other hand, are Korean university students interested in the use of media technology? Do they have positive attitudes towards media technology and its use?

Very little research has been done in the area of teachers' attitudes towards the use of media technology in relation to FLT/L at any level in Korea. In particular, there appear to be no research studies into teachers' (and students') attitudes towards the use of media technology in FLT/L at university level or in higher education. Some studies have been carried out in last two decades into the potential and limitations of the use of media technology and certain materials in the language classroom, such as audio, video (including TV) and computers through the review of relevant literature: for example, audio (Hong 1983); video (Kim 1996a, Hwang 1986); computers (Ahn 1991, Choi 1991a, Choi 1993, 1994, Kang 1993, Lee 1996, Park 1994, Patterson 1988). Some other studies have focused on evaluation of actual classroom use of media technology, and made some suggestions for its effective use: for example, audio (Harvey 1981); video (Bauer 1988, Lee 1992); computers (Choi 1996, Jeon et al. 1996); CD-ROM multimedia (Kim 1996b). This means, however, that teachers' attitudes towards the use of media technology have received very little research attention in Korea, for whatever reasons, although trends in and prospects for its widespread applications in FLT/FLL in higher education are readily apparent. There appear to be three reasons for this: 1) There may be no time to research into them; 2)

It may be due to administrative difficulties in higher education; 3) There may be a feeling that there is no need to research into them, because the use of media technology in the classroom will inevitably increase. Therefore, no information has yet been made available concerning the teachers' attitudes, and factors influencing their attitudes towards the use of it in FLT/L in higher education.

For the successful implementation of media technology in FLT/L, information related to teachers' attitudes towards the use of media technology and factors influencing their attitudes in FLT must be obtained, as this will be a crucial step in implementing media technology in FLT/L at university level or in higher education. The research questions related to examining the current patterns and contexts of teachers' use of media technology, teachers' attitudes towards the use of it, and the cause of problems and possibilities of improvement in the use of media technology needed to be addressed. The main questions to be investigated are, therefore: 1) "What are the patterns of use of media technology in language teaching at university level?"; 2) "Why do most teachers not use media technology very much?"; 3) "Why do some teachers use it?" Thirty-eight subquestions were also used, and the research hypotheses described in Chapter 4, section 4.2.1 and 4.2.2 were also formulated.

Students' attitudes as well as teachers' towards the use of media technology are also significant for the successful implementation of it in FLT/L, since their unfavourable attitudes towards it will inhibit learning, whereas favourable ones will make students more receptive to learning activities using it (Johnston 1987a, Askar et al. 1992). Nine research questions and eight hypotheses for students (described in Chapter 4, section 4.2.3) were also formulated, in order to investigate the pattern of students' use of media technology and their attitudes towards the use of it in FLL.

1.4 Purposes of the study

The purposes of this study are, therefore: 1) to investigate the current patterns and contexts of teachers' (and students') use of media technology and their attitudes towards the use of media technology in FLT/L at university level in Korea; 2) to examine some problems and their causes, and the possibilities of improvement in the use of media technology; 3) based on these findings, to suggest some solutions and strategies for applying them to the Korean context.

In order to pursue these purposes and obtain all the pertinent data, quantitative and qualitative research methods were used. Therefore, this study was based on survey-based research using questionnaires, followed by interviews and classroom observations. That is, questionnaires, interviews, and classroom observations were used to collect the data. Workshop-based experiments were also carried out to gather additional data on teachers' opinions and to evaluate the implications of the study.

1.5 Significance of the study

On the premise that the study of teachers' attitudes towards media technology and its use are of crucial importance in the successful implementation of media technology in education and in FLT/L at all levels, this study will be a crucial step in encouraging the wider use of media technology in FLT/L in higher education in Korea.

In particular, the successful use of media technology and teachers' attitudes towards it in higher education are very important, since these may have a positive impact on the students' use of it and the formation of their attitudes towards it in FLT/L. These students will be primary or secondary school teachers in the near future, and in turn they may also influence the attitudes of their pupils' at primary and secondary level in Korea. Given that pre-service teacher training for primary and secondary school teachers largely takes place in the colleges and departments of universities in Korea, and there have been in-service training courses for the language teachers in some of the colleges and departments, the existence and the successful use of media technology in higher education may be an important factor in determining the success or failure of the current and future implementation of media technology at school level.

This study was designed to investigate, particularly not only teacher's attitudes towards the use of media technology, but various factors influencing their attitudes and media technology implementation in FLT/L in higher education. The results of the study will, therefore, provide valuable base-line data about the current situations and problems in the use of media technology, and a wealth of information on teachers' attitudes towards media technology and its use at university level in Korea. In addition, some suggestions based on the findings and implications will contribute to the more effective application of media technology and further development in the use of media technology in FLT/L in higher education in Korea. The researcher hopes that the study will help teacher trainers and language teachers develop better plans and strategies for the implementation of media technology and the integration of it into the curriculum and syllabus in FLT/L at all levels in Korea at present and in the near future.

1.6 Limitations and delimitations of the study

This study obviously has some limitations. 1) Limitation of representiveness: This study was concerned with the pattern of teachers' (and students') media technology utilisation and their attitudes towards it at university level in Korea, but the sampling was limited to the universities of the central districts in Korea. Therefore, the results of the study are limited to the teachers and students in that area. For reference, however, the sample may represent Korean teachers (and students) in general, since most of the universities (about 70%) are situated in the central area in Korea, and the sample was selected by a random sample method (stratified sampling).

2) The subject's unconscious bias: There may be the possibility that the respondents unconsciously answered according to the kinds of answers they thought they ought to give, e.g., expressing favourable attitudes towards media technology and its use, rather than giving their real opinions. For some teachers, for example, this may be ascribed to feeling guilty about not using media technology, despite the fact that they believe the use of media technology can help students and themselves in FLT/L, and their answers may be a way subconsciously compensating for this. For the purpose of this study, however, it is assumed that the subjects responded honestly and knowledgeably to the questions asked in the questionnaires and interviews.

3) Restrictions of the 'real' classroom observation: It is possible that the presence of a video camera inhibited the usual activities in the classroom, despite endeavours to make video as unintrusive as possible with the help of experts.

However, the study has the following delimitations. 1) Covering all sorts of media technology available: All sorts of media technologies (i.e., low-tech and hi-tech media technologies) which have been used and will be used in the near future in language teaching and learning are involved in this study. However, five media technologies are considered in depth: audio, TV (including Satellite TV), video (including video camera), interactive video and CD-ROM multimedia. These are, then, compared with one another throughout the study.

2) Use of both quantitative and qualitative methods: This will provide the basis for more reliable generalisation about the patterns of teachers' (and students') use of media technology and their attitudes towards the use of media technology at university level in Korea. In particular, qualitative methods were adopted in order to investigate in depth the factors affecting the use of media technology, which may be impossible to find out by means of quantitative methods.

3) High response rate: The response rate for the teachers' questionnaires was very high (80%). The response rate for the students' questionnaires was extremely high (95.2%).

4) Statistically analysed data: The application of statistical treatment provides more reliable data analysis and results.

1.7 Structure of this thesis

This thesis consists of seven chapters, including this chapter (Chapter 1). Chapter 2 covers a review of literature related to: 1) Media technology and its use in general, including a definition of media technology, a brief historical overview, and a discussion of the role of media technology; 2) The use of five media technologies available in FLT/L, such as TV (particularly Satellite TV), video (with a video camera), computers and multimedia (CD-ROM multimedia and interactive video), including a description of their potential and limitations, a summary of their advantages and disadvantages, a discussion of teacher training for their effective use (particularly computers) and of media technology and language skills development, i.e., the actual use of the technologies in four language skills - reading, writing, listening, and speaking, particularly focusing on the integration of the technologies into a CLT framework.

Chapter 3 provides an overview of attitudes and their measurements, including the concept, the structure and the measurement of attitudes, and research findings on teachers' (and students') attitudes towards media technology and its use.

Chapter 4 deals with the methodology to be used in this study, beginning with a detailed description of the research questions and hypotheses formulated, and describes the methods and techniques, data collection instruments, the procedures and subjects, and finally the methods used for data analysis.

Chapter 5 reports the findings of this study. The first part presents an analysis of the data obtained from the questionnaires and interviews, based on the research questions and hypotheses. The second part describes the results of the evaluation of five classroom observations, and includes a synopsis containing transcripts, and the results of analysing the data obtained from the follow-up students' questionnaires, and students' and teachers' interviews.

Chapter 6 discusses the major findings with a summary of the results, and particularly some implications for improving the use of media technology in FLT/L at university level in Korea, based on the findings of this study.

In Chapter 7, conclusions are drawn from the discussion of the findings, recommendations are suggested based on their implications, and suggestions for further studies are made.

CHAPTER 2

THE USE OF MEDIA TECHNOLOGY

2.1 Introduction

The purpose of this chapter is to look at literature relevant to: a brief historical overview, the potential and limitations, and the actual use of media technology in LT/L, and particularly in FLT/L; and teacher training for its effective use. Computer databases [BIDS (Bath University Computing Service) and ERIC (Educational Resources Information Centre)] and bibliographic data in articles in professional journals, conference proceedings, chapters, and books were consulted.

This chapter includes the following sections: 1) Media technology in FLT/L - a definition, a brief historical overview, and the role of media technology; 2) The use of five media technologies in FLT/L - the potential and limitations of current and new media technologies, such as Satellite TV, video (including a video camera), computers and multimedia (CD-ROM multimedia and interactive video), their advantages and disadvantages, teacher training for media technology, and media technology and language skills development, i.e., the actual use of media technology in four language skills (reading, writing, listening and speaking), and integrating media technology into a CLT framework.

2.2 Media technology in FLT/L

The term, 'media technology' or 'educational technology[2]' still appears to be confusing to most people, although it has widely been used in education (Hawkridge 1983, Ellington et al. 1984, 1993, Romiszowski 1988). For example, it may simply be

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[2] A number of writers have referred to 'technology *in* education' and 'technology *of* education' (Enright 1972, Ellington et al. 1984, Romiszowski 1988). This classification will be discussed in detail later. Here, 'educational technology' means 'technology in education' rather than 'technology of education'.

associated with 'new media', i.e. the technical equipment and devices for presenting information to people - such as the OHP, audio, TV, video, computers, etc. - as against 'old media', which refers to printed materials (such as textbooks, maps, charts and pictures, flash card, chalkboard, etc.) (Enright 1972, Ellington et al. 1984, 1993, Romiszowski 1988).

This section will focus on a definition, a historical overview, and the role of media technology in the area of language teaching and learning, and particularly in FLT/L.

2.2.1 What is media technology?

One can simply define media technology as a compound word made up of 'media' and 'technology'. The terms, 'media' and 'technology' separately, or 'media technology' used together have been used by many people in their own ways in every field. Therefore, this section will first discuss the terms, 'media' and 'technology' respectively, and then 'media technology', in order to make their meanings clear.

2.2.1.1 What are 'media' and 'technology'?

'Media' as a dictionary definition - the plural of medium derived from Latin '*medius*' - have been defined as an intermediate agency, means, instrument, or channel of presenting or giving visual or verbal information (Collins Cobuild English Language Dictionary 1991, Longman Dictionary of Contemporary English 1987). McLuhan (1964) stated that "the medium is the message", since it is the medium that shapes and controls the scale and form of human relations and behaviour. According to him, media are extensions of human beings, which serve to provide a new transforming vision and awareness, and which can include letters, television, film and even railways (McLuhan 1964). Rossi and Biddle (1967) defined media as any form of device or equipment which is normally used to transmit information between persons (in Enright 1972). These definitions of media can be resolved into a set of common features: media means broadly not only complex electronic communication instruments but also simpler devices such as charts, photographs, slides, etc., i.e., the carriers of messages, from some transmitting source to the receiver of the message (Romiszowski 1988). Therefore, media in education and FLT/L refer to a means of transmitting and receiving messages or information, which includes all aids which can be used by teachers and learners in the classroom.

The term, 'technology' comes from the Greek '*tekhnê*' which means metal-working and shipbuilding. Later it came to mean any art or science, though modern definitions of technology vary (Collins Cobuild English Language Dictionary 1991, Longman Dictionary of Contemporary English 1987). In the past two decades, technology has been used to refer to a branch of knowledge dealing with scientific and industrial methods and their practical use - such as materials, tools and techniques - particularly in industry or commerce (Hawkridge 1983). It is associated with available technical equipment and electrical devices from the OHP, audio technologies, television, and video, to, more recently, microcomputers in language teaching (Phillips 1985). More generally, it is currently broadly defined as the systematic application of scientific knowledge to achieve a particular practical purpose (Romiszowski 1988).

2.2.1.2 Definitions of media technology

The terms, 'educational technology' and 'media technology' are sometimes used synonymously, but 'educational technology' has recently been interpreted as having two specific meanings. It will be useful to discriminate between them before defining 'media technology'.

The concept of educational technology has evolved over a period of about 30 years, and its nature has not easily been explained (Ellington et al. 1984, 1993). In the early period (1960s), it was simply associated with the technical equipment and media available to education - such as tape recorders, television, etc. (Ellington et al. 1984, 1993, Romiszowski 1988). Subsequently, two different interpretations of the term, 'technology' emerged, namely 'technology *in* education' and 'technology *of* education'. The definition of educational technology given above refers to technology in education, rather than technology of education. In other words, technology in education refers to every possible means by which information can be presented, including both hardware and software, e.g., audio-visual aids, computers, etc. (Ellington et al. 1984, 1993, Romiszowski 1988).

By contrast, Mackenzie et al. (1970) stated that technology *of* education is concerned with the systematic study of the means whereby educational ends are achieved. Ellington et al. (1993) described it as the application of knowledge systematically and scientifically planned and executed to help improve the overall efficiency of the teaching and learning process. In short, the technology of education is a 'systems approach', which includes important aspects of hardware and software, *i.e.*, technology in education (Ellington et al. 1993, Romiszowski 1988).

Turning to 'media technology', it is apparent from the views set out above that it should be defined as 'technology in education', rather than 'technology of education'. Media technology can be defined as modern teaching and learning machines (e.g., audio, TV, video, computers, multimedia, etc.) for supporting teaching and learning in education, by delivering or transmitting media (e.g., sound, vision, text, etc.), or, in other words, modern aids which can be used by teachers and learners to attain certain educational objectives in FLT/L.

The term, 'media technology' will be used in this study instead of 'educational technology', in order not to confuse 'technology in education' with 'technology of education'.

2.2.2 A brief historical overview of media technology in FLT/L: thirty years past and the future

The use of media technology in FLT/L is closely related to changes in language teaching methods and the development of media technology in both hardware and software (Phillips 1985, Van Els et al. 1984).

This section will, therefore, present a brief historical overview of media technology in language teaching and FLT/L, since this will provide an overview of the background of continuing technical evolution, the current trends, and an indication of how media technology will develop in the future (Pennington 1991, Van Els et al. 1984).

2.2.2.1 The beginnings and thirty years on

2.2.2.1.1 The 50's and 60's

The history of modern media technology begins in the late 1950s and early 1960s. Audio technology and language laboratories along with the Audiolingual Method and the development of the tape recorder had permeated all levels of foreign language teaching and learning (Zettersten 1986). They had certain advantages - presenting communication in action and providing learners with the opportunity to practise with spoken materials (Edelhoff 1978, Tomalin 1986). However, the results seem to have generally been unsuccessful, since the tape recorder or the language laboratory was integrated into a 'total' teaching system, which often replaced the teacher without considering what most appropriate the role of audio technology and language laboratories was, and what methodology was most appropriate (Sherrington 1973, Tomalin 1986, Van Els et al. 1984).

The boom of the 60's has not continued, in spite of the potential of audio technology and language laboratories. Many teachers and students seemed to be tired of language laboratories, and to leave them unused or little used in many schools (Zettersten 1986). This failure is instructive. It was caused by lack of awareness, ignorance, and slow and insufficient research studies into the use of the technologies (Fox et al. 1990, Garrett 1991). However, audio technologies are still used to deliver controlled pattern practice, drills and testing in schools and higher education (Pusack and Otto 1990).

2.2.2.1.2 The 70's

The decline of audio technology and language laboratories in the 70's was affected not only by their own problems as stated above, but also by the arrival of video and computers (Van Els et al. 1984). But the use of these newer media technologies also met with organisational and financial problems. Video equipment was expensive. It was often not used well, because the equipment was lacking in flexibility or because of a lack of equipment maintenance (Pusack and Otto 1990). The use of computers was largely restricted to mainframe computers which were not well suited to teachers' and students' needs and were often inaccessible to them (Hainline 1987, Pusack and Otto 1990). More importantly, the development of suitable software in the educational fields lagged behind that of hardware (O'Shea and Self 1983, Zettersten 1986).

2.2.2.1.3 The 80's

The decade of the 80's put video and microcomputers into the hands of language teachers due to the rapid development of new technologies based on computers and microelectronics in industry and commerce. There was a massive spread of cheaper, but better quality video tape recorders and microcomputers after the mid 1980s (Pusack and Otto 1990, Zettersten 1986). A combination of audio, video and computing media i.e., interactive video in a single learning station was also demonstrated, though insufficient materials and software was an obstacle to the wider application of this technology. Meanwhile, an emphasis on communicative and student-centred approaches in FLT encouraged new efforts to exploit media technologies effectively (Fox et al. 1990, Pusack and Otto 1990).

Firstly, video equipment became widely available and familiar to language teachers. In contrast to the previous decades, there was a considerable literature on the use of video in the classroom produced by many researchers, such as Allan (1983, 1985), Geddes and Sturtridge (1982), Kennedy (1983), Lonergan (1983, 1984), MacKnight (1983), Tomalin (1986), Willis (1983a, 1983b), etc. They put much emphasis on the potential (e.g., flexibility and adaptability) of audiovisual aids, but they also discussed their limitations, as well as methodological considerations, in order to avoid the mistakes of audio technology and language laboratories, and to make it clear that the use of video can only be effective when it is in all respects integrated into the teaching and learning process as a 'partner' (Phillips 1985, Van Els et al. 1984). However, suitable materials have been difficult to develop and slow to reach language teachers and learners as integrated elements of the curriculum. After the mid 1980s much more video materials[3] were produced for FLT, helped as well by the advent of small-sized video cameras which allowed teachers to produce videos of their own for a variety of purposes in the classroom.

Secondly, the educational uses of computers gathered momentum after the mid 1960s (Ahmad et al. 1985, Higgins and Jones 1984, O'Shea and Self 1983). Pennington (1991) stated that the application of computers in linguistics and language learning, from the work of Zellig Harris and later Noam Chomsky at the university of Pennsylvania, was tied in with highly specialised work on the modelling of language according to mathematical and logical properties. Developments resulting from this work included the use of computers as follows:

> 1) to compile, to access, and to analyse large databases of information about language 2) to enhance language proficiency through word processing and through educational software that trains in reading, writing, speaking, and listening, either directly or as a by-product of work at the computer 3) to test language via computerised assessment systems; and 4) to conduct research on language learning with the aid of the computer.
>
> (Pennington 1991: 4)

These are some of the fields of research and practice that today apply to the area of computers in language teaching and learning (Pennington 1991). The use of computers in LT/L took a concrete shape at the University of Illinois (the PLATO project) and Stanford University (the computer-based foreign language teaching project) in North America, and at the University of Essex (the Scientific Language Project) in Britain from the end of 1960s (Ahmad et al. 1985, Higgins and Jones 1984, O'Shea and Self 1983). These projects have contributed much to the development of computer materials and of modern CALL (Computer Assisted Language Learning)[4]

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[3] See *Teaching English with Video* (particularly Appendix 1 Published ELT video materials) (Allan 1985) and 'An overview of currently available ESL/EFL video materials' (pp. 123-140) in *Video in Second Language Teaching* (Thomas et al. 1991). These provide some guidance to the English as a second language (ESL) or English as a foreign language (EFL) teachers, teacher trainer, or administrator who is interested in using and possibly buying video materials.

[4] CALL stands for Computer Assisted Language Learning. It is the term most commonly used by scholars, teachers, and students to describe the use of computers in language teaching and learning, or as part of a language course, or as a means of 'presenting', 'reinforcing', and 'testing' particular language items (Ahmad et al. 1985, Jones and Fortescue 1987, Hardisty

(Ahmad et al. 1985). However, it took some time for educators to begin to assess the educational nature of the computer, and the ways in which it could be adapted to, and integrated into, learning programmes and curricula (Hope et al. 1984). CALL research in the mid 1960s began to examine its cost and educational effectiveness (Hainline 1987). At that time (1965 - 1975) CALL was almost entirely geared towards tutorials and teaching the written language, i.e., drill and practice - grammar explanation and exercises - for beginners on terminals tied to a mainframe computer (Ahmad et al. 1985, Hainline 1987, Hope et al. 1984).

Teachers could not access computers at work and at home until the late 1970s with the advent of the relatively cheap microcomputer (Zettersten 1986). A number of writers, such as Ahmad et al. (1985), Cameron (1989), Chapelle and Jamieson (1989), Hardisty and Windeatt (1989), Higgins and Johns (1984), Hope et al. (1984), Jones and Fortescue (1987), Kenning and Kenning (1983), Last (1984), O'Shea and Self (1983), Pennington (1989), Wyatt (1984a), etc. described the possibilities of CALL using microcomputers or main-frame computers. Some of them have discussed the application of computers in the four language skills (reading, writing, listening and speaking). The potential of CALL has been demonstrated in hundreds of programs or software created from the 1980s (Hope et al. 1984, Stevens 1989). Many CALL programs (or software)[5] produced hitherto are, of course, essentially question and answer or multiple-choice tests used for teaching purposes (Phillips 1985), but a few of them showed that high level activities such as problem-solving and simulations in language teaching and learning can be carried out in CALL lessons (Stevens 1989). However, CALL was still in its infancy and apparently little foreign language software was produced to take advantage of its expanded capabilities (Pusack and Otto 1990).

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and Windeatt 1989). On the other hand, CAL (Computer-Assisted Learning) focuses on the learning aspect of the process and is the usual term in Britain. CAI (Computer-Assisted, or Aided Instruction) is a term used widely in the North America (Ahmad et al. 1985). These terms just apply to teaching and learning rather than language teaching and learning.

[5] See *Using Computers in the Language Classroom* (particularly 'Software directory', pp 140-145) (Jones and Fortescue 1987) and 'The British Council programs' (pp. 33-64) in *Communicative Language Learning and the Microcomputer* (Phillips 1987). These books include a selection of programmes that will be of interest to the language teachers and learners.

In fact, software development has its own problems. It takes a long time to produce good software. Criticisms have been made of insufficient needs identification and field testing of the software, and of long delays in approving projects (Rich 1991). One of the most tedious problems in CALL was the inability to transfer software easily from one computer platform to another, such as 'Apple-compatible' and 'IBM compatible' machines. Unfortunately, there were both technical and marketing reasons for the difficulty in transferring software (Wyatt 1984a). The difficulties also lay with the power and configuration of hardware that is required to run new software. The computer must have more memory, storage space, and processing speed to run the software effectively, and so the adoption of computer technology in language teaching still carried a very high cost (Rich 1991). Bork (1981) pointed out that the ultimate solution may lie in the falling cost of microcomputer systems.

Teacher training for media technology has also been seen as an important and serious issue. The calls for more familiarity with the hardware and software, teacher training to achieve this, and encouragement to develop new approaches to instruction in general or language teaching in particular have been consistently found in the international literature (Rich 1991). Examples include Alberta Education (1987), the OECD (1987), UNESCO (1988), etc. The report of the OECD (1987) put great emphasis upon teacher training as follows:

> A major new effort is needed to refine and demonstrate new educational science and technology and to train teachers to use the new tools. Without such effort, the computer will simply be one more potential tool that is ignored or misused by our schools.
>
> (Quoted in Rich 1991: 148)

2.2.2.2 The present

The development of media technology, particularly in hardware aspects is so rapid that about half the products which are on the market today did not exist a couple of years ago, and some products which were called 'new' a few years ago became obsolete at once (Phillips 1985).

The following items have been developed within the last decade, though some of them may well be obsolete by the time this study has been completed.

2.2.2.2.1 The development of earlier media technologies

There has been continuing development in the capabilities of existing media technologies based on computers and microelectronics. Previous generations of devices are being replaced by new storage media, such as laser discs, which offer much greater capabilities of storage, speed and accuracy. For example, videodiscs are encroaching on the market of videotapes and Digital Video Disk (DVD) is now threatening to replace these technologies. Computers can now carry out a number of tasks at the same time by means of parallel processing (Phillips 1985, Dever and Pennington 1989). On the other hand, in contrast to the past decades, the development of software has tended to gain upon that of hardware. A number of advanced programming languages and authoring languages - languages designed specially for producing educational software - e.g., C^{++}, *Guide, Toolbook,* etc., have been developed, which help teachers to write appropriate programs generating various kinds of language learning exercises (Pennington 1991, Dever and Pennington 1989).

There has also been a convergence of technologies as audio and video technologies have been combined with computers. For instance, CD-ROM multimedia and interactive video (i.e., computer-controlled videotape or videodisc) have the ability to play video sequences with much greater speed and accuracy under computer control than video tape (Fox et al. 1990, Laurillard 1987). Although the equipment and materials of CD-ROM multimedia are available to some extent in the language classroom, those of interactive video (IV) are still not widely available for educational purposes, because of their high cost and the time taken to produce materials. Many educational authorities and even institutes sponsored by government or industry and commerce have a considerable investment in video materials and are looking for ways of developing interactive video programs in anticipation of the widespread use of videodisc, and have been devoting resources to research into the cost, time and benefits of multimedia (Goforth 1992, Kelling 1988, Phillips 1985). The results of the research projects have in many ways shown remarkably positive aspects. For example, Atkins and Blissett (1989) claimed that IV can encourage active participation of students in learning through the live presentation of information and of explanations which use the highest level of interactivity. They also suggested, however, that designers of IV and its software need to consider the dynamic of group processes if videodiscs are to be used by small groups of students on a stand-alone basis. Scott et al. (1989) reported that IV has potential as a means of familiarising students with communicative functions of foreign language by exposure to and interaction with the natural spoken language.

2.2.2.2.2 Artificial intelligence

The application of artificial intelligence (AI)[6] to computers has shown new possibilities in man-machine interaction. Winston (1987), and Dever and Pennington (1989) claimed that programs must have the capability of interacting with users in a way that simulates natural language use. Thus, many AI studies seek to develop a greater knowledge of natural language processing (Barchan 1986). Two significant approaches to 'intelligent' software are 'expert systems' and 'parallel distributed processing' (PDP) (Dever and Pennington 1989). Phillips (1985) stated that an expert system includes a computer provided with a database of 'knowledge' about some aspect of the world and a set of rules which are applied to the database to draw probabilistic inferences. PDP allows for simultaneous processing of small units of information and for connectivity among units, rather than processing information one unit after another in sequence (Dever and Pennington 1989). These approaches are related to the concerns of language learning in general and particularly CALL, and are already being applied in the development of improved authoring programmes and other types of CALL (Fox et al. 1990). To some extent computer speech recognition, based

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[6] The definition of AI depends upon many AI researchers' views. As a practical feature from their views, Marvin Minsky stated that AI refers to the science of making machines do things that would require intelligence if done by humans (O'Shea and Self 1983, Simons 1984). In a sense, it consists of software that causes the computer to behave in a humanly intelligent manner. In other words, it comprehends, learns, and responds (O'Shea and Self 1983, Dever and Pennington 1989).

on these approaches has become a reality in CALL. There are, for example, some programs which have adopted speech recognition technology, such as *TriplePlay Plus!* (Syracse Language Systems 1995), *Think and Talk* (The Language Company 1996), etc. They are designed to talk with the computer, i.e., to listen to a user's utterances (e.g., words, phrases, and sentences), evaluate them, and then reply, if not to carry on a free conversation with the user. However, this is still just the first step. As more effort is given to current AI studies, in conjunction with the enhanced technical capabilities of the hardware, language learning programs will become progressively more intelligent and widely available (Fox et al. 1990, Phillips 1985).

2.2.2.2.3 New information technology

The arrival of new information technology (NIT)[7] in the last decade has played a leading role in the use of media technology in education and FLT/L (Rich 1991). The lower cost and greater power of microcomputers combined with their spread in the rest of society have made them an irresistible force in FLT/L (Jones 1991b). Educational authorities at all levels have put great effort into equipping schools with video systems, computers and CD-ROM multimedia, training teachers and students in their use, and experimenting with various aspects of media technology (Rich 1991). Many researchers and educational planners have been absorbed in research on how NIT can help teachers and learners in LT/L (Garrett 1991, Rich 1991). Teachers and students appear to have recently seen convincing evidence of how media technologies can be used effectively, and to some extent the directions to follow. Nevertheless, not all teachers and students are satisfied by the claims of benefits, and some scholars and teachers still take a sceptical view of NIT. Gilman (1985) claimed that the 'failure' of innovation through media technology is caused by lack of awareness by schools of the aims and objectives of media technology, combined with a lack of effective systems of

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[7] NIT refers to new technologies applied to the creation, storage, selection, transformation and distribution of information of many kinds, and it depends upon three complex technologies; computing, microelectronics and telecommunication (Hawkridge 1983). The definition adopted by UNESCO gives a more broad explanation: 'NIT is the scientific, technological and engineering disciplines and the management techniques used in information handling and processing; their application; computers and their interaction with men and machines; and associated social, economic and cultural matters' (Quoted in Hawkridge 1983).

resources control necessary for its implementation. UNESCO (1988) expressed the current situation of NIT utilisation in education as follows:

> Experience in CALL related fields during the last two decades did not result in convincing arguments either in favour or against a massive introduction of computers as a teaching tool. This is a consequence of the weakness of educational research and the importance attached to it. It should also be mentioned that in a number of cases the introduction of NIT in education was made without taking into account the lessons learned from previous experiences of introducing innovations in education.
>
> (Quoted in Rich 1991: 148)

For teachers and students, the most important and immediate question is still the issue of efficiency: Can FLT take advantage of media technology?; Is it worth the time, effort, and cost? (Garrett 1991). But there is now another crucial point. The ability of educational institutions to assimilate new technology may be a greater problem in the short term than is the development of the technology itself (O'Shea and Self 1983). Rich (1991) points out that the more teachers are expected to integrate media technology into the teaching and learning process, the more expertise they will need in individualising learning experiences for their students, in developing new and different classroom management techniques, and in effectively utilising a variety of types of technology. Emphasis will have to be put on teacher training that relates particularly to the use of media technology (Rich 1991).

2.2.2.3 The next decade

The literature has shown that there is an obvious difficulty in attempting to predict the future of media technology accurately or even broadly because it is undergoing rapid development (Bossert 1988, Hawkridge 1983, Licklider 1987, Pennington 1991, Phillips 1985). However, Nickerson (1988) and O'Shea and Self (1983) have argued that it is possible to foresee future trends of technology and its application in language teaching and learning, at least in non-specific ways. In fact, media technology which can be taken for granted today is already a few years ahead of the profession's ability to integrate a principled use of it into the curriculum and the classroom (Phillips 1985).

And even some predictions about its application in FLT/L that some writers made a decade ago have not been achieved yet, although their expectations might seem over-optimistic. Therefore, it is possible to make the following predictions based on past and current trends, for the immediate future only.

2.2.2.3.1 The development of existing media technologies

The next decade will bring continuing developments in existing media technologies in hardware and software, and costs will continue to decrease (Nickerson 1988, Pusack and Otto 1990). As stated in the previous sections, there has been considerable resistance among teachers to the use of media technology in language teaching and FLT. The increased media technology literacy of the new generation of teachers and education planners will help to reduce the reluctance to use it, and particularly advanced technologies (Knezek et al. 1993). As a result, there will be a massive distribution of media technology to the language classroom, where it will be applied both efficiently and effectively (Licklider 1988, Rich 1991). Teachers and students will use media technologies for enhancing the language teaching and learning process - videos, computers, and multimedia - at school and home. In particular, each learner or a small group of learners may be equipped with multimedia (e.g., CD-ROM multimedia or perhaps IV) as an exciting medium for individualisation and problem-solving .

It can also be predicted that there will be a convergence of hardware and software developments at last. Software will become both more 'intelligent' and more powerful due to the application of hypertext. The increased power of software will facilitate the creation of dynamic and non-linear learning environments, so that media technology will become more interactive and 'user-friendly'. ('Hypertext' and 'interactive learning' are described in section 2.3.3.1.1 and 2.3.3.1.2 in detail.) In particular, computers which make use of expert systems and parallel processors will become widely available for FLT/L (Pennington 1991). This will make for more natural man-machine interaction, and this development will, therefore, have a significant impact in the field of FLT/L.

Therefore, the combination of increased processing power and the ability to address directly much larger amounts of memory, together with intelligent software will mean that computer-based learning (CBL) and computer-managed learning (CML) systems which assign a more fundamental, active and controlling role to computers than in computer-assisted learning (CAL) will be adopted more effectively and efficiently than has been the case in education so far (Ahmad et al. 1985, Nickerson 1988, Phillips 1985). For example, it will become realistic to store details of a great variety of teaching materials on computer and to access them using a variety of criteria in CML systems, although until now it has been confined to relatively small-scale storage of student records, examination results and so on (Phillips 1985). That is, the use of computers will blend into the programming of computers, and teachers and students will do a lot of their teaching and learning by preparing and testing programs that help them interact with the information and knowledge available (Licklider 1987).

2.2.2.3.2 The integration of media technologies

Media technology will be integrated with communications technologies, in particular satellite delivered and cable delivered signals (video and text), overcoming some of the limitations inherent in each. They will help bring the outside world, i.e., authentic materials into the teaching and learning situation (Fox et al. 1990, Hill 1991a).

Satellites can provide a rich layer of language resources which can be exploited for FLT/L, since the satellite signal can cover a large portion of the earth, depending on the location (Hill 1991a). For example, satellite TV (STV) offers a great amount of video materials in FLT/L, though its use presents some problems, such as setting-up costs, the selection of material, copyright, etc. (Fox et al. 1990, Hill 1991a). However, most of these problems will be solved through the increased demand of STV for educational uses in the near future. Costs are likely to come down as the market principle of mass demand takes effect. A number of specially designed educational programmes like the Olympus project[8] will be developed. In fact, copyright is now

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[8] The satellite, Olympus was launched in 1989, and part of its output is dedicated to experimental education broadcasting - distance learning, data transmission and video conferencing.

less of a problem following the changes to the copyright law (the new *Copyright, Designs and Patents Act*) in August 1989 (Fox et al. 1990). Educational institutions and teachers can use and copy appropriate materials without restriction from any TV broadcast for educational purposes (Fox et al. 1990, Hill 1991a).

Electronic mail, and computer and video conferencing will be affected by the enhanced facilities of Integrated Services Digital Network (ISDN), which is a recent technology offering simultaneous transmission of voice, data and images through modification to the telephone network. ISDN will offer the wider implementation of these as well as a personalised daily newsheet, through digital telephone lines with fibre optic cabling (Fox et al. 1990). In particular, the Internet, which was developed primarily in academic and corporate research institutions, has recently caught the imagination of teachers and students in the classroom, and of the general public. For example, computer conferencing and daily newsheets for relevant items or particular topics are being achieved through the Internet. The Internet will offer more powerful functions for use both as an upgrade to e-mail and as a tool in distance learning, and for searching for various kinds of information in language teaching and learning (Fox et al. 1990).

Meanwhile, multimedia (which is a combination of various technologies, particularly CD-ROM multimedia or perhaps IV) will fall considerably in price and be widely distributed in the language classroom. Programs with high interactivity will be developed and applied to foreign language teaching and learning contexts. In particular, new software will correspond better to the current demands of CLT. This will add a new dimension to its exploitability and will offer the possibility of using such materials in a self-access mode (Fox et al. 1990). How these technologies will affect the role of the teacher is, however, not yet clear.

2.2.2.3.3 AI research into language teaching and learning

AI research will continue to be directly related to language teaching and learning. O'Shea and Self (1983) claimed that AI should be relevant to the design of teaching and learning systems, since these processes are generalisations of particular teaching and learning activities. This approach gives teachers and learners promising perspectives in the development of CALL. The development of AI research, particularly expert systems and PDP will allow for the more enhanced capability of computers in the field of natural language processing, and lead to the possibility of more natural man-machine interactions in ways which are directly relevant to FLT/L (Dever and Pennington 1989, Phillips 1985). The combination of expert systems and an improved man-machine interface means that interaction with the machine becomes increasingly natural, diagnosing the student's learning needs and presenting appropriate and individualised learning tasks (Phillips 1985). Intelligent foreign language learning and testing (in the form of computer-adaptive testing) programs which are already available will become more widely available in FLT/L.

2.2.2.3.4 Implementation of new information technology

NIT based on computers, microelectronics and telecommunication will cause greater changes and improvements in language teaching and learning than have occurred in the last decade (Feurzeig 1988, Rich 1991). The relevant literature shows general agreement on a number of points. According to Licklider (1987: 255):

> Information technology can promote a stimulating environment for learning, and such an environment is to be preferred over machines that cram information into students. Information technology can introduce both efficiency and effectiveness into the lives of teachers, by giving them the time and facilities they need to work well with individual students.

Educational computer-communication systems will deal with images and speech quite as well as they deal with numbers and symbols, and these will offer learning experiences which present vivid contexts changing in real time (Licklider 1987, Phillips 1985). The computer-communication system of schools and universities will be a distributed system, a network via on-line and satellite facilities, and its instant and easy communications will greatly enhance the provision of distance education (Licklider 1987, Phillips 1985). Access to learning tasks, communication with the teacher and with other students will all be effected through microcomputer networks, which reach across the advanced countries and perhaps into other countries (Licklider 1987, Phillips 1985).

2.2.3 The role of media technology in FLT/L

The rapid developments in new technologies based on computers and microelectronics, and their impact in our society, have recently made other changes and innovations inevitable in language teaching, as described in the previous sections (Hawkridge 1983). Indeed, a variety of media technologies seem to have the potential to meet the new demands of FLT/L, e.g., more humanistic, student-centred and communicative approaches (Fox et al. 1990, Price 1987). Because of this, teachers and learners sometimes seem to regard media technology as 'omnipotent'. However, it is not necessary to use media technology, just because it exists. The FLT profession needs to accommodate the technology within language teaching methods and methodologies and to integrate it into the curriculum (Phillips 1985). First of all, teachers and learners must consider the following issues relevant to its effective use: 'What can media technology do in LT/L?', 'Does it have any important role to play in FLT/L?, 'Does using it actually aid FLT/L?, and 'Can it really replace teachers?' Some writers have devoted themselves to research on these issues, taking a healthily sceptical approach. Currently, a number of other issues, i.e., technical and methodological considerations of media technology have also been explored in this field, but the above questions still need to be answered, and are the most obvious and immediate (Garrett 1991).

Before reviewing the role of media technology in detail, it will be helpful to look at the relationship between teachers, learners, and media technology in the teaching and learning process.

2.2.3.1 The relationship between teachers, learners, and media technology in the teaching and learning process

Teaching is not simple, but complex, since it is closely related to learning (Brown 1987, Stevick 1980). The study of learning theories, particularly the behaviouristic and cognitive models, gives impetus to a functional analysis of how learners process information, develop concepts, and solve problems, and the models have currently been applied to the use of media technology in learning, particularly in relation to computer based learning (Maxey 1995).

Brown (1987) defined 'teaching' as guiding and facilitating learning, enabling the learner to learn, setting the conditions for learning. Cummins et al. (1987) added that to teach is to transmit an understanding, and the essence of teaching is communication. Thus, teachers have to assist the learner to form an image or a concept of whatever it is that teachers are trying to communicate (Cummins et al. 1987). Stevick (1980) explained the importance of teaching in language learning as follows:

> Students could learn language without teachers if they were placed, under the right conditions, in the right cultural and linguistic environment. But with the world the way it is, these conditions and this environment are extremely rare.
>
> (Stevick 1980: 16)

Piaget (1970) stated that the role of teachers is to promote conditions under which each learner can think and learn freely. Stevick (1980) pointed out that the role of teachers consists in helping learners to pick out what they want to learn, or in picking it out for him; in guiding them through it, or compelling them to practise; and in notifying them of their mistakes. After all, it is the teachers who give information which students are seeking about the foreign culture and about its language, and who manage the classroom. Thus, the teachers stood and will stand at the centre of the language classroom forever (Stevick 1980, Fox et al. 1990).

Richards and Rodgers (1986) pointed out that the role of teachers in language teaching will ultimately reflect both the objectives of the method and the learning theory on which the method is predicated, since the success of a method may depend on the degree to which the teacher can provide the content or create the conditions for successful language learning. Cummins et al. (1987) explain that it is in the context of the relationship with the learner that the teacher has to determine what is to be learned, and why, although requirements for successful learning will vary from subject to subject.

However, even good teachers themselves cannot always create and provide a variety of materials and situations in FLT/L. Media technology is a tool to provide them with a great variety of teaching materials. The teachers can help their students feel motivated and develop the language skills using the materials. Therefore, the use of media technology requires them to play other roles in addition to the role of instructor in the conventional language classroom. First of all, they will have to make the most appropriate choice from whatever media technologies are and use it to the best possible advantage (Romiszowski 1988). The selection and use of teaching aids must always be prompted by the needs of the learner, though these needs will vary from student to student and from group to group (Cummins et al. 1987). If the students do not understand their learning while using media technology, then it is the teachers' responsibility to find the reason for any misunderstanding and facilitate learning, and the material will have to be represented in a more meaningful way (Cummins et al. 1987). Of course, the students have to make an effort to learn, participating actively.

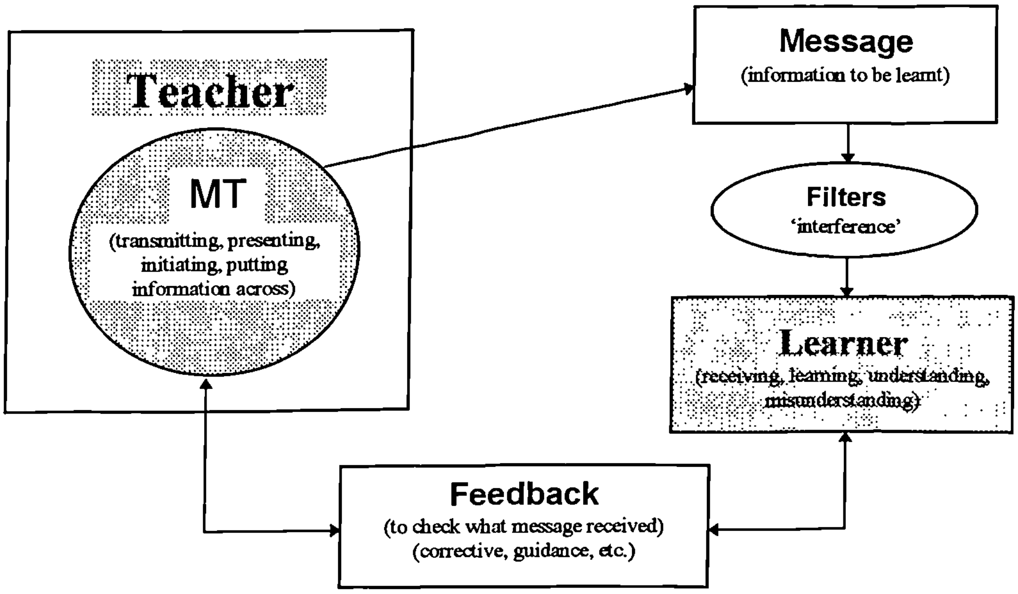

Fig. 1. The relationship between teachers, learners, and media technology in the teaching and learning process (based on Cummins et al. 1987, Romiszowski 1988)

According to these views of the teaching and learning process, teachers are vital. The teacher's role is central in helping learning to happen, and the role of media technology is to support the teachers. The teachers are the implementors of media technology in the language classroom (Stevick 1980, Cummins et al. 1987, Fox et al. 1990). On the basis of the above views so far, the process of teaching and learning with media technology can be illustrated in Fig. 1.

2.2.3.2 The role of media technology in the past

Traditionally, teachers have resisted change as far as possible in their teaching. They have had negative views of media technology for various reasons (Clement 1981, Zettersten 1986, Wilson 1990). Some teachers would say, "It may be true that using media technology helps a lot. Nevertheless people learned foreign languages a hundred years ago, when there were neither audio nor video cassettes and when all possible methods, e.g., reading and translation were used. It is dangerous to think that the use of media technology is all there is to teaching". High quality media technologies and even good teachers can never do the learning for the students. Practising is still an essential part of learning (Cummins et al. 1987). In addition, those who are against the use of media technology would firmly say, "It makes us more complex." or "There is no need to use it." or "It is a very stupid idea." (Olsen 1980, Zettersten 1986).

There were few research studies in the use of media technology in language teaching and learning in the 60s and 70s (Zettersten 1986). Sherrington (1973) pointed out that media technology requires precise organisation and control, both in itself and for its efficient application within the language teaching system. In the past, media technology has been placed centrally in the teaching system rather than as a vehicle or medium - the tape or record course, language laboratory, the television programme, etc. by producers and their catalogues (Sherrington 1973). It has often been called upon to play a greater part in the teaching and learning process than it can naturally deal with, in order to demonstrate and sell its capabilities. The results have generally been unsatisfactory, since the balance of the teaching system has been wrong, i.e., the technology has been called on to play too important a role. For example, language laboratories which were introduced in the 1960s, but seem to have been subsequently abandoned may be a case in point (Sherrington 1973, Van Els et al. 1984).

2.2.3.3 The role of media technology as a tool and a partner: new considerations

A variety of media technologies have recently made it possible for teachers to present foreign languages in more forms than just speech and print (Price 1987). Fox et al. (1990) stated that in the application of new forms of media technologies, teachers generally see a considerable enrichment of the teaching and learning environment, especially for FLT/L.

On the other hand, some teachers might be afraid of losing their roles and being replaced as the new technologies are implemented in the classroom. It is true that the products of new technologies and their devices in industry, e.g., computers and robots, have taken over some of the monotonous jobs. However, it is important to realise that they are used to perform routine and dangerous work (Zettersten 1986). Media technologies, even computers cannot entirely replace the teachers.

What can media technology do in the teaching and learning process? Media technology is not a method, because the use of video, computers, etc. does not constitute a method, but rather a vehicle or environment in which a variety of methods or approaches may be implemented (Fox et al. 1990, Garrett 1991, Pusack and Otto 1990, Tomalin 1986). Sherrington (1973) stated that each technology will be used only when it has a unique contribution to make to the teaching and learning process. The most important question is how media technology can be integrated into FLT/L. It should not be required to perform beyond its capabilities. Most importantly, in other words, media technology should link up with educational criteria at each stage, and justify itself by the part, i.e., as a vehicle or medium, that it can play in a total teaching system (Sherrington 1973, Phillips 1985). Phillips (1985) pointed out that media technology is not in principle a solution to teaching problems. The role of media technology is to provide the delivery system which will present certain tasks to learners and it can be designed to enhance the interest of the tasks and thus to increase the learners' motivation to perform (Phillips 1985). Fox et al. (1990: 7 - 8) identified a number of roles of media technology at a theoretical level as follows:

> 1) Presentation of materials in meaningful, motivating, relevant, helpful learning environments (recent developments have extended the range of media with still and moving visuals, sound etc.)
> 2) Information source (computer databases can provide information about grammar, vocabulary etc.)
> 3) Evaluation of learning and detailed feedback (CALL techniques can provide the learner with detailed and complex information about his or her learning)
> 4) Improvement of quality of instruction and opportunities for learning (the learning materials can be finely tuned to the learner's needs if intelligent techniques are used)
> 5) Writing aids/tools, e.g., for word-processing (spelling-, grammar-, style-checkers etc.)

However, it can fulfil more than the roles mentioned above. In FLT/L there is currently more emphasis on humanistic, student-centred and communicative approaches. Recent developments in software, hardware and programming techniques have made the view that media technology is dehumanising and non-communicative much less tenable. It can serve to make FLT/L more lively and interactive, and offer the opportunity of exposure to authentic language in context within the classroom. And media technology can be an integral part of the teaching and learning process, supplying things which teachers cannot present and deliver but students need in the classroom (Edelhoff 1978, Van Els et al. 1984). Phillips (1985: 102) classified the extended roles of new media technology as follows:

> 1) It can have an impact on methodology: the introduction of video and interactive video in FLT application, for example, has stimulated completely novel teaching techniques.
> 2) It can alter the balance of activity in a learning situation: the proportion of teacher-led to learner-controlled activity can change. The introduction of microcomputers implementing computer-assisted language learning material in self-access mode is a good instance.
> 3) It can alter the mix of resources in a learning situation. A change in one part of the system through the introduction of a new educational technology inevitably means readjustments elsewhere.
> 4) It has implications for teacher training which themselves are in a reflexive

> relation to the curriculum. Through being trained to use educational technologies, teachers develop their perceptions of their role, which has a feedback effect into the teaching-learning situation.

2.2.4 Summary

Media technology is a means of transmitting, receiving and presenting verbal and visual information, whatever it is. It can be defined as modern teaching and learning machines (e.g., audio, TV, video, computers, multimedia, etc.) for supporting teaching and learning in education, by delivering or transmitting media (e.g., sound, vision, text, etc.). The role of media technology in FLT/L is basically that of tool and more recently, of partnership. This is because its use cannot replace all of a teacher's role in the language classroom. On the other hand, media technology is more than the sum of the hardware components which constitute it. It represents a force for change through its effect on the curriculum, on teacher training and on methodology (Sherrington 1973, Phillips 1985). Thus, it has distinctive characteristics in language teaching and learning. In addition, the new information technologies will provide great potential to improve language teaching and learning and opportunities for new teaching methods to enhance learning.

However, in order to realise these characteristics, media technology must continue to develop in terms of methodology and software. More research, development, training, and evaluation will be required to make full use of the potential in language teaching and learning. In particular, more research studies in this field are needed, focused on FLT/L in the classroom.

2.3 The use of five media technologies in FLT/L

The preceding section dealt with definitions, a brief historical overview and the roles of media technology. An effective use of media technology in FLT/L is related to its role and content, and how it can be integrated into the foreign language classroom. In particular, it is worth noticing that the most important consideration in using media technology in FLT/L does not lie with the technology itself, i.e., technical aspects of the technology, since it develops and changes rapidly, but in the question of which technology can deliver which media, and how.

What can media technologies contribute to foreign language teaching and learning? Do they have any role to play in FLT/L? What advantages can media technology offer in FLT/L? Do they present any problems? The use of audio - 'conventional' audio technology, that of the tape and language laboratory - is familiar in FLT/L, but no longer seems to be the centre of teachers' and students' interest.

This section, therefore, will focus on the current and new technologies which are less familiar to foreign language teachers, particularly in Korea - such as satellite TV, video (including video camera), computers, multimedia, e.g., CD-ROM multimedia and interactive video, particularly interactive videodisc.

2.3.1 Satellite TV and video

There is a well-known proverb, "Seeing is believing". It is a widely held view that human beings naturally enjoy the experience of viewing. Learners bring positive expectations to the experience of viewing visual materials in the language classroom, and teachers can encourage such attitudes by using visual aids (Allan 1985, Lonergan 1984). Bowen (1982) claimed that students should use their ears and eyes in language learning but the primary channel of learning is the eye. Kearsley (1984) and Kemp (1980) also stated that visual images hold interest, and add to retention and recall of information (in Romiszowski 1988). But, is 'seeing' learning?

This section will, first, briefly discuss the positive features of 'technical' visual aids (including audiovisual aids), e.g., the OHP, slides, films, TV, and video in the language classroom, and then satellite TV and video which are the main concern of this section.

The potential of visual aids

What can visual aids do in FLT/L? There is considerable agreement that visual aids have made positive contributions to FLT/L. Visual media have helped to make foreign language teaching and learning more lively and flexible (Price 1987, Van Els et al. 1984). Bowen (1982), for example, claimed that visual aids can help students learn a foreign language. According to him;

> Good visual materials can help maintain the pace of the lesson and the students' motivation. As we learn most through visual stimulus, the more interesting and varied these stimuli are, the quicker and more effective our learning will be.
>
> (Bowen 1982: 1)

More importantly, visual materials can bring the outside world into the classroom and make a communicative approach to language teaching and learning easier and more natural (Bowen 1982, Hill 1989, Lonergan 1984, Stempleski and Tomalin 1990). Thus, visual aids have the potential to contribute to a communicative approach to FLT/L.

2.3.1.1 The use of Satellite TV

Television has already been used for language teaching and learning as a valuable resource and particularly for distance or open learning in many countries, since it offers a variety of vivid and authentic audiovisual materials. In Korea, particularly, teachers and students can easily access target language TV programmes through an AFKN (American Forces Korean Network) channel and are using them in the language classroom, although they are not designed for educational purposes.

In addition, the spread of satellite TV (STV) has recently expanded the availability of foreign TV programmes designed for commercial or educational use, due to the development of satellite technology (Fox et al. 1990). However, the use of STV is at a very early stage in the language classroom in many countries, and particularly in Korea.

What can STV do in language teaching and learning? How can teachers and students use it? Are there any problems in using it in the classroom? This section will discuss the potential and problems of STV in relation to these questions.

2.3.1.1.1 The potential of STV

To begin with, TV is very familiar to students, who watch it on average for 20 hours a week, and spend more time each year watching TV than at school (Coleman 1990). There is no doubt that they enjoy watching TV very much, and this attraction may apply to STV, even in the classroom setting. STV has great potential to contribute to FLT/L. The integration of authentic television into the curriculum which is made so much easier by satellite technology, brings some distinctive potential, but presents some problems as well (Hill 1991a). Some of the potential of STV is similar to that of video in terms of audiovisual materials and that of STV in recorded form, since in most cases the STV programmes are recorded for effective use in the language classroom (see the '*Recorded STV*' section). So some of the potential will be described in the 'Video' section, e.g., motivating learners, helping them understand the context of situation and culture, adaptability, flexibility, etc.

Firstly, STV offers live, open and authentic audiovisual materials across the world in real time. Teachers and students can watch and listen to the real spoken languages which are distributed immediately in the classroom or at home as never before (Coleman 1990). Hill (1991b) pointed out that STV provides an easy and useful answer for teachers to the problem of keeping in touch with what is going on and keeping their language 'on the boil' in the target language. Thus STV can fit today's emphasis on the priority of spoken communication in FLT/L (Coleman 1990).

Secondly, STV programmes in the target language can present a variety of kinds of information and materials in an interesting and entertaining way (Lonergan 1990). Hill (1991b) claimed that beaming programmes from foreign networks into the classroom by satellite is one way of stimulating that excitement, since students can watch some of the most popular series from the networks, together with news through broadcasting for the most of the day and night. News programmes and advertisements are most commonly used in the language classroom, and other types of programme considered useful by teachers are documentaries, drama, sport and humour (Hill 1991b).

Thirdly, STV provides students with massive amounts of varied materials. There are a vast amount of topics and programme styles to suit a variety of interests and needs in STV, as mentioned above (Hill 1991b). The programmes and topics, if chosen carefully, can be closely matched to the interests, needs, and communicative and linguistic competence of the students (Coleman 1990). Teachers can make use of them in carrying out some tasks and activities, e.g., simulation or pair-work in a language lesson. For example, there is a unique enchantment in participating in events as they actually happen, even though it is substituted (Hill 1991b). Teachers can use the materials with students to promote contextualised vocabulary acquisition, as a source of practice in listening comprehension and as a stimulus for discussion in the target language (Fox et al. 1990). In short, STV can provide more receptive and productive activities than any other medium, whether 'live' or recorded STV - it can be used at all levels and with a variety of approaches, whether it serves as a topic stimulus, as a model for imitation, or as an input for listening comprehension - or all three at once (Coleman 1990).

Therefore, it is clear that STV can contribute to FLT/L as a valuable resource, and that teachers can find it useful in developing productive language skills, particularly communicative skills based on a wide range of different types of programmes (Heath 1991, Hill 1991b). This will be the reason EFL teachers would like to make use of satellite TV not only to exploit their topical potential and to motivate learners, but to generate learning activities related to tasks (Hill 1991b).

2.3.1.1.2 Limitations of STV

There are some limitations to using STV in FLT/L as well. The limitations to the use of STV are also similar to those of video, except for the main problem, i.e., programs are not always transmitted at an appropriate time (Gilbert 1991, Romiszowski 1988).

To overcome this problem to some extent, some organisations re-transmit the programs at a suitable time, e.g., some specially designed educational programmes exist in Europe, especially on Olympus mentioned in section 2.2.2.3.2 (Fox et al. 1990). Otherwise, they can be recorded, so that teachers and students can use them at any convenient time, or even several times (Hill 1991b, Romiszowski 1988). This seems to be a particularly good solution to the problem. Therefore, many schools and educational institutions set up self-access centres to allow the use of live and particularly recorded STV.

2.3.1.1.3 Two ways to use STV

There are two ways to make use of STV in language teaching and learning; live and open STV, and recorded STV. However, it is generally agreed that it is most useful and practical to use video recordings, i.e., recorded STV, rather than to watch 'live' STV (Fox et al. 1990, Heath 1991, Hill 1991a).

Live and open STV

Students can be exposed to 'live' STV material and benefit from it, but it sometimes presents difficulties for schools, as mentioned in the previous section. The students can watch the outside world that it brings into language classroom *in real time.* It provides them with live and instant materials which make the target language more credible and real (Fox et al. 1990). Therefore, the students typically find the materials stimulating and motivating.

Recorded STV

In practice, the most common use of STV programmes is in recorded form, since the materials can be used later or at any times that are convenient for teachers and learners. Fox et al. (1990) claimed that specially designed language teaching videos provide a format for structured teaching and practice of the spoken form of the target language. Therefore, the development of materials from STV, of customising the 'raw' materials for effective use, is very important to its usefulness in FLT/L, because it can make up for the claimed lack of video materials (Fox et al. 1990). Recorded STV particularly offers new capabilities, e.g., it is easy to discard and update after use, besides having the same benefits as 'live' STV. Heath (1991: 26) described STV programmes for language teaching purposes as falling into two categories: 1) Topical, ephemeral items that can be quickly prepared, integrated into existing schemes of work but discarded after use; 2) Items with lasting value which are prepared in great detail and kept for repeated use. These will need to be catalogued.

There are some activities[9] that can be used in recorded STV (and live STV as well) using the types of programmes mentioned before. The most frequently found activities are listening comprehension, developing gist comprehension, closely followed by stimulating oral work, the extension of vocabulary and the provision of background information about the country (Heath 1991). For example, Fox et al. (1990) stated that there is a certain amount of 'learning by exposure' - carrying out some activities with simple but all-purpose worksheets (Who?, what?, when?, why?, any other comments?, etc.) is sufficient to make the listening and speaking purposeful for particularly advanced or intermediate students. Even low level language students can gain some benefits from exposure to topical, authentic, spoken examples of the target language, e.g., they can be set simple tasks like listening for specific words, but for the students, some editing and worksheet development will be desirable (Fox et al. 1990). Thus, if materials from various STV programmes are developed well and used effectively, they can contribute to the enrichment of video resources.

In sum, teachers and students all over the world can participate live at all levels of FLT/L in the language classroom in real time through satellite TV (Winders 1989). STV offers a vast amount of authentic foreign language resources in an interesting and entertaining way as an enrichment medium over TV and video, but the processing of it presents the main problem. The problem can be solved by recording the STV programmes in the same way as recording terrestrial ones. This provides the teachers and students with a great number of video materials.

Therefore, STV is capable of much more flexible exploitation in the classroom - the same programme can be used with students of different levels to improve their language skills, particularly communicative skills in various ways (Hill 1991b).

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[9] See *Making the Most of Satellites and Interactive Video* (Hill 1991), Chapter Two, 'Exploiting authentic television in the classroom'. It presents a variety of activities for developing listening, speaking and even writing skills at different levels.

Whether live STV or recorded STV, the programmes will continue to be used in FLT/L.

2.3.1.2 The use of video

Video may be the most widely used technology for improving oral communication skills in FLT/L. Many universities and education institutions have realised its potential in FLT/L and made a considerable effort to expand video distribution facilities and equipment. According to statistics in the 1985 Higher Education Utilization Study, nearly all US universities (92%) (the situation is similar in the UK and Europe) have video distribution facilities and equipment, and seven out of ten have central reception facilities for picking up special education video broadcasts (Romiszowski 1988). In Korea, about 85% of all universities have audio and video facilities, according to The Evaluation Report of the Cultural English Course in 1986.

However, can video really meet the demand? What can video contribute to the foreign language classroom? What are the potential and limitations of video? Before discussing the potential of video in the language classroom, it will be useful to mention briefly what video is. The word 'video' may mean different things to different people, such as a video recorder, a video camera, video playback systems, individual viewing booths, etc. (Allan 1985, Lonergan 1984). The term 'video' will be used here to mean sound and vision recorded onto video tape and played through a video recorder onto a monitor or a TV screen, i.e., video playback systems (Tomalin 1986).

2.3.1.2.1 The potential of video

Video is one of the most distinctive visual aids available in the language classroom, since it includes all the benefits of audio, and particularly can be used as many times as users want at any time, unlike 'live' STV. Above all, the outstanding feature of video is its ability to present complete communicative situations due to the combination of sound and vision (Lonergan 1984, Stempleski 1991).

Video has some positive characteristics for the presentation of information and linguistic materials in detail, which it shares with those of STV as mentioned in the preceding section. The main cues are as follows: 1) Motivating learners; 2) Providing authenticity; 3) Helping learners understand the context of situations; 4) Understanding culture; 5) Trigger for speaking; 6) Adaptability; 7) Flexibility.

Firstly, video can enhance students' interest and motivation in language learning. Allan (1985: 49) stated that "Video is a medium of great variety. The combination of variety, interest and entertainment we can derive from video makes it an aid which can help develop motivation in learners." It can enhance students' interests through presenting their current concerns, particularly spoken materials by native speakers, such as sporting events, news stories, the weather, etc. (Hill 1989, Stempleski 1991). Stempleski (1991) added that when students deal with the real things in the language classroom, they may be motivated to find out and try to understand other authentic materials on their own. Therefore, it is highly motivating, creating a sense of participation in the learning process (Coleman 1990, Winders 1989). Thus, video can help teachers provide the stimulus for motivating and introducing an effective learning experience (Hill 1989, McGovern 1983, Stempleski and Tomalin 1990).

Secondly, video provides authenticity, i.e., it brings 'real life' into the classroom. It provides students with real information and situations - social behaviour in action, details of a street, a timetable of transportation, a notice, etc. (Hill 1989). Undoubtedly, it will be useful to know how a business meeting takes place in the target community, what manners are expected at a dinner party, etc., particularly the differences between formal and informal behaviours and languages in the target language country (Lonergan 1984). Therefore, the use of video can be particularly valuable in teaching English for Special Purpose (ESP), since most of ESP programmes focus on the development of communicative ability in the learner as well as linguistic skills in the real life situation (Kennedy 1983, Sheerin 1982). Thus, video is a good means of bringing 'living language' into the classroom.

Thirdly, video can help students understand the context of situations. The students can easily understand the situations and clarify their meaning in the real world, if they can see and listen simultaneously to what is being communicated and what is happening (Allan 1985, Altman 1989, Cooper et al. 1991, Hill 1989, Lonergan 1984, Stempleski and Tomalin 1990). In addition, this may help to clarify whether the situation is very formal, or informal (Lonergan 1984). It brings a wide range of speakers, of voices, of topics and of locations to the student - the exposure to a varied range of authentic speech, with different registers, accents, intonations, rhythms and stresses (Hill 1991b, Coleman 1990). The visual elements which it presents, in addition, provide full information on the speakers, the communicative context, and the paralinguistic features, e.g., posture, gesture, facial expression and so on (Coleman 1990, Hill 1989, Lonergan 1983, 1984, Willis 1983a, 1983b). Allan (1985) pointed out that video's moving pictures help students concentrate, because they provide a focus of attention when they are listening. That is, languages with non-verbal elements are presented in the context of real situations, which add relevance and interest to the learning process (Hill 1991b). In short, video can present language in a complete context, and these help students understand the target language easily. One can conclude, therefore, that video is a good medium for understanding the context of situations in FLL.

Fourthly, video helps students understand culture. It is important to understand the culture and society of the target language in learning a foreign language (Lonergan 1984, Hill 1989), and video shows the culture of the target language in action and allows the learner to examine it in detail, so that this keep students in touch with the country and its language (Coleman 1990, Tomalin 1986). Regular exposure to them helps students construct a picture of the country whose language is being studied, providing them with insights and experience of how its people live (Hill 1991b). In short, video introduces the socio-cultural information on a target country that is so vital to genuine linguistic competence (Coleman 1990). Thus, it promotes an international perspective on life, broadening horizons, building cultural bridges between nations and bringing closer the possibility of a trans-national learning community (Winders 1989).

Fifthly, video can provide students with a trigger for speaking. Teachers always look for appropriate materials to make students communicate more easily in the target language (Allan 1985, Stempleski and Tomalin 1990). Video can present complete conversational situations with visual clues which encourage students to talk to each other (Willis 1983a, Allan 1985, Hill 1989). It can provide much more realistic and direct communicative practice in understanding the discourse of people whom learners can actually see talking (Willis 1983a). Teachers can exploit the situations for communicative activities in the language classroom. Indeed, this may be the most crucial aspect of using video in the language classroom. For example, Stempleski and Tomalin (1990) stated that some of these activities can depend upon 'information gaps', i.e., a student can get the full message only by communicating with another student. Allan (1985:48) added:

> The right video material can do this in a range of ways: its vivid presentation of settings and characters can be used to set the scene for role-play: it can present a case with such impact that it sparks off fierce debate..... it can be stimulus to genuine communication in the classroom by bringing out different opinions with the group.

Thus, video can provide students with a variety of activities for oral practice in the target language. It is an immensely flexible tool for getting students to talk.

Sixthly, video can be adapted for a wide variety of situations in FLT/L. The same programme can be used for all levels, from beginners to advanced students for developing four language skills - reading, writing, listening and speaking (Kennedy 1983, Hill 1989). At this point, however, the teacher's role is crucial. The success of the exploitation of the video material depends on the teacher's correct selection of activities and application of appropriate teaching techniques. For example, video recordings of a news programme can be used with advanced learners to enhance their study skills e.g., note-taking, summary work, etc. They can also be used with beginners for activities, such as sequencing, script completion, noting any words students understood, etc. (Hill 1989). [Further teaching techniques will be presented later in 'Media technology and language skills development in FLT/L.]

Seventhly, video is flexible in use in the language classroom. The video programme can be played as many times as the learner and teacher wish. The teacher can also select a short sequence from the programme at his disposal and make use of it for intensive study in the classroom. Scenes can be run at slow speed or frozen at will, too (Lonergan 1984, Tomalin 1986). By using the flexibility of video, for example, the target lexis can be practised in a number of ways (Lonergan 1984). It can be argued that at a higher level, foreign language students' communication problems are often caused by lack of vocabulary (Lonergan 1984, Swan 1985a, 1985b). Swan (1985b) claimed that students have to learn not only how information is conveyed or elicited, but also the words and expressions which are used to refer to the things they want to talk about. Video can easily provide a wide range of objects, places, and concepts. Teachers can exploit the freeze frame and slow motion techniques to introduce single lexical items and to expand vocabulary in related word fields (Lonergan 1984, Swan 1985b). Video is a useful aid for helping students to extend their vocabulary.

Finally, video can be a useful resource in self-access due to the distinctive characteristics mentioned above, particularly the sixth and seventh ones (Kennedy 1983). An increasing emphasis has recently been put on a self-access mode as part of a learner-centred approach in FLT/L, since it can give learners the opportunity to pursue their learning in their own preferred way and at their own pace in a pressure-free environment while giving them a responsible role in their own learning (Windeatt 1980, Dickinson 1987, John 1988, Sheerin 1989, Stevens 1989). Of course, video has some limitations in not giving immediate feedback and in not being interactive (though computers and interactive video are excellent for these functions). However, video cameras can extend the range of video functions - giving feedback on the performance of learners (MacKnight 1983, Allan 1985, Lonergan 1990). Thus, video has a number of distinctive features to contribute to FLT/L. [The use of a video camera in the language classroom will be described later.]

2.3.1.2.2 Limitations of video

There are some limitations to using video in the language classroom. Firstly, one of the major limitations is the technical problems encountered. The majority of serious faults used to be caused by minor problems, e.g., poor manipulation, lack of maintenance (Willis 1983a, Hill 1989). Allan (1985) advises teachers to practise using any video machine until they know how it works and feel quite at home with all the knobs and buttons.

Secondly, video can be overused. Teachers sometimes use it in order to have an easy lesson. Willis (1983a) pointed out that video can be overused by thoughtless programme planners or teachers who harness its potential for effective student control rather than effective teaching, since video naturally carries an aura of entertainment which can keep the students quiet and relatively contented whether they are learning or not. If teachers use it for this purpose, this can be a serious disadvantage with students, who may have passive viewing habits firmly established (Lonergan 1984, Hill 1989). This may run the risk of encouraging them to have a passive attitude in the learning process. Thus, if video is not used with a clearly defined pedagogical methodology, students are likely to practise mostly passive skills (Kornum 1993, Willis 1983b). The role of the teacher is to change 'passive viewing' into a variety of language activities and practice in order that students may be involved more actively (Lonergan 1984, Hill 1989).

Thirdly, the visual elements can distract students' attention from the spoken word. Students are so hypnotised by the moving pictures that the essence of the learning point is lost, and they may respond to the visual message and ignore the spoken word (Willis 1983a, Hill 1989). Teachers have to invent activities which direct attention to what is being said, since sound is as important as the visuals (Hill 1989).

Finally, several additional limitations of video can be pointed out as follows; video is costly to set up and maintain; relatively few programmes have been commercially produced specifically for video in FLT/L; there is an obvious need for teacher training and for detailed teaching notes to accompany programmes; using video in the classroom probably requires more preparation than other media serving similar purposes, i.e., it is time-consuming in preparation (Hill 1989, Tomalin 1986, Willis

1983a). However, it is worth noticing that the most of limitations mentioned can be easily overcome by teachers (Tomalin 1986).

2.3.1.2.3 Using a video camera

A video camera has generally been used in language teaching for the purpose of assessment and feed-back on learners' performance (Broady and Le Duc 1995). Unlike the use of video, however, the video camera has not been widely used in the language classroom for a number of reasons, particularly the difficulties involved in the preparation and handling of equipment, which are time-consuming. The arrival of a smaller and more powerful video camera in the mid 1980s, the so called 'Palm-corder or Camcorder' allowed users to use video more easily and with greater versatility. Handling and operating the camera are very easy, and teachers and learners can easily learn how to manipulate it within several minutes without particular training.

Some research studies show that the video camera can play important roles in language teaching and learning, particularly in improving communicative effectiveness. Firstly, it allows teachers to produce their own appropriate materials for language teaching, in compensation for insufficient and unsuitable video materials. Teachers themselves can use a camera to produce appropriate teaching materials that meet the needs of their students e.g., teacher training materials, course materials, etc. (Geddes and Sturtridge 1982, MacKnight 1983, Cullen 1991, Lonergan 1991a). Secondly, Broady and Le Duc (1995) point out that video recording is potentially valuable in language teaching and learning not only because it allows learners to view their own performance; it also offers a stimulating medium in which learners can express themselves. Thirdly, a video camera can be a useful means of providing feedback on performance to teacher trainees and students in various kinds of situation (Laycock and Bunnag 1991, Lonergan 1991a). Lonergan (1991a: 94) pointed out that there are two approaches to evaluating a student's performance:

> One is to listen to the language and, while the speakers talk (or the video tape plays), to note the participants' error in and correct uses of language....... In the second approach, the teacher views the whole of the communicative situation and

responds to the learners' overall performance - that is, discourse analysis is the starting point for evaluation.

Thus, it is helpful for developing professional and social competence (MacKnight 1983). Students and teachers can repeat the cycle of '*preparation - learning/teaching - feedback*' to improve their performance (Allan 1985). Indeed, feedback and evaluation sessions can be the most fruitful aspect of working with a video camera (Lonergan 1991a).

Table 1. Comparison of video with other visual media (based on Willis 1983a, Lonergan 1984, Tomalin 1986, Romiszowski 1988, Hill 1989)

Media	Potential	Limitations
Compared to OHP	1) It offers still or moving pictures with sound. 2) Short and long sequences can be selected; scenes can be run at slow speed or frozen. 3) It can be used in a normal classroom (but OHP often needs supportive materials for better viewing, e.g., white paper, screen, etc.).	1) OHP offers a bigger picture. 2) OHP is more versatile than video in that teacher can choose it at a appropriate moment. 3) The teacher can easily point out relevant features of the information displayed and annotate on the OHP skin at any time.
Compared to Slide Projector	The same as 1) and 2) above 3) It can be used in a normal classroom with the room fully lighted.	1) A slider projector offers better quality visuals. 2) It offers better teacher control over the timing of the presentation.
Compared to Film	1) It is easy for the user to operate (It is simple to stop, start and rewind with a fair degree of accuracy). 2) It can be used in the normal classroom. 3) It can be used by an individual in self-access or by a group of students or by a large number of students in the classroom. 4) It is more versatile than film in that material can be edited or copied, copied off-air and home-produced.	1) The picture is smaller and less well defined. 2) The quality of copies and home-produced material may not be ideal. 3) Until now, there has not been much variety in video programmes.
Compared to Audio Tape or Cassette	1) It offers moving pictures and sound. 2) It can enhance students' interest and motivation through visual stimulus. 3) It can help students to comprehend the context of a situation easily. 4) It brings 'real life' into the classroom.	1) It may be over-supportive, so that students can ignore the spoken word. 2) Visual elements may distract students' attention from focusing on language.

2.3.1.2.4 Comparison of video with other visual media

Based on the potential and limitations of video described so far, a clear answer to the question, 'Why use video?' can be gained by comparing video with other visual aids in facilitating language teaching and learning. Table 1 summarises briefly the characteristics of video in comparison with those of other visual media. It is clear that the use of video in FLT/L can provide students with a variety of resources for practice and for developing particularly listening and speaking skills in the target language.

There is evidence to support the view that video has played an important role in FLT/L due to the positive characteristics discussed so far. Based on his survey, MacKnight (1983: 7) reported that video is used to fulfil a number of the main functions in language teaching as follows:

Table 2. Functions which video material fulfils

Functions	% of occurrence
Introduction to topic/stimulus of interest	89
Information on cultural background	75
General language spin off	61
Consolidation of known language	48
Contextualization of new language	45
Identification and practice of language items	45
Development of professional competence	36
Basis of project work	27
Self analysis of professional task	20
Development of social competence	16
Self analysis of social task	16
Other	
Literary background and enrichment	
Literacy training	
Familiarisation with new procedures/techniques	
Entertainment	

To summarise, the use of video has a number of distinctive advantages in the foreign language classroom as compared with other media. However, teachers must bear in mind that video cannot replace the role of the teacher. It is still the teacher who has the responsibility for creating the language learning environment and facilitating language learning, since s/he has to select appropriate materials and activities at the right time in order to achieve particular objectives in FLT/L. At the same time, using video in the classroom has also increased students' responsibility in language learning . The students, first of all, need to be aware of why they are using video, and have to participate actively in the learning process, i.e., they have to listen and watch attentively and respond actively to instructions given by teachers or by video.

2.3.2 Computers

As a result of technological developments in both hardware and software, computers have become relatively widely available in language teaching and learning since the introduction of computers in education in the 1960s. However, pessimistic views of the use of this technology have been expressed, claiming in particular that CALL cannot be used with the current trends in language teaching and learning, e.g., humanistic and communicative approaches. However, programs and methodologies for the development of the four language skills have developed away from the often criticised 'drill and practice' of the early years of CALL (Phillips 1986, Rendall 1991, Wyatt 1984a) and have led to wider acceptance of this technology. Rendall (1991), for example, claims that the integration of CALL is no longer a novelty, but is now widely accepted in the classroom. Teachers and students now appear to be interested in the use of computers and also to believe it will be helpful in FLT/L. However, there are still basic practical questions to be answered.

This section presents: some issues in the use of computers; the potential and limitations of computers; the roles of computers, teachers, and students; interaction patterns in CALL.

2.3.2.1 The use of computers

The use and development of media technology, particularly computers has been motivated by a desire to reinforce and individualise the teaching and learning process

(Van Els et al. 1984). However, the computer cannot think, as humans do. It can receive enormous quantities of data and instructions as input via the keyboard or other devices, and outputs the results quickly and accurately (Bradshaw 1985, Higgins and Johns 1984). Why, then, do teachers use computers? The following questions should be considered first in order to answer the question clearly. What can computers actually do in LT/L, particularly FLT/L? Can computers be used with the current approaches in FLT/L? How can CALL fit in with the standard curriculum and syllabuses? How can computers be used effectively in the language learning process?

2.3.2.1.1 Some issues in the use of computers

The issues about the effectiveness of computers in FLT/L have been actively argued by many writers. This section deals with the main issues which have arisen around the use of computers; the criticism and advocacy of CALL.

The criticism of CALL

Sceptical views have been expressed about CALL in general. For example, Schank (1984: 11, 242) wrote, "Computers are machines that do one thing well - they run programs. ..... The real problem with today's computers is that they don't understand us when we use language the way we are used to."

First of all, some critics claim that computers can interfere with humanistic aspects of language learning - the development of students' creativity in the learning process, since the students are controlled by technology, e.g., merely responding to problems set by the computer (Ahmad et al. 1985, Hirvela 1988, Wyatt 1984a, 1984b). Fundamentally, nobody can deny the 'non-human' nature of computers. The computer program is, in fact, designed to search for patterns mechanically and then responds accordingly to problems, e.g., only producing standard messages such as 'correct' or 'wrong'. Clifford (1987) stated that most current CALL programs can provide feedback, but it is often meaningless and useless.

Secondly, they also claim that the computer is just an instructional medium which can be used for programmed instruction only, and that is difficult to apply to the current trends in FLT/L, such as the humanistic and communicative approach (Kenning and Kenning 1983, Wyatt 1984b). It may be true that most available CALL programs and courseware have largely been structure-oriented, drill-oriented, and stimulus-response. CALL is automatically associated with words and grammar exercises, and perhaps improving basic reading and writing skills (Sanders and Kenner 1984, Skehan 1985). Speaking and listening activities are only available in an underdeveloped form. Teachers have merely found that CALL courseware and programs cannot match the current demands of FLT/L (Sanders and Kenner 1984). They claim that very little teaching of any value takes place in CALL, and that computers may be at least equal to, or even inferior to alternative media technologies (Bickes and Scott 1989, Hirvela 1988).

Therefore, they have criticised computers as sterile, boring, lifeless, and ultimately useless for language learners (Sanders and Kenner 1984). CALL may be subject to the same fate as the Audiolingual approach, i.e., the audio language lab of the 1960/70s (Phillips 1986, Sanders and Kenner 1984), unless CALL programs and courseware are responsive to a wide range of approaches to meet teachers' and students' needs according to the contexts of language teaching and learning (Hirvela 1988). The computer should be used in more flexible and creative ways rather than just as a programmed teaching machine, i.e., drills and pattern-practice, since interaction between teachers and students, and among students is essential in FLT/L (Chandler 1984, Papert 1980, Wilkinson and Patterson 1983).

The advocacy of CALL

On the other hand, it has been claimed that the general criticisms of CALL have been misleading and inappropriately argued in various respects (Bickes and Scott 1989, Higgins 1988a, Jones and Fortescue 1987). The criticisms are partly due to the idea that CALL should be a communicative and creative process, having been evaluated strictly in relation to the current approaches to FLT/L. Proponents criticise opponents for also seeming to overlook the fact that each medium, such as the OHP, audio, video, textbook, and even the teacher has its own limitations and cannot meet all requirements of the current approaches (Bickes and Scott 1989). Hope et al. (1984) pointed out that computers should be used for what they can do best. The computer may not provide creative and imaginative responses which teachers can, but it has abilities to make up for these limitations, e.g., it can carry out enormous routine tasks imposed on it, so that the teachers can pay attention to the development of learners' creativity in the learning process (Hope et al. 1984, Wyatt 1984a).

Therefore, the criticisms are unreasonable, since language learning aims at the development of the four language skills and the acquisition of both language 'usage' and 'use'. CALL may be designed to increase the efficiency and effectiveness of the teaching and learning process at the expense, to some extent, of some human values such as creativity, flexibility, and emotional involvement (Geiss 1987, Lai 1993). However, there has been considerable progress over the past few years in CALL. Professional studies in the field of CALL have generated CALL materials of great potential (Last 1984). Motteram (1990) stated that computers need not be linked exclusively with programmed learning. The computer is a medium or an environment in which a variety of methods, or approaches can be implemented. Computers can do far more in CALL than only carry out simple learning tasks, such as stimulus-response type activities, e.g., they can interact with students in various ways and individualise the learning process (see Fig. 2, pp. 65). In short, CALL can be designed to integrate into grammar-translation, cognitive learning, communicative and humanistic approaches in FLT/L (Cook 1985, 1988, Garrett 1991, Hardisty 1987, Phillips 1985, Stevens 1989, 1992). Indeed, CALL should be re-evaluated, since it can be used with any approach from structuralism to the communicative approach (Cook 1985, 1988, Garrett 1991).

Firstly, CALL can be humanistic. Fox (1985) stated that 'humanistic' is a term which most would take to include 'learner-centred'. It means that the humanistic approach to CALL must respond to the needs of the students, and put emphasis on their own development in FLL (Cook 1985, Stevens 1992). CALL can provide students with individualised instruction in anxiety-free environments in which problem-solving and tool-based activities are carried out, interactivity, and then innate motivation (Stevens 1989, 1992). (The explanations of these items will be presented in detail in the next section, 2.3.2.1.2 The potential of computers.) However, this should not be seen as somehow at the expense of the teachers, or to their disadvantage - teachers continue to play the key role in helping this learning to happen (Phillips 1985). In the humanistic approach, they become more a facilitator than an instructor of knowledge, while students have to take the responsibility for their learning (Stevens 1989).

Secondly, in terms of the cognitive approach, Cook (1985) stated that cognitive code teaching aims to give a conscious knowledge of the language which students can apply to later use. Students themselves often know best what they know and do not know in their learning (Higgins and Johns 1984). The computer can analyse and correct what students do in the activities, and the students can learn from their mistakes by conscious awareness of them from the feedback which computers offer. Thus, computers can make students aware of the range of learning strategies which they can adopt in FLL.

Thirdly, certain aspects of guided and natural conversation can also be taught by means of a CALL system (Van Els et al. 1984). This means that communicative activities can be integrated into CALL lessons. CALL using information gap and simulation activities can bring students in pairs and groups to interact, discuss meanings, and negotiate strategies related to the tasks (Hardisty 1987, Johnson and Johnson 1986). Mohan (1992) pointed out that spontaneous and free talking around computers is a natural communication task occurring as part of a large interaction that students engage in. In addition, some teachers expect that the application of AI to computers will solve the current problems of 'dumb computers' in the future. This may be possible, but will be achieved only within limits in view of the current development of computer technology. At present, Marty (1981) explains, in relation to what teachers can do in the communicative approach in CALL, teachers can devote a greater proportion of the class time to the development of creative free expression, which is beyond the present ability of the computer (in Van Els et al. 1984).

It is now clear that the computer is most likely to be useful as a supplement in the language classroom, not only as a programmed instructor, but as a versatile tool and partner to realise the broad range of approaches and activities involved in FLT/L. Therefore, the computer can be one of the most useful media technologies in FLT/L, not only because computers can do what other media can do, but because they can carry out other tasks.

2.3.2.1.2 The potential of computers

There are a number of reasons to expect that the computer will become more widely used as a medium of teaching and learning in the language classroom. The computer can present, reinforce and test language items because of a number of attributes, such as its ability to process data, its repetitive capability, its capacity to evaluate responses, its immediate feedback, etc., and can motivate learners (Jones and Fortescue 1987, Stevens 1989, Wyatt 1984a). Therefore, the computer provides a wealth of learning environments to enrich classroom activities in certain ways that cannot be possible with traditional materials such as book, blackboard, audio technology, etc., and even authentic TV and video (Higgins 1986, Higgins 1988a, Jamieson and Chapelle 1988). In short, the main aspects of this potential can be categorised as; interactivity, individualisation, flexibility, adaptability and motivation.

First of all, one of the most distinctive features of computers is their ability to interact with students (Ahmad et al. 1985, Fox et al. 1990, Jones and Fortescue 1987, Phillips 1987, Stevens 1992, Wyatt 1984a, etc.). The most important role of teachers in the language classroom may be to interact with students, but in most teaching situations particularly in Korea, individualised interactions between teachers and students or among students are very few for various reasons, e.g., because of large class sizes. In CALL, the students can carry out tasks, and in return the computer can respond differently and appropriately according to their input, e.g., giving them feedback about correct answers or wrong answers in question-and-answer type activities (Wyatt 1984a, Hardisty and Windeatt 1989). The computer can identify and explain the students' errors, and correct them at the right time (Roberts 1984). In addition, it can provide immediate and informative feedback, and consequently intensify the learning process and reduce teaching and learning time to some extent (Hardisty and Windeatt 1989, Hope et al. 1984, Van Els et al. 1984, Wyatt 1984a).

Secondly, the computer can also provide the capability for individualisation in the learning process, since it can interact directly and continuously with students (Cook 1985, Jamieson and Chapelle 1988, Rüschfoff 1987, Skehan 1985, Stevens 1992, Wyatt 1984a). Recent approaches to FLT/L have emphasised learner-centredness, in terms of satisfying the needs of individual learners and compensating for individual differences (Brookes and Grundy 1988, Stevens 1992). Individualisation generally means learners can choose their own materials and work independently (Dickinson 1987, Houghton et al. 1988, Stevens 1992). Some CALL programs are able to analyse student responses, score them, and provide appropriate explanations step by step, if mistakes are made, as part of an individualised teaching programme (Ariew and Frommer 1987, Stevens 1992, Wyatt 1984a, etc.). In particular, well-designed CALL programs can respond flexibly to students' decisions, by taking into consideration the students' ability, i.e., individual strengths and weaknesses, and can present students with information in manageable chunks (Levy and Farrugia 1988, Wyatt 1984a). Furthermore, computers are extremely patient and tireless (Barchan 1986). Therefore, students can work in privacy and at their own pace in non-threatening environments (Ahmad et al. 1985, Ariew and Frommer 1987, Wyatt 1984a, Yazdani 1986).

Thirdly, the computer can be flexible in many ways (Ahmad et al. 1985, Stevens 1992). It has a large number of functions, such as an electronic board, a database bank, a writing machine (a word-processor), etc. (Wyatt 1984a). A well-designed CALL program can offer students choices with respect to type and amount of instruction and practice, according to their interests or levels of proficiency (Ariew and Frommer 1987, Stevens 1992). It, thus, provides students with tools that use their abilities to figure things out and so to learn according to their needs and interests. It gives random access to programs and exercises and can vary the exercise each time it is done (Ahmad et al. 1985, Cook 1985). Students can use them at any time and repeat in full or in part any information or display as long as they need it (Roberts 1984). Some programs can accommodate different speeds of learning according to the levels of students, or alternatively, set a time-limit for testing purposes (Ahmad et al. 1985). In this respect, computers can allow the students to take courses, or parts of courses, at a distance through networking. CALL is something that a student can employ on an *ad hoc* or self-access basis without its being part of a set course of study (Stevens 1992).

Fourthly, CALL programmes can be adapted by teachers to suit the needs and levels of their students (Cook 1985). For example, teachers using authoring programmes can create appropriate materials for their students, from beginners to advanced learners. A CALL program can also be used for a wide range of activities, from structuralism to the communicative approach. In addition, the computer can provide extensive class administration and management options, since it can make decisions and store vast quantities of material (Ahmad et al. 1985). Teachers can use these features to review their student's performance, analyse their problems, and give them proper feedback.

Finally, a high level of motivation is essential for the successful accomplishment of the task in language learning. Without doubt, the distinctive characteristics mentioned above must be motivating. Most studies report that CALL activities increase students' motivation and interest (Fox et al. 1990, Higgins 1988b, Van Els et al. 1984), although Higgins (1988b) claimed that the motivation is almost always present in the learning process, and that CALL activities are only to reduce demotivation. Computers can encourage self-determination which is the key of intrinsic motivation, since they facilitate individualised learning and provide anxiety-free environments (O'Shea and Self 1983). CALL can increase motivation, because programs can be tailored to the needs and levels of the individual learner, and also because of the intrinsic attraction of the machine - computers can offer graphics, bells, flashing lights, sound effects and the like with text, and can incorporate other media (Cook 1985, Sanders and Kenner 1984, Stevens 1989, Van Els et al. 1984). In addition, it is worth noticing that one of the attractions of CALL is the amount of enhancement possible when dealing with unstimulating tasks, e.g., words and vocabulary, and grammar exercises, etc. (Barchan 1986, Sanders and Kenner 1984).

These features can make a big difference to the usefulness of computers compared to that of traditional materials as a teaching aid. One can conclude that CALL can offer lots of potential in a wide range of language teaching and learning contexts.

2.3.2.1.3 Limitations of computers

Despite the very considerable potential of computers, there are some limitations. Firstly, the computer cannot cope with the unpredictable. The objectives of FLT/L may vary from country to country or from time to time according to educational goals, but one of them will be to help learners cope with the unpredictable well, logically and creatively in real situations. CALL programs can only accept students' input through the keyboard or other devices, and respond to it within limits, i.e., restricted or fixed lists foreseen and produced by the CALL author (Ahmad et al. 1985, Wyatt 1984a). Therefore, the computer cannot effectively carry out certain tasks, such as an 'open-ended' communicative-type task (Ahmad et al. 1985). This may prevent students from developing their creative ability, and decrease learning efficiency (Ahmad et al. 1985, Jones 1986, Yazdani 1986). This, at least, will be one area where language teachers need not feel threatened (Skehan 1985). Interfacing effectively with other media, e.g., audio and video can be an alternative way to compensate for these limitations (Sanders and Kenner 1984, Ahmad et al. 1985, Van Els et al. 1984, Ariew and Frommer 1987).

Secondly, some recent programs which have been produced or updated after a couple of years may not be able to run on an older machine of the same type. They require a large amount of memory and hard disk storage capacity, and even more processing speed as a minimum. This problem must be much more serious than the incompatibility of hardware and software, since any educational institutions have not enough budget for replacing old machines with new ones every year or so.

Thirdly, computer programming and maybe even learning ready-to-use programs are time-consuming, since they require some knowledge and special skills (Ahmad et al. 1985, Jones 1991a). The use of ready-to-use programs may be insufficient for language teaching and learning, and may not work well in all contexts. Teachers need to modify them appropriately for their students' levels. This will require a fairly high level of computer literacy (which will be described in the 'Computer literacy' section, pp. 92-94), and they will have to spend a lot of time to become computer literate. However, using authoring packages and authoring languages produced for language teaching can help teachers avoid to some extent the difficulties of acquiring special skills. The former are already programmed working routines. Teachers can simply type the relevant data required for the appropriate exercises for their students (Ahmad et al. 1985, Jones and Fortescue 1987). The latter also enable teachers to produce their own CALL materials more quickly and easily than ordinary programming languages.

Finally, complicated and decorative CALL programs can interfere with learners' original objectives, i.e., learning a foreign language. Jones (1991a) argued that many programs need not be complex in programming terms, and that CALL programs should be informative rather than decorative. He added that there is no relationship between program sophistication and the teaching and learning success. A good graphic display and sound effects sometimes have an important role to play in some activities, but they may be used only to hold students' interest in other activities.

Thus, the distinctive features of computers, such as interactivity, individualisation, flexibility, adaptability and motivation can enhance and enrich the language learning process and activities in various ways. However, CALL still seems to leave a lot to be desired for effective teaching and learning and it is important to realise that there are several problems in using computers in the language classroom. One of them, not coping with the unpredictable, is driven from the nature of the computer itself, while others such as incompatibility; requiring special skills and being time-consuming; the possibility of interfering with learners' original objectives are the problems associated with the present state of CALL. In order that CALL might help to achieve the prime objective, learning a foreign language successfully, it should be well-planned to suit the purpose and goals of classroom instruction, probably through interfacing or incorporating with other media, if necessary, taking into account students' needs and differences according to the contexts.

2.3.2.2 The computer, the teacher and the learner

There is a close relationship between teachers, learners and media technology, and their own place in the teaching and learning process, as mentioned in section 2.2.3, 'The role of media technology in FLT/L'. It is worth noticing that the teachers are still central, although they are supposed to change their role in some situations. The use of computers is no exception. However, their use may be complicated, since it requires some knowledge of computing, and seems to require more changes in the role of teachers and learners, compared to other media technologies which can be handled relatively easily, e.g., audio, TV and video. Therefore, this section will focus on the roles of computers, teachers, and learners in CALL.

2.3.2.2.1 The role of computers

There is an agreement that the computer is generally to be seen as a tool, which will play a number of important roles in FLT/L (Mohan 1992, Skehan 1985). However, there is also a large range of misconceptions on the precise role of the computer (Bickes and Scott 1989, Jones and Fortescue 1987).

Misconceptions about the precise role of the computer

Some claim that the computer can be a classroom aid in the role of quizmaster only, as with audio technology and the language lab, and drill and pattern-practice in the days of audiolingualism (Jones and Fortescue 1987, Sanders and Kenner 1984). This misconception is a result of ignoring, or a failure to see, other equally valid roles which computers can fulfil in teaching and learning.

On the other hand, some seem to regard the computer as an omnipotent being, e.g., the substitution of computers for teachers (Jones and Fortescue 1987). First of all, language teachers are expecting too much from the computer (Hope et al. 1984). They have come to regard computers as an omniscient answer to problems in language teaching and learning. The use of computers may not replace all aspects of the teachers' role in the language classroom. For example, can computers run a full course without a teacher by themselves? No, they cannot. As the term itself implies, i.e., '*assisted'*, CALL has its limitations. The role of computers is to assist teachers and to enhance teachers' ability to teach in language teaching (Ahmad et al. 1985, Wyatt 1984a). Second, the use of computers cannot automatically lead students to improve their learning. In short, the computer is designed to help and reinforce their learning in the language classroom (Wyatt 1984a, Higgins and Johns 1984). What, then, are the possible roles that computers can play?

The possible roles of the computer

The possible roles of computers can be divided into three main categories which have been described using in various terms by different writers. Higgins (1988b), for example, distinguished among the following: a magisterial role, a pedagogical role, and an informant role. Wyatt (1984a) described their roles as follows: the role of instructor, collaborator, and facilitator. Jones and Fortescue (1987) classified them into three broad roles: the computer as knower-of-the-right-answer, the computer as stimulus and the computer as workhorse. Mohan (1992) considered them as three models: as a language teacher, as a stimulus for talk and as a context for cognitive development. Thus, although these writers have used different terms in classifying the roles, they seem to be similar to one another.

Here, therefore, Wyatt's classification will be used for further discussion. Firstly, in the instructional role, the computer as tutor has all the initiatives in the teaching and learning process. The computer program presents materials and manages practice activities (Wyatt 1984a). Students are guided by the computer, and actively involved as a responder only in following directions (Bradshaw 1985, Wyatt 1984a). This is closely identified with some of the activities which are found in written materials in the normal classroom (Wyatt 1984a). This role of computers can particularly play an important role in self-access, if it is possible for students to use computers in the self-access centre. The students can have opportunities to pursue their learning in their own preferred way at their own pace as necessary for remedial or make-up work, since instructional programs have the capacities for a high degree of individualisation and interactivity (Wyatt 1984a).

Secondly, in the collaborative role, the computer acts as an interlocutor, yielding information only when appropriate questions are addressed to it, and as a collaborator in a simulation. Here, the initiative is turned over to students or a group of students. They are responsible for initiating and directing the activities in the learning process. Thus, computers have a valuable role in providing them with quite new activities which are hard to, or cannot, be implemented in the conventional classroom (Wyatt 1984a).

Finally, in the facilitator role, computers serve as a tool in other learning activities, e.g., a word processor in a writing class, an electronic text and dictionary in a reading class, etc. (Jones and Fortescue 1987, Wyatt 1984a). They play a role in assisting regular classroom activities to proceed - facilitating relevant learning activity (authentic labour) and reducing irrelevant activity (inauthentic labour) - more easily and efficiently (Higgins 1988b, Wyatt 1984a).

2.3.2.2.2 The role of teachers

Hardisty and Windeatt (1989: 11) provided a suggestive overview for language teachers who want to use computers as follows: "Computers aren't very good at teaching by themselves, and the software won't run your lesson for you. You can adapt, improve and compensate for shortcomings in the software with the techniques you adopt."

First of all, one of the most important teachers' roles is to choose the right computer materials to suit the language level of the students in the right place. For this, the teachers may try to acquire some degree of computer literacy related to language teaching. Some teachers may think that it gives them more work than preparing a normal classroom, but they will become skilful in doing it as they gain experience in computer use (Jones 1982). Secondly, Higgins and Johns (1984) stated that teachers have a responsibility to abandon routine and create activities and situations in response to the interests, needs and initiatives of their students in language teaching. For example, such basic things as eye contact, smile and gesture between teachers and students (and of course, open and live interaction between them as well) can provide communication to facilitate the teaching and learning activities (Higgins and Johns 1984). Only human teachers can do this job. Instead, computers can carry out routine work which is necessary for effective teaching as well as creative work. Therefore, the role of teachers is to concentrate on creative aspects of teaching and learning which computers can never replace across the whole range of activities involved in teaching and learning.

In this respect, the teachers will have to change their roles as instructor, controller, or monitor in language teaching. In CALL, there should be three stages, pre-computer work (before the students use the computer), computer work (work done at the computer), and post-computer work (work done away from the computer) (Hardisty and Windeatt 1989). In pre-computer work, the teachers are in charge of the preparatory work (e.g., introducing CALL materials and procedures). In computer work, the teachers acting as a monitor or a controller will keep themselves from interrupting students' activities as far as possible, in particular in simulations. Teachers can help students to carry on with activities, dealing with language problems and giving some tactical advice when they are faced with difficulties. This gives the teachers plenty of time and opportunity to monitor their work and even behaviour (Jones 1982, Olson 1988). In post-computer work, the teachers may have other important roles. With students, teachers have to review what they did and what they might have done (Higgins and Johns 1984). As needed, teachers have to find a variety of follow-up activities, e.g., further discussion, summary writing related to the activities done, etc.

2.3.2.2.3 The role of students

There is a famous proverb, "You can lead a horse to water but you can't make it drink." It can be interpreted as follows in language learning: learning ultimately depends on learners. Papert (1980) also claimed that the best learning takes place when students are in charge.

In view of this, CALL can be the gateway to help students learn by themselves. The students should be continuously active and involved in the CALL materials, since the program will not continue until they take the necessary action at every step (Wyatt 1984a). Thus, the use of computers has enormously increased students' responsibility in language learning. This contrasts with other media and even sometimes teachers in the conventional classroom, such as the language laboratory, teachers' instructions, etc., in which the taped material and teachers' explanation will continue to roll along and go ahead regardless of even complete inactivity on the part of the student (Wyatt 1984a).

Therefore, students have to change their roles according to the CALL materials. In instructional CALL programs, each student or a group of students has to individually answer all the questions (Wyatt 1984a). The role of students here is that of responder rather than initiator. In collaborative CALL, on the other hand, the students will take much greater responsibility for their learning. Not as responders only, they initiate and finish activities themselves, whether with the computer, or other students, or both (Wyatt 1984a). Finally, in facilitative CALL, students are supposed to work with computers as a versatile tool for effective learning - using a word-process for improving writing skills and using database programs for getting information, or storing their own data. In short, the most important role of students is their active involvement in their learning in CALL.

2.3.2.2.4 Interaction patterns in CALL

It is now quite reasonable to say that the role of computers is not only that of a tool, but that of a partner. In this respect, computers can be used not only by a student in self-access, but by teachers and students in a variety of ways and for a variety of purposes within a classroom context (Jones and Fortescue 1987, Motteram 1990).

There are several kinds of interaction patterns which are possible with computers in the classroom - individually, in pairs and groups, between (or among) groups, or as a whole class (Phillips 1987, Hardisty and Windeatt 1989). In these patterns the computer can support profitable interaction between the student and the computer, and other students, working together at the machine. Thus, the interaction patterns can play a central role in communicative methodology (Hardisty 1988).

Each of the patterns can be subdivided as follows (Fig. 2). First, in one-to-one mode (A), the student can work with the computer individually at his/her right level, and the teacher can spend time with whoever has a particular learning need (Hardisty 1988). Second, in pair and group work mode (B and C), it is particularly aimed at generating collaborative activities (Phillips 1987). The computer can be used to promote interaction between students and among a group of students. Third, in numbers of groups of students mode (D), it is aimed at carrying out competitive and collaborative activities. The computer can particularly be used to promote interaction among the groups of students in competition with each other, collaborating within each group (Phillips 1987). In mode A, B, C, and D the role of the teacher will be that of a facilitator. Finally, in the whole class mode (E), the role of the teacher will be that of an instructor as in the conventional classroom, and the computer provides teachers and students with a rich source of information and data needed in the language classroom.

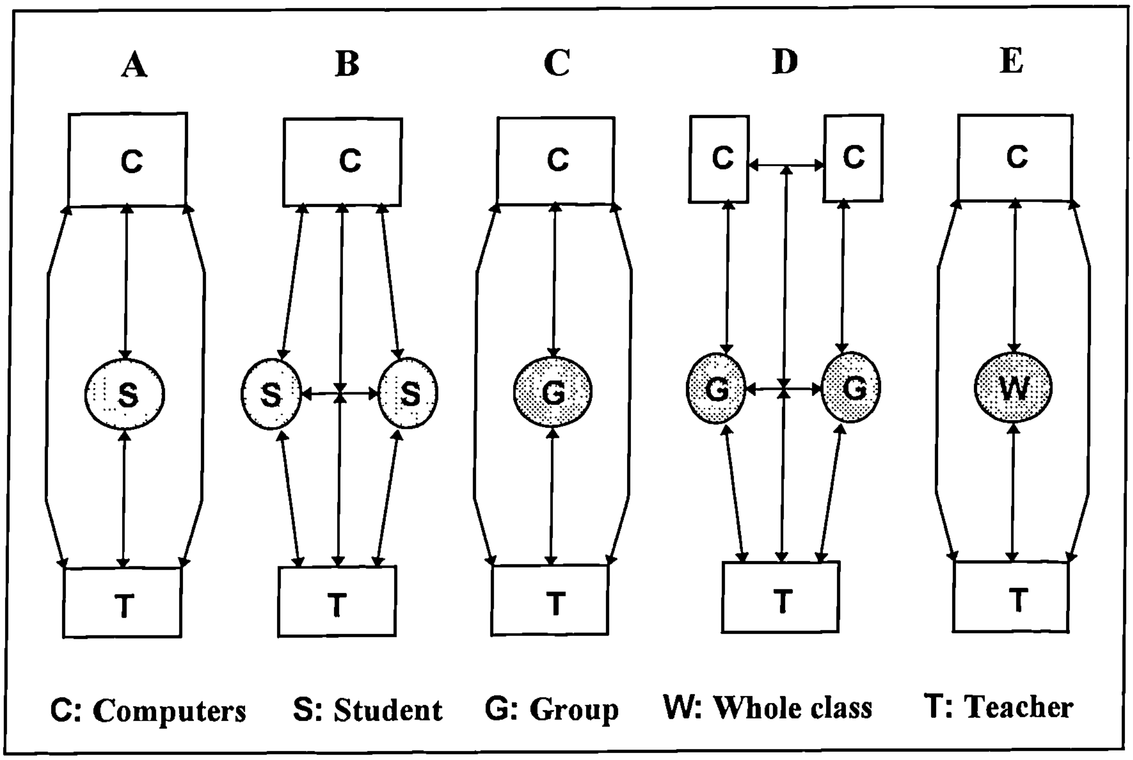

Fig. 2. The patterns of interaction with computers

As Fig. 2 shows, there is a close relationship between computers, students and teachers in CALL. In particular, it is necessary for teachers to remind themselves that language is a form of human interaction, and a foreign language is learnt by using it (Phillips 1987). This means that teachers have to play an important role in CALL as well as in the normal classroom. In short, Hardisty and Windeatt (1989) pointed out that the roles of teachers will vary from activity to activity: in some activities, the teacher will need to be a facilitator, in others a leader, and in some the teacher will be free to give more individual attention to students who particularly need this attention. Therefore, CALL can display its true value when computers are used in various kinds of interaction patterns according to the classroom context.

In sum, computers can be used for a variety of purposes in FLT/L. The computer can help both teachers and students in language teaching and learning. The computer has an important role as a medium or environment and a partner to enhance and enrich language teaching and learning. It is arguable that some teachers consider the role of computers as that of quizmaster only. It is very important to recognise the right place of computers in FLT/L.

Far from replacing teachers, computers free the teachers for more productive and creative roles in the language classroom (Phillips 1987). Indeed, it is worth considering seriously the suggestion that "any teacher who can be replaced by a computer should be (in Hardisty and Windeatt 1989)". The students should also realise that the use of computers in the language classroom has enormously increased their responsibility in the learning process as compared to that in the normal classroom.

Computers, teachers and students have their own characteristics and roles in CALL. Computers should be used for what they can do best as a tool and a partner for language teaching and learning, not applying them to a whole part of coursework without considering the effectiveness of the use of computers. It is worth noticing that only the apt combination of these relationships can bring about some practical and fruitful results in FLT/L.

2.3.3 Multimedia

There has been an increasing awareness of the limitations of using media technology, e.g., videos or computers, alone, and a considerable *interest in multimedia* in which various media are integrated into the computer to support and extend its instructional capability in FLT/L (Barker and Yeates 1985). It is often claimed that the limitations will be solved, when multimedia is available in the language classroom. Teachers believe that it will provide something of real value for learners, such as allowing them to move beyond drills and pattern-practice, and passive learning to include as much interaction (both learner-machine and inter-learners) as possible, and increasing the availability of specialised materials to attain learner-centred learning (Zettersten 1986).

Now that vision is to some extent becoming a reality. An integrated technology to interface a computer with audio and video cassette recorders, and particularly with CD-ROM or laser videodisc exists and is available in the language classroom. In addition, all the information from multimedia applications can be sent all over the world and into the language classroom via satellite or telephone lines or networks. However, multimedia courseware is still in its infancy. What is the state-of-art of multimedia technology? How can it be used effectively in FLT/L? Will it totally change the ways in which learners think, work and learn? Will it help learners attain interactive learning in FLT/L? This section covers the definition, the potential and limitations, and roles of multimedia, CD-ROM multimedia and interactive video(disc).

2.3.3.1 What is multimedia?

2.3.3.1.1 Definition of multimedia and hypermedia

There is still some confusion about the meaning of ‘multimedia’, which is sometimes used synonymously with ‘hypermedia’ or even ‘interactive video’. The distinctions are not always clear even to many practitioners, and the terms are sometimes used interchangeably (Paine and McAra 1993, Romiszowski 1993). Before defining the term, ‘multimedia’, it is useful to recognise differences among ‘hypertext’, ‘multimedia’ and ‘hypermedia’.

Hypertext

The word 'hypertext' stems from an article *"As We May Think"* written by Vannever Bush in 1945, who promoted the concept of storing textual information as a network of documents linked together by meaningful 'pointers' (Baker and Tucker 1990, Romiszowski 1993), and the term was coined by Ted Nelson in 1965 to express the idea of packaging knowledge and information in non-linear ways that can be explored by self-determined linkages (Baker and Tucker 1990, Megarry 1989, Paine and McAra 1993). Hypertext generally refers to a dynamic and non-linear system for presenting 'active' text, which includes text, graphics, audio and video (Megarry 1989, Preece 1993). Its key feature may be summarised by two terms, 'nodes' and 'links', i.e., the text has many nodes and links which allow learners to determine their own routes through materials (Preece 1993, Romiszowski 1993). In other words, hypertext is high-level software through which the learners search for information and explore knowledge in non-linear and interactive ways in real time (Megarry 1989). It allows them to select a word or a segment of text just by clicking on it with the mouse or touching it on the screen, to link to other data, or some other related text or pictures or sound or moving video, without losing their original context. They can also create new pathways for themselves and others to follow, forging new links, recording comments and suggesting extensions (Megarry 1989, Underwood 1989).

A hypertext-based authoring system is one which allows users to link information together, create paths through a corpus of related material, annotate existing texts and create notes, using a couple of tools - 'buttons', 'fields' and 'graphical objects' (Hall et al. 1989, Paine and McAra 1993). There are a number of well-known hypertext products which approach this ideal, including '*Guide*' (OWL International 1986) and '*HyperCard*' (Apple 1987), which can cope with very long documents as well as combinations of media (Megarry 1989, Underwood 1989).

Multimedia

The term, 'multimedia' was widely defined as 'an integrated collection of different media' in the 1980s (Baker and Tucker 1990, Preece 1993, Romiszowski 1988).

Now, it is necessary to re-define the term due to the arrival of new technologies. It broadly refers to the application of technology in which various media are used together, e.g., computer plus audio (or sound card), computer plus CD-ROM, computer plus video (either videotape or videodisc), etc. (Fox et al. 1990). Looms (1993) described it as "any screen based system where information in the form of text, figures, pictures, sounds or moving pictures is available to the user". Copeland (1991) stated that the new concept of multimedia can perhaps be more accurately described as a 'multi-message system', i.e., a multimedia system incorporates many of the message systems that were previously facilitated by using a range of different media and it does this via a video display with audio. Baker and Tucker (1990) give a short and clear definition of multimedia as "a collation of disparate media emanating from a single presentation device, typically a computer".

Here, using these definitions, multimedia is defined as "a collation of different media emanating from a single computer system or a network, which can deliver text, graphics, images, audio and moving pictures on the screen, e.g., IV and CD-ROM multimedia".

Hypermedia

The term 'hypermedia' is often used to describe a hypertext system or a hypertext application to integrate other media, such as still images, animation, sound and video (Hall et al. 1989, Paine and McAra 1993). It can be easily defined through identifying the differences between multimedia and hypermedia. Romiszowski (1993) argues that it is important to distinguish between the concept of multimedia and that of hypermedia as follows:

> The use of a variety of media to improve communication of a particular topic is one issue. The storage of information (in whatever medium) in a network so that it can be more easily cross-referenced to other relevant information is another.
>
> (Romiszowski 1993: 58-59)

The branching structure of hypertext is used with multimedia in order to produce a system in which learners can choose and navigate their own paths through it, and in hypermedia, multimedia presentations can be combined, edited and orchestrated quickly and intuitively (Preece 1993, Megarry 1988, 1989).

Therefore, hypermedia can be defined as a combination of hypertext and a variety of multimedia, in which the common components are video, still images (either pictures or graphics), text, and audio (Preece 1993, Sanne 1993). Fig. 3 clearly shows the relationship between hypertext, and multimedia and hypermedia.

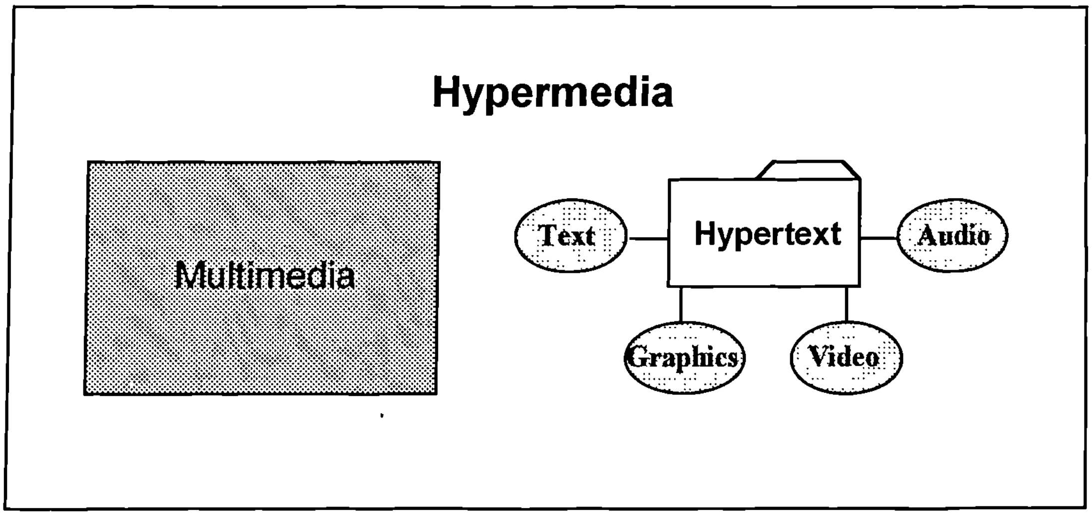

Fig. 3. The relationship between hypertext, multimedia and hypermedia

2.3.3.1.2 The potential of multimedia

There is a widespread belief that multimedia has considerable potential to contribute to language teaching and learning, because of its ability to overcome the limitations of the computer or video. Video is a good presentational medium, but it is claimed that there is always a danger of 'passive' learning. Computers have tended to emphasise and refine the didactic element, rather than allow interactive learning, i.e., learner-centred learning through interaction between the machine and the learner, and inter-learners (Laurillard 1987). However, multimedia can present all types of media with good quality, e.g., text, images, graphics, audio and video, and make language learning more interactive. These can result in increased interest, enhanced individualisation, higher retention of material, and improved success rates in FLT/L (Perzylo 1993). Therefore, the application of multimedia in FLT/L can offer considerable enrichment of the learning environment over that of conventional media or computers or video.

Here, this section deals with the main potential of multimedia, i.e., CD-ROM multimedia and IV. [Some of their own potential and limitations will be described in the CD-ROM multimedia and IV sections respectively.]

The integration of media

Multimedia can combine all the processing power and control capabilities of the computer with the presentational capacities of audio-visual media (Latchem 1993, Rühlmann 1995). This provides learners with much opportunity for keeping up with the 'real-life' examples of language use and culture in real time, but in the classroom. Davey et al. (1995) claimed that the use of multimedia can transform the learning experience through exposure to comprehensible language, and enhance the motivation of the learners in the language classroom. For example, the main ideas may be linked by theme, e.g., the Vikings, with pictures, video clips, ancient ballads or songs, etc. (Davey et al. 1995). Recent CALL tends to use multimedia due to these favourable types of learning environment that can be provided in FLT/L (Baker and Yeates 1985).

Large storage capacity

Multimedia can store huge amounts of information in digital form. A CD-ROM can store over 650 Megabytes, e.g., 250,000 pages of text or roughly 15,000 images or one hour of sound or 30 minutes of moving pictures or any combination of text, graphics, animation and sound (Baker and Tucker 1990, Bunzel and Morris 1992, Latchem et al. 1993, Romiszowski 1988, 1993). Each side of a videodisc can hold up to 36 minutes of moving pictures or about 108,000 still frames. With a mixture of moving pictures and still frames, there is still enough room for stereo sound or hundreds of megabytes of computer data, e.g., one typical disk can hold the whole of the *Encyclopaedia Britannica* on one side (Chambers 1987, Coleman 1987, Last 1984, Picciotto 1991). Thus, it offers a wider variety of forms of information than any other traditional media (Coleman 1987, Gardner and McNally 1995, Latchem et al. 1993). There may be some difficulties for teachers in providing learners with a variety of resources and situations in the conventional language classroom, since they are usually the only source of the target language. The use of multimedia (with hypertext) can allow them to create realistic situations and manage the classroom more easily, since it not only offers a variety of resources, but makes the connections between the various resources (Atkinson 1992).

Random access and rapid retrieval of information

Multimedia allows random access and rapid retrieval of information, and is easy to use. The searching routines in multimedia usually enable users to find information easily and quickly in a straightforward manner, i.e., clicking or typing *words*, *titles*, *etc.* (Baumbach 1990). For example, Oliver and Perzylo (1992) in their research using the *Mammals Multimedia Encyclopaedia* (1990) reported that students found the program very easy to use. Therefore, learners can save time, so that they can concentrate on the subject they are studying (Baumbach 1990, Fox et al. 1992).

These features enable learners to develop their information searching and problem-solving skills. The learners have to search for what they want and need from vast amounts of multimedia information. Information searching skills and strategies are required to use materials effectively (Baumbach 1990, Perzylo 1993). Multimedia can offer opportunities to simulate a non-formal learning situation for the learners, where they navigate their own route through the subject matter in a way that is largely self-directed and is personally meaningful (Laurillard 1987). The hypertext capability of programs allows them to search for the relevant information through browsing and clicking or typing words and titles at each phase. Some skills, e.g., following directions, identifying problems and solutions, classifying information, editing, refining, and modifying can lead to successful searches and improve problem-solving skills (Baumbach 1990). However, these skills will not be easy for the learners to acquire and teachers will need to teach them the skills.

Interactive learning

The term 'interactive' can generally be used with two different meanings in terms of technology-based learning. On the one hand, it refers to the interactions between media or devices as described in '*The integration of media*' above, e.g., the machine which delivers sound or images and the computer which controls that machine and delivers textual materials on its screen, to accompany or alternate with the audio or video presentation (Garrett 1991). Thus, multimedia can provide a highly interactive capability together with the capacity of presenting audio-visual materials, since the interactive capability of the computer can be applied to all types of media (Bunzel and Morris 1992). On the other hand, it refers to the degree of interactiveness between learner(s) and the computer system, learner(s) and learner(s), and learner(s) and the teacher (Baker and Tucker 1990, Garrett 1991, Romiszowski 1993). Thus, interactive learning is a process rather than a technology, implying the creation of an information-rich learning environment involving interactions between learners and IV or CD-ROM multimedia, and between learners through those (Baker and Tucker 1990).

Multimedia can encourage much more interaction between the learner and the machine, and between learners, than the computer alone, due to its distinctive features mentioned above (Gardner and McNally 1995). In an exploratory study on the use of a multimedia encyclopaedia on CD-ROM, Marchionini (1989) reported that students' strategies were heuristic in that they were highly interactive rather than planned. In addition, digital video and voice recognition systems can play an important role particularly for students' oral input in language learning, and make human-machine interaction possible to a certain extent (Rühlmann 1995). These levels of interactivity will be described again in section 2.3.3.3, 'The use of interactive video'.

Individualization

Multimedia also offers learners much more individualisation than the computer alone can do. A variety of materials created by multimedia can be engaged to cater for different types of learners, i.e., learning can be self-paced and they can obtain mastery at each stage with a rich learning environment. According to Perzylo 1993: 193):

> There is a non-threatening entry into subject areas for those who lack background or confidence. It makes no personal discrimination among learners. Increased control and independence is exercised over the learning process. Individual monitoring, assessment and feedback is readily available.

This level of individualisation can be achieved in combination with rich linguistic information and data, i.e., sound, text, graphics and moving pictures, etc. (Davey et al. 1995). More details of individualisation will be discussed in section 2.3.3.3.

Increased retention

Multimedia enables learners actively to engage more of their senses in the learning process (Perzylo 1993). Rühlmann (1995) stated that a combination of various materials assures a maximal learning outcome. Adams (1987) and Corston (1993) claim that people remember 10 % of what they read, (text); 20 % of what they see, (still and moving images); 30 % of what they see and hear, (text, audio, and still and moving images); 70 % of what they see, hear and do (text, audio, still and moving images, and interaction) (in Rühlmann 1995). This is a widely held view. Although Amthor (1991, 1992) represented the ratio of retention differently from Adams' and Corston's, he also stated that interactive learning resources, i.e., multimedia, provide the best chance for superior retention (in Perzylo 1993). The point to be made is that multimedia can be a part of that experience.

Motivation

Learners can enjoy working with multimedia materials due to the capabilities mentioned so far. For example, the Dept. of Education at the University of Central Florida distributed its first survey on the response to the CD-ROM *New Grolier Electronic Encyclopaedia.* The survey reported that students love working with the CD-ROM based references, and that they responded to it using adjectives, such as 'exciting', 'fascinating' and 'stimulating' (Baumbach 1990). CARE[10] reported that teachers and students seemed to regard IV as a powerful learning resource as follows: The teachers mentioned that the benefit of IV is its capacity to motivate students, i.e., the students were eager to use the machine - they continued to come back asking for more; They enjoyed using IV, e.g., the students said, "IV is better than how it looks in books.", "It made it easier.", and "It makes it more interesting." (Norris et al. 1990).

2.3.3.1.3 The limitations of multimedia

There are some limitations to the use of multimedia in the language classroom, although it is more powerful than any other media technologies in terms of hardware and software. [Some of the limitations will also be discussed in 'The use of CD-ROM (multimedia)' and 'The use of interactive video' sections respectively.]

First of all, the rich and attractive materials of IV or CD-ROM multimedia, such as sound, animation, moving pictures, etc. can distract students' attention and disturb the learning process, beyond the true role of the technology, which is to support and enhance the learning process. It is very easy for the students to be fascinated by the powerful technology and to forget what they are doing and how to learn better and acquire foreign language skills, just playing with it (Rüschoff 1993). In addition, multimedia programs generally provide learners with a vast amount of help options and feedback. However, some of them which simply make it easier to solve a task may not necessarily be helpful for active and interactive learning, and individualisation, so it is important to think carefully about what kind of help and information can be accessed through them, considering the importance of cognitive processes and strategies in language learning (Rüschoff 1993).

Indeed, both teachers and students need to pay attention to the danger of systems that seem to have everything available at the learners' disposal at the click of a button or by touching the screen (Garrett 1992 in Rüschoff 1993).

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[10] Interactive Video in Schools (IVIS) was evaluated by a team from the Centre for Applied Research in Education (CARE) (Norris et al. 1990).

2.3.3.1.4 The role of multimedia and teachers

The real potential of multimedia lies not so much in the technology, but in the courseware that enables learners to access a variety of materials, to navigate the information, and to build, test and apply knowledge in meaningful ways (Latchem et al. 1993). The use of computer-based technology requires teachers and learners to change their roles to some extent, in comparison with the normal classroom, as described before (see sections, 2.3.2.2.2 and 2.3.2.2.3). The use of multimedia may mean more changes to methodology in teaching and to learning style in learning and to the roles of teachers and students than that of other media technologies.

Multimedia can play an important role in any skill-based or process-oriented curriculum application (Wright and Dillon 1990). For example, Wright and Dillon (1990) focus on five types of use of IV: 1) *as a presentation system* - The application here is for conventional lecturing or a group teaching; 2) *for independent student learning* - IV can be used by students, either individually or in a small group, without the teacher; 3) *as a resource for students in the classroom* - It is the use of IV as a resource of enhancing teaching and learning activities; 4) *as an information source* - It is the use of IV as a source of information that is of interest, or for reference; 5) *as a surrogate tutor* - IV can supplement and reinforce teachers' teaching in both main subject and professional studies, but not replace them. Thus, multimedia can be incorporated in the courseware appropriately to enhance the learning outcome (Rühlmann 1995). The application of multimedia can also be designed flexibly for either classroom or self-access use (Perzylo 1993).

However, its more substantial roles seem to be in the categories as reference and information resources which take advantage of the book-like but superior visual attributes of the medium (Goforth 1992). Kornum (1993) stated that it is the teachers' job to elaborate a didactic design to the various materials produced. The role of the teacher is to change from that of the authority to that of the consultant and facilitator (see Fig. 4, pp. 84). On the other hand, the use of multimedia seems to leave the responsibility completely to students in the learning process. They will have more responsibility for learning in the multimedia classroom than in the conventional classroom.

2.3.3.2 The use of CD-ROM (multimedia)

CD-ROM (Compact Disc - Read Only Memory) technology may be one of the greatest inventions as an alternative publishing medium since papyrus, since it can store vast quantities of data in digital form. It has developed rapidly during the past couple of years in industry and in education. Megarry (1988) claimed that CD-ROM technology will be a perfect tool or partner in language learning, offering massive, robust and flexible storage, and the clear presentation of audiovisual materials.

2.3.3.2.1 The potential of CD-ROM multimedia

CD-ROM multimedia which is the combination of the computer and CD-ROM technology with a sound card provides users with an all digital and interactive learning medium. It is a complex mix of audiovisual technologies which presents a variety of materials in much more flexible and dynamic ways (Baker and Tucker 1990). It offers learners random access to vast amounts of information and data, which is easily and quickly retrievable in a variety of ways, and allows higher levels of interactivity, individualisation, etc. as described in 'The potential of multimedia'.

In particular, first of all, it is worth noticing that CD-ROM technology is moving ahead of IV, in terms of hardware and software developments. A great number of CD-ROM titles are being produced, which contain whole dictionaries, encyclopaedias, novels, newspaper issues, language learning packages, etc., and now teachers and learners can easily get them at a reasonable price. The use of a large collection of data in a variety of the titles which can be a powerful tool in FLT/L and can enhance work in all the foreign language skills probably generates more use of the language than any other application.

Secondly, a single or a couple of work stations may be inadequate to meet students' increased demand for the use of CD-ROM multimedia in the language classroom.

However, it can be networked and thus function as a database of resources which several students can access at the same time (Fox et al. 1992). The use of the materials in these surroundings can *enable the individual student* or a small or large group of students or a whole class at different stages to progress at his/her/their levels.

Thus, the application of CD-ROM multimedia to FLT/L can offer a variety of learning resources which the computer or video cannot do, providing differentiation in both task and outcome, and they, therefore, can profitably be used for improving the language skills (Atkinson 1992). Indeed, the use of CD-ROM multimedia can help teachers and learners to simplify or diversify the content and presentation of work, and then to raise the quality of work in the language classroom.

2.3.3.2.2 The limitations of CD-ROM multimedia

Even though CD-ROM multimedia is a new technology, it has some limitations. Firstly, it is still very expensive for schools to set up CD-ROM multimedia systems. CD-ROM titles may not be very high in price in terms of the capability and the quality they contain (users have a portable 650Mb hard disc). For example, the price of a CD-ROM title ranges from about £5 to hundreds of pounds according to its content (In fact, to produce a blank CD-ROM costs as little as £1). However, users basically need a computer, monitor, and CD-ROM player, and will have a more powerful computer (e.g., at least a 486DX computer with over 4Mb memory), colour monitor, and sound card in order to achieve the results they expect. Even though prices are falling, the price of MPC with the ability to process real-time video (about £1000+VAT) will cost twice as much as that of non-MPC (Latchem et al. 1993, PC Plus 1996). Moreover, a couple of work-stations with a CD-ROM player are inadequate in the language learning classroom. And if CD-ROMs are not connected to the network, only a student or a couple of students in pair or group work can access and use a CD-ROM at a time. More workstations or with CD-ROM players connected to the network will be required in order to allow students adequate access and simultaneous availability. This may be one of the hardest problems to work out in schools, since it is directly related to costs. In addition, it is reported that in practice, networked CD-ROM multimedia does not always work satisfactorily.

Secondly, the limitations of CD-ROM multimedia include slow data retrieval time when compared with a hard disc, particularly calling images and motion video (Barker and Tucker 1990, Latchem et al. 1993). Now some hardware manufacturers are producing eight and ten speed CD-ROM players, but they are still unsatisfactory.

Thirdly, most of the current CD-ROMs can only deliver small-size motion video on the monitor within a few minutes, and are not able to deliver full-screen video due to its innately slow access time and the enormous amounts of storage space that are required.

Fourthly, CD-ROM technology adopts an international standard, so called ISO 9660, but there are still problems (Baker and Tucker 1990). CD-ROMs for IBM compatible machines are not readable on Apple compatible computers, and *vice versa.* CD-ROM manufacturers have to decide whether to produce for IBM or Apple, or to supply two versions of the same title separately for both machines. It is also incompatible with CD-I (Compact Disc-Interactive).

Finally, as its name suggests, users can only read the data on CD-ROM. They cannot change and remove any data stored on a CD-ROM. But the users can copy and paste them from a disc into their own document on a hard or a floppy disc, and revise them (Fox et al. 1992). There is also the WORM (write once/read many times) system that allows users to record a blank disc, but it does not allow for any subsequent erasure or modification and is expensive (about £500) (Latchem et al. 1993).

In sum, CD-ROM technology offers lots of potential in FLT/L. Teachers and students can use a variety of digital, robust, and interactive materials in the language classroom. The use of CD-ROM multimedia as a tool and a partner provides them with opportunities to experience and use the authentic language of 'real life', and bring a variety of interaction patterns into the classroom due to its distinctive features. Some research studies have reported that CD-ROM multimedia is easy for learners to use and motivates them. However, information searching skills require learners to use a variety of CD-ROM multimedia materials. The teachers will have to focus on tasks and activities teaching enabling skills, and this may place some burden on them (Perzylo 1993, Plowman and Chambers 1994).

2.3.3.3 The use of interactive video

Interactive video (IV) is the end-result of attempting to combine the presentational powers of video with the control logic and the processing power of computers (Picciotto 1991). Therefore, some writers claimed that IV may be potentially the most attractive technical development in education this century, since it is far superior to any other technologies which exist in a number of ways, as it integrates all the advantages of two media technologies, computer and video (Hill 1987). It generally refers to an audiovisual communication system which is a combination of the computer and video, i.e., the system which combines a video source with a program run from a computer, whether using videotape or videodisc (Videotape is much slower and less durable than videodisc, though it can use existing video materials.) (Hill 1987, Picciotto 1991).

IV is not a new technology and has been known for a long time, almost 15 years, but its hardware and software developments have been so slow. It even seems to be falling behind the latest technologies, e.g., CD-ROM multimedia and CD-I. While the use of IV is still largely experimental in FLT/L, some research studies provide some basic premises and principles about the development and delivery of IV products in all the applications, and have evaluated their educational potential (Latchem et al. 1993). What is the state-of-art IV technology? How can teachers and students use it in FLT/L effectively? This section will briefly discuss the potential and limitations of IV, particularly interactive videodisc, in the light of these questions.

2.3.3.3.1 The potential of IV

The basic idea of using IV is to expose learners to an authentic learning environment allowing interaction of the machine with the learners. This is also possible in CALL, but it is particularly significant that IV provides much more richness of audiovisual materials, e.g., authentic samples of language and culture (Norris et al. 1990, Picciotto 1990). The computer, video and textual elements of IV have their own technological characteristics, symbol systems and cognitive processing capabilities. Together, they provide a powerful learning tool and enable learners to learn, i.e., to construct knowledge by connecting their mental representations to the real world, but in the language classroom and integrating mediated information with information already stored in the memory (Allan 1991, Latchem et al. 1993).

IV offers larger storage capacity, more varied forms of audiovisual materials, greater and more varied speed with random access, greater durability, less maintenance, and greater ease to use than any other media (Gardner and McNally 1995, Latchem et al. 1993). IV can present video materials very quickly, precisely and flexibly under computer control - taking no more than a few seconds to select any video sequence and frame (Hill 1987, Picciotto 1991). Furthermore, any one of the moving video pictures (in fact, a series of still frames) can be 'frozen' on the screen for any amount of time (Hill 1987). The picture is stable and there is no danger of damaging the disk. The frames can also be played at different speeds, so that action can be examined in varying degrees of slow motion, or a kind of 'skim viewing' can be done at high speed and in either direction (Allan 1991). Evaluation of these IV features has shown them to be a powerful and motivating factor for learners in the language classroom (Picciotto 1991). With these basic characteristics, the limitations of computers, e.g., the somewhat sterile feeling of programmed learning and not presenting verbal and visual information well, and those of video, e.g., lack of interactivity and the danger of passive viewing, are being overcome as IV allows learners to talk, listen and view, and be more interactive (Hall et al. 1989, Wright and Dillon 1990). In short, IV can provide learners with more active, individualised, and interactive learning that other media technologies.

Firstly, the real potential of IV is that it allows learners to have a lot of control over the materials. Milheim (1990) stated that learner control is generally described as the ability to choose the pacing, sequence or content during an instructional lesson. IV is characterised by fine and relatively instant control over stopping, scanning, and replaying with different speeds (Gardner and McNally 1995). The learners can scan from one end of the disk to the other very quickly with precision within a few seconds (Coleman 1987, Sanne 1993). According to Laurillard (1987: 135), for example, one of the IV systems produced at the Massachusetts Institute Technology (MIT) allows the learner to change the form of video:

> As a video sequence is playing, a student could choose, for example (a) to go to a section with a more detailed description, (b) go to a close-up of part of the picture, (c) slow the action, (d) scan through the video at a faster rate, etc.

With this degree of control, learners can easily access and interact with a variety of information at their disposal within the materials in real time, such as text, images, audio and moving pictures (Sanne 1993). There may be no risk that the learners will revert to a passive learning style, and it is a greater opportunity for them to direct their own learning (Laurillard 1987).

Thus, IV allows learners to choose the speed, order or topics that most suit their specific needs or learning styles (Milheim 1990). The power of control over and manipulation of visual images afforded by IV, particularly in areas where the use of visual material is essential to the understanding of the subject, is a great stimulus to the learners (Hall et al. 1989, Wright and Dillon 1990). Some writers claim that these seem to enhance the understanding of difficult concepts in the learning process. Therefore, IV is more effective in producing high levels of performance in a variety of learning contexts than the computer or video alone, keeping students more actively participating in the learning process (Dalton 1986). One can conclude that IV provides active learning.

Secondly, part of IV's distinctive potential is the ability to encourage individualisation, since it gives students varied instructional pathways and lesson pacing at their level, and individualised feedback to suit their needs (Dalton 1986). Again, IV allows very quick and precise presentations of varied and rich information with audiovisual materials. It can also provide flexible learning opportunities and is suitable for a variety of learning styles (Picciotto 1991). Thus, IV allows learners to choose their own activities with lots of sources, and to work through them in their own ways. These make it possible for students to approach the kind of learning strategy they use in ordinary life outside the classroom, where learning is self-directed and related to their own activities (Laurillard 1987). Furthermore, well designed programs can allow them a much higher degree of choice over their own learning than is normally possible in this subject area (Picciotto 1991). CARE reported that IV enables learners to learn at their own pace, allowing repetition and revision at will (Norris et al. 1990). In his research study, using IV materials for business-related language learning, *Expodisc Spanish*, Bangs (1987: 107-108) stated that its potential for FLL is as follows:

> the ability to put the user in realistically 'authentic' situations, and for him or her to be able to choose a route (through a managed choice) through the software which will reflect his/her particular interests and/or abilities.

However, individualised learning is not easy for students and would require a lot of work. They cannot easily direct themselves within a variety of resources, i.e., its organisation is not displayed, and may even feel frustrated because of its lack of direction (Laurillard 1987). As mentioned in the section on CD-ROM multimedia , the students need a direction, i.e., information searching skills in order to navigate their way and to fulfil their goals in FLL. Before using IV materials, teachers will have to teach them how to navigate the materials and to search for information needed.

Thirdly, IV can provide learners with a high level of interactivity through their control over the system, which requires them to interact actively with the materials instead of behaving as passive observers (Picciotto 1991). As Fig. 4 shows, IV can transfer much of the control of the medium to the learner, resulting in a greater interactivity between the learner and the machine (Kornum 1993). In addition to interaction between the learner and the system, many of IV's current implementations encourage interaction between the learners using the system (Gardner and McNally 1995).

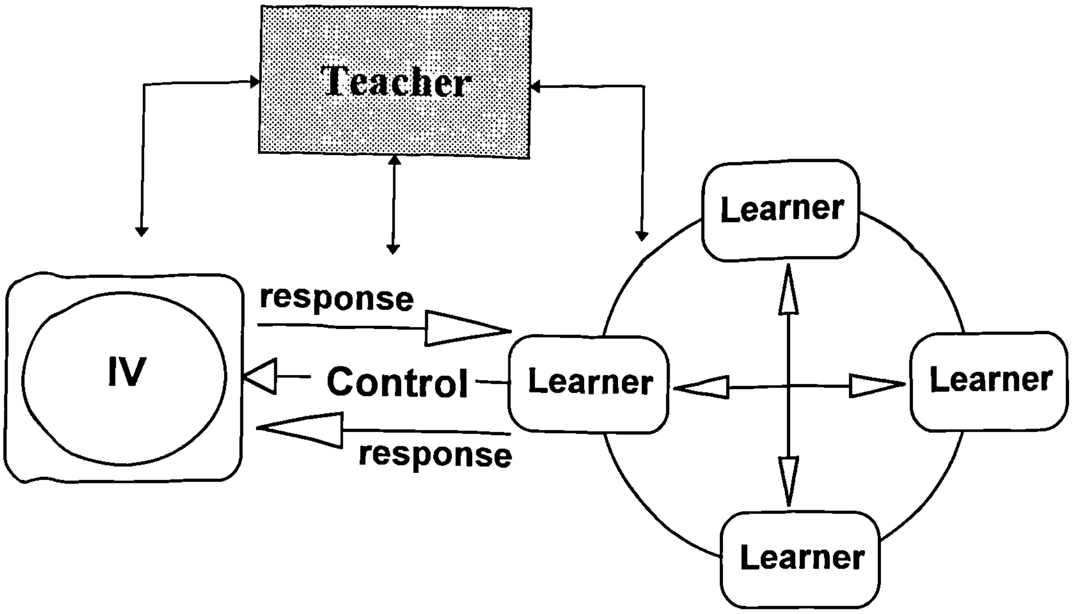

Fig. 4. Interaction between the learners and between the learners and the machine, using IV software (based on Gardner and McNally 1995)

The potential of presenting learners with authentic oral language and the visual/cultural contexts for communication are so obvious that language teachers feel that it must have enormous beneficial impact on learners' acquisition of communicative proficiency (Garrett 1991). However, because of IV's ability to provide interaction between the system and the learner(s) and the stimulus for the inter-learners target language interaction, the teacher's role as a monitor or a facilitator should not be overlooked. It is important to notice that the potential of IV to stimulate interactions lies in its capacity to structure teaching and learning, and not just in the system itself. It can be achieved through the software under the teacher's responsibility. The software makes the learners interact with the system, rather than merely view it (Norris et al. 1990). In short, IV can provide students with an effective and enjoyable means of promoting interactive and active learning, while minimising off-task behaviour and passive learning (Dalton 1990).

There are several IV programs[11] developed specially for 'interactive' language learning, e.g., *Expodisc Spanish* (Ealing and Buckinghamshire Colleges 1989), *Montevidisco* (Brigham Young University 1982), *The European Connection* (BBC 1989), *TOPIC* (West 1989), etc. For example, The BBC English production, *The European Connection* is an English program developed for it. It is designed to answer the needs of business people everywhere who have to use English in the business world (Picciotto 1991). The material offers learners examples of authentic everyday English i.e., a mix of scripted story-line, authentic interviews, and simulated telephone calls (Allan 1991, Picciotto 1991). It is backed up by a range of optional supports such as subtitles in English, or some other languages, and a pronouncing dictionary (Allan 1991). From the results of the research studies using the materials, some researchers reported that these materials stimulated productive discussion. In his research study using *TOPIC*, for example, West (1989) reported that with one exception, i.e., the fact that they were uneasy using a keyboard, the learners felt that the program was highly effective as a teaching tool for training in improving oral proficiency.

2.3.3.3.2 The limitations of IV

As described so far, IV can offer learners a lot of distinctive potential and new possibilities of using media technology, but it also requires enhanced forms of software and hardware (Allan 1991). In short, the main limitations of using IV are its cost, i.e., relatively high cost of equipment and mastering of discs, and as a result, lack of hardware and software, rather than pedagogical issues. Producing its courseware including hardware and software to integrate with existing courses is very expensive and time-consuming (Hall et al. 1989).

First of all, it is costly to set up the IV system. The hardware is still very expensive and is not readily available. The cost of an IV workstation is around £3000 up to

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[11] In detail, for *Montevidisco,* see Gale, L. E. 1983. Montevidisco: an anecdotal history of an interactive videodisc. *CALICO Journal* 1:42-46. For *TOPIC,* see West, G. 1989. An interactive video program: TOPIC (Training for Oral Proficiency Interview Competence). *CALICO Journal* 6: 51-59. For *The European Connection* and *Expodisc Spanish,* see Hill, B. 1991. *Making the Most of Satellites and Interactive Video*. London: CILT.

£4500, depending on the systems. The basic component of an IV workstation are a PC, a laser disc player and a monitor. A typical IV workstation costs about £3100 (US $ 5000) (Paine and MacAra 1993). It costs no more than the earliest market price of video and the computer ten or fifteen years ago, but it is still much too expensive to purchase in schools and educational institutes (Picciotto 1991).

Secondly, one of the major limitations is lack of software, because of the high cost of producing a videodisc. There has been an increase in the supply of software specially designed for education and language classroom use or commercially available over the past decade, but there is still a very limited range to choose from as compared with video and CD-ROM (Allan 1991, Picciotto 1991).

Creating and developing IV software is expensive and time-consuming, since the convergence of the technologies of the technologies demands a corporate convergence of people with different skills and knowledge (Allan 1991). Media specialists, computer programmers, and teachers have to work together, whether sophisticated resources are involved or not. The National Interactive Video Centre estimated the average cost of developing an IV course about as £80000-85000 ten years ago, but it is likely that this would be considered a very low figure nowadays, depending on the complexity of the course to be produced (Picciotto 1991). What is worse, the problem of the cost of the hardware is more serious, since IV cannot be networked. Every IV workstation requires its own videodisc player and a copy of the appropriate videodisc (Hall et al. 1989). Because of these problems, therefore, only a few schools and institutions have the facilities for presenting students with a large-scale, fully interactive language learning environment. If the price of an IV system falls dramatically as a result of the technical developments, and if it is available in the language classroom, a great deal of exciting materials may be available at relatively low cost to the market.

At present, there seem to be only two ways to solve these problems. One is that schools hire IV equipment for the periods of time they are needed, and borrow videodiscs from a central library facility or some Institutes in the same way as books on short/long-term loan (Gardner and McNally 1995, Hall et al. 1989). The other is for teachers and learners to make the best use of available IV materials and to explore how to use them effectively to improve language teaching and learning within the limitations of the equipment and software. Determined teachers can overcome the limitations of having just one workstation and lack of software (Jones 1993). It is worth noticing that even if IV is available in the classroom, the proper implementation of IV will entirely depend on the teachers like other teaching methods (Laurillard 1987).

In sum, there is no doubt that IV has, in principle, pedagogically immense potential to increase the efficiency of the teaching and learning process in various ways as mentioned so far. Because of its high hardware and software costs, however, IV has largely remained a medium for use by certain universities or large institutes for special purposes, and is hardly used in normal language teaching and learning (Picciotto 1991). There must be more research on the cost-effectiveness of IV, and sufficient investment in hardware and software to create a viable market for teachers and learners to be readily available and to use IV efficiently and effectively in the language classroom. That is, its future and its potential lies in the hands of application developers and producers. Otherwise, IV and its application in FLT/L appear to have no future.

2.3.4 The advantages and disadvantages of media technology in FLT/L

The preceding sections dealt with the potential and limitations, and the roles of media technology. It is worth noticing that the media technologies have their own distinctive characteristics in making positive contributions to FLT/L, and some limitations too. There is a danger that the technologies will be misused. Also, teachers might sometimes ignore other media (e.g., the OHP, audio, etc.), in spite of their positive characteristics. For example, they can be misused if the teachers apply other technologies in teaching a task and carrying out some activities which could be done better with the use of a simpler aid like audio. In fact, audio can provide some advantages in developing learners' listening skill, e.g., a variety of listening materials, easy of use, and its adaptability and flexibility in comparison with other media. It is entirely up to the teachers to select media technologies appropriately for creating a successful learning environment (Romiszowski 1988).

This section attempts to summarise and compare the advantages and disadvantages of six media technologies in the language classroom, i.e., audio (audio tape and cassette), satellite TV, video (including video camera), computers, CD-ROM multimedia, and IV in terms of pedagogy and technology, based upon the potential and limitations discussed in the preceding sections (see Table 3).

2.3.4.1 The advantages and disadvantages of six media technologies

The media technologies have many distinctive advantages over the traditional media in presenting a variety of information and linguistic materials and enhancing foreign language teaching and learning in various ways in the classroom. This can help teachers become more competent than in the conventional classroom. Therefore, the use of media technology can provide learners with a richer and more varied language environment.

However, there are also some disadvantages. For example, one of the major limitations is the technical problems, i.e., the cost of setting up and maintaining the equipment, the difficulty in handling it, etc., rather than methodological ones which depend largely upon teachers. In addition, if media technology is not used with a clearly defined teaching methodology, first, there is the danger of passive learning; second, students can forget the ultimate goal, learning a foreign language, fascinated by the powerful and attractive technologies and just playing with them. This increases off-task behaviour and activities.

The following Table 3 presents a summary of the main advantages and disadvantages of the six media technologies.

Table 3. The advantages and disadvantages of the six media technologies

Advantages and disadvantages	**Audio**	**TV (STV)**	**Video**	**Computer**	**IV**	**CD-ROM multimedia**
Pedagogical						
Motivating learners	●	●●	●●●●	●●●	●●●●	●●●●
Providing authenticity (in real time)	●●● (●●●)	●●●● (●●●●)	●●●● (●●●)	●●● (●●●●)	●●●●	●●●●
Helping learners understand the context of situations and culture	●●	●●●●	●●●●	●●	●●●●	●●●
Trigger for speaking	●●●	●●●●	●●●●	●●●	●●●●	●●●
Interactivity	●●	●	●	●●●	●●●●	●●●
Individualisation	●●●	●	●●	●●●	●●●●	●●●●
Helping learners develop information searching skills and problem-solving skills	●	●	●	●●●	●●●●	●●●●
Adaptability	●●●	●●	●●●●	●●●	●●●●	●●●
Flexibility	●●●	●●	●●●	●●●	●●●●	●●●
Possibility of overuse	●	●	●	●●	●●	●●
Possibility of distracting students' attention in the learning process	●●●	●●	●●	●●	●	●
Time required in preparation	●●●●	●●●	●●●	●●	●●●	●●
Software availability	●●●●	●●●●	●●●	●●	●	●●●
Technical						
Sound and moving pictures	sound only	●●●●	●●●●	●●	●●●●	●●●
Large storage capacity	●●	–	●●●	●●●	●●●●	●●●●
Speed of finding information	●●	●	●●	●●●	●●●●	●●●●
Different speed	●●	●	●●	●	●●●●	●●●
Random access	●	●	●●	●●●	●●●●	●●●
Easy to use	●●●●	●●●●	●●●	●●	●●●	●●
Cost of setting up and maintaining	●●●●	●●●●	●●●●	●●●	●	●●
Need for some technical knowledge	●●●●	●●●●	●●●	●●	●●●	●●
Compatibility	●●●●	●●●●	●●●	●●	●●	●●
Networkable	●●●●	●●●●	●●●●	●●●●	●	●●●

*** Best ●●●● ●●● ●● ● Worst, '–': Not applicable**

The 'bullets' awarded in Table 3 are based on the potential and limitations described in the preceding sections so far, eliminating the researcher's own subjective judgement as far as possible. An element of subjectivity is involved as the way in which bullets are awarded for some categories might vary depending on the user (e.g., ease of use). However, this summary table could give users some ideas or indications about how to select appropriate media technologies for FLT/L.

Thus, each of the media technologies can be a flexible tool or partner to get students to learn in the foreign language classroom due to their distinctive advantages, if it is well-used in the right context through proper selection. However, the majority of serious disadvantages tend to be caused by minor problems, e.g., poor manipulation, thoughtless use, etc. It is worth noticing that most limitations could easily be overcome by teachers through proper preparation and training with the help of technicians or experts.

2.3.5 Teacher preparation and training for media technology

The previous section showed that there are many distinctive advantages that media technology can contribute to FLT/L. However, for many teachers the use of media technology in FLT is not an easy task, since it requires some time for technical and pedagogical preparation, e.g., some knowledge of software and hardware, how to integrate it into a variety of contexts, and proper training.

Some teachers may think that they can handle and use media technology by themselves, even without training, since they are committed to it. But other teachers are sceptical of it and are nervous about using it (so called 'technophobia'). Therefore, many writers have emphasised the importance of and need for proper training for an effective use of media technology.

This section deals with teacher preparation and training for media technology, particularly video and computer-based technology.

2.3.5.1 Teacher preparation

If a lesson which uses media technology is not properly planned and organised, it can be misused and overused, so that the valuable teaching and learning time will be wasted (Schmid 1989). Therefore, teachers and learners will have sceptical and negative attitude towards the use of media technology. Indeed, one of the main factors in the successful use of media technology in FLT/L is technical and pedagogical preparation (Tomalin 1986).

In terms of technical aspects, if teachers want to use media technology effectively in the classroom, they should know how it works and be familiar with the machine, which can be achieved with either the manual or the help of technicians or experts. Teachers have to practise all the basic properties, functions, and techniques of the equipment or machine they need until they know how these work and feel quite at home with them (Allan 1985). In short, teachers don't have to be technical experts, but need to be able to handle media technology flexibly under their own control (Tomalin 1986).

In terms of pedagogical aspects, the teachers will always keep in mind that whether or not teaching materials of media technology are suitable for certain tasks or situations depends on how they are used (Windeatt 1990). The materials can be integrated into a variety of syllabuses, tasks and activities in FLT/L, through flexible and imaginative methodological approaches, which will compensate for a lack of suitable material that the teachers often claim. Windeatt (1990: 9) suggested that teachers consider the following questions, before using the materials, focusing on what teachers and learners can do with the programs, rather than on what the programs do by themselves:

> 1) What is the program intended to teach or practise?; 2) What do you think the program actually does teach or practice?; 3) How could you use it with your students? Try to think of three ways you could see use it with your students; 4) What shortcomings do you think there are in the program? Think of three improvements you would like made to the program.

This must be a good suggestion for what teachers can do in pedagogical preparation. Specific methodological approaches and some actual activities in the use of media technology will be presented in the next section, 'Media technology and language skills development in FLT/L'.

In practice, first of all, it does not take long (probably a few hours) for teachers and even a novice to set up and operate some of media technologies which are easy to handle, such as TV, video, and even a video camera, and the more the teachers uses them, the more easily they control them. For example, Tomalin (1986: 28) shows an example of teacher preparation for a lesson using video as follows:

> a) Selection of a video extract of about two minutes - it is ultimately more useful as a short extract for intensive study than as a long extract for extensive use; b) Selection of the language to be taught or highlighted through that extract - what language is to be exploited in it, e.g., for communicative activities; c) Preparation of a lesson plan including worksheets for comprehension and follow-up; d) Familiarity with the equipment to be used.

On the other hand, the use of newer or advanced technologies, such as computers, CD-ROM multimedia and IV require some knowledge of computers, and changes in the role of teachers and learners, so that teachers will need more preparation to integrate their existing teaching practices into them, differently from other media technologies which are relatively easy to handle (Pelgrum and Plomp 1991). As mentioned above, however, it has been argued whether teachers should know about computers and computing for effective teaching, or not. It is suggested that some degree of 'computer literacy' is necessary for teachers who want to use computers effectively in FLT (Higgins 1985, Lian 1992, Meara 1985, Simonson et al. 1987, Skehan 1985, Vincent 1985,). In particular, the acquisition of computer literacy makes them have a positive attitude towards computers (Simonson et al. 1987).

Computer literacy

The term 'computer literacy' appeared at the end of the 1970s, has recently become widespread in the field of computing and CALL, and its definitions vary according to writers (Simonson et al. 1987, Terry 1984, Wilkinson and Patterson 1983).

First of all, Terry (1984) claimed that computer literacy includes not only computer awareness, but the ability to do computing. 'Computer awareness' means becoming aware of facts about computers and computing - the extent to which computers are part of our lives and the society in which we live, including a study of the history of computers, how they work, what they do, where they are used, etc. (Terry 1984). Actually, the definitions of computer literacy have been classified into the following three approaches, according to the proponents of each of them: one extreme is the ability to control the computer by programming it; the opposite extreme is the ability to use computer applications without having in-depth knowledge of programming and inner computer operation; an eclectic approach between the two depending on the situation (Simonson et al. 1987, Wilkinson and Patterson 1983). Simonson et al. (1987) made a general definition of it: "An understanding of computer characteristics, capabilities, and applications , as well as an ability to implement this knowledge in the skilful, productive use of computer applications suitable to individual roles in society". Therefore, it can generally be defined as 'knowledge and an understanding of computers (hardware and software) combined with the ability to use them effectively for one's own purposes' in FLT (Ariew and Frommer 1987, Richards et al. 1992).

However, this definition of computer literacy may still be very broad for teachers, since computers require different levels of expertise in the contexts of FLT/L. What kind of and what level of computer literacy should teachers have in the language classroom? First, Wyatt (1984a) stated that the teachers do not need to know everything about programming or the inner workings of a computer, but they need to be thoroughly familiar with the content and operation of the courseware. Second, Terry (1984) pointed out that they will have a basic level of understanding of computer technology, i.e., how it works and experience of computer programming, and need to learn about how the computer can be used as a tool and a learning resource for their students in language teaching and learning. In other words, the teachers who are involved in CALL need to have enough knowledge of hardware and software to select, use and evaluate CALL materials, and to know programming, i.e., a simple programming language, e.g., BASIC (Vincent 1985). Higgins and Johns (1984) agreed that teachers should try to acquire some understanding of how computers work, how they can be applied in language teaching, and how they are programmed. Third, Skehan (1985: 7) enumerated the alternatives open to the language teachers as follows:

> 1). Not to learn to program and to rely on high-quality software.
> 2). To learn simple programming: (a) so as to write simple programs; (b) to be able to adapt and tinker with existing software - to improve it, to tailor it to local circumstance, or quite simply to make it work!
> 3). To learn an authoring language.
> 4). To reach semi-professional or professional programming standards.

The Bell team, in particular, suggested that language teachers can generally get by at level 1), and that anyone who wants to use computers more effectively will need to get level 2) and 3) (Skehan 1985). Higgins (1985) and Meara (1985) recommended that the teachers, particularly who want to get to level 4) communicate and co-operate with specialists. Among these approaches, the Bell team's approach, with a basic knowledge of hardware, seems to be appropriate for teachers in FLT.

One can conclude that teachers need to have a certain degree of computer literacy related to the materials to be used as far as they want and use the system under their control. Undoubtedly, the more skilfully teachers control the machine, the more easily they can carry out what they want to do with it in the classroom. Once teachers have gained a basic understanding of computer literacy, they will find that they get used to computers and computing, and feel much more confident about them, when working with appropriately designed CALL programs and courseware (Wyatt 1984a).

2.3.5.2 Teacher training

Administrators and teachers have recently been aware of the importance of media technology literacy, and have tried to acquire it. However, it may not be easy for teachers not only to estimate what level of knowledge and skill are required to make the best use of media technology, but to find out how they use the materials in the language classroom. Besides, there are practical considerations which the teachers and administrators should be concerned with, i.e., what types of machines to buy, how many to buy, and where to put them (Wilkinson and Patterson 1983). The need for having this sort of basic-level of knowledge must be also considered. These aspects are why the teachers need proper training in the use of media technology.

However, one of the most important factors in the use of it, teacher training, has often been underestimated and ignored or carried out improperly for some reasons, which will be discussed later. How, then, can it ideally be organised and carried out?

Methodology for training

For effective use of media technology, again, teachers need, first, to be familiar with the basic properties and functions of the machine to be used, second, know what it can do in FLT/L, and finally to find out how its teaching materials can be used in developing specific language skills. These aims can be achieved by well-organised training courses and the application of a proper methodology for teacher training. In short, training courses for media technology, whatever it is (its courses are common in terms of the machine teaching), particularly for CALL, should be workshop-based, i.e., hands-on practice, rather than lecture- or demonstration-based (Windeatt 1990).

At this point, it will be useful to take CALL as an example of what an ideal teacher training course should be. Most teachers will want to learn as much computer literacy as possible in a short time, since they usually do not have enough time to enjoy the course. However, it is not easy and simple for the majority of language teachers to have the kind of computer literacy mentioned before and particularly to learn programming (Allan 1985). Terry (1984) stated that computer literacy can be achieved by hands-on experience and practice at computing. Therefore, teachers need efficient training courses focusing on hand-on practice, in which they can learn about computer literacy, which develop a general understanding of what computers can and cannot do, and of when and how they can best be used, within the classroom contexts.

However, Amarel (1983) pointed out that most training courses for computer literacy (or CALL) have typically focused on teaching certain programming languages. The courses should not be too general or specific, but provide teachers with some hands-on experience, an exposure to existing software, and a preliminary discussion of problems and principles in relation to language teaching and learning area (Terry 1984, Vincent 1985). There is a good example to show what teacher trainees do want in the training course. Stefan (1989: 5) said, "My attitude to CALL was fairly ambiguous, and I hoped to get a clearer picture of what could and should be *done with computers, both* in the language classroom and in the field of teacher training." The ideal, indeed, is a training program limited specifically to computer applications in language teaching and learning, whether it is for a couple of hours-, or days-, or weeks-course (Vincent 1985). For example, Windeatt (1990:8) suggests the pattern which needs to be involved in training courses for CALL, based on experience of training teachers:

> a session considering what is involved in particular skill or language area, such as reading; 'hands-on' practice with one or more programs relevant to the skill or language area; discussion of how the program(s) could be used in class; practice authoring with the software.

He added that this pattern may be ideal for a short course, e.g., half a day, and can be repeated with different skills and language areas for a couple of days-course, while a longer course of about a week will include further elements, e.g., the preparation of CALL lesson-plans, and working on word-processing (Windeatt 1990) In terms of methodological considerations adopted on the these courses, the first step is to help trainees overcome psychological barriers, e.g., reluctance to use computers, prejudice, misconceptions, etc. through creating a relaxed atmosphere (Schmid 1989). Windeatt (1990: 9) summarised the considerations as follows:

> gain confidence in using the equipment as quickly as possible; experience what it is like to be a student using computers; find ways in which they can integrate CALL into their own curriculum; feel free to ask even 'stupid' question to solve their problems.

In addition, Wilkinson and Patterson (1983) claimed that in-service training is crucial to the success of CALL. In particular, an on-going in-service training course should be offered within schools (Terry 1984). A survey by MECC (Minnesota Educational Consortium) indicated that 80% of teachers felt a need to be trained through in-service training.

However, there are some problems in teacher preparation and training for the use of media technology. They are the limited availability of media technology, not having 'experts', and the lack of teacher time, since a relatively greater amount of time is needed for it compared with other areas of professional development (Terry 1984). First of all, therefore, the teachers must have the equipment and materials of media technology they need, and technicians to work with. Secondly, they must be given appropriate time off, in order to spend some time familiarising themselves with them, and funding for attending training courses or in-service training (Vincent 1985).

2.3.6. Media technology and language skills development in FLT/L

This section aims at providing teachers with some examples of methodological approaches in FLT/L, in relation to teacher preparation and training in the use of media technology mentioned in the previous section.

Although there has recently been an emphasis on the communicative approach in FLT/L, the ultimate objective of foreign language teaching is to help learners develop four language skills - reading, writing, listening and speaking - all together at an appropriate level. In practice, the skills are not isolated, but clearly inter-dependent, e.g., the key to good oral performance lies as much as in developing aural accuracy as in speaking practice (Hill 1989, Perfetti 1983). The use of media technology can help learners develop the four language skills. In general, teachers should follow the three stages, pre-work, work, and post-work to use it effectively, which will be applied to all the media technologies and language skills development.

Satellite TV, video, and IV bring a variety of authentic audiovisual materials into the language classroom. However, STV has often been used in a 'recorded' form, rather than 'live', which provides learners with richer and more 'live' resources that video lacks. IV is superior to video, but it is not widely used due to its high cost and lack of software. CD-ROM multimedia is an extension of the computer, which offers learners a variety of information with sound and moving pictures that computers lack. Therefore, this section will particularly look at video and computers which are available in the language classroom and language skills development, i.e., how they can contribute to developing the four language skills, and some activities that can be employed in each skill.

2.3.6.1 Video and language skills development

Video materials can be used for teaching language skills, e.g., both listening and speaking skills, (and maybe all the skills at the same time within a lesson according to methodological approaches, i.e., an integrative methodology), although this section presents idea of how video can help teachers and learners develop the four language skills (Kennedy 1983).

2.3.6.1.1 Reading

It is arguable that video is not as good as textbooks for improving learners' ability to read, since it cannot provide a large body of text (Kennedy 1983, Sherrington 1973).

First of all, teachers can use video with written texts or video scripts related to the sequence (Stempleski and Tomalin 1990). Reading them, which is often adapted to follow up and reinforce viewing work, is usually necessary for students to know what to do or how far they have progressed (Hill 1989, Lonergan 1984). This will be useful for a reading comprehension exercise. Second, Sherrington (1973) pointed out that video captions can be used to increase reading speed and the ability to skim and scan for information. Sub-titles used with a visual presentation are compulsive reading, and this can be a further technique which could be exploited for improving reading skills, i.e., predicting and guessing (Kennedy 1983). In addition, video can present a variety of written materials with visual elements, e.g., doctor's prescriptions, the journalist reporting on an interview, shop signs, posters, aeroplane timetable, charts, advertisements and articles in newspapers (Hill 1989, Lonergan 1984). Moreover, the style of each type of writing can be shown, e.g., print, handwriting and signwriting, etc., which can be used to give practice in reading, whether they are presented on the screen in their original form (e.g., probably practising reading scrawl in the case of handwriting) or are rewritten in a more accessible form (Sherrington 1973).

2.3.6.1.2 Writing

Video can also contribute to improving students' writing skills. Hill (1989) claimed that video can be just as effective as text or more effective in carrying out a wide range of writing activities due to the contextualising visual dimension.

Video can be used in improving writing skills[12] as follows: answering questions (writing short or simple sentences); proof correction; dictation; completion of a script; transcription; note-taking; summaries; report writing; composition (Hill 1989, Lonergan 1984, Stempleski and Tomalin 1990). Firstly, for example, script completion is regarded as a particularly good activity, since it integrates the four language skills. Following comprehension work on the first part of a scene, students are asked to guess what happened next and to create their own script (Hill 1989). Secondly, note-taking is an important study skill for learners who want to use a foreign language as a medium for study, business, or some other professional field, and a useful activity in developing writing skills (Hill 1989, Kennedy 1983, Lonergan 1984). Video can present a realistic verbal and non-verbal context in which some writing activities may take place and provide students with practice opportunities for note-taking and summary writing (Allan 1985, Hill 1989, Kennedy 1983). For example, video recordings of meetings and lectures (particularly 'talking heads') can give practice in taking notes of the main points (Allan 1985). Thirdly, after note-taking and

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[12] See Hill, B. 1989. *Making the Most of Video*, Chapter Four, 'Using video to develop written skills' for details. He introduces a number of activities and examples in practice.

summary writing, report writing and composition can be useful activities for students to compose their own script and to improve their integrated written skills at the end (Hill 1989).

Kennedy (1983: 97) described a learning cycle which can be carried out in the use of video in the language classroom as follow, emphasising an integrative methodology for teaching skills: 1) listening to/watching a video-taped lecture/talk; 2) at the same time taking notes or; 3) completing various note-taking exercises; 4) follow-up discussion of the notes in pairs/groups; 5) possible writing-up of notes into a full report.

2.3.6.1.3 Listening

One of the most important reasons for using video may be to develop students' listening skills (Allan 1985, Hill 1989, MacKnight 1983) (for example, see Table 4). Having a certain degree of the adaptability and flexibility of audio, video can present a foreign language in a complete context with the para and extra linguistic information, which can help students understand spoken language more easily. Sherrington (1973) pointed out that the success of the communication depends on the degree of their integration. The visual aspect with sound facilitates more comprehension, since it can provide learners with realistic exercises to understand the discourse of people in various situations.

There are broadly two levels of listening activities, 'extensive listening' and 'intensive listening' in the use of video. Extensive listening involves using a video purely to provide practice in listening and understanding. It can be designed to encourage learners to listen for the general gist of a programme or sequences, and this listening practice can be used successfully with intermediate and advanced learners of English (Sheerin 1982). 'Talking head' materials can also be used in developing extensive listening skills. Intensive listening is for the more advanced learner and is probably most relevant in the teaching of ESP. It involves listening for specific words and phrases with a view to eventual production (Sheerin 1982).

Table 4 illustrates the results of MacKnight's survey administrated to teachers at tertiary level, based on the answers to the question, "How do institutions use video?".

Table 4. Skills which video material is used to develop (MacKnight 1983: 8)

Skills	% of institutions using video to develop these skills
* Extensive listening	75
Intensive listening	73
Interpretation of non-verbal signals	45
Oral production	43
Student awareness of progress towards target language behaviour	41
Writing	25
Extensive reading	11

* Where both intensive and extensive listening are cited, video is used more frequently for the latter.

2.3.6.1.4 Speaking

Video can play a valuable role in developing speaking skills (Stempleski 1991). Language learning is language use, which requires the learners to interact with others (Ellis 1985, Vygotsky 1962). With sound and moving pictures, video presents authentic language and situations, and shows individuals interacting with each other in a complete context, although learners cannot interact with screen characters on-line (Kennedy 1983, Sherrington 1973). These can provide learners with a whole range of stimuli and sources of motivation which provoke active spoken work (Hill 1989). It is not surprising, therefore, that the main use of video is to develop learners' oral skills through appropriate techniques. Thus, video is one of the most distinctive media which can be integrated into a CLT framework. In the context of CLT, as mentioned in the introductory chapter, video can be a good aid, because it can provide teachers with a variety of resources for practising communicative skills which cannot be produced in the normal classroom, as discussed in the advantages of video.

Teachers and students will often realise that the meaning of phrases, sentences, utterances or even words in discourse, is sometimes hard to understand within the confines of textbooks in the classroom, when learning a foreign language. They can be easily understood and mastered from social experiences or activities, i.e., interaction with other people in a certain situation (Littlewood 1981). It will be very helpful for students to be exposed to the target language spoken by native speakers in the classroom (Legenhausen and Wolff 1992). So, teachers and students in FLT/L are aware of the need to apply the learning of language to the real world (Jones 1982).

In particular, Littlewood (1981) grouped the main activities to enhance spoken language within the classroom situation into two categories: using language to share information (i.e., information gap) and using language to process information (i.e., social activities - simulations and role-play). Information gap can provide learners with a natural source to promote communication between them (Littlewood 1981, Morrow 1981, Richards 1983). Simulations, by their nature, put learners in situations which require them to make their implicit reasoning explicit and use many communication skills to complete a task successfully (Hennessy and O'Shea 1993, Moss 1985). In this respect, 'information gap' and 'simulation' are well suited to language *use* practice in the classroom. Audiovisual presentations of scenes in video provide an excellent way of explaining all the aspects of a communicative situation, which can be used for carrying out various activities, such as information-gap, jigsaw, role-play, simulation (or reacting to situations), discussion, etc. (Hill 1989, Lonergan 1984).

How can teachers exploit the techniques using video in the classroom? In general, the teachers can divide video materials into three stages for classroom activities - pre-viewing, viewing and post-viewing (Allan 1985, Tomalin 1986). Through each stage and its related classroom activities, teachers can integrate them into the communicative activities.

Pre-viewing

This stage introduces the topic to be dealt with and vocabulary, using illustrations as clues from the particular sections of the sequence. This increases students' active involvement, i.e., a discussion which involves guessing or predicting what is going on (Allan 1985, Tomalin 1986). In this stage, teachers can teach students vocabulary in the context of the situations and encourage them to make predictions on the topic. According to Tomalin (1986: 50), the teachers can use the following procedures:

Viewing

In this stage, the students watch the pictures and listen to the sound. The stage can be divided into two steps - silent viewing and viewing with sound.

1. Silent viewing: This often separates the aural and visual clues. First of all, in viewing without sound (sound off and vision on) they can concentrate on environment, gesture, facial expressions, posture and action. This consists of a range of activities in which students get training in interpreting visual clues to meaning and a chance to predict certain kinds of language that they will hear later (Lonergan 1984, Tomalin 1986). By contrast, in sound without viewing (sound only) the students cannot see the screen but the sound track can be heard. This activity can also provide the focus for a useful communicative activity in which they visualise a scene or an object from what is said (Tomalin 1986).

2. Viewing with sound: The students now have both aural and visual clues. Silent viewing can be completed at this stage. They have a range of tasks which involve intensive study of the meanings. The teachers can give more viewing comprehension questions and tasks. This activity allows them to practise their language use.

Post-viewing

Through this stage teachers can check whether the students were following the sequence or not. The teachers can give them various activities to review and extend their learning in the previous two stages, for example, retelling the story, role-play, discussion (Bevan 1982). These activities can also be integrated into the communicative activities well. First, retelling the story gives them the opportunity to improve the skill of gist listening as well as grammatical competence. For example, narrative recall can be used to provide controlled practice in tense forms (Lonergan 1984). Second, role-play is an activity which takes place at the mid or end of the sequence. It can also be a good type of communicative activity since it allows the students the opportunity to transfer the language they have learnt in the video materials to their own use (Tomalin 1986). Finally, because of its motivating power, video is often a richer stimulus to discussion than other media. Teachers can let students have pair and group discussion on the basis of the live audiovisual presentation. This activity encourages them to develop their general language fluency and to find out what personal difficulties they have in expressing themselves in a target language.

In sum, a number of the distinctive characteristics that video offers can be applied to improving the four language skills, particularly the communicative skills in FLT/L. However, although video can contribute to developing the skills, teachers must keep in mind that it cannot replace the teacher. It is the teacher who has the responsibility for creating a meaningful learning environment and facilitating successful language learning, armed with well-organised preparation technically and pedagogically. Teachers have to apply an appropriate or integrative methodology for teaching skills, and provide meaningful activities in the right place in order to achieve their aims in language teaching. Using video in the classroom has also increased students' responsibility in the learning process. Students, first of all, need to be aware of why they are using video, and are required to participate actively in the learning process, i.e. they have to listen and watch attentively and respond actively to instruction given by teachers (or video).

2.3.6.2 Computers and language skills development

CALL is suitable for some reading skills and perhaps writing skills, but may not be appropriate for some types of activities which require spoken production (Ahmad et al. 1985, Sanders & Kenner 1984). However, in terms of current developments of hardware and software, and methodological considerations as discussed in the preceding sections, computers can actually expand the range of activities available to developing the four language skills.

2.3.6.2.1 Reading

The current approaches to foreign language reading are directed towards the learning of reading skills and strategies (Fox 1990). Specific skills, such as intensive and extensive reading, skimming and scanning, and speed reading are necessary for effective reading (Grellet 1981, Nuttall 1982). The computer, by its attributes, can play an important and extensive role in improving the reading skills (Hardisty and Windeatt 1989, Higgins and Johns 1984, Wyatt 1984a, 1989). In other words, the computer can be easily applied to the area of teaching and learning reading skills (Hope et al 1984, Nyns 1988), due to its advantages, e.g., free choice of tasks from a large quantity of texts and exercises, immediate feedback, visual clues and sound effects, random access, the 'Help' system, *record-keeping*, *self-pacing*, interactivity, a time limit option, etc. These make the computer a suitable tool for carrying out specific skill practice and activities required in reading, although there are some limitations with regard to CALL activities, e.g., the limited amount of text on the screen, the absence of a spoken presentation, etc. (Davidson et al. 1991, Fox 1986, Hardisty and Windeatt 1989, Wyatt 1984a). Again, the problems can be solved when CALL in reading activities is seen as one component of a lesson, rather than the lesson itself, and when methodological solutions can be applied to software (Windeatt 1990). For example, other media such as, the OHP and written materials can be used in a CALL lesson as aids to compensate for the limitations of the computer. Teachers and students can discuss the topic of their lesson before and after the computer-work.

In terms of current CALL reading programmes, CALL reading activities[13] can generally be categorised as follows: 1) Familiar activities or some extensions of them

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[13] See Phillips, M. 1987. *Communicative Language Learning and the Microcomputer*, Jones, C. and S. Fortescue. 1987. *Using Computer in the Language Classroom*, and Hardisty, D and S. Windeatt. 1989. *CALL*. for more details. They introduce a number of reading programs and examples of CALL reading activities in practice.

already in use in printed or other materials; 2) Newer or more innovative activities (Fox 1986, 1990, Wyatt 1984a, 1989).

Familiar reading activities already in use in printed or other materials, or some extensions of them

These CALL activities are based on techniques in use in the teaching and learning of reading in the normal classroom, but can make a significant contribution to improving the five reading skills - intensive and extensive reading, skimming and scanning, and speed reading (Fox 1986). The sub-skills can be practised much more easily on the computer (i.e., through the CALL reading activities) than in written or other media.

For example, CD-ROMs and the Internet can allow students to carry out various exercises and activities for extensive reading, e.g., finding information and data related to a theme they are studying, since they provide students with a great number of language texts, particularly with high quality visual materials. There are lots of CD-ROMs available for the purpose of extensive reading as mentioned before, e.g., under the heading of 'Literature', 'Newspapers', 'Encyclopaedias', 'History', 'Reference', etc.

Newer or more innovative reading activities

These activities make use of the ability of the computer for information-processing to produce a flexible reading environment in which students can find the information they need and want (Fox 1986).

For example, the computer dictionary, particularly on CD-ROM is one promising area that computers can offer. It is usually much more detailed and comprehensive than conventional dictionaries (Fox et al. 1992). When reading a text, the dictionary can provide learners with a variety of information about new or difficult words, such as 'lexical' data e.g., definition, example contexts and collocations, information about semantic fields and synonyms, and 'grammatical' information, e.g. about how to recognise nouns and verbs in a passage (Fox 1990).

There are several commercial ‘electronic’ or ‘computer’ dictionaries available, e.g., *Chambers English Dictionary* (Chambers 1992) *Oxford English Dictionary* (OUP 1992), etc. The dictionaries allow students instant and flexible access to any items, words and vocabulary, grammar, etc. they want to know with minimum disruption of a reading task via a keyboard or mouse (Perfetti 1983). During a reading task on the computer, teachers can encourage students to find out the meanings related to the context using the dictionary, when they meet new words, vocabulary and phrases, and to make a list and compare it with each other in pairs or in a group. Thus, the dictionaries can provide useful assistance for students’ reading and writing tasks, too.

The Internet and electronic mail (e-mail) can provide students with another new way of developing reading skills, particularly intensive and extensive reading, or skimming and scanning, since they have a vast amount of materials to read in the target language, such as letters, information, data, advertisements, even academic writings (e.g., articles and theses), etc. For example, teachers can give students a task (e.g., what is CD-ROM technology?). They can search or receive, and read the materials related to it intensively or extensively. They can also scan and skim them. Thus, reading the materials from the Internet and e-mail must be a new, flexible and active way enabling students to carry out reading exercises in the foreign language classroom.

2.3.6.2.2 Writing

The best way for students to learn how to write well is through writing itself, i.e., to write and write and write (Hope et al. 1984, Huffman and Goldberg 1987). However, writing is obviously a complex process. Learners have to create ideas and compose the ideas into the written structure adapted to their goals, which includes the consummation of sub-skills needed for writing, such as vocabulary, spelling, grammar and structure rules, and punctuation, etc., and reading as well (Hamp-Lyons and Heasley 1987, Jones and Fortescue 1987). In addition, writing is generally seen as a three-stage process which encompasses pre-writing (planning), writing (drafting), and postwriting (rewriting), and the repetition of two and three stages or maybe the three-stage process till learners compose a final version (Davidson and Tomic 1994, Williams 1991).

In this respect, computer assisted writing can make an immediate and extensive contribution to the features of writing mentioned above due to the advantages of computers, e.g., accuracy and speed of processing conventional tasks, immediate feedback, self pacing, etc. In particular, the word-processor has gained popularity and become more widely used in teaching and learning writing in the classroom, because of its distinctive features. It has powerful facilities[14], which can lighten the laborious work load and help the writer cope with the drudgery[15], and then play a significant role in developing writing skills, particularly free writing and the process of writing (Phinney 1989, Piper 1987, Windeatt 1987). In short, it can make the students' work load easier, and encourage them to produce revised versions and to complete writing tasks, so that it motivates them to write more and make them have a positive attitude towards writing over the traditional medium of pen and paper (Phinney 1989, Wyatt 1984a). Windeatt (1987) added that word processors can offer a partial solution not only to the difficulties which students confront in writing, but to the problem which language teachers face in trying to find suitable language teaching software.

That is, computer assisted writing can provide a variety of activities tailored to meet students' needs and wants, not only sub-skills oriented writing, but to some extent guided and free or creative writing, in which students can practise and improve specific skills. This section will look at how computers can be used for developing a variety of

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[14] Word processors offer powerful facilities for creating, storing, and editing very simply, quickly and efficiently, and printing texts with a printer (Windeatt 1987, Levy and Farrugia 1988). The common functions of word processing which are especially useful are: deletion (and undeletion), insertion, copying or cutting and pasting, searching a word or strings of text, replacing text, alignment or justification, underlining and emboldening, tabulation, importing graphics and objects, etc. (Williams 1991).

[15] Word-processors can deal with several surface level aspects of which are necessary and unavoidable in the writing activities, and with which EFL learners particularly have a range of difficulties, e.g., checking and correcting spelling, grammar, lexcio-semantic factors, punctuation errors, etc. (Fontana et al. 1993). In short, most current word-processors have a variety of tools for writing such as spelling and grammar checkers, thesaurus, and even readability indices, word counters, etc.

writing skills, based on the three activities which are the main elements of writing courses, sub-skills oriented, guided, and free or creative writing.

Sub-skills oriented writing

The computer can make a greater contribution to the area of sub-skills oriented writing which mainly deals with accurate form in writing than conventional teaching methods, because it functions best in terms of mechanical aspects (Liou 1993, Wyatt 1984a).

With the increased interest in the field of sub-skills oriented writing in CALL, more software developers have issued specialised packages for use in writing (Phinney 1989). Many commercial programs[16] available under the heading of 'Word', 'Vocabulary', 'Grammar', 'Spelling', 'Text', etc. are related to developing the sub-skills, though the quality of the programs varies greatly, e.g., *Vocab* (Wida Software), *Spell It* (Davidson and Associates), *Choicemaster* (Wida Software), *Grammatik IV* (Reference Software), *Fun With Text* (Camsoft), *Varietext* (CUP), etc. (Jones and Fortescue 1987). In addition, teachers can produce more meaningful writing practice exercises suited to their students' level than simple drill exercises by using authoring packages, authoring languages and word processing.

The programs are similar to written materials, but there are generally significant differences, i.e., first, they can provide tireless, patient practice, immediate feedback, self-pacing, and individualised attention to students' problems with the ability of record-keeping, and second, they can be used in process-oriented writing instruction, since they can give clear and additional instructions with sound or graphic design at each stage (Hope et al. 1984, Wyatt 1984a). Throughout the programs with a mixture of different question types, they can practise and develop the sub-skills effectively.

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[16] For more detail, see also Jones, C. and S. Fortescue. 1987. *Using Computer in the Language Classroom*. pp. 14-30 and 140-141, and Levy, M. and D. Farrugia. 1988. *Computers in Language Teaching Analysis, Research and Reviews*. pp. 57-76, which includes sample activities, reviews and evaluation of some software related to writing.

Guided writing

Another component of many writing curricula is guided writing, in which students are usually given a piece of writing, e.g., a model of incomplete passages or paragraphs or text, and they have to rebuild or alter it, or create a new version with similar functions and rhetoric (Jones and Fortescue 1987, Wyatt 1984a). For the students, such activities will be very useful, since the activities can allow them to practise different versions of the same topic, and can provide checklists for linguistic problems in general, and guidelines for free writing (Phinney 1989).

The computer can also play an extensive role in guided writing, since it involves little or no free expression (Wyatt 1984a). Rebuilding, reorganising (jumbling), revising, editing incomplete texts and exercises, etc. are common aspects of software available in CALL guided writing like some writing exercise books, but these can be carried out much more easily in a more enhanced form in CALL

In particular, word-processors are ideal for guided writing practice and activities. The tasks will be easier, since it allows students to make changes to texts at any time, i.e., to insert and delete words, and change the order of sentences and paragraphs (Jones and Fortescue 1987, Windeatt 1987). All the exercises mentioned above can be carried out on the word-processor. Teachers can give students lots of effective instructions and meaningful comments for the exercises, as many as they want. First, for example, teachers can jumble words and sentences or paragraphs within a text. When reorganising the text, students must extract the meaning from the sentences and text, and be aware of the indications to text cohesion which give a clue to order (Fox et al. 1992). Second, teachers delete words or sentences from a passage or dialogue. The students have to rebuild it with the similar strategies above. Third, Jones and Fortescue (1987: 51) suggest another idea as follows:

> It could be a complete passage which needs changing: a text about the present which the student is asked to change to the past, or a description of one person to be changed to a description of another. At a more advanced level, possibilities include a wordy and repetitive text which the student is asked to improve by pruning, an over-informal business letter which needs to be made more business-like.

Free or creative writing

The goal of a writing course is ultimately free or creative writing. It is claimed that the computer can play important roles at the word and sentence level, but may not offer learners to develop their free or creative writing skills, since it cannot monitor the actual content of what they produce (Van Els et al. 1984).

However, the word-processor can still make some worthwhile contributions to even free or creative writing, as mentioned in the introductory section. It can help students compose through a series of drafts to a completed version of a paper, in terms of the process and the product of writing, encouraging students to brainstorm ideas (Lam and Pennington 1995). In detail, first, free writing will require a warm and supportive, and non-threatening environment, since it is a creative process and is the repetition of the three-writing stages process (Hamp-Lyons and Heasley 1987). For EFL students, word-processing helps relieve them of the fear of errors at the surface level of writing and concentrate on the process of writing (Berens 1986, Piper 1987). Second, its transitoriness promotes the flow of ideas and encourage more frequent revision (Huffman and Goldberg 1987). Finally, it offers the students the ability to see the results of proposed changes in context before making a final choice at once (Windeatt 1987). Therefore, word processors are likely to encourage them to write freely, revise more, and experiment with their ideas on the screen and in hard-copy version of their writing with a printer (Lam and Pennington 1995).

Thus, in free or creative writing activities with the word-processor, the students can type idea files, headings, lists, pre-writing activities, etc. directly into a word processed file, which are then available for expansion and further composition. It can allow them to reorganise the parts of the text, insert or delete words, sentences and paragraphs, and create headings and highlight them as they polish their final products (Hamp-Lyons and Heasley 1987). When the word-processor can no longer take part in error correction and free expression beyond the sentence level, the teachers have to take over that function and help them (Hope et al 1984). The teacher will be a collaborator, consultant and reader, conferring with students as they write, helping them with decision-making, giving on-the-spot instruction (Synder 1993).

There are some free or creative writing tasks and activities that, using the features of word-processors, teachers can give students in the writing course. Firstly, for example, students can carry out relevant written work individually, e.g., CVs, job applications, letters, essays, short stories or hopes for the future and so on, which might be suitable for the writing course (Levy and Farrugia 1988). Writing of CVs and job applications for a potential employer is a useful free writing activity (Fox et al. 1992).

Secondly, teachers and students have recently realised the potential of using e-mail in language learning, particularly writing. It offers students lots of benefits in a variety of ways. It can provide interesting and authentic activities for developing and reinforcing writing skills, particularly free or creative writing, since they can exchange some written work, not just trivial everyday information, but thoughts, ideas and opinions on all kinds of subjects in the target language (Goodwin et al. 1993, Kornum 1993, Markee 1994). It is also emerging as a means of instructional delivery in and out of the language classroom and across the world, though it is often used for interpersonal communication between people (Goodwin et al. 1993).

The students can write and send their message to anyone who has a mail box everywhere at any time via a personal computer with modem or the network (terminal), and have a reply (Romiszowski 1988). Therefore, they can easily have real-time communication and on-line conferences in written form. Useful and powerful e-mail software has been developed, e.g., *Pegasus*, *Pine*, etc., which has simple word-processing functions, such as copying, cutting, pasting, etc. The students can also write messages on the word processor connecting it to e-mail software, and this provides them with many advantages, e.g., the opportunity to review the structure of written language and contents before sending their messages.

There are a number of activities using e-mail and word-processors which can help develop the writing skills. First, for example, one of the most obvious benefits in the use of e-mail is to increase one to one interaction between the teacher and the learner in the target language, i.e., individualised tutorials (Goodwin et al. 1993). Goodwin et al. (1993) shows an activity available as follows: students are asked to read an article, write a one-paragraph summary of the content, and respond with their opinions in another paragraph; They focus on reading, summarising, analysing, and responding to the texts; The teacher checks their responses for linguistic and stylistic problems as well as overall organisation, and give them feedback. Thus, this activity will be very helpful for students in developing specific academic writing, focusing on the content area of writing. Second, the students also have an opportunity to meet each other and other teachers across the world (Goodwin et al. 1993). They have the chance to ask questions about their interests, e.g., the program of the university, weather, food, accommodation, etc. Since they ask about different cultural aspects of their country, this eases their adjustment to the new culture, language and customs (Goodwin et al. 1993). E-mail can help them to communicate in written English. Stevens (1992) stated that to exchange some information can also be to 'communicative'. Thus, the use of e-mail can be called communicative writing.

2.3.6.2.3 Listening

The preceding sections showed that the computer can carry out a variety of activities in the areas of reading and writing. However, the computer alone (i.e., without other peripherals) cannot offer as many useful benefits to the area of listening as it can do in that of reading or writing. The use of computers in the area of listening skills depends very much on the type of hardware, i.e., the computer with additional peripherals, e.g., a sound card and a loud speaker, although it can produce synthesised speech through a built-in speaker (Wyatt 1984a). Alternatively, using multimedia, i.e., the combination of a computer and cassette recorder, or video recorder, or videodisc (IV), or CD-ROM multimedia can be the best way of tackling all kinds of listening activities.

Possible ways of using computers in listening

There are two or three ways of using computers in improving listening skills: recorded speech by using cassette recorder manually, computer generated speech, i.e., synthesised speech, and digitised speech on a disk or CD-ROM.

For example, the computer can produce synthesised speech, but its quality is not good enough for direct use in developing listening skills, since it cannot produce an accurate and clear sound of what the students need for FLL (Ariew an Frommer 1987, Hope et al. 1984, Nyns 1988). Therefore, it is not likely to offer much benefits for foreign students in developing the skills, particularly in the area of sub-skills oriented to listening activities, such as pronunciation, stress and intonation, which require an accurate and clear sound.

On the other hand, software which produces digitised speech and moving pictures has been developed and released, for example, Quick time 2.0 (Apple Macintosh). It can store a numeric encoding of a real utterance and regenerate the utterance at playback time. It can store not only a great deal of high quality visual images, but the sound of the original utterance on a floppy disk. The quality of the reproduction is quite good, but storing digitised speech takes up a lot of computer memory and hard-disk capacity (Ariew an Frommer 1987, Hope et al 1984). Digitised speech can be achieved with a sound card and loud speaker system, which is now not very expensive (under £100), and is easily attached to microcomputers or terminals. For example, the listening passages are recorded on a hard disk or a floppy disk, and rapid and exact access can be obtained to any speech segment on the disk. Spoken responses, hints, and instructions can be selectively played back to students, depending on their answers, from the system (Wyatt 1984a). Thus, using digitised speech with the additional devices, teachers can find useful ways to give students much more effective listening activities. The limitations of the audio language lab are gradually being overcome as the computer makes listening and viewing more interactive.

There are some listening activities[17] using a manually controlled or computer controlled cassette recorder, or digitised speech in CALL, e.g., listening comprehension and note-taking activities.

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[17] See also Hardisty, D and S. Windeatt. 1989. *CALL*, and Jones, C. and S. Fortescue. 1987. *Using Computers in the Language Classroom*. pp. 80-83.

Listening comprehension

Listening comprehension activities can be carried out easily in CALL, which shares a number of features with listening comprehension in the use of audio technology, but in a much more enhanced form (Fox 1990). For example, teachers can give students a story for listening comprehension on a multimedia CD-ROM, and ask them to predict what is likely to be coming next, when listening, since a passage can be stopped at appropriate points to check on their comprehension of general points or important details. If they are unclear on such points, they can be routed back to listen to the section containing the information they missed and can continue to listen to the passage (Wyatt 1984a). After listening to the story, students can answer listening comprehension questions by interacting with the computer keyboard and screen, and the computer can provide them with helps, hints, messages, and all branching actions (Wyatt 1984a).

Note-taking

Note-taking activities can also be carried out and enhanced with word-processors in CALL. First, for example, students listen to a lecture presented for note-taking on the cassette recorder. While and after listening to it, students can take their notes on a word-processor file, which can be a 'blank sheet', allowing each student to type in a personal selection of notes in response to a listening passage (Leonard 1985), or incomplete notes to help them complete an outline displayed on the screen. The latter would sharpen the students' ability to pick out what is essential to the lecture, and what is peripheral to it, although it is not a completely free note-taking exercise, since headings and some sentences are provided to steer them in the direction of the required information (Higgins and Johns 1984). If they have gaps in their notes or misunderstandings during listening, they can return to the appropriate section of the listening passage. Most importantly, a variety of hints and suggestions to meet their students' level can be provided by the teacher, including perhaps the whole transcription of the lecture or a guide note.

2.3.6.2.4 Speaking

Sceptical views of CALL - that it mostly consists of drilling and improving vocabulary, grammatical rules, basic reading and writing skills - are dwindling with the development of new software and methodological considerations applicable to the communicative approach and developing speaking skills. Indeed, if the content of CALL programs and courseware meets some of the requirements of communicative methodology (i.e., real communication and language use by learners), communication activities can be promoted by CALL (Cook 1988, Hardisty 1987, Stevens 1992).

Possible ways of using computers in speaking

There are two ways that CALL can be adapted to developing speaking skills, i.e., interaction between language learners and the computer itself - natural man-machine interaction, and between learners while using computers - they can provide learners with an environment, i.e., 'something to talk about' (Piper 1986, Stevens 1992).

Natural man-machine interaction

Some writers, such as Cook (1988), Phillips (1985), Winston (1987), Dever and Pennington (1989), etc. have claimed that the application of AI, e.g., natural language parsing using database management programs and expert systems, will allow computers to engage in natural conversation with learners in the field of language teaching and learning. Some progress in AI-based CALL has been made which shows some possibilities in this area. For example, a few computer programs show that they can distinguish among several dozen words or expressions and engage in limited dialogue with learners, responding to some questions about selected subjects (Ariew and Frommer 1987, Cook and Fass 1986). However, it has not developed so as to allow computers to communicate with learners by natural language at a high level yet (Ariew and Frommer 1987, Light 1993).

In this respect, it is still early to say that the development of AI can solve the current issues - making natural conversation with computers and learners possible, whether using synthetic or digitised speech. Teachers and students must wait for radical development in these fields in the near or probably distant future, if they want to talk with computers. On the other hand, even if the computer can communicate with students as unrestrictedly as human beings by every possible means, teachers and students must not entirely rely on it. Hope et al. (1985) stated that "communication activity essentially is and remains something human, cultural, personal, and unprogrammed" (in Bickes and Scott 1989).

Methodological considerations

There is no argument that computers can facilitate information transfer and processing (Hardisty 1987, Stevens 1992). Cook (1988) suggested that the way of integrating CALL into communicative language teaching is to make the most of its ability to interact with students, i.e., to transfer and process information. In short, two main communicative activities applicable to CALL are 'information transfer (information gap)' and 'information processing (simulation)'. Rivers (1989) agrees with this opinion:

> Practical use has shown that [task-oriented games and simulations] provide for genuine communicative interaction when students work together in groups at the workstation, the challenges of the CALL activity stimulating them to lively discussions, disputes, and cooperative decision-making.
>
> (Quoted in Stevens 1992: 28)

'Information gap' refers to a situation where information is known by only one learner (or some) in communication between two learners (or more), and the other learner must elicit that information (Littlewood 1981, Richards et al. 1992). It can also be a situation in which learners have different information on a task and have to exchange their information to get a complete solution of the task (Hardisty 1987). Information processing activities can be performed by any simulation, whether on the computer, or on traditional media (Jones and Fortescue 1987, Hardisty 1987, Stevens 1992). 'Simulation' in language teaching and learning can be defined as any learning activity which reproduces or simulates realistic situations, which involve a lot of interaction between learners and decisions (Higgins and Jones 1984, Jones 1986a, Richards et al.

1992). Thus, simulations can bring an aspect of the real world into the classroom and provide a new context within which students can practise and improve the language acquired in normal classroom (Jones and Fortescue 1987).

Thus, they can be a good teaching technique or classroom activity which reproduces or simulates the real situation and which often involve role play and group discussion in FLT/L, since they can provide students with a focus for communicative activities and a variety of story lines to talk about (Richards et al. 1992, Jones and Fortescue 1987, Legenhausen and Wolff 1987). However, information transfer and processing activities using the computer, such as information gap, simulations, and adventures need careful preparation and careful management by teachers (Jones and Fortescue 1987).

There are two possible ways of using computers in developing the speaking skill, which are generally identified as sub-skills oriented, and guided and free spoken activities in the language classroom.

Sub-skills oriented activities

Undoubtedly, correct pronunciation and intonation are essential for foreign students to speak well. Therefore, they always need to practise these sub-skills. A computer with digitised speech in addition to the additional or peripheral equipment, i.e., microphone, loudspeaker, sound card, etc. can encourage the students to practise the sub-skills more effectively than a cassette recorder alone or audio language lab, since it can provide students with some feedback. (Hope et al. 1984, Jones and Fortescue 1987). For example, *Visispeech* (Jessop Acoustic) is one of the few systems available for practising pronunciation and intonation (Jones and Fortescue 1987).

> *Visispeech* allows the teacher to say a phrase into a microphone. The computer displays its intonation curve, and the learner's attempt to copy the model is then displayed underneath. The learner is thus able to see the difference between the two, and experiment with different responses in an attempt to get as near a match as possible. The program gives the all important feedback which the language laboratory exercise lacks. As well as intonation, *Visispeech* can analyse an utterance in terms of voice and unvoiced sounds, and relative volume.
>
> (Jones and Fortescue 1987: 79-80)

Guided and free spoken activities

Students can develop their speaking skills through communicating with each other (Hope et al. 1984). Therefore, considerable emphasis should be given to guided and free spoken activities to encourage interaction between students in the language classroom, which includes information gap, simulations, role-plays, and discussions (Jones and Fortescue 1987). In terms of current and developing hardware and software capabilities, it has been proven that computers can offer a rich and flexible environment to carry out these activities which can help students improve speaking skills.

Here, two main communicative activities applicable to CALL, 'information transfer (information gap)' and 'information processing (simulation)' will be discussed in detail.

Information transfer (Information gap)

The main idea of information transfer can be applied to the medium of computers (Hardisty 1987, Cook 1988). The computer can provide a variety of information with textual, auditory and visual cues, e.g., a short report, pictures, map, diagram, timetable, etc. which are often used for information gap activities in the classroom. Thus, CALL activities involving information transfer can be an impetus for communication among students and between students (Dutra 1985; Taylor 1986).

For example, a CALL lesson using *Storyboard* (Wida Software) can be a good activity applicable to information transfer (information gap). It is a 'total cloze' activity for students to reconstruct a text which is entirely obliterated on screen (Jones 1983). They have to reconstruct it by guessing single or more words with some information. One of the exercises, for example, 'Asking the way' is to rebuild a text with the help of a map, in which an information gap between students can be formed, if they have two or more computers. When teachers put two or more students into this activity at two computers, i.e., a student sees the map, and another student does not have any information except for title, punctuation and spacing intact, but must reconstruct the text, they ask for help to solve problems posed by the program. An active interaction between them takes place in an attempt to reconstruct it (Hardisty 1987).

Thus, information gap activities using computers can provide students with just the same environment as in traditional media, or richer sources in some cases. In the latter, of course, it depends on the computer programs, i.e., whether they are well-designed or not, making the best use of the advantages of the computer - the ability to process a large amount of information.

Information processing (Simulation)

Without doubt, the computer is a powerful tool in the modelling of reality within the language classroom due to its distinctive features which allow it to present and process a variety of information immediately and accurately (Stevens 1992). First, computer simulations can overcome the limitations of available physical apparatus, i.e., too time-consuming or costly by any other method, in the language classroom, since they can prove beneficial in simulating more abstract situations (Cummins et al. 1987, Hennesy and O'Shea 1993). Second, they allow learners to manipulate not only realism, but reality itself and alternative realities (Hennesy and O'Shea 1993, Jones 1986b), so that they can provide learners with unique and extended sources, particularly in the development of concepts and communication skills in the language classroom (Cummins et al. 1987, Morrow 1981, Olson 1988).

Thus, computer simulations can provide learners with useful sources and a motivating stimulus for speaking in the classroom, so that they can carry out language *use* activities and practise it (Higgins and Johns 1984, Legenhausen and Wolff 1987, Stevens 1992). But, the simulations depend upon teachers' guidance and students' attitudes. They must keep it in mind that their value for language teaching and learning does not lie in the program itself, but in the process, although well-designed simulations help a lot (Jones 1982, Legenhausen and Wolff 1987).

Types of computer simulations

Computer simulations can be divided into two types, 'simulations' and 'adventure(s) (games)' (Higgins and Johns 1984, Jones and Fortescue 1987, Stevens 1992).

Firstly, in 'simulations', learners take part in realistic activities in which they have to carry out tasks and solve problems, having roles, duties, responsibilities, etc. They act out a real-world situation, as in simulated situations, e.g., involving customers and shop assistants, passengers and travel clerks, or doctors and patients, etc. (Cook 1988). They then make decisions and proposals through co-work with the participants at each phase. Simulations provide them with the mutual need to communicate (Jones 1982). Computers represent some of the consequences of decisions or actions on the screen, so that the learners continue to follow a process from the start through a certain outcome (Higgins and Johns 1984). Thus, students have rich opportunities for practising functional and structural aspects of language, e.g., analysing, discussing, arguing, reporting, asking, negotiating, conciliating, mediating, explaining, denouncing, agreeing, etc. (Jones 1982). Finally, consequences are 'simulated' on the basis of decisions the learners took. It is not necessary to finish the tasks successfully. Failures are also as precious as successes. They later discuss their actions, feeling, and what did happen. It creates a communicative atmosphere and encourages free expression of feelings and opinions (Stevens 1992).

Secondly, 'adventures', a particular form of simulation is based on algorithms that set up a 'maze' of possible outcomes which are accessed according to choices made by the learner in pursuit of some goal, whether it is text-based or graphic-based (Higgins and Johns 1984, Stevens 1992). In any adventure, learners are supposed to arrive at a certain location in the adventure. Therefore, adventures typically include a sequence of problem solving activities which must be negotiated. What simulations share with adventures includes the motivation and concentration that they arouse (Higgins and Johns 1984). In this respect, adventures have much the same potential in language teaching and learning as other simulations.

Thus, both simulations and adventures can generate a lot of enthusiastic and communicative oral language as learners work in pairs, in groups, and as a whole class towards decision-making and the solution, and can form the basis for various spoken and follow-up activities, e.g., further discussion, written post-computer work, etc. (Higgins and Johns 1984, Jones 1991a, Jones and Fortescue 1987).

There are several simulation programs and adventures which have a great potential for facilitating communicative tasks in the classroom, such as *Fast Food* (British Council 1986), *London Adventure* (British Council 1986), etc. For example, *Fast Food*, a popular simulation program which simulates the running of a fast food stall at an imaginary six-day exhibition (de Quincey 1986). Learners are supposed to maximise profit through six days of trading. They have to decide about the quantity of goods, foods and drinks to purchase (e.g., sunglasses, rolls, cola, etc.) from a limited budget for the day's trading, and about the prices to be charged. They can get some information from the program which may influence decisions, such as weather forecast, the number of visitors during last year's exhibition, and occasional news flashes. Each day, a summary of trading is provided, i.e., the net profit or loss and a list of unsold items. A final statement is also provided of the overall profit or loss for the whole week (de Quincey 1986).

Although the context of this program is set on a business, the activity is sufficiently motivating to apply it to the development of oral fluency in the language classroom. It focuses at the level of discourse. The aim is to induct students into the use of spoken language and then, to stimulate them to practise it (Phillips 1987, de Quincey 1986). Thus, this program can provide students with unique opportunities to practise communication skills, such as making suggestions, proposing, negotiating, agreeing, discussing, etc., since it involves making decisions. In particular, in post-computer work, inter-group discussion can encourage different kinds of communication skills, e.g., asking, explaining, discussing in detail, etc., when comparing their success or failure. It will be most effective when a number of groups working at different computers use the program in competition with other groups (though it is not necessary). In post-computer work, a variety of activities can take place, e.g., role-play (reporters, stallholders, tourists, etc.) (de Quincey 1986). Thus, it brings an aspect of the outside into the classroom, and provides a new context within which learners can practise the language acquired in conventional lessons, or new ones not dealt with in it (Jones and Fortescue 1987).

In sum, the computer and CD-ROM multimedia can be used in developing not only reading and writing skills, but also listening and speaking skills, provided appropriate teaching methodology and techniques are used. They not only provide learners with help in carrying out conventional tasks and activities, but with enhanced or new forms of activities that can help in developing the four language skills.

In particular, therefore, the teachers' efforts in the use of computers may be more important than in conventional materials. With well-planned, imaginative uses of commercial packages, authoring programs, and word processors, or with additional equipment, teachers can help students improve their language skills. Teachers have to keep in mind that methodological approaches (e.g., an integrated methodology) can solve the problems, e.g., misconceptions about the lack of suitability of computers for listening and speaking skills, and lack of software. If the computer itself is entirely in the centre of the activities, without specific technical and pedagogical preparation in using the computer, it alone appears to have little effect in language teaching and learning. On the other hand, one of the ultimate aims of using computers is to have students take responsibility for language learning in the student-centred learning environment. Therefore, students have to take part in the activity actively.

CHAPTER 3

ATTITUDES AND THEIR MEASUREMENT

3.1 Introduction

What is an attitude? Is it simply a matter of feeling or thought? People have generally used the concept of attitudes as a tool to describe and explain not only their feeling, but thought and behaviour towards an object (or objects), or a person (or persons) (Henerson et al. 1987, Oskamp 1977). For example, if teachers' attitudes towards media technology are known, these can be used to explain their reaction and predict their behaviour to it in language teaching.

Thus, attitudes have been regarded as one of the most significant concepts in many fields, e.g., psychology, education, politics, etc. Many researchers, particularly attitude theorists and social scientists have devoted much time to the conceptualisation and the study of attitudes, since attitudes are so important in domains such as social change, education, etc. (Oppenheim 1992). For example, Oskamp (1977:5) described some reasons why attitude is a useful and important concept:

> (1) 'Attitude' is a *shorthand* term. A single attitude .... can summarise many different behaviors .... (2) An attitude can be considered the *cause* of a person's behavior toward another person or an object. .... (4) Attitudes are *important in their own right,* regardless of their relation to a person's behavior. Your attitudes toward various individuals, institutions, and social issues .... reflect the way you perceive the world around you .... (6) The concept of attitude *bridges the controversy between heredity and environment* as factors influencing behavior, for both instinct and learning can be involved in the formation of attitudes. ....

However, the measurement of attitudes is not simple, since they are not something to measure in the same way as the number of bacteria in the laboratory (Henerson et al. 1987). Attitudes and their measurement are closely related to each other, i.e., the study of attitudes largely depends on the methods of measurement.

This chapter, therefore, deals with the concept and the structure of attitudes, their measurement, and finally research findings on teachers' and students' attitudes towards the use of media technology. It is divided into three main sections: 1) What is attitude? - the concept and the structure of attitudes; 2) The measurement of attitudes - methods of attitude measurement, reliability and validity of attitude measurement, and the techniques of attitude scaling; 3) Teachers' and students' attitudes towards the use of media technology in education and in FLT/L at all levels.

3.2 What is attitude?

3.2.1 The concept of attitudes

The concept of attitudes has a long and rich history, since it is complex and not easy to define (Katz 1989, Oppenheim 1992). The term, 'attitude', derived from Latin '*aptus*', was variously used in many fields, which originally referred to a 'bodily position or posture', but has come to mean a 'posture of the mind' in social science (Allport 1935, Oskamp 1977). It has been described in various ways in its history by social psychologists and researchers.

3.2.1.1 Historical perspective

The early usage of attitudes included such concepts as 'fitness' or 'adaptedness' by one of the earliest psychologists, Herbert Spencer (1862); 'readiness for attention or action' by Baldwin (1901); 'mental process that determines response' by the sociologists, Thomas and Znaniecki (1918), who first used the attitude concept to explain social behaviour; and so on (in Allport 1935, 1967, Ajzen and Fishbein 1980, Pratkanis 1989). Throughout the review of the early concepts, Allport (1935) made a comprehensive definition of attitudes (see pp. 127) and an important contribution to understanding the concept (Oskamp 1977), i.e., its main idea is that attitudes are assumed to drive behaviour through a mental and neural state of readiness for response (Pratkanis 1989). Thus, the concept of attitudes generally included the multifaceted nature of the concept of attitudes with a few exceptions. As an example of the exception, Thurstone's conception of attitude as early as 1931 was based on the unidimensional view, emphasising the evaluative nature of attitudes (Ostrom 1989). He pointed out that there is no necessary relationship between attitude and any given behaviour, although a person's attitude should be related to the pattern of her/his behaviour with respect to the object (Ajzen and Fishbein 1980). However, this view was disputed by Allport (1935). Although the concept of attitude includes an evaluative dimension, since an attitude provokes behaviour that is favourable or unfavourable, it alone can not explain all the complexity of attitudes, i.e., attitudes are comprised not only of affect, but of cognition and conation (Allport 1935, Ajzen and Fishbein 1980). The multidimensional concept has contributed much to the study of attitudes and been widely adopted in social science.

In the 1950s and 60s, the behavioural approach refreshed attitudes research, focusing on the behavioural component of attitudes, i.e., behaviourists such as Doob (1947), Rhine (1958), Thorndike (1935), etc. described attitude structure in terms of an intervening response in an S (Stimuli) - R (Responses) connection (Breckler and Wiggins 1989, Pratkanis 1989). Doob (1947) stated that an attitude is an implicit response preceding typically overt, behaviour (in Pratkanis 1989). After that, the cognitive approaches to attitudes put emphasis on cognitive consistency processes (Greenwald 1989b, Pratkanis 1989). The cognitivist uses constructs such as knowledge structure, image, set of beliefs, schema, etc. to describe mental representation or cognitive structure of attitudes (Pratkanis 1989). However, there is still widespread agreement with the multidimensional concept of attitudes that contains affective, cognitive and conative components (Ajzen and Fishbein 1980, Breckler and Wiggins 1989).

3.2.1.2 The definition of attitude

As the term 'attitude' has been conceptualised differently by many psychologist and attitude theorists as described so far, its definition has varied (Fishbein and Ajzen 1975, Shaw and Wright 1967). However, definitions can be classified into two kinds based on underlying concepts: a unidimensional definition, which emphasises the importance of the affective or evaluative nature of attitudes; and a comprehensive definition, which is based on the multidimensional concept of attitudes.

In the former, 'affect' has been described as the central aspect of attitudes. That is, an attitude can generally be defined as a person's disposition to respond favourably or unfavourably to a given object (Ajzen 1989, Oskamp 1977). For example, there are some definitions which clearly attribute an affective and emotional component of attitudes (Breckler and Wiggins 1989): "An attitude is a tendency to act toward or against something in the environment, which is thereby a positive or negative value" (Bogardus 1931 in Allport 1967); "Attitude is the affect for or against a psychological object" (Thurstone 1931 in Greenwald 1989b); "Attitude is the affect associated with a mental object" (Greenwald 1989b). Pratkanis (1989) also defined attitudes as 'a person's evaluation of an object of thought'. Thus, these definitions strongly indicate that attitude is an affective response.

In the latter, although the affective aspect of attitudes has traditionally been emphasised and is important, there are still widespread definitions that suggest that in addition to affect, attitudes also contain cognitive and conative components, which include the rich and long historical roots of the concept of attitudes. In particular, Allport's definition has been widely adopted in social science, "An attitude is a mental and neural state of readiness, organised through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (Allport 1967: 8). His definition implies the theoretical assumptions of the various approaches, e.g., attitudes are learned, and assumed to drive behaviour through a mental or neural state of readiness (Pratkanis 1989). Based on Allport's definition, Breckler and Wiggins (1989: 409) defined attitudes as "mental and neural *representations*, organised through experience, exerting a directive or dynamic influence on behavior". They use the term *representations* (something that stands for something else) which are 'residues of experience', instead of *state of readiness* (Breckler and Wiggins 1989). Traindis (1971: 2) also defined attitudes as having three components: "An attitude is an idea charged with emotion which predisposes a class of actions to a particular class of social situations."

Some other examples of a comprehensive definition are as follows: "Attitudes are predispositions to respond to some class of stimuli with certain classes of responses and designate the three major types of responses as cognitive, affective, and behavioral." (Rosenberg and Hovland 1960: 3); "Attitude is a relatively enduring system of evaluative, affective reactions based upon and reflecting the evaluative concepts or beliefs which have been learned about the characteristics of a social object or class of social objects." (Shaw and Wright 1967); "Attitude is a learned preposition to respond in a consistently favorable or unfavorable manner with respect to a given object." (Fishbein and Ajzen 1975: 6).

In short, the common characteristics of the definitions of attitudes are; 'the readiness to respond', i.e., a predisposition to respond, which guides and directs the overt behaviour; they are learned from both direct and indirect experiences (Oskamp 1977, Traindis 1971). The next section will focus on the structure of attitudes, which is the basis of the various definitions.

3.2.2 The structure of attitudes

As mentioned so far, the concept of attitudes has largely been associated with affective, cognitive, and behavioural processes in attitude research (Breckler and Wiggins 1989). That is, attitudes contain or are related to three components: An *affective* component - which refers to the feelings(or emotions) one has toward an object, i.e., it is an evaluative element in attitudes; A *cognitive* component - which means beliefs (or ideas) that one has about the attitude object; A *behavioral* component - which represents one's action tendencies toward the object (Fishbein and Ajzen 1975, Oskamp 1977, Rajecki 1990, Triandis 1971). But, this view has been described differently by some researchers.

Firstly, some considered the three components to be indistinguishable, since they are closely interrelated to each other and have proven to be highly intercorrelated (e.g., Campbell 1947, Smith 1968, etc.) (Allport 1967, Oskamp 1977). That is, an evaluative disposition is the same, whether it is inferred from responses of an affective, cognitive or conative nature (Ajzen 1989).

Secondly, the components of attitudes are independent dimensions, but there is a moderately high relationship between them. Rosenberg and Hovland (1960) presented a schematic conception of attitudes, in which attitudes are predispositions to some class of stimuli with certain classes of responses and designate the three major types of response as affective, cognitive, and behavioral (Fig. 5). It is a hierarchical model that includes affect, cognition, and conation as parallel first-order factors and attitude or overall evaluation as a general second-order factor (Ajzen 1989).

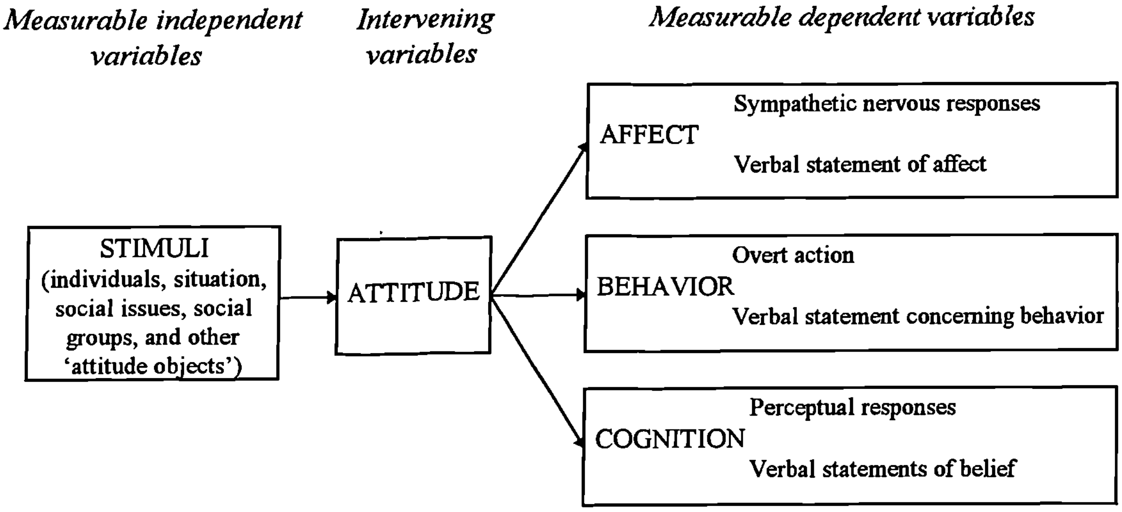

Fig. 5. Schematic conception of attitudes (Rosenberg and Hovland 1960: 3)

In detail, the stimuli are grouped in a category that represents the attitude object, and attitude has three components, and each component is measured by a variety of subject responses (Triandis 1971). Thus, attitudes are always inferred from specific responses to the attitude object, and it is possible to use the semantic differential (see the 'Types of questionnaires' section) to assess the cognitive or affective component of attitudes (Ajzen 1989).

Thirdly, Fishbein and Ajzen (1975) proposed a theoretical framework, a so called causal chain model (Fig. 6), in which an attitude is reserved merely for the overall evaluative response, but cognition, affect and conation are distinct antecedents or consequences of attitude (Ajzen 1989). In particular, Fishbein and Ajzen (1975) classified the concepts into four categories, affect (feelings, evaluations), cognition (beliefs), conation (behavioral intentions), and behaviour (observed overt acts), since they regarded attitudes as predispositions to behave rather than the behaviour itself. They described the concepts as follows: attitudes refers to a person's favorable or unfavorable evaluation of an object; beliefs represent the information s/he has about the object; behavioral intention refers to a person's intention to perform various behaviours; behaviour refers to observable acts that are studied in their own right (Fishbein and Ajzen 1975).

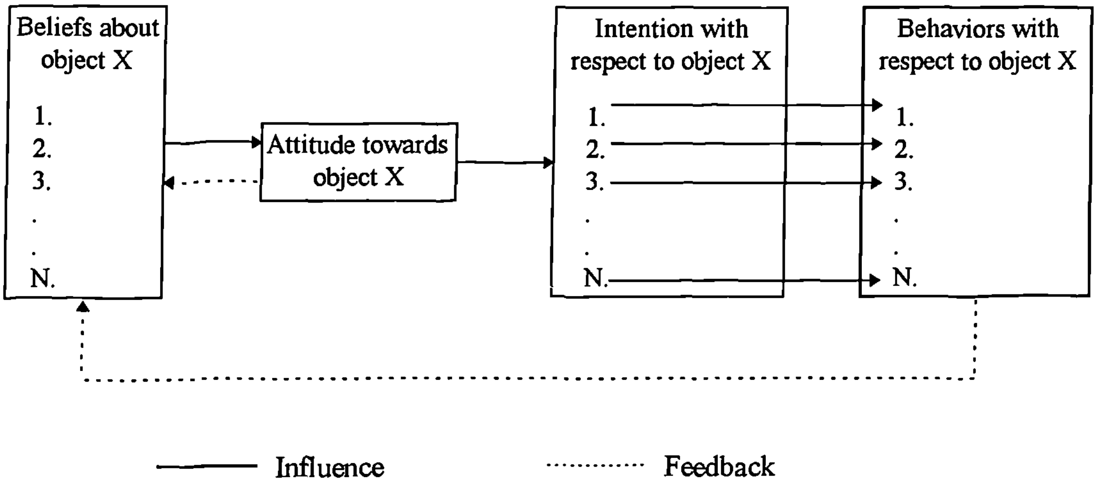

Fig. 6. Schematic presentation of conceptual framework relating beliefs, attitudes, intentions, and behaviors with respect to a given object (Fishbein and Ajzen 1975: 15).

In this framework, behaviour is resolved by intentions to perform the behaviour, intentions follow from attitudes (or overall evaluation), and the attitudes are not only related to beliefs, but actually a function of beliefs, i.e., beliefs are assumed to have *causal* effects on attitudes (Ajzen 1989). In addition, there are feedback loops at various stages of the process (Fishbein and Ajzen 1975). In short, Fishbein and Ajzen

(1975) stated that attitudes are related to the total affect associated with beliefs, intentions, and behaviour, and that there is response consistency between them in terms of overall evaluative consistency.

Thus, the theoretical approaches show that attitudes are related to three components, affect, cognition and conation, but are distinct entities, although some consider them as components of the same attitude. For example, "I like the computer" (attitude) can imply "the computer is useful in teaching" (belief), or can imply "I will use it in teaching" (behavioral intention). This example includes the same views as above, but there is consistency between them, so that one can conclude that s/he has a positive attitude towards computers.

Attitude and behaviour

Based on the concepts and definitions of attitudes described so far, there is a common agreement that attitude is a predisposition to respond to an object or a person. This implies that attitude has an influence on behaviour, that is, when a person has a particular attitude towards the object, s/he is predisposed to act in a certain (generally consistent) manner towards it (Shaw and Wright 1967).

From early attitudes research studies, such as LaPiere (1934), Kutner et al. (1952), Wicker (1969), etc., first of all, there were weak relationships between attitude and behaviour, since their subjects' behaviour was different from what they answered in verbal-report forms towards a person (or persons) (in Triandis 1971 and Greenwald 1989a). The results showed that the behavioural consequences of an attitude should be most apparent on measures of behaviour toward the attitude's object (Greenwald 1989a). As the theoretical approaches show, however, their claims have recently given way to the view that there is a close (or strong) relationship between attitude and behaviour under appropriate conditions (Ajzen 1989, Breckler and Wiggins 1989). For example, attitudes that develop through direct experience with an object more strongly influence behaviour than those that do through indirect experience (Fazio and Zanna 1981 in Breckler and Wiggins 1989). Greenwald (1989b) also stated that attitude is a strong determinant of behaviour in relation to objects with which a person has had direct experience. Thus, there is now a general agreement that attitude is not behaviour, but behaviour is influenced by attitude - attitude is a guide to behaviour, so that behaviour can be predicted from attitude (Ajzen and Fishbein 1980, Breckler and Wiggins 1989, Rajecki 1990).

First, Fishbein and Ajzen (1975) pointed out that attitude is viewed as a general predisposition that does not predispose a person to perform any specific behaviour. In other words, attitudes are closely related to behaviour that does not directly involve the attitude object (Greenwald 1989a). Ajzen and Fishbein (1980) suggested that if researchers are interested in predicting and understanding any particular action with respect to the object, they have to assess the person's attitude towards the behaviour, not her/his attitude towards the target at which the behaviour is directed. In short, the overall pattern of behaviour can be predicted from attitudes towards an object, and this means that the measure of attitude corresponds to the measure of behaviour (Ajzen and Fishbein 1980).

Second, behaviour towards an object (or a person) can be influenced by not only the attitudes elicited by the object, but some other factors (Rosenberg and Hovland 1960). Shaw and Wright (1967) also stated that behaviour is determined by a complex set of forces. Most researchers generally agree that the effect of attitude on behaviour depends on the operation of other factors: individual personality differences, circumstances surrounding performance of the behaviour, the nature of attitude, etc. (Ajzen 1989). In particular, Triandis (1971) pointed out that attitudes are neither necessary nor sufficient causes of behaviour, i.e., attitude is one of the factors to influence behaviour. Attitudes alone do not predict behaviour, but do together with norms and habits (Triandis 1971). According to Triandis (1971: 14, 15)

> Behavior is not only determined by what people would like to do but also by what they think they should do, that is, social *norms*, by what they have usually done, that is, *habits*, and by *the expected consequences of the behavior*. .... When all four factors are consistent, there is consistency between attitudes and behavior; when the four factors are inconsistent, there is much less consistency.

However, most researchers in attitude studies make no distinctions among affect, cognition, and conation, i.e., all verbal responses and sometimes even overt actions are considered to be indicants of a person's attitude, and measures of the dimensions are often used interchangeably (Ajzen and Fishbein 1980). It is worth noticing that proper measures of attitude are strongly related to overt action (Greenwald 1989b), and that attitude, no matter how assessed, is one of the significant factors that influence behaviour in terms of attitude-behaviour relationship (Ajzen and Fishbein 1980).

3.3 The measurement of attitudes

The previous section described the concept and definition of attitudes, and some of the major relationships between attitudes and other concepts. Allport (1967) claimed that attitudes are measured more successfully than they are defined. This section will discuss, first, the methods of attitudes measurement, second, the reliability and validity of the measurement, and finally some of the techniques that can be used for the measurement of attitudes.

3.3.1 Methods of attitudes measurement

The methods of attitude measurement are generally divided into two major categories: direct and indirect methods (Breckler and Wiggins 1989, Lemon 1973). Firstly, the direct method refers to verbal-report techniques, which include two well-known tools: questionnaires and interviews. The method asks respondents for self-reports about their beliefs, feelings and intentions with respect to the attitude object (Lemon 1973). Secondly, the indirect method includes various techniques: disguised measures, i.e., respondents are unaware of the purpose of research, although they are aware of being studied; psychological measures, i.e., measuring emotion expression (e.g., measures of Galvanic Skin Response, blood pressure, pupillary size, etc.); unobtrusive measures (e.g., unobtrusive observation) (Breckler and Wiggins 1989, Lemon 1973). In short, researchers obtain information related to attitudes through disguised procedures, unlike the direct method.

In practice, the indirect procedures are rarely used in attitude research with the exception of observation, due to difficulties of administration and the problems of reliability. Attitudes are typically measured through evaluative statements about an object, and are inferred from the assessment of subjects' responses to the statements (Shaw and Wright 1967). That is, verbal-report techniques are widely used in attitude research, since they are easy to carry out and generally have good reliability (Breckler and Wiggins 1989). However, there seems to be little value making a distinction between direct and indirect measures. All attitude measurement techniques are indirect, since they depend on transformations of a primary representation (Breckler and Wiggins 1989).

The next section will cover the techniques which are widely used in the methods of attitudes measurement, i.e., questionnaires, interviews and observation.

3.3.1.1 Questionnaires

The questionnaire is an instrument that presents questions to a respondent in a written form. It is a well-known tool for collecting data in quantitative research, i.e., surveys, since it has some distinctive advantages.

The questionnaire, for example, has the following advantages: it can cover a large number of the sample at the same time (Henerson et al. 1987, Oppenheim 1966, 1992); it permits anonymity, which can increase the chances of receiving genuine responses (Henerson et al. 1987); in general, the processing and data analysis of questionnaires are simpler and maybe less costly than those of interviews and observations (Bell 1987, Henerson et al. 1987, Oppenheim 1966,1992).

However, there are some disadvantages: there is a lack of the flexibility of interviews (particularly in case of the closed questionnaire), since it forces respondents to choose given alternatives (Henerson et al. 1987, Oppenheim 1992); there may be a problem of validity of questionnaires, since they may be differently interpreted by each respondent (Best 1981, Bryman 1989, Henerson et al. 1987); there is a difficulty of control over them, when using postal questionnaires, e.g., no further explanations or help can be provided, and there may be the possibility of low response rates and consequent bias (Bryman 1989, Oppenheim 1992).

Types of questionnaires

There are two types of questionnaire, the open (unrestricted) questionnaire and the closed (restricted) questionnaire, but they can be mixed together (Bell 1987, Best 1981, Oppenheim 1966, 1992, Oskamp 1977).

The closed questionnaire

The closed questionnaire calls for short, or check responses, e.g., giving a yes or no, a short response, or checking an item from a list of suggested responses (Bell 1987, Oppenheim 1966, 1992). The advantages of the closed questionnaire are that they provide respondents with simple alternatives, or short and easy ways of responding without anxiety (Bell 1987, Best 1981). In addition, they are easy to administer and analyse (Oppenheim 1966, 1992, Oskamp 1977). However, it can be difficult to obtain 'in depth' responses from a closed questionnaire.

There are various scales in the 'closed type' of questionnaire, such as checklists, ratings, ranking, semantic differential, etc. The scales will be described in detail in the 'Attitudes scales' section.

The open questionnaire

The open questionnaire calls for a free response in the respondents' own words, and allows for the full range and a greater depth of the response. The advantages of the open questionnaire are the ease with which investigators can ask questions, and the freedom that it gives to the respondents, allowing them to express their own views (Oppenheim 1992, Oskamp 1977). However, it may be difficult for the respondents to answer the questions, and more difficult to analyse, i.e., code and score their responses, than the closed questionnaire.

3.3.1.2 Interviews

The interview is a face to face meeting between two or more people in which the respondent answers questions posed by the interviewer (Best 1971, Cohen and Manion 1989, Henerson et al. 1987). It is a means of collecting data through direct verbal interaction between two or more people (Borg 1965, Cohen and Manion 1989, 1994).

The advantages of interviews are as follows: 1) Interviews permit flexibility. Interviewers can clarify the questions and make sure that the respondents understand them (Henerson et al. 1987, Oppenheim 1992); 2) Interviews allow adaptability. interviews can probe responses and investigate motives and feelings (Bell 1987, Henerson et al. 1987); 3) Interviewers can exercise control over the order and sequence of the questions, and the respondent (Henerson et al. 1987, Oppenheim 1992); 4) The 'success rate' of return is high compared to questionnaires (Cohen and Manion 1989, Henerson et al. 1987, Oppenheim 1992).

There are also some disadvantages in interviews: 1) Interviews are full of possibilities for bias, e.g., the interviewer may give hints of his/her own opinion and expectation by tone of voice, facial expression, etc. (Henerson et al. 1987, Oppenheim 1992); 2) Interviews may cost much and be time-consuming, i.e., the larger or the more dispersed the subjects, the greater the cost of the interviewing, and the more time-consuming, since the interviewer has to travel around (Bell 1987, Henerson et al. 1987, Oppenheim 1992);

Types of interviews

Interviews can be classified into unstructured, semi-structured and structured interviews.

The unstructured interview

This is a topic-centred interview, and an open situation, having great flexibility and freedom, i.e., the content, sequence and wording of the questions are entirely in the hands of interviewer. Such interviews can produce a wealth of valuable data, but they require a great deal of expertise to control, a careful plan, and a great deal of time to analyse (Bell 1987, Burroughs 1975, Cohen and Manion 1989).

The structured interview

This takes a predetermined form like questionnaires or checklists. The sequence and wording of the questions are predetermined on a schedule, and the interviewer has no freedom to make modifications. However, if plenty of space is allowed on the schedule, the interviewer can write down any interesting, unanticipated comments provided by the interviewee (Bell 1987, Burroughs 1975, Cohen and Manion 1989).

The semi-structured interview

The semi-structured interview is mid-way between the unstructured and structured, and can make up for the weak points of both. Cohen and Manion (1989) point out that the distinctive feature of the interview is the prior analysis by the researcher of the situation in which subjects have been involved. A questionnaire or checklist is not used, but a framework of questions is established by selecting topics around which the interview is conducted. The respondent has freedom to talk about questions asked by interviewer, but the interviewer still needs to have the skill to guide the interviewee to some extent (Bell 1987, Cohen and Manion 1989).

3.3.1.3 Observation

The purpose of observation is to collect and analyse data on the behaviour of individuals or a group, and on the various events that take place within a natural setting and for a prescribed time period (Cohen and Manion 1989, Henerson et al. 1987). It is the most direct technique of gathering behavioural data which exists (Burroughs 1975, Henerson et al. 1987). However, the observer decides what he or she is interested in, and what he or she wants to find out during observation. Once the observer has decided, he or she has to consider appropriate instruments for recording the data. In general, forms of recording includes details of participants, frequency and duration of observation, and a detailed description of the behaviours (or activities) observed (Burroughs 1975, Cohen and Manion 1989, Henerson et al. 1987).

Observation offers many advantages as follows: 1) It can reveal what the subject actively does, and the interactive characteristics of groups or individuals (Bell 1987, Good 1972); 2) It is the most direct means of studying the real thing as it occurs (Burroughs 1975, Rummel 1964); 3) It demands less of the subject under observation than other methods; 4) It permits the recording of behaviour simultaneously with its spontaneous occurrence (Rummel 1964); 5) It does not depend largely on retrospection or reflection; 6) It allows for the emergence of data that the subjects might not have thought of in interview or in responding to questionnaires.

There are also a number of disadvantages: 1) Familiarity with the environment and with the characteristics of colleagues who are being observed may affect objectivity (Bell 1987); 2) It is a slow process: it requires time to develop an instrument, to train the observers, and to collect a sufficient number of observations (Burroughs 1975, Henerson et al. 1987); 3) It possibly invades privacy; it may not produce particularly useful data (Burroughs 1975, Henerson et al. 1987); 4) It disturbs the behaviour which is to be observed; this can alter what takes place (Burroughs 1975, Henerson et al. 1987); 5) It can only deal with small, limited and non-random samples; 6) It is limited by the duration of events (Rummel 1964).

Types of observation

There are two types of observation: participant observation and non-participant observation. Cohen and Manion(1989) define them as follows: Participant observation - the observer engages as one of the group in the very activities he sets out to observe; Non-participant observation - the observer stands aloof from the group activities he is investigating and eschews group membership.

A particular style of observation can be chosen by the observer according to the particular observational setting he sets out to observe (Cohen and Manion 1989). Bailey (1978) explains that most studies in a natural setting are unstructured participant observation, since it is difficult for the researcher not to act as a participant. In an artificial environment or a laboratory setting most studies will be structured and non-participant observation, since it is not a natural setting (Bailey 1978). In this respect, if it does not distract or create a barrier between an observer and participants, simultaneous recording of observations is recommended, since a video and audio recording will not only give the observer more live data, but will also help him to investigate and reconstruct the main sequence of the observation later.

3.3.2 Reliability and validity of attitudes measurement

As attitudes are measured indirectly as discussed before, then a certain degree of error may be inevitable in their measurement (Triandis 1971). It is important to be sure that the measurement of attitudes are both reliable and valid. That is, attitude scales must yield consistent results and measure what they are supposed to measure (Shaw and Wright 1967).

Before discussing some useful attitude scales in detail, this section will look at the reliability and validity of measurement.

3.3.2.1 Reliability

Reliability generally refers to consistency of measurement, i.e., the degree to which the results of measurement can be considered consistent or stable (Brown 1988, Oppenheim 1992, Shaw and Wright 1967, Triandis 1971). For example, if a scale yields consistent results when attitude is measured twice, then it can be considered that the measurement is reliable (de Vaus 1990, Shaw and Wright 1967).

There are generally three methods of estimating the reliability of an attitude scale: the test-retest, the equivalent-forms, and the split-half methods (Brown 1988, Oppenheim 1992, Shaw and Wright 1967). The methods yield reliability measures in the form of correlation coefficients (Oppenheim 1992).

The Test-Retest Method: An attitude scale is usually administered to the same group of subjects twice within a short period, generally ranging from two to six weeks, and then a correlation coefficient (usually the Pearson r) between the two sets of scores from the two administrations is calculated (Oppenheim 1992, Shaw and Wright 1967).

It has the advantages of holding constant the items used, excluding unreliability due to differences between items (which may occur in the equivalent-forms method), and of an easy administration, since it requires only a single scale (Shaw and Wright 1967). However, it has some disadvantages as well. Firstly, the fact that the subjects have already been tested once may influence their attitude scores on following measurements, e.g., they may remember certain items and simply respond the same way as on the first administration, thereby yielding a high reliability estimate (Shaw and Wright 1967). Secondly, some variable factors, such as the subjects' mood, weather factors, testing situation, etc., may have different effects on responses on the subsequent administration, thus reducing the instrument's reliability (Fishbein and Ajzen 1975). In short, it may be no longer mean that the 'same' test is being administered under the 'same' condition (Oppenheim 1992).

The Equivalent-forms Method: This requires two forms that can be considered equivalent, e.g., Likert's Summated Ratings and the semantic differential of a test (see section 3.3.2.3 later.). The two forms are administered to a group of subjects, and then the correlation coefficient between the two sets of scores is calculated to obtain an estimate of reliability (Brown 1988, Shaw and Wright 1967).

The use of this method can minimise or eliminate the disadvantages of the test-retest method, since it is administered only once (Brown 1988). However, there are disadvantages in that two forms are necessary, and that a correlation coefficient reflects not only consistency of measurement, but the degree to which the two forms actually do measure the same attitude, i.e., the estimate of reliability may largely depend upon the degree of equivalence of the two forms (Shaw and Wright 1967).

The Split-half Method: This is the most often used of the internal-consistency methods. An attitude scale is divided into two parts, e.g., odd-numbered items as one scale and even-numbered items as another, on which the two items are scored separately, and the correlation between their scores is calculated (Brown 1988, Shaw and Wright 1967). Thus, the result of the correlation coefficient is used for full-test reliability (Brown 1988).

This method has the distinct advantages of using a single form of a test administered only once over the test-retest and equivalent-form methods, which require either two administrations or two forms (Brown 1988, Lemon 1973, Shaw and Wright 1967). However, this is essentially a measure of internal consistency of items composing the scale, rather than the consistency between one of the measures and the other (Lemon 1973, Shaw and Wright 1967). The correlation between different halves of a measure may vary somewhat depending on how the halves are selected (Lemon 1973).

On the other hand, there is a common agreement that some attitude scales, such as Likert's summated ratings, Thurstone's equal-appearing intervals, and Osgood's semantic differential are highly reliable, yielding equivalent results when administered on different occasions, while indirect methods, e.g., disguise techniques, physiological measures, etc. are likely to be much less reliable, so that many researchers are reluctant to employ such techniques in their research (Fishbein and Ajzen 1975). Many researchers, such as Osgood et al. (1957), Shaw and Wright (1967), Tittle and Hill (1967), etc. have reported that reliability of the attitude scales is generally very high (Fishbein and Ajzen 1975, Oskamp 1977, Triandis 1971). Therefore, Fishbein and Ajzen (1975) stated that the issue of reliability does not pose a major problem for the measurement of beliefs, attitudes, and intentions, when appropriate instruments are administered.

3.3.2.2 Validity

Validity refers to the degree to which a scale really measures what it is supposed to measure, i.e., accuracy or correctness of measurement (Brown 1988, Bryman and Cramer 1994, Oppenheim 1992, Oskamp 1977, Shaw and Wright 1967). In attitude measurement, it means the extent to which it measures a given belief, attitude, or intention rather than some other variables (Fishbein and Ajzen 1975).

First of all, therefore, researchers should establish that a measure has 'face validity', which means the measure clearly reflects the content of the concept in question (Bryman and Cramer 1994). In addition, there are generally four ways used for estimating the validity of measurement, i.e., predictive, concurrent, content, and construct validity, since face validity alone is not good enough (Brown 1988, Lemon 1973, Oppenheim 1992, Oskamp 1977, Shaw and Wright 1967).

Predictive validity: This refers to the degree to which a measure can predict a certain future criterion (Lemon 1973, Oppenheim 1992). In other words, it is estimated by showing how accurately researchers can conjecture some future behaviour on an external criterion from attitude scores (Shaw and Wright 1967). The procedures are as follows: attitudes are measured and the future behaviour is predicted on the basis of the scores; it is then measured at an appropriate time and obtained scores correlated with the predicted scores; the degree of correspondence is taken as the estimate of validity (Shaw and Wright 1967).

Concurrent validity: This differs from predictive validity with regard to the time at which the criterion measure is obtained (Shaw and Wright 1967). That is, the procedure is called concurrent validity, when the both measures (i.e., attitude and criterion measures) are administered at about the same time (Brown 1988, Oppenheim 1992, Shaw and Wright 1967).

Content validity: This refers to the degree to which the items of the (attitudes) scale represent the content of the attitudes domain to be measured (Brown 1988, Oppenheim 1992, Shaw and Wright 1967). For example, if the purpose of a test is to measure attitudes towards media technology, the items of a scale should include the statements about the technology. It is mainly assessed by the researchers' own judgement (Lemon 1973, Shaw and Wright 1967). To assess the content validity of a measure, therefore, the researchers must show, first, to what extent the content of each item is concerned with the attitudes object, and, second, the extent to which the set of items represents all aspects of the attitudes object (Shaw and Wright 1967).

Construct validity: This refers to how well a test links up with a set of theoretical assumptions about an construct (e.g., attitudes) (Oppenheim 1992). Therefore, researchers must show that the test is actually measuring the construct (e.g., an attitude scale is testing attitudes). As described before, for example, the concept of attitudes is related to beliefs, affect and behaviour, and construct validity is evaluated by a determination of the relationships between attitudes and the concepts - the researchers should demonstrate there are actually close relationships. Brown (1988) stated that such construct validation is a process - an accumulation of concurring evidence from a variety of experiments and other scores, and in the end, the researchers will have to make their own judgements as to the worth of arguments for the construct validity of the given test.

In fact, these approaches to the evaluation of validity are designed to establish a strategy of 'convergent validity' by Campbell and Fiske (1959), which is to demonstrate a convergence between two measures (Bryman and Cramer 1994). Predictive validity and construct validity are based on this principle (Lemon 1973). If an instrument is a valid measure of attitude towards an object, it should correlate highly with another one towards the same object - the two measures (e.g., the semantic differential and Likert's method of a given belief or a given intention) should show convergent validity (Fishbein and Ajzen 1975). Campbell and Fiske (1959) also suggested that a measure should have 'discriminant validity' (in Bryman and Cramer 1994). When the same method is used to measure different variables (e.g., whether they are beliefs, attitudes, or intentions), different results can be obtained (Fishbein and Ajzen 1975). In other words, different measures of a single dimension should yield equivalent results (i.e., convergent validity), while a measure of different dimensions, should yield different results (i.e., discriminant validity) (Fishbein and Ajzen 1975). Therefore, researchers should also be able to exhibit an instrument's discriminant validity by showing that it yields different results when applied to two or more different dimensions (Bryman and Cramer 1994, Fishbein and Ajzen 1975).

As discussed so far, reliability and validity are related to the degree to which the measuring instrument is free of measurement error, and, after all, are based on the strength of relationships between measures (Fishbein and Ajzen 1975, Lemon 1973).

Oppenheim (1992) pointed out that reliability is a necessary (not sufficient) condition for validity, but a measure may be highly reliable and yet invalid. The validity of measurement should be investigated after the reliability of the measurement is determined to be acceptable (Brown 1988). In general, the main difference between reliability and validity is that the evaluation of reliability concentrates on the relationship between different forms (though the same form is used in the test-retest and split-half methods) of the same measure which are clearly supposed to measure the same attitude, while that of validity is concerned with relationships between measures (Lemon 1973).

3.3.3 The techniques of attitude scaling

There are various techniques that have been developed for collecting data about attitudes in the survey. This section will deal with some of the widely used techniques, and the techniques to be used in this study.

3.3.3.1 Checklists

Checklists are one of the simplest techniques to measure attitudes or some items which are related to attitudes towards an object (or objects) or a person (or persons) or an issue (or issues). They generally consist of a list of the objects which respondents are asked to tick or indicate in some other ways (Lemon 1973, Oppenheim 1992). The respondents can be asked to check all that apply to them in the list, or to mark whether they approve or disapprove of each object or issue, e.g., 'Yes' or 'No', or 'True' or 'False' (which is called a binary item) (Oppenheim 1992). For example,

> Have you ever read any publications on the use of media technology in education or in language teaching and learning? Yes ___ No ___
> If yes, please complete the box below. Please tick (√) the appropriate column. (Please tick all that apply.)

Media	**In education**	**In language teaching and learning**
Audio		
Video		
Computer		

The techniques are very simple and direct to carry out, and can contain a number of items which together represent the objects or the issues in question (Lemon 1973). In the latter, researchers can obtain a quick, relatively crude, but a useful set of measures, with reasonable reliability due to the use of area scores rather than single questions (Oppenheim 1992). Lemon (1973) added that comparability is ensured in the techniques, since they are the same for all the respondents and for all the objects. However, the techniques obviously have their advantages of simplicity and directness, but they cannot indicate whether the preference is a strong desire or just a mild one - a great deal of information may be lost (Lemon 1973). There is also a danger of encouraging careless checking of the alternatives (Lemon 1973).

3.3.3.2 Ratings

Rating scales that ask respondents to rate a person or an object on some statements or items have been widely used as techniques of attitude measurement. Ratings are typically used to measure strength of agreement with a number of statements which together make up a scale, although they can be used to rate a single attitude object directly (Lemon 1973). The ratings are usually used as measures of attitudes of the raters in subjective rather than objective terms (Lemon 1973, Oppenheim 1992). Three forms of rating scales are widely used, i.e., graphic, numerical, and specific category rating scales in which respondents are asked to check on some point on a line or numbers or words, depending on the forms of rating scales (Lemon 1973). As an example of specific category rating scales:

How interested are you in the use of media technology in language teaching?

Very interested ___	Fairly interested ___	Undecided ___	Not particularly interested ___	Not interested at all ___

These techniques are simple and easy to use. However, researchers must be careful in the way they use the scales (i.e., they have to be aware of the reliability of the scales), since they obviously depend on the respondents' subjective judgement.

There is a rating scale which is widely using in attitude measurement, the so called 'Likert's Method of Summated Ratings', proposed by Likert (1932, 1967). The procedures of Likert's method are as follows: 1) A large number of attitude statements (or items) on a given topic are prepared by researchers; 2) The statements with a five-point rating scale (i.e., strongly agree, agree, undecided, disagree, and strongly disagree) are given to the subjects of the target population; 3) Respondents must check one of the scales, which are consistently scored 1, 2, 3, 4, and 5, (i.e., from 'strongly agree' 1 to strongly disagree 5) respectively, or in reverse, 5, 4, 3, 2, and 1; 4) The score on each item is correlated with the total scores (sum of item scores), and the items that correlate highly with the total scores are selected for the final scale (Likert 1967, Oppenheim 1992, Oskamp 1977, Shaw and Wright 1967).

Thus, the respondent's attitude score is determined by adding his/her ratings for all of the items, under the assumption that all of the items are measuring the same underlying attitude (Oskamp 1977). It is worth noticing that this method uses only items that are favorable or unfavorable toward a given attitude object (usually the most favorable 25% and least favorable 25%, i.e., an item analysis which is to compare the group of the top 25% with the bottom 25% is performed) (Oskamp 1977, Triandis 1971). On the other hand, researchers can use a four-point scale, eliminating the neutral (i.e., 'undecided') category, in order to force respondents to choose between favorable and unfavorable alternatives.

However, Oppenheim (1992) argued that the pattern of response may be more interesting than the total score in some cases. According to him:

> The most serious criticism levelled against this type of scale is its lack of reproducibility (in the technical sense): the same total score may be obtained in many different ways. This being so, it has been argued that such a score has little meaning or that two or more identical scores may have totally different meanings.
>
> (Oppenheim 1992: 200)

The reliability of Likert scales can be easily checked by spilt-half method and internal consistency (Likert 1932, 1967). A number of studies, such as McNemar (1946), Murphy and Likert (1938), Poppleton and Pilkington (1964), and Tittle and Hill (1967), etc. reported that the reliability and the validity of Likert scales were quite high and a little higher than those of the more difficult-to-construct Thurstone scales (in Oskamp 1977, Triandis 1971).

3.3.3.3 Ranking

Ranking refers to arranging in order, in which respondents are asked to rank-order a given series of items or statements (Lemon 1973). Oppenheim (1992) pointed out that the ideal number of rankings which can be asked under normal survey conditions is probably under ten items. An alternative way is sometimes used, i.e., 'a partial ranking', in which respondents are asked to rank the three or four preferred ones among the items (Oppenheim 1992). In particular, researchers must keep it in mind that 'Other (please specify)' category is needed, e.g., 'Please specify it/them, if you have additional item(s) which you consider to be more important than the items listed'.

Ranking correlates the ordering of the items by different respondents and then derives groups of respondents who give similar rank-orders, in order to discover the factor which is responsible for the pattern of rankings which are obtained (Lemon 1967). It does not indicate the difference between rank (i.e., the size of rank intervals is unknown and unlikely to be equal), but the order or sequence (Oppenheim 1992). In other words, it relies on correlations between the respondents rather than between measures to produce its results (Lemon 1967). For a correlation coefficient, a number of statistical tests are usually used, particularly Spearman's Rho or Kendall's tau (Bryman and Cramer 1994, de Vaus 1990). Thus, ranking can be used in a useful way to find out the respondents' preference towards the items or statements rather than something about those being ranked (Oppenheim 1992).

3.3.3.4 The semantic differential

The semantic differential was developed by Osgood, Suci and Tannenbaum (1957) in their research, which originally attempted to measure the connotative meaning of the concept or object being rated (Rajecki 1990, Oskamp 1977). They concluded that there are three dominant factors (or dimensions) on which people make semantic judgements, and these are applicable to varied concepts, varied adjectival rating scales (Osgood et al. 1957, Oskamp 1977). The three factors are : the 'evaluative' factor represented by scales like good-bad, kind-cruel, easy-complicated, etc.; the 'potency' factor represented by scales like strong-weak, heavy-light, useful-useless, etc.; the 'activity' factor represented by scales like active-passive, hot-cold, fast-slow, etc. (Osgood 1967). The first scale is clearly an affective dimension, while the rest of them are likely to be more cognitive in nature (Oskamp 1977, Rajecki 1990). The evaluative dimension in particular is the most dominant one of the dimensions and the most widely used one in attitudinal research (Osgood 1967, Rajecki 1990). In short, Osgood et al. (1957) claimed that people's attitude towards an object is comparable to the object's evaluative meaning for them, and, therefore, the semantic differential can be used to measure their attitude to the object (Lemon 1973, Fishbein and Ajzen 1975).

As the term 'semantic differential' implies, the technique consists of one or more concepts to differentiate and a set of bipolar adjectives pairs (e.g., good - bad, active - passive, etc.), and does not contain any statement about attitude objects (Fishbein and Ajzen 1975, Oskamp 1977). The semantic differential is actually a scale in itself and known as the most widely used technique for attitude measurement, since it is very simple for researchers to administer and easy for respondents to respond, and can be applied to any concept at all (Fishbein and Ajzen 1975, Oskamp 1977, Triandis 1971). Therefore, the value of the technique depends largely on an appropriate choice of concepts and rating scales (Oppenheim 1992).

It usually uses a series of five or seven-point rating scales (usually three or four adjective scales about one dimension, e.g., the affective dimension) with a pair of opposing adjectives. For example;

Computers

Interesting	___ ___ ___ ___ ___	Boring
Easy	___ ___ ___ ___ ___	Complicated
Undervalued	___ ___ ___ ___ ___	Overvalued

Respondents are asked to rate the attitude object on a series of scales (e.g., computers as above), that is, they are simply asked to put a mark on the scale. Responses to each scale are scored from +2 (positive side) to -2 (negative side). The scores are summed across all the scales, since the scale is an equal-interval scale and this value or average score is taken as an index of attitudes (Fishbein and Ajzen 1975).

Some studies, e.g., Jenkins et al. (1958), Osgood et al. (1957), etc. by using the test-retest method or the split-half method showed that the reliability of the semantic differentials is generally high and acceptable (in Lemon 1973, Shaw and Wright 1967). Nickols and Shaw (1964) and Osgood et al. (1957) also reported that the validity of the scale was estimated as generally correlating with the traditional attitude scales, e.g., Thurstone's scale (in Lemon 1973, Shaw and Wright 1967).

3.4 Teachers' attitudes towards the use of media technology in education and in FLT/L at all levels

It is a widely held view that teachers have generally been reluctant to use media technology in the classroom over the decades since the introduction of audio into education. However, recent research studies report that they seem to have recently become aware of its potential and value in education, and become interested in the use of media technology, including hi-tech media technology in the classroom, because of its value in today's society and increased accessibility to it in teaching and learning. Are language teachers sharing this trend?

The purpose of this section was to review research findings on teachers' attitudes towards the use of media technology in FLT/L in higher education and relevant factors influencing the implementation of it in the language classroom. However, although there have been numerous research studies into the teachers' and students' attitudes towards media technology and its use in education at school level, there have only been a few studies into their attitudes towards it in FLT/L in higher education. Therefore, this review of literature has been expanded to include research studies that are directly or indirectly related to their attitudes towards the use of media technology in education and in FLT/L at all levels.

This section presents a brief review of available literature on teachers' and students' attitudes towards the use of media technology in education and in FLT/L at all levels.

3.4.1 Teachers' attitudes towards media technology and its use in education and in FLT/L at all levels

A number of research studies have investigated relevant factors influencing the use of media technology in the classroom, particularly focusing on teachers' attitudes, since: its use may largely depend on the teachers' attitudes, unlike the use of classic materials, such as textbooks and written materials; the teachers are the ultimate implementors of media technology in the classroom. In general, the studies report that teachers' attitudes towards media technology or its use, particularly computer technology, are one of the most significant factors in the success or failure of its implementation in education and in FLT/L (Clement 1981, Garrett 1991, Harrison and Hodgkinson 1995, Johnston 1987b, Tomlinson and Henderson 1995, Tseng 1988).

There have been numerous research studies (largely based on surveys and case studies) into teachers' attitudes towards the use of media technology, and particularly the computer in education. The research findings show that teachers' attitudes towards media technology and its use are not uniformly positive. In short, the studies related to teachers' attitudes towards the use of media technology in education and in FLT/L in the last two decades (i.e., from the mid 1970s to the mid 1980s, and from the mid 1980s to the present) reveal that there are generally two opposing sets of results.

3.4.1.1 From the mid 1970s to the mid 1980s: A negative tendency

First of all, before the mid 80s, teachers were generally reluctant to use media technology, particularly newer or advanced technologies based on computers and microelectronics technology in the area of teaching and learning in schools and in higher education (Aquino 1974, Billings 1981, Brisson 1981, Engel 1970, Gilbert 1982, Hartley and Bostrom 1982, Johnston 1985, Joiner et al. 1981, Lichtman 1979, Mackenzie et al. 1970, Milner 1981, Moore and Hunt 1980, Moss 1979, Smeltzer 1981, etc.). It is also widely accepted that the majority of language teachers are often naturally opposed to the use of it in language teaching, particularly at the beginning of the advent of media technology, whatever it is. Without exception, that is, language teachers were also resistant to use media technologies, both low-tech (e.g., audio and video) and hi-tech (e.g., computers and IV) media technologies in language teaching (Barley 1990, Chandler 1984, Johnston 1985, Lonergan 1991, Skehan 1985).

For example, Brisson (1981) reported that teachers were not convinced of the potential of computers and were reluctant to accept them, to experiment with and explore them, saying "it [the use of computers] means changing all the methods they've developed over the years." Billings (1981) stated that there was little interest among teachers in providing students with access to the computer. Some teachers just did not want to bother, and others refused to get involved, assuring themselves that "it is another fad that will die away like so many other curriculum innovations (Billings 1981: 87). Chandler (1984) reported that few English teachers would argue against the need for students to learn about computers, but the majority of the teachers would deny that it is any concern of theirs. Most teachers did not know how to use audiovisual materials and computers as teaching aids, and felt that they were not prepared to use them (Hartley and Bostrom 1982, Mackenzie et al. 1970). Teachers' attitudes were and still seem to have been the biggest obstacle in using audio resources in language learning and teaching (Barley 1990). In the early 1980s, there was a resistance to using video (including TV) and computers, and a need to persuade teachers that using them is a worthwhile activity in the language classroom (Lonergan 1991b, Phillips 1985).

Based on the research studies, the reasons why the teachers had negative attitudes towards the use of media technology can be summarised as follows: 1) apprehension about media technology itself as a dehumanising tool or complicated technology (probably computer technology) or a replacement for the teacher (Billings 1981, Chandra 1987, Johnston 1985, Joiner et al. 1981, Smeltzer 1981); 2) lack of knowledge about it (or lack of familiarity with it) (Billings 1981, Chandra 1987, Johnston 1985); 3) lack of hardware and software, particularly appropriate software, and then limited access to it (Thomas 1981, Billings 1981); 4) scepticism about it, i.e. lack of certainty about its potential and value (Billings 1981, Brisson 1981, Moss 1979, Phillips 1985, Teather and Collingwood 1978, Tomlinson and Henderson 1995); 5) reluctance to make significant changes in their teaching strategies and methods in order to exploit it (Brisson 1981, Chandra 1987, Gilbert 1982, Hartley and Bostrom 1982); 6) lack of teacher training in using it (Billings 1981, MacKenzie et al. 1970, Milner 1981, Moss 1979, Smeltzer 1981, Teather and Collingwood 1978); 7) lack of the time and effort that teachers have to put into learning about it (Billings 1981, Brisson 1981, Chandra 1987).

In short, teachers seemed to be faced with two main issues in the use of media technology: coping with the technology (e.g., lack of hardware and appropriate software, and lack of knowledge) and adapting to the new methodological approaches required in teaching and learning (Lonergan 1991b). Many schools and institutes invested in the equipment and materials, and teaching methodologies and techniques were emphasised all the more, in order to counteract the widespread lack of understanding of the implication of using media technology and change teachers' negative attitudes towards it (Lonergan 1991b).

3.4.1.2 From the mid 1980s to the present: A positive tendency

Do teachers, then, naturally have negative attitudes towards media technology, particularly the newer or advanced technologies? Rusby (1984) and Benwell (1986) claimed that teachers have looked for useful teaching and learning materials and always been ready to use them as teaching aids. In fact, one of the high-tech media technologies, computers, has recently become more widely available to teachers and even to language teachers, due to the rapid technological developments in both hardware and software. As a result, teachers seem to have recently realised their potential, e.g., to assist in the preparation, management and organisation of lesson and teaching materials, and been interested in using them in the classroom (Wilson 1990). In the early 80s, CLT in FLT/L became widely accepted at all levels, and individualisation (or learner-centred learning) has more recently been emphasised in language learning (Lonergan 1991b). Media technology appears to have been more accepted by language teachers not only because of increasing familiarity, but also because of their methodological value in helping to carry out the current demands of FLT/L, e.g., CLT and learner-centred activities (Lonergan 1991b).

A number of research studies report that teachers have been interested in and have generally positive attitudes towards the use of media technology, and particularly hi-tech media technology in education and in FLT/L (Ajibero 1985, Bush 1991, Cattaro 1987, Choi 1991b, Collins 1994, Davis 1988, Gardner and McNally 1995, Heath 1991, Hill 1991b, Johnston 1987b, Koohang 1987, O'Neil et al. 1987, Pelgrum and Plomp 1991, Plowman and Chamber 1994, Randall 1988, Steward 1990, Todman and Dick 1993, Wilson 1990, etc.).

For example, Ajibero (1985) found that faculty members at universities have a strong positive attitude towards media technology in education. Most teachers believed that media technology can be used to improve teaching and learning processes, e.g., 90.7% of teachers believed that it can be extremely effective in large class-sizes, and 89% of teachers did not agree that the increased use of it will reduce their role in instruction (Ajibero 1985). Broady and Le Duc (1995), in their case studies of a video project in foreign language teaching and learning, reported that teachers (and students) showed positive attitudes towards video and video recordings, saying that "It was enjoyable and informative while we were practising in class. It was a great way to teach phrases and conversation French because of the constant reading and acting". In a national survey in the UK in 1988, to find out what language teachers thought about the use of satellites and authentic television, Heath (1991) reported that: 1) About 40% of teachers have already used it in language teaching; 2) For the majority, it was seen as giving a new and exciting dimension to language learning (only 3% of non-users said that they did not know whether it was a desirable supplement to language lessons); 3) 93% of users stated that they would like to use it more than they do at present; 4) 92%

of them wanted it to be available on a self-access basis to learners; 5) 84% of users and 81% of non-users felt that it should be available to their departments.

Steward (1990) reported that Southeast Texas elementary principals and teachers had positive attitudes towards computers in education, but the attitudes of principals were more positive than those of teachers. They were very interested in learning more about computers, and thought that they are capable of using a computer and do not feel helpless, afraid, or uneasy when others talk about computers (Steward 1990). In their research study of teachers' attitudes towards computers, Pelgrum and Plomp (1991) reported that principals and teachers generally have positive attitudes towards the educational impact of computers, but users' attitudes (those who are using computers) are generally more positive than non-users. However, there is a great need for training, i.e., non-users and even users apparently consider themselves as not yet adequately trained, and are very interested in learning about computers (Pelgrum and Plomp 1991). Johnston (1987b) reported that primary and secondary teachers, who were already to some degree experienced about computers showed positive attitudes towards the potential of CALL. However, the teachers were frustrated by lack of access to the equipment and/or lack of experience or training (Johnston 1987b). Bush (1991), in his study of students, teachers, and administrators' attitudes towards CAI in predominantly native American high schools in Arizona, found that teachers, students and administrators had a positive attitude towards CAI, and the educational background of teachers and administrators (i.e., teachers' with a bachelor's degree, or a master's degree, or a doctorate) had no effect on their attitudes towards CAI. In his survey of Australian and British teacher trainees' attitudes towards computer utilisation, Wilson (1990) reported that 95% of them agreed that it was very important or important for teachers to know about computers, and that 41% of Australian teacher trainees have positive feelings about computers (35% of them were neutral and only 24% of them have negative feelings). In a recent survey on the use of computers, Collins (1994) reported that teachers have a positive attitude towards the use of computers in schools and in colleges, i.e., 57% (50% in 1992 and 63% in 1993) of teachers are interested in using a computer suite.

O'Neil et al. (1987) reported, in their project which is concerned with investigating the potential of IV for the teaching of foreign languages to secondary school students (particularly oral skills), that early reactions from users and teachers are highly favourable, particularly in the areas of motivation and learner control. Gardner and McNally (1995), in their IV project in school-based initial teacher training involving interviews with teachers in Northern Ireland secondary-level schools, reported that many considered it to be enjoyable to use, to provide opportunity for reflection on topical issues, to be especially suitable for small groups, and so on. Gardner and McNally (1995) concluded that IV materials can raise their awareness of different teaching styles, classroom management strategies, professional relationships and so on. Plowman and Chamber (1994), in their foreign language learning programmes using CD-ROM multimedia, reported that *Asterix* users thought that easy repetition of language were useful and the cartoon characters was motivating. The teachers found it useful as a break from routine, although its language was far too difficult for the intended age range (Plowman and Chamber 1994). These results, therefore, have proven that teachers have recently realised its potential, and that its use can contribute to education in general and in FLT/L effectively and efficiently in a number of ways (Hill 1991b).

On the other hand, some research studies suggest that some teachers still seem to have conservative attitudes towards the use of computers in education, or at least teachers' attitudes do not necessarily indicate a polarisation of strongly positive or negative tendencies. For example, Vermette et al. (1986) reported that teachers were less receptive in terms of the effects of computer integration on them personally, although they generally expressed positive attitudes in regard to computerised education. Harrison and Hodgkinson (1995) argued that for many teachers there seems to be a psychological barrier preventing them from taking advantage of the opportunities that computers offer. He found that about 25% of teachers are keen on the use of computers, while 68% are unsure, and 7% are hostile (Harrison and Hodgkinson 1995). Washinton-Bunkley (1988) reported that more that 50% of teachers and administrators were uncertain or uninformed about computer technology, suggesting a need for communication and better training programs. In his survey designed to elicit basic descriptive and attitudinal information about the use of CAI in the United States, Menke (1989) reported that ESL directors as a whole had few strongly felt attitudes towards the use and implementation of CAI seemingly due to a lack of knowledge regarding CAI. The results suggested that of those not offering CAI, the major deterrent preventing the use of CAI was found to be concern about lack of funds, and of those offering CAI, the major difficulty was found to be a lack of quality software (Menke 1989). It was also found that the existence of CAI correlated with the existence of computer facilities at the institution and the computer literacy of the ESL directors (Menke 1989).

In view of these research studies, it can be summarised that until the mid 80s teachers' attitudes show a negative tendency towards media technology and its use, but thereafter their attitudes tend to be positive. It is worth noticing that users' attitudes are more positive than non-users'. Wilson (1990) stated that as the benefits of computer utilisation are experienced, negative feelings seem to diminish and disappear. This trend shows that teachers' attitudes towards the use of media technology are associated with more availability of hardware and software, their greater experience and knowledge of computers (these can particularly be obtained by proper teacher training), and these can change their attitudes to become more positive. In short, as the equipment and materials of media technology become more widely available, teachers become more familiar with it, and then their attitudes towards it become more positive. There is a need, therefore, for teacher training and retraining, particularly in-service training in which teachers can learn how to operate equipment, to implement media technology in the classroom, and to integrate it into the existing curriculum and syllabus.

3.4.1.3 Factors influencing teachers' attitudes towards the use of media technology

Factors such as age or years of teaching experience, access to hardware and software (i.e., availability of hardware and appropriate software), experience of and familiarity with media technology (or knowledge of it), teacher training, and probably gender, appear to have an important impact on teachers' attitudes, and seem to have an influence on the successful implementation of media technology in education. Principals, head teachers and the school board are also of critical importance in facilitating its use at school levels (Cattaro 1987, Cox et al. 1988, McGee 1985, Pelgrum and Plomp 1991). A number of research studies confirm this.

Firstly, for instance, the results of some studies indicated that differences in the amount of teaching experience were significant, as was the age of the teachers. Esin (1988) reported that increases in teachers' age and years of teaching experience were accompanied by parallel increases in their levels of apprehension about the use of computers in education. Steward (1990) found that the younger, but less experienced teachers were more 'procomputer', i.e., computers were used in school by younger teachers more than older teachers to a significant level. Age seemed to be the only characteristic that played a role in differences of teachers' attitudes towards computers (Steward 1990).

Secondly, teachers' limited knowledge and experience of computers in educational settings may be the result of their apprehension towards the use of computers in schools (Esin 1988). Teachers' attitudes towards the computer and its use in education are inevitably affected by their familiarity with the technology (Johnston 1987b, Taylor 1987). The implementation of computers may encounter problems due to limitations in software (Cattaro 1987). Pelgrum and Plomp (1991) reported that inadequate facilities are seen by many respondents as a major obstacle in implementing media technology in school.

Thirdly, Esin (1988) stated that there seemed to be a correlation between teachers' knowledge and experience and their negative attitudes about the use of computers in schools. The results indicated that two thirds of the teachers who had not taken computer literacy education courses were apprehensive about the use of computers (Esin 1988). Tomlinson and Henderson (1995) reported that some teachers had earlier indicated the need to see a media technology application in use before they could comment on its value, and that experience with it can influence teachers' attitudes towards using it. Lack of teacher knowledge is one of the most important problems encountered in using computers (Pelgrum and Plomp 1991), and there were problems in implementing the use of computers due to inexperience among teachers (Cattaro 1987).

Fourthly, teacher training (particularly in-service training) is addressed in a number of research studies, since it is clearly a main factor influencing teachers' attitudes and the implementation of media technology in schools (Bowen 1995, Pelgrum and Plomp 1991). Schools should ensure that teacher training is carried out, since it can play an important role in changing teachers' attitudes positively and in developing their confidence in the use of media technology (Bowen 1995). Lack of appropriate teacher training and literacy in media technology (this can be obtained from appropriate teacher training courses) might lead to misuse and overuse of media technology rather than effective use of media technology in the classroom (Tomlinson and Henderson 1995). Johnston (1987b) reported that more and better teacher training is found to be wanted and needed. A major new effort is needed to demonstrate new media technologies (e.g., computers and CD-ROM multimedia) and to train teachers to use the new tools (Rich 1991). Cattaro (1987), in his study on the attitudes of a national sample of elementary principals, reported that there are recent indications that lack of proper staff training is creating difficulties in the implementation of computers in schools. In short, lack of staff training was undermining the use of computers in school (Cattaro 1987).

Gender differences

Finally, it is a widely held view that males are better at using or more positive in their attitudes towards use of technology in general than females. Therefore, it may be expected that the attitudes of male teachers towards the use of media technology in education will be more positive that those of female teachers, and this may have an impact on teachers' attitudes towards it. Except probably at the nursery school level (Bellanger 1986), males appear to be more interested in, and make more use of, technology, particularly computer technology, than females at all levels (Durndell et al. 1987, Siann et. al. 1990). However, the majority of research studies indicate that there is generally little or no gender difference between male and female teachers in terms of the use of media technology, and those have little or no influence on their attitudes towards its use in education (e.g., Delfrate 1987, Esin 1988, Fray 1988, Steward 1990, Vermette et al. 1986, etc.), although some found that male teachers tend to show slightly more positive attitudes towards it (e.g., Durndell et. al. 1987, Koohang 1987, Warner 1988). Therefore, it can be argued that as people grow older (probably move into their mid-twenties) and get professionally involved in it, the gender gap in attitudes towards technology in general and computing in particular becomes narrower or disappears (Lightbody and Durndell 1993).

For example, Esin (1988) found that there was no relationship or significant difference between teachers' apprehension about the use of computers and gender of teachers, or their level of education. Vermette et al. *(1986)*, in their study of attitudes of primary school teachers towards computers in education, reported that there were no gender differences in attitudes, although there was some indication of stereotypical attitudes regarding the mastery of computer skills, activities, and interests. Steward (1990), in his study of Southeast Texas elementary principals and teachers' attitudes, reported that there were no significant gender differences in attitudes towards computers. In addition, Pelgrum and Plomp (1991) reported that in many cases there was no significant gender difference between male and female principals in problems experienced concerning eight topics (e.g., software too difficult or too complicated to use, integration of computer use in the existing prescribed curriculum, teachers lack knowledge and skills about using computers for instruction purposes, etc.). However, in terms of gender differences in knowledge and skills of teachers using computers, male teachers generally have higher self-rating scores than female teachers on the knowledge, programming and capability scales (Pelgrum and Plomp 1991).

On the other hand, Warner (1988) reported that male teachers tend to use more audiovisual equipment more often, and females tend to use less equipment less often. In particular, it is interesting to find that gender (masculinity and femininity) appears to be a stronger predictor of teacher use of contemporary technological devices than sex (male and female) with masculine teachers using more and feminine teachers using less (Warner 1988). Koohang (1987) found that male teachers generally tend to have more positive attitudes towards the use of computers than females, showing greater confidence in and less anxiety about using computers.

3.4.2 Students' attitudes towards media technology and its use in education in general and in FLT/L at all levels

There are numerous research studies about students' attitudes towards media technology and its use, particularly about computers in education. It is also widely accepted that students' attitudes as well as teachers' attitudes towards the use of media technology are very important for its successful implementation in education, since their negative attitudes towards it will inhibit learning, whereas positive ones will make students more receptive to the learning activities (Johnston 1987a, Askar et al. 1992).

To begin with, for students media technology appears to be an exciting and useful classroom resource which is perceived as enhancing learning. Children appear not to be afraid of technology, particularly the computer, but to enjoy it, since the current generation of children is growing up in the computer and microelectronics technology era (Harvey and Wilson 1985, Johnston 1985, Knezek et al. 1993). Unlike teachers, therefore, most students readily accept media technology, probably the younger, the more readily, and have positive attitudes towards it and its use (Anderson 1985, Harvey and Wilson 1985, Knezek et al. 1993). Students want to learn, and they believe that computers can help them (Johnston 1985). For example, Bush (1991), in his study of students, teachers, and administrators' attitudes towards CAI in predominantly native American high schools in Arizona, found that there was a significant difference between teachers and students, and that students have more positive attitudes than teachers. Cattaro (1987) reported that students were most favourably oriented to computer-based education, followed by parents, and then teachers.

Overall, research studies repeatedly show that students' attitudes towards media technology and its use, particularly the computer, are generally positive at all levels across the world (e.g., Anderson 1985, Askar et al. 1992, Chen 1986, Coleman 1992, Collis 1985, Collis and Williams 1987, Cully 1986, Durndell 1991, Durndell et al. 1987, 1995, Eastman and Krendl 1987, Hart 1984, Harvey and Wilson 1985, Haddon et al. 1995, Hill 1987, Johnston 1985, 1987a, Kenning 1990, Knezek et al. 1993, Kornum 1990, Makrakis 1993, Nelson 1988, Oliver and Perzylo 1992, Pearson 1990, Phinney 1989, Piper 1987, Plowman and Chamber 1994, Shashaanni 1993, Siann et al. 1988, 1990, Simmons and Wild 1991, Todman and Dick 1993, Steadman et al. 1992, Tomlinson and Henderson 1995, Underwood et al. 1994, Williams et al. 1983, etc.).

For example, Coleman (1992), in his study of a video project designed to practise all four language skills (reading, writing, listening and speaking) in FLT/L, reported that students showed positive attitudes towards video and video recording. The students' comments stressed the fun, enjoyment and interest of the project, the novelty of non-traditional experience, and the satisfaction of concrete achievement, and one of them said, 'the most worthwhile project I have done on the language course': 80% of the students felt that the project was worthwhile; 84% of them enjoyed it; 79% of them thought that they increased their knowledge of France (Coleman 1992). Pearson (1990) also stated that the video camera is primarily a stimulus for speaking. Most students enjoy the experience of being filmed, and even some who hate it acknowledge that it provides a useful teaching and learning aid (Pearson 1990).

Askar et al. (1992) reported that fifth-grader pupils in Turkey had positive attitudes towards computer assisted learning, stating that learning from computers was both enjoyable and interesting. In his study of the attitudes of pupils who have had no computer experience towards computers in language learning, particularly reading and writing in Australian metropolitan schools, Anderson (1985) found that their attitudes towards computers before the trial were positive, and after the trial attitudes moved to being even more positive. They thought that computers are interesting, friendly, fun, and helpful in learning, and they responded unanimously that they are not afraid of computers (Anderson 1985). Knezek et al. (1993) found, in their cross-cultural studies of primary school children's attitudes towards the computer in Japan, Mexico, and USA, that pupils generally have positive attitudes towards it, and that the pupils with computer experience have more positive attitudes those without computer experience in school. Johnston (1987a) reported that pupils' attitudes towards CAL are generally positive, showing: improved concentration with CAL; more interest than when learning with teacher and books; greater effectiveness than with a teacher. In the study of Canadian and Chinese adolescents' attitudes towards computers, Collis and Williams (1987) found that in both cultures students were generally positive. Durndell et al. (1987), in their studies on students' attitudes towards computers, IT and technology in general in four discipline areas in higher education, COMP (computer/electronic studies), SCIENCE (science courses), HI-IT (non-science courses making heavy use of IT) and LOW-IT (non-science courses making relatively low use of IT) found that there were relatively minor differences in attitudes towards computers and IT, with COMP students being slightly more positive than students in the other categories, and there were no differences in attitudes to technology in general across the four categories. Kenning (1990), in her research study of students' reaction to CALL, focusing on enjoyment and perceived effectiveness (usefulness), reported that they were generally favourable towards CALL, and considered it as having a contribution to make language learning. For enjoyment, they were particularly keen on more 'fancy' exercises (with graphics), text-manipulation programs, and games among CALL programs, and in terms of usefulness, a number of programs such as testing sequences, teaching programs, text manipulation, etc., were highly evaluated by the students without adverse marks (Kenning 1990). Phinney (1989) and Piper (1987) reported that native and ESL (English as a Second Language) students enjoyed using computers to write, and wrote more. Piper (1987) found that: most students felt that learning word processing was useful and motivated to them to write more; they thought that computers in writing made their work load easier; they felt that they wrote better in English and expressed less fear about writing in English.

In relation to the use of CD-ROM multimedia, Plowman and Chamber (1994) found that primary and secondary school students were generally very enthusiastic about the system (*The Hutchinson Encyclopaedia*) and felt that it could aid learning in a number of ways, citing using the system without their teacher's presence as one of the most enjoyable aspects. Oliver and Perzylo (1992), in their research using *Mammals Multimedia Encyclopaedia* (1990), also reported that students found the program fun and very easy to use.

Hill (1987), in his research study, reported that IV could make a dramatic impact on learning of English, both in the classroom and within the context of self-learn systems, and students' subjective assessment of the value of IV was encouragingly positive. Almost without exception they expressed their enjoyment of working with it and their opinion that it had proved effective for them (Hill 1987). Haddon et al. (1995), in their study comparing a control group which was taught via conventional lectures and an experimental group which learned from a multimedia (IV) system in higher education, found that students' attitudes towards the use of the package were generally positive. All of the experimental group students were satisfied that multimedia had been an effective learning method, and 7 of the 8 students expressed the opinion that: software was more motivating than lectures; it provided more intense learning than lectures; it was more structured, reliable and flexible; learning was at the user's desired pace (Haddon et al. 1995). Kornum (1990), in the IV project for French teaching at the threshold level in Denmark, reported that IV was very useful for listening comprehension. The evaluation of the project, in which the students were very actively involved and enjoyed the activity, shows that IV applied in the teaching of a rather difficult foreign language has an extremely positive effect on the motivation as well as the autonomy of the students (Kornum 1990).

Despite students' preference for media technology, however, some studies (e.g., Blackmore et al. 1992, Simmons and Wild 1991, etc.) report that not all students necessarily have positive attitudes towards the newer media technologies, particularly computers. For example, Blackmore et al. (1992), in their study of students' attitudes towards computers at primary and secondary levels in UK, reported that: 1) at Loughborough PGCE primary students were asked to rate their personal feelings about computers and showed a negative tendency, i.e., 53% of them chose the "would rather have nothing to do with computers" side (41% of them were neutral), while only 6% of them chose the "enjoy using them" side: 2) in Worcester students were asked "Please describe your attitude to computers" and responded as follows; 29% showed anxiety, 52% had little anxiety but also little confidence, and only 16% of them showed some confidence with computers.

Factors influencing students' attitudes towards the use of media technology

Many research studies also show that age, computer ownership, computer experience, and particularly gender, generally influence students attitudes towards media technology and its use, particularly the computer (e.g., Anderson 1985, Askar et al. 1992, Chen 1986, Coleman 1992, Collis 1985, Collis and Williams 1987, Cully 1986, Durndell 1991, Durndell et al. 1987, 1995, Eastman and Krendl 1987, Harvey and Wilson 1985, Haddon et al. 1995, Johnston 1985, Knezek et al. 1993, Makrakis 1993, Nelson 1988, Shashaanni 1993, Siann et al. 1988, 1990, Todman and Dick 1993, Tomlinson and Henderson 1995, Underwood et al. 1994, Williams et al. 1983, etc.).

Firstly, for example, younger students are slightly more positive towards media technology, particularly the computer and its use, than older students. Most young students readily accept technology in general, probably the younger, the more readily (Knezek et al. 1993). Harvey and Wilson (1985) reported that the younger generation of children seemed far less reserved and more willing to adopt computer technology. In relation to the age factor, less favourable attitudes to computers have generally been reported for older than for younger children (Todman and Dick 1993). Smith (1986) found more positive attitudes among primary-age than secondary-age children. Nelson (1988) found that attitudes of younger students were slightly more positive than those of older students. While males and females may start off with a similarly positive view about technology in general, and computer technology in particular, as they grow older both sexes become less positively disposed towards technology and this age-related change is stronger for females than for males (Lage 1991). Durndell et al. (1995), in their research studies of Scottish secondary school students' attitudes towards computers and their use, supported this result as follows: older students expressed less enthusiasm for computers than younger ones; as female students grow older, their attitudes towards the use of computers become less positive relative to the attitudes of male students.

Secondly, computer owners appear to have more positive attitudes towards the computer and its use than non-owners (Nelson 1988, Harvey and Wilson 1985). Nelson (1988) reported that the attitudes of students having a computer at home were more positive than those of students without a home computer. Harvey and Wilson (1985) found that owners were generally more favourably disposed towards computers than non-owners, and in particular, were more impressed by the functional capabilities and found them easier to use.

Thirdly, it is also suggested that computer experience at home and school may impact on students' attitudes towards the computer and its use. Siann et al. (1990) reported that students who have had computer experience have more positive attitudes towards the computer and its use than those who have had not computer experience. In general, female students both at school and in higher education show lower levels of experience with computers both at home (Cully 1986 in Durndell et al. 1995) and at school compared to males (Durndell et al. 1987). Girls reported less experience of using computers at school (Durndell et al. 1995). Collis (1985) found that grade 8 male students who had completed a computer literacy course were more positive in their attitudes towards computers than were their male classmates who had not yet taken the course, while grade 8 female students did not show an improvement in attitude after taking the course.

Gender differences

Unlike teachers, there is no doubt that there are generally consistent gender differences between male and female students in attitudes towards technology in general and computer technology in particular, i.e., the attitudes of male students are more positive than those of female students (e.g., Anderson 1985, Chen 1986, Clement 1981, Collis 1985, Collis and Williams 1987, Cully 1986, Durndell et al. 1987, 1995, Eastman and

Krendl 1987, Faulkner and Arnold 1985, Hoyles 1985, Makrakis 1993, Moore 1985, Okebukola 1993, Shashaanni 1993, Siann et al. 1988, 1990, Stockdale 1987, Summers 1990, Todman and Dick 1993, etc.). In general, this gender difference in attitudes towards computers and their use is similarly shown in the West and East (Pelgrum and Plomp 1991, Siann et al. 1988).

In their study of primary students' attitudes to computers, for example, Todman and Dick (1993) found that boys were more favourably disposed to computers than girls, in terms of the fun and usefulness subscales. Okebukola (1993), in his study of the gender issue in the use of computers among some Australian high school students, reported that overall boys showed a significantly lower level of computer anxiety and a significantly higher level of interest than girls. Collis (1985) found that secondary school students were consistently more positive about the use of computers than were females, and more likely to express interest and pleasure, and particularly self-confidence in using computers. Shashaanni (1993), in her study of students' attitudes towards computers in five secondary schools in Pittsburgh in USA, reported that girls, as compared with boys, are less interested in the use of computers, lack confidence in using computers, and, therefore, have low expectations for success in computing. In the study of Canadian and Chinese adolescent' attitudes towards computers, Collis and Williams (1987) reported that the male students were generally more positive than female students in their attitudes towards computers and showed higher self-confidence about working with computers.

Siann et al. (1990) found that gender differences between male and female students were shown in their pre-experience attitudes towards computer technology, but after computer experience the differences decreased. Chen (1986), Durndell et al. (1995), and Summers (1990) also reported that male students have more positive attitudes towards computers than do females, but this difference appears to be diminished when the factor of computer experience is controlled. However, Collis (1985) stated that female students were more likely to endorse stereotyped attitudes in the use of technology, particularly computers, than were males, since they, unlike males, did not demonstrate a positive change in attitude after school experiences with computers.

In general, recent studies show that, in addition to the male stereotype associated with media technology and particularly computers, other factors also encroach on the gender differences in computing (Durndell et al. 1995, Siann et al. 1990, Shashaanni 1993). As Chen (1986), Durndell et al. (1995), Siann et al. (1990), and Summers (1990) mentioned above, firstly, computer experience is one of the significant factors in gender differences, i.e., when females become convinced of the usefulness of computers with computer experience, probably due to the quality of that experience (Summers 1990), they are very prepared to make use of them (Durndell et al. 1995). Eastman and Krendl (1987) also stated that the experience with computers had removed stereotypical attitudes towards computers.

Secondly, such differences between boys and girls in their attitudes to computers are likely to result in differences in the degree of self exposure to technology in general and particularly computers, and their own psychological conflict is influenced by the deep-rooted stereotyping of society's expectation at all levels (Siann et al. 1990). Some studies report that males and females equally perceived computers as valuable and useful (Shashaanni 1993), and compared to males, females seem to be more likely to view computers as useful tools rather than as objects with an intrinsic interest (Siann et al. 1990). Stockdale (1987) reported that: female students at secondary school felt that it was equally important for female and male students to know about computing, and that females had the ability to learn about it, but they were significantly less interested in computers than male students; they enjoyed using computers less than the males did (in Siann et al. 1988). These appear to show that females' use of computers is more pragmatic than is the use of computers by males (Durndell et al. 1995), and that the more linked computers become to non-scientific applications, the more likely it will be that females will participate more fully in computer use (Siann et al. 1988). In their studies of the attitudes of secondary school students towards computers, Collis (1985) and Makrakis (1993) found that female students strongly agreed that "females have as much ability as males when learning to use a computer.", while they showed a clear shift in attitude and indicated that they, as individuals, did not feel competent or confident. In short, in terms of the issue of the gender differences, female students' attitudes can be described as "We can, but I can't" (Collis 1985, Makrakis 1993, Shashaanni 1993, Siann et al. 1990) or modification of the statement above, "I can, but I don't want to" (Lightbody and Durndell 1993, Durndell et al. 1995), and this is identified as a potential source of psychological conflict for female students at all levels (Collis 1985).

Thirdly, gender differences in attitudes towards computers exist among students and are influenced by gender socialisation or perhaps sexist attitudes at school or home (Shashaanni 1993, Tagg 1985 in Johnston 1987a). Differences in students' attitudes towards computers appear to develop during the school years, and even high school gender differences may be due to differences in the amount and type of computer exposure in school (Chen 1986). Therefore, teachers' and parental attitudes (i.e., their sex-type view) appear to have a significant impact on gender differences (Clement et al. 1993, Harvey and Wilson 1985, Knezek et al. 1993, Shashaanni 1993). For example, Shashaanni (1993) found that there is a strong relationship between students' computer attitudes and their perception of their parents' attitudes towards computers. A positive correlation was observed between lack of interest and confidence of female students in using computers, and their parents' and teachers' beliefs, e.g., "Using computers is more appropriate for males than for girls." and "Computing is mostly a man's job.", and, therefore, the attitudes and beliefs of parents and teachers were important factors affecting those of females (Shashaanni 1993). Harvey and Wilson (1985) also reported that parental influences appear to be the major cause of girls' negative attitudes towards computers. For instance, parents are more inclined to buy their son a computer, although the results of the study and the follow-up interviews show that girls are just as keen and enthusiastic as boys, and, therefore, this shows that the boys' parents actively support their sons' interest, whilst girls' parents are more dubious (Harvey and Wilson 1985).

On the other hand, some studies report that there is no significant gender difference in terms of students' attitudes towards the computer, although males tend to have slightly more positive attitudes towards it than females (e.g., Askar et al. 1992, Enochs 1984, Harvey and Wilson 1985, Johnston 1987a, Knezek et al. 1993, Nelson 1988, Vermette et al. 1986, Swander and Hannafin 1987, Williams et al. 1983, Yelland 1995, etc.). Gender differences in attitudes towards computers and their use tend to be diminished at secondary and tertiary levels (Durndell 1991).

For example, Knezek et al. (1993), in their longitudinal study of elementary school children's attitudes towards computers in Japan, Mexico, and USA, reported that no consistent gender differences were found for attitudes towards computers among the three nations, and in particular the gender biases often found in older age groups were missing. Enochs (1984) found no significant gender differences between boys and girls (fifth graders) on general attitudes towards computers. Johnston (1987a) reported that pupils attitudes towards CAL are generally positive, and very few gender-related differences are evident, although girls express slightly less positive attitudes. Williams et al. (1983), Harvey and Wilson (1985), and Nelson (1988), in their studies from the USA, the UK, and Australia where the same questions on a semantic differential attitude scale designed to measure primary and secondary students' attitudes towards computers were asked, reported that favourable attitudes were found, with no noticeable gender differences. Loyd and Gressard (1984) found that there was no significant difference between the attitudes of male and female high school and college students towards computers, although males' attitudes tend to be slightly more positive than females' (in Askar et al. 1992). Durndell et al. (1991), in their studies on the students' attitudes towards computers, IT and technology in general in the four discipline areas in higher education, found that there no consistent gender differences on the attitude variables.

In sum, students' attitudes towards media technology and its use, and particularly computers, are generally positive, but there appear to be persistent gender differences in schools, i.e., the attitudes of male students are more positive than those of female students. Male students have been shown to be more interested in the use of computers, and have more confidence in, less anxiety about and more experience of, using computers.

CHAPTER 4

DESIGN OF THE STUDY

4.1 Introduction

This study was particularly designed to investigate the patterns and contexts of teachers' [and for reference, students'] use of media technology and their attitudes towards the use of it in FLT/L at university level in Korea. In addition, this study aimed to examine the problems and their causes in the use of media technology, and the possibilities for the effective implementation of it in FLT/L, and to suggest some solutions and strategies for applying them to the Korean context. [There is no doubt that 'teaching' and 'learning' are closely related to each other. As described in the preceding chapters, some research studies reported that students' attitudes as well as teachers' towards the use of media technology are also significant for the successful implementation of it in FLT/L for various reasons (Johnston 1987a, Askar et al. 1992). In addition, teachers' attitudes towards the use of it could influence students' attitudes towards the use of it and vice versa. For reference, therefore, it must be of some value to investigate the patterns and contexts of students' use of media technology and their attitudes towards the use of it in FLL.] This chapter deals with the research questions and hypotheses, the research methods and techniques, the data collection instruments, the procedures of the study, and the methods of data analysis.

The chapter is divided into six main sections: 1) The research questions and hypotheses; 2) Research methods and techniques; 3) Data collection instruments; 4) Data collection procedures and subjects; 5) The methods of data analysis; 6) Summary.

4.2 The research questions and hypotheses

Media technology has not been widely used in language teaching and learning in higher education in Korea, despite the fact that the equipment and materials are available (if not widely), as described in the introductory chapter. The research questions related to finding out the current situations and problems in using media technology and teachers' attitudes towards the use of it in FLT/L needed to be addressed.

Therefore, three main questions and thirty-eight concrete subquestions were addressed, and in an effort to address the issues raised by the answers, ten research hypotheses were formulated, based on the current contexts of teachers' use of media technology in Korea, and the review of literature related to its use and their attitudes towards the use of it in education, and particularly in FLT/L. Nine research questions and eight hypotheses for students were also formulated.

4.2.1 The main research questions and subquestions

The main research questions to be investigated are as follows: 1) What are the patterns and contexts of teachers' use of media technology in language teaching at university level?; 2) Why do most teachers not use media technology very much?; 3) Why do some teachers use it? The concrete subquestions of each main question are as follows.

4.2.1.1 Subquestions for research question 1

1 Have you ever read any publications on the use of media technology in education or in language teaching and learning?
2 How interested are you in the use of media technology in language teaching?
3 Have you had experience of using media technology in language teaching?
4 How often do you use media technology yourself and in language teaching?
5 What was the context of your use of media technology?
6 What media technology did you use?
7 Do you use any other kind of media (not mentioned in question 6) regularly?
8 To what extent do you think modern media technology is available now in education?
9 If more media technology could be made available for language teaching, how likely would you be to use it?

10 What factors are regarded as important in introducing (or implementing) media technology into university teaching?

4.2.1.2 Subquestions for research question 2

1 Do teachers have a negative attitude towards the use of media technology?
2 Do teachers refuse to use it, because:
it is dehumanising and non-communicative?
they do not know how to use and apply it in the EFL classroom?
they are not trained to do so?
they do not like it?
they think it is useless?
they do not have much choice of software?
they think the available software is not effective enough to be used with Korean students in the EFL classroom?
they are reluctant to invest time and energy in providing the right software (i.e., through design, evaluation, and classroom preparation)?
they are worried about having to apply new ways of learners' assessment, which they are not sure about?
students are not keen on using it?
they feel there is a gap between new communicative trends in EFL teaching and the application of technology, particularly computers?
all examinations (including the national examinations) in Korea exclude the use of technology?
3 Are they satisfied with their teaching methods which do not involve using media technology?

4.2.1.3 Subquestions for research question 3

1 What proportion of teachers use media technology and with what frequency?
2 Do teachers use media technology, because;
it can help students to reinforce language skills?
it can provide students with more than one way to access information?

it can give students the authenticity of spoken language?
it can bring the real world into the classroom?
it can offer a wide range of learning and practice opportunities?
it can supply activities which are adjustable to the students' needs?
it can provide students with sufficient variety to maintain their interests?
it can make it easier to teach a foreign language?
3 Are they forced to use it?
4 What helps them to use it?:
Is it personal attitude?
Is it self-commitment?
Do the university authorities provide some help? (e.g., Have they had training? When and Where?)
5 Are they satisfied with their teaching methods which involve using media technology?
6 Do such teachers by comparison to the group of non-users have positive attitudes towards the use of media technology?

4.2.2 The research hypotheses

Firstly, two research hypotheses to test were formulated as follows: 1) A stereotypical attitude is that males are generally better or more positive in the use of media technology than females, but there has been no evidence that there are significant differences between gender towards the use of it in higher education. Hypothesis One, therefore, predicts that there would be a difference due to gender in the patterns of teachers' use of media technology, and their attitudes towards the use of media technology; 2) It is worth investigating the effect of different amounts of teaching experience, since this may affect teacher attitudes. Hypothesis Two predicts that the amount of teaching experience the respondents have would affect the patterns of teachers' use of media technology and their attitudes towards the use of media technology.

Secondly, the answers to the questions described above were intended to allow the investigation of the following main hypotheses.

Hypothesis Three: The Korean university teachers in this study would have read about the use of media technology, and would have read significantly more about low-tech media technology than hi-tech media technology.

Hypothesis Four: The teachers would make little use of media technology, although they have had some experience of using it in language teaching, and would use low-tech media technology significantly more than hi-tech media technology.

Hypothesis Five: The teachers would believe that media technology equipment and materials, particularly computer software, are not widely available in education in general, but the teachers would be likely to use them if they became more widely available for language teaching.

Hypothesis Six: The teachers would regard their own attitudes, the support of university authorities, and the availability of appropriate software as the most significant factors in implementing media technology in language teaching.

Hypothesis Seven: The teachers would have positive attitudes towards the use of media technology, but users would have more positive attitudes towards it than non-users.

Hypothesis Eight: The users would use media technology, particularly because: they believe claims about the potential of media technology that some writers make; they have favourable attitudes towards the use of it; they are forced to use media technology by the university authorities and students.

Hypothesis Nine: The non-users would not use media technology, particularly because of its dehumanising effect, lack of software, lack of knowledge, and not being trained to use it.

Hypothesis Ten: The teachers would not be satisfied with their teaching methods whether they use media technology or not.

4.2.3 The research questions and hypotheses for students

The following research questions were formulated in order to *investigate the pattern of* students' use of media technology and their attitudes towards the use of it in FLL.

1 How interested are you in the use of media technology in language learning?
2 Have you had experience of using media technology in language learning?
3 How often do you use media technology in language learning?
4 What was the context of your use of media technology?
5 What media technology did you use?
6 If more media technology could be made available for language learning, how likely would you be to use it?
7 What factors are regarded as important in introducing media technology into language learning?
8 Are you satisfied with teachers' teaching methods which do not involve using media technology?
9 Are you satisfied with teachers' teaching methods which involve using media technology?

The research hypotheses formulated are as follows. Hypothesis One: There would be differences due to gender in the patterns of students' use of media technology, and their attitudes towards the use of media technology.

Hypothesis Two: Students' academic years would affect the patterns of students' use of media technology and their attitudes towards the use of media technology.

Hypothesis Three: The students would have positive attitudes towards the use of media technology.

Hypothesis Four: The students would make little use of media technology, although they have had some experience of using it in language teaching, and would use low-tech media technology significantly more than hi-tech media technology.

Hypothesis Five: The students would be likely to use the equipment and materials of media technology, particularly computer software if they became more widely available for language teaching.

Hypothesis Six: The students would regard their own attitudes, teachers' attitudes (and guidance), and the availability of appropriate software as the most significant factors in implementing media technology in language learning.

Hypothesis Seven: The students would not be satisfied with their teachers' teaching methods whether they use media technology or not.

Finally, this study does not particularly focus on the students, but on their teachers. The reason for this is that students tend to adopt and follow their teachers' attitudes towards teaching methods including the use of media technology in FLL in Korea. Therefore, Hypothesis Eight predicts that Korean students in this study would tend to follow their teachers' attitudes and guidance in using media technology.

4.3 The methods and techniques use in the study

The purpose of this study was to investigate the patterns and contexts of teachers' use of media technology and their attitudes towards the use of media technology in FLT/L at university level in Korea. As stated in the introductory chapter, there has not yet been any research or experimental study on the use of media technology and teachers' attitudes towards it in higher education in Korea. In this situation, it is clearly important to obtain reliable information on all pertinent aspects of using media technology in FLT/L.

There is no simple method for gathering attitudinal data, and the task is complex. For example, Henerson et al. (1987) stated that an attitude is not something researchers can examine and measure in the same way as examining scientific facts, e.g., the cells of a person's skin. Furthermore, teacher's attitudes towards the use of media technology must be affected by many complex variables, e.g., preference, interest, previous experience, support of the university authorities, etc. What kinds of methods, then, are relevant to collecting attitude information?

In general, a blend of two or three research methods has recently been recommended in educational research. In particular, Bryman (1988) described the strengths of combining quantitative and qualitative research as follows: first, quantitative research facilitates qualitative research and vice versa - one of the ways is in the judicious selection of cases for further study; second, quantitative and qualitative research can be combined in order to produce a general picture; third, quantitative research can establish a correlation between two variables, and qualitative research may facilitate the interpretation of the relationships between the variables; fourth, the integration provides a combination of the researcher's and the subjects' perspectives. Henerson et al. (1987) describe four general approaches and discuss when these approaches are most appropriate. Most of the approaches that they have enumerated are quite similar to the situations present in this study. According to them, surveys, interviews, questionnaires including attitude rating scales and logs are most appropriate when the subjects whose attitudes the researchers are investigating are able to: a) understand the questions asked of them; b) have sufficient self-awareness to provide the necessary information; c) are likely to answer honestly and not deliberately falsify their responses. Direct observation is also most appropriate when the subjects whose attitudes researchers are investigating are unable or unlikely to provide accurate information, and when researchers want information about how subjects behave under certain circumstances (Henerson et al. 1987).

Therefore, quantitative research i.e., the survey, is the technique most likely to be appropriate in order to fulfil the purpose of this study. In addition, qualitative research, i.e., interviews and classroom observations can be used as a supplementary survey method. In short, a combination of quantitative and qualitative research is desirable in this study, in order to obtain all the data and information needed. The following techniques will be used in this study: questionnaires, interviews, and observation.

4.4 Data collection instruments

In order to obtain all the data about the patterns of teachers' use of media technology and their attitudes towards the use of media technology in FLT/L, questionnaires, interviews and observation were chosen as the main instruments of data collection. All the instruments were constructed and piloted by the researcher. In this section these instruments are described in detail.

4.4.1 The teachers' questionnaire

The main aims of the questionnaire were to examine teachers' general views and experiences, and to discover teachers' attitudes towards the use of media technology in foreign language teaching at university level in Korea.

4.4.1.1 The structure of the questionnaire

The questionnaire was constructed to elicit responses to all media technology currently available, and to media technology that will be available in the near future. It was divided into three sections: A) General questions: general views and experiences of media technology; B) The reasons why media technology is and is not used; C) Short personal information (see Appendix A: A.1).

4.4.1.2 The types of questions

The types of questions used in Section A, B, and C are as follows; Closed questions (binary, checklist, etc.) and open questions (Table 5, and see Appendix A.1.) In Section A, closed questions were used in order to extract teachers' general knowledge of, views about and attitudes towards media technology utilisation, and then open questions were used after the closed questions in order to identify the context of their responses. For example, the researcher needed to find out whether subjects knew about media technology and its use, before asking about their attitudes towards the use of it.

In Section B, a four point Likert-type scale was used to measure attitudes without the option of a neutral mid point. This is a widely used technique to encourage subjects to make a clear decision. The resulting scale was as follows:

Strongly agree Agree Disagree Strongly disagree

In Section C, subjects were requested to provide answers to questions regarding name, gender, age, years of teaching, position, and address including telephone number for a follow-up interview.

Table 5. Types of Questions

Sections Types	Section A	Section B	Section C
Binary	Q1, 2, 4, 5	Q15, 17	Gender
Bands			Age
Checklists	Q1.1, 2, 4.2,		
Likert-type Scales	Q3, 6, 7, 8, 9	Q 13.0, 13.1, 14, 16	
Semantic Differential	Q10		
Ranking	Q11		
Open	Q3, 4.1, 5.1, 12	Q13.1, 13.2, 15, 17	Years of teaching experience, Position

* Q: question

4.4.2 The students' questionnaire

For reference, this study attempted to investigate the patterns and contexts of students' use of media technology and their attitudes towards the use of it, for the reasons mentioned in the introduction. In addition, the study endeavoured to compare teachers' attitudes with students' attitudes (if applicable), and particularly to investigate Hypothesis Eight formulated in section 4.2.3.

This questionnaire was, therefore, regarded as being subordinate to the teachers' questionnaire. The aims and structure of the students' questionnaire are similar to the teachers' except that the sections were re-ordered (i.e., Section A: Short personal information, Section B: General questions; general views and experiences of media technology, Section C: The reasons why media technology is and is not used) (see

Appendix A: A.2.). The word 'teaching' was replaced by 'learning' throughout. In addition, based on the results of the pilot study (see section 4.5.2.1, pp. 184), the following media technologies were omitted: interactive video, CD-ROM multimedia, and virtual reality. Questions 1, 5, 6, 7, 8, were turned into three questions (question 4, 5, 6). Finally, the questionnaire was translated into Korean in order to help students clearly understand the questionnaires (see Appendix A.5).

4.4.3 Interviews

The aim of the interviews was to obtain information in depth which could not be extracted from questionnaires.

4.4.3.1 The structure of interviews

Two kinds of semi-structured interviews, 'Interview schedule I' and 'Interview schedule II' were constructed in order to get qualitative information.

4.4.3.1.1 Interview schedule I

This was for the teachers, and was divided into two sections: *Section A* was for those who use media technology in the class room, and consisted of thirteen questions about media technology utilisation, e.g., the example of success and failure in using media technology in class; *Section B* was for those who do not use media technology, and consisted of nine questions, including some questions about reasons for not using media technology. (See Appendix A.3.)

4.4.3.1.2 Interview schedule II

This was for the heads of departments and colleges and the presidents of universities . It aimed to find out about the policies of media technology utilisation and future plans, and their attitudes towards it as well. It consisted of nine questions about educational, technical and financial support. (See Appendix A.4.)

4.4.3.2 Tools

Note-taking and audio-recording were chosen as the means of gathering information. Audio-recording was particularly helpful in reconstructing important data from the interviewing.

4.4.4 Observation

The aims of observation were to examine the use of media technology in actual classroom activities, to assess their success and failure, to find out the reasons for success or failure, and to find out teachers' attitudes towards it in actual lessons. This sort of information cannot be obtained from questionnaires and interviews.

4.4.4.1 Observation Schedule

Two types of observation, participant observation and non-participant observation were used by the researcher in order to get the necessary information. Classroom observations focused particularly on activities going on in the language classroom, on the teaching methods and methodologies and materials used, and teachers' behaviour and students' responses. Five classes were observed with the help of staff of the Audio-Visual Education Institute (AVEI): English lab classes with audio and video, an English conversation class without media technology, an English conversation class with video, and an English conversation class with computers.

4.4.4.2 Tools

A video recording, a simple evaluation checklist, a supplementary students' questionnaire, and interviews to cross check for the reliability of the researcher's evaluation were chosen as the main tools of observation (See Appendix A.6: Evaluation checklists and Appendix A.7: Questionnaire on the classroom activities).

In practice, it is very difficult for a researcher both to observe classroom activities and to make a video of them at the same time. However, a video recording is useful to capture data missed during 'live' observation and allows the researcher to analyse and reconstruct the main sequence of the activities afterwards. There was some concern that the presence of a video camera would inhibit the activities being filmed. However this did not turn out to be the case and indeed, the researcher was assisted by the staff of AVEI to make the filming as unintrusive as possible.

4.5 Data collection procedures and subjects

This section presents the subjects of the study and the procedures of data collection, i.e., the pilot and main study. As stated in the previous section, the study was based on both quantitative research and qualitative research, using three techniques of data collection: questionnaires, interviews and classroom observations.

4.5.1 A summary of the procedures

A combination of quantitative and qualitative data gathering took place from January to March, 1992. The pilot study was carried out at the University of Newcastle Upon Tyne in England. The main study was carried out in Korea. A summary of the procedures is in Table 6 (pp. 184)

4.5.2 The pilot study

The purpose of the pilot study was to check the validity and suitability of the questionnaires and the interview schedules to be administered in the main study. Accordingly, draft questionnaires were constructed. The pilot was carried out at the University of Newcastle Upon Tyne in England in Dec. 1991. The subjects were three Korean teachers and fifteen Korean students who were working at the University.

4.5.2.1 Pilot questionnaires

Both the teachers' questionnaire and the students' questionnaire were tested with the subjects at the beginning of Dec. 1991. The questionnaires were hand-delivered or posted to each subject. In order to obtain direct information on the questionnaires, the subjects were asked to give comments on items as well as complete the questionnaire. After collecting the questionnaires, informal group interviews took place with the students, and personal interviews took place with the teachers.

There were no problems in the teachers' questionnaire except for lack of familiarity with the technical terminology, e.g. 'virtual reality' and 'interactive video'. The length of the questionnaire was also a slight problem. However, the teachers seemed to understand well the whole context of the questionnaire, so footnotes were added to explain the technical terms and the overall format was revised and structured without, as far as possible, changing the contents. However, the students found more difficulty with some parts of the questionnaire. In particular, they were confused about how to respond by ranking. They also had difficulty with technical terminology, e.g., virtual reality, interactive video, and CD-ROM multimedia, since they have had no experience in its use. Judging from their statements, the problems were mainly due to their low English proficiency and lack of experience with this kind of questionnaire. Therefore, the technical terms were omitted (see Appendix A.2) and the questionnaire was translated into Korean in order to help students understand it (see Appendix A.5).

4.5.2.2 Pilot interviews

The purpose of these preliminary interviews was to make sure that the form and outline of the interview schedules were clear, and to practise interviewing and managing interviews. *Interview schedules I and II* were tested with two Korean professors in English. There were generally no problems in the context of the interview schedules themselves (see Appendix A.3 and A.4.). However, since both interviewer and interviewees used English, it was somewhat difficult to gather some of the information which was wanted. It became clear that both of the interview schedules required interviewing in Korean. The preliminary interviews were also very helpful in highlighting good and bad interview techniques for the researcher.

Table 6. A summary of the procedures

Date	Contents
Nov. 1991	Teachers' and students' questionnaires were constructed. The pilot study: the questionnaires were tested with Korean teachers and students at Newcastle Upon Tyne in England.
Dec. 1991	The students' questionnaire was modified. Semi-structured interview schedules for teachers and heads (interview schedule I and II) were constructed. The pilot study: the interview schedule was tested with Korean teachers. The observation checklist was constructed. All instruments were revised into a final form.
4 Jan. 1992	The main field study commenced. The teachers' questionnaires were administered at twelve universities in the central districts of Korea.
3, 6, 13 Feb.	Interview schedule I was administered in Seoul
14, 17 Feb.	Interview schedule I was administered in Daejeon and Incheon.
13, 18, 25 Feb.	Group interview using interview schedule I in Incheon. Interview schedule II were administered in Seoul and Incheon.
19 Feb.	The students' questionnaires were administered in Seoul and Incheon.
20 Feb.	The students' questionnaires were collected.
28 Feb.	The teachers' questionnaires were collected.
7 March	Observation of the classroom commenced in Incheon. Class A (English Conversation class for first year) in the Language Laboratory.
10 March	Class B (English Conversation class for first year).
12 March	Class C (Intermediate English Conversation class) in the conventional classroom
14 March	Class D (Intermediate English Conversation class) in the language laboratory, and Class E (Elementary English Conversation class) in the computer laboratory.

4.5.3 The main study

The main study was carried out in the central districts of Korea from 3 Jan. 1992 to 14 Mar. 1992. The subjects were forty-eight Korean teachers (and 535 Korean students, including 135 students for observation) who were working at twelve universities in the central districts of Korea.

4.5.3.1 Questionnaires

4.5.3.1.1 The teachers' questionnaire

The teachers' questionnaire was administered from 3rd of January, 1992 to 22nd of February 1992. The questionnaires were hand-delivered or posted to professors and lecturers in Dept. of English Language Education, Dept. of English Literature, and Foreign Language Institutes at the twelve universities. Forty-eight out of 60 questionnaires were returned. The response rate was very high (80%). Non-returnees consisted of 7 professors (male: 5, female: 2) and 5 lecturers (male: 4, female: 1) at the above universities. However, the non-response rate did not create an unacceptable reduction in sample size and bias, since the researcher expected a number of non-returnees in advance and prepared an initial sample that was 20% larger than needed.

The subjects

The number of teachers: 48

Gender:	Male (32), Female (16)
Age :	26 - 30 (7), 31 - 35 (8), 36 - 40 (8), 41 - 45 (6), 46 - 50 (5), Over 50 (14)
Years of teaching:	1- 5 (15), 6 - 10 (10), 11-15 (8), 16-20(2), over 20 (13)
Position:	Professor (26) Lecturer (22)
Universities:	Twelve universities

4.5.3.1.2 The student questionnaire

The student questionnaire was administered on 19th and 20th of Feb. 1992. The questionnaires were hand-delivered to the subjects who were working in different departments of the universities in the same room before the class. 400 out of 420 questionnaires were returned. The return rate was extremely high (95.2%).

The subjects

The number of students: 400

Gender:	Male (296), Female (104)
Academic year:	1st (66), 2nd (74), 3rd(176), 4th(84)
University:	Eight universities

4.5.3.2 Interviews

The subjects were selected by a random sample method from the questionnaires. *Interview schedule I and II* were administrated with 19 Korean teachers in Korean on 3, 6, 13, 17, 18, 25, Feb. 1992. All the interviews were conducted personally by the researcher in the interviewee's room except for a group interview. The group interview using *Interview schedule I* was conducted on 18 Feb. 1992, with the help of six lecturers, who are working at Foreign Language Institute of a university in Incheon. Note-taking and audio-recording were used simultaneously in the personal interviews. However, in four interviews only note-taking was used, since the interviewees objected to the presence of an audio-recorder.

The subjects

The number of teachers: 19

Gender:	Male (14), Female (5)		
Age:	26 - 30 (6), 31 - 35 (1), 36 - 40 (1), 41 - 45 (2), 46 - 50 (3), Over 50 (6)		
Years of teaching:	1- 5 (6), 6 - 10 (1), 11-15 (3), 16-20 (4), over 20 (5)		
Position:	Chancellor (1)	Dean (2)	Director (2)
	Professors (6)	Lecturer (8)	
Universities :	Eight universities		

4.5.3.3 Classroom Observations

Observation was carried out at the AVEI of a university in Incheon which provided easy access to teaching language laboratories, and audio-visual and computer resources. Both non-participant observation and participant observation were conducted on 7, 10, 12, 14 March, 1992. After the class, the students' questionnaires were distributed and collected, and the follow-up interview was administered with randomly selected students and their teacher. Details of classroom observations are as follows. (See Table 7 for details of the subjects and materials used in class.)

Class A

Participant observation of an English Conversation class (with textbook, video, and audio) for 1st year students was conducted in the Language Laboratory for 50 minutes on 7 March, 1992. The researcher participated as a student. Fortunately, the students seemed not to recognise the researcher as an observer till the end of class. The classroom activities were recorded by a technician of the AVEI using a video recorder, and evaluated by the researcher using the Evaluation checklist.

Table 7. Details of the subjects and materials used in class

Class	. The subjects	The materials used in class
Class A	Instructor: Lecturer Students: 1st year, Dept. of Environmental engineering, 48	textbook, video, and audio
Class B	Instructor: Professor Students: 1st year, Dept of Mechanical engineering, 48	audio
Class C	Instructor: Professor Students: 2nd, 3rd, and 4th year Various departments, 21	textbook and handouts
Class D	Instructor: Professor Students: Same as above	video and handout
Class E	Instructor: Lecturer Students: 2nd, 3rd, and 4th year Various departments, 18	handouts and computers (Program used: *London Adventure*)

Class B

Non-participant observation of an English Conversation class (with audio) for 1st year students was conducted in the Language Laboratory for 50 minutes on 10 March, 1992. The activities were recorded and evaluated by the researcher.

Class C

Non-participant observation of an Upper intermediate English Conversation class (with handouts and textbook) for 2nd, 3rd and 4th year students was conducted for 40 minutes on 12 March, 1992 in a conventional classroom (without using media technology). The activities were recorded and evaluated by the researcher.

Class D

The same class as Class C. Participant observation of an Upper intermediate English Conversation class (with video and handout) was conducted in the Language Laboratory for 50 minutes on 14 March, 1992. The classroom activities were recorded by a technician of the AVEI, and evaluated by the researcher.

Class E

Non-participant observation of a Lower intermediate English Conversation class (with handouts and computers, program used: *London Adventure*) for 2nd, 3rd and 4th year students was conducted for 50 minutes on 14 March, 1992 in the Computer Laboratory. The activities were recorded and evaluated by the researcher.

4.6 The methods of data analysis

This section will briefly describe how the data was analysed.

The first and most crucial step is to analyse the data using frequency tables (maybe with graphs) and descriptive statistics, which show and summarise patterns in the responses of subjects, and help explain the results of the data and detect relationships.

Inferential statistics, i.e., tests of statistical significance may be significant, because the meaning of the results of a study may depend on tests, and because they can provide researchers with some characteristics of a population based on the results obtained from a sample of that population, if carefully performed (Brown 1988, de Vaus 1990, Gold 1970, Morrison and Henkel 1970). However, they are secondary and auxiliary, since their results are functions not only of the magnitude of the relationships, but also of the numbers of sampling units used (Kish 1970). 'Test of significance' refers to a procedure for deciding whether sampling error will be considered a probable or improbable source of difference between a population and a sample of that population (Morrison and Henkel 1970). In other words, de Vaus (1990) stated that it tells us whether the extent of association between two variables is likely to be due to chance or whether it is likely to hold in the population from which the sample was drawn. However, there has recently been a tendency to put too much emphasis on tests of significance in data analysis, i.e., presenting only the level of significance, without explanations about the patterns of the results and the size of differences (de Vaus 1990, Selvin 1970). Some critics, such as Beshers (1970), Kendall (1970), Selvin (1970), etc. have argued that tests of significance should properly be used under the certain conditions, i.e., following the principle of sampling and being guided by theory, and that if not, they are of little value for surveys. However, Gold (1970) claimed that a meaningful and useful interpretation can be given to a test of significance applied to any set of data, without regard to sampling considerations, although the researchers may specify what represents the whole population from which the sample has been drawn in order to generalise in statistical terms from a sample to a population. Therefore, the quantitative data was analysed using, first, frequency tables with graphs and descriptive statistics, and second, inferential statistics (tests of significance) in this study.

The data gathered from the combination of quantitative and qualitative research were analysed as follows. Firstly, the quantitative data from the questionnaires were analysed using SPSS/PC+ (The PC version of Statistic Package for the Social Science). The data were analysed and displayed through the following procedures: 1) sorting out and listing the variables (independent and dependent variables) from the instruments of data collection; 2) coding closed response and open-response data; 3) recording data on the summary sheet and inputting data on the computer; 5) computing the data using SPSS/PC+; 6) displaying the results using graphs and tables. For the Semantic Differential in the questionnaire (See Appendix A, Question 10), responses are scored out of 4 on the positive side of each scale (e.g., *Useful - Useless*) to 1 on the negative side. The average score will be taken as an index of the respondents' attitudes towards the five media technologies. That is, the data were analysed and presented for each question and four research hypotheses (Hypothesis One and Hypothesis Two for teachers, and for students) in turn as follows.

1) Bar or column charts and frequency tables with statistics were used for all the subquestions in order to identify the patterns of teachers' (and students') use of media technology and their attitudes towards the use of media technology.

2) Crosstabulations for a detailed distribution of independent and dependent variables, and appropriate statistical methods of testing association according to variable levels (e.g., Chi-Square test, Fisher's Exact Test, Kendall's tau, and Pearson's *r*) were performed to determine whether significant relationships existed between male and female respondents, and between years of teaching experience (and between academic years). (The explanations of the statistical methods used are presented in detail in Appendix I 'Methods of Examining Relationships'.)

N-way analysis of variation (ANOVA) was also used for exploring differences among interval variables.

3) Multiple regression analysis was performed in order to predict the future utilisation of media technology.

The significance level was set at 0.05 ($p<0.05$) to test the null hypotheses of no association in this study.

Secondly, the qualitative data from the interview and observation (particularly using synopsis and transcripts) were presented descriptively to supplement the quantitative data.

4.7 Summary

This chapter has focused on the methodology of this study, which involves defining the research questions and hypotheses, together with the data gathering methods and techniques, subjects, and methods of data analysis used.

In order to obtain the most appropriate data for this study - investigating the patterns of teachers' (and students') use of media technology and their attitudes towards the use of media technology in FLT/FLL at university level in Korea - a combination of qualitative and quantitative research was chosen. The data were collected through questionnaires, semi-structured interviews, non-participant and participant classroom observations with instruments constructed by the researcher. The subjects in the study consisted of 48 professors and lecturers from 12 universities (and 535 students from 8 universities) in Korea. They were selected on the basis of a random sampling method in order to ensure a representative group for the study. The quantitative data obtained were statistically analysed, according to various factors and variables using SPSS-PC+, and the qualitative data were analysed descriptively, using the audio and video recordings.

The researcher hopes that the results of the findings in the following chapter will be helpful in the implementation of media technology in language teaching and learning in higher education and for further study in this field.

CHAPTER 5

PRESENTATION OF RESULTS

5.1 Introduction

This chapter presents the results of this study, based on the data collected from the five sources; teacher's and students' questionnaires, teacher's (and heads') interviews, and classroom observations. It is divided into three main parts: 1) The results of the questionnaires and interviews; 2) The results of classroom observations; 3) Summary.

The first part deals with the results of the data analysis obtained from the questionnaires and interviews, based on the subquestions of the three main questions and the ten research hypotheses. It is divided into three main sections according to the three main questions, which are subdivided into subsections according to a set of specific subquestions stated in the previous chapter (4.2.1 The main research questions and subquestions). In particular, the first two hypotheses for teachers and students in turn were tested for all the subquestions. The two hypotheses for teachers are as follows. Hypothesis One: There would be a difference due to gender in the patterns of teacher's use of media technology, and in their attitudes towards the use of media technology. Hypothesis Two: The amount of teaching experience the respondents have would affect the patterns of teacher's use of media technology and their attitudes towards the use of media technology. The significance level was set at 0.05 ($p<0.05$) for rejecting a null hypothesis of no relationship between gender, and between years of teaching experience in this study. That is, if the null hypothesis is rejected ($p<0.05$), the research hypothesis that there is a significant relationship between gender, and between years of teaching experience is accepted.

Bar or column charts and frequency tables with statistics were used for all the subquestions in order to identify the patterns of teacher's and students' use of media technology and their attitudes towards the use of media technology. The frequency tables with statistics are given in Appendix D Frequency Tables. Chi-Square tests, Fisher's exact tests, Kendall's tau and Pearson's r for testing association according to variable levels were performed to determine whether significant relationships existed between male and female respondents and between years of teaching experience. The results of tests of significance and Crosstabulations are presented in Appendix E Crosstabulations and Tests of association. N-way analysis of variation (ANOVA) for interval variables was performed in order to determine whether a significant relationship existed between gender and between the amount of years of teaching experience, and whether a significant relationship existed according to 2-way interactions of gender and the amount of years of teaching experience. The tables of cell means and ANOVA are included in Appendix F N-Way Analysis of Variance. As mentioned in the previous chapter (4.6 The methods of data analysis), however, tests of significance by gender and years of teaching experience variables are secondary and are included to fulfil a mainly 'quality-control' role. [Note that as there are many cells with an expected frequency of less than five, the results of chi-square tests may not be considered valid. In general, however, few of the probability tests affected the validity of the results of this study, and the researcher kept them in to support the general trends identified in the descriptive data and to confirm the generalisability of the trends.] Finally, multiple regression analysis was performed in order to predict the future use of media technology. The results of multiple regression are given in Appendix G.

The second part presents the results of the evaluation of classroom observations. It is subdivided into five sections on the basis of five classroom observations, Class A, Class B, Class C, Class D, and Class E. Each lesson was evaluated qualitatively with a synopsis containing transcripts and the follow-up students' and teachers' interviews. The results of the analysis obtained from the follow-up students' questionnaires are also included.

The frequency distribution of the subjects by gender, years of teaching experience, age and position is reported in Appendix B (Biographical Details of the Subjects and Their Crosstabulations).

5.2 Results of the questionnaires and interviews

5.2.1 What are the patterns of Korean teachers' use of media technology in language teaching at university level?

This question set out to find out current levels and range of use of media technology. 11 subquestions were identified. Each is now considered in turn.

5.2.1.1 Have you ever read any publications on the use of media technology in education or in language teaching and learning?

Question 2 in the teachers' questionnaire addressed this subquestion. Figure. 11 shows the results of the teachers' experience of reading any publications on seven media technologies which are now available. The pattern in Fig. 7 clearly indicates that the teachers have read more about the most accessible and familiar technologies, audio and video than those of the newer or advanced technologies, such as computers, IV, CD-ROM multimedia (CD-ROM), etc. in education or in language teaching and learning (LT/LL) or in both. Hypothesis Three predicted that the Korean university teachers in this study would have read about the use of media technology, and would have read significantly more about low-tech media technology than hi-tech media technology. The hypothesis was supported.

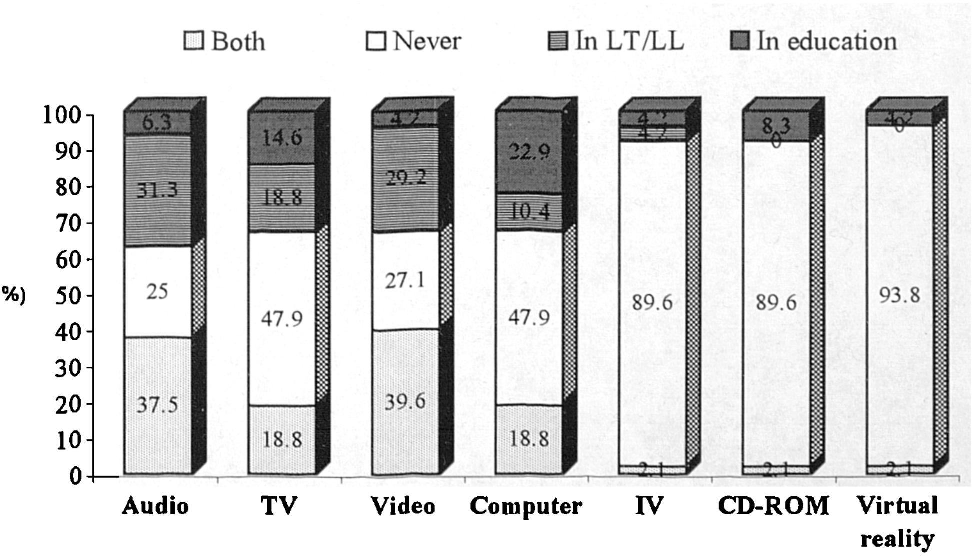

Fig. 7. Teachers' experience of reading about seven media technologies

The rank order of the total percentage of the three divisions is as follows; audio (75%), video (72.9%), TV and computers (52.1%), IV (10.4%), and CD-ROM and Virtual reality (VR) (6.2%). Audio and video are still more widely read about than other media technologies. It is worth noticing that the teachers' experience of reading about the computer is the same as about TV, which is the most easily accessible medium anywhere. This suggests that the computer has recently become the centre of teachers' interest in education in general. Unsurprisingly, as the researcher had expected, the teachers have read little about the advanced technologies, IV, CD-ROM and VR. The order of the most read media technology is video (39.6%), audio (37.5%), TV (18.8%), computers (18.8%), IV (2.1%), CD-ROM (2.1%) and VR (2.1%) in 'both', i.e., 'LT/L and education'. This result is similar to the other category, 'LT/L', with one change of order. The order of the most read media technology in 'LT/L' is audio (31.3%), video (29.2%), TV (18.8%), computer (10.4%), IV (4.2%), CD-ROM (0%), and VR (0%).

The results of testing association for the teachers' experience of reading about the technologies by gender and by years of teaching experience yielded Chi-Square values, whose significance levels are indicated in Table 8. Chi-Square values and D.F. (Degree of Freedom) are given in Appendix E: E.1, 1 - 14. Only five items are significant at the 0.05 level of statistical significance, i.e., the computer and VR by gender, and audio, video and IV by years of teaching experience. There is no significant relationship between gender, or years of teaching experience, and the teachers' experience of reading about seven media technologies, except for these five items. In general, therefore, Hypothesis One and Two were not supported.

Table 8. Significance of tests of association
for teachers' experience of reading about seven media technologies

	Teachers' reading experience of						
	Audio	TV	Video	Computer	IV	CD-ROM	VR
Gender	.6149	.8829	.6064	.0106*	.1765	.3436	.0408*
Years of teaching experience	.0189*	.1065	.0248*	.1544	.0036*	.2238	.4320

*P<.05

Firstly, there is significant relationship between gender and the teachers' experience of reading about computers indicating that the female teachers (63%) have read more about it than the male teachers (47%) in general. However, Fig. 7 shows different distributions, i.e., 19%, 0% and 44% of the female teachers have read about the computer in 'education', 'LT/L', and 'both', but 25%, 16%, and 6% of the male teachers have read about them. Secondly, there is a significant relationship between years of teaching experience and the teachers' experience of reading about audio and video. For example, the teachers with 1 - 5 ('LT/L': 26.7% and 'both': 40%) and 6 - 10 (10% and 80%) years of teaching experience have read about video, while those with 21 - 25 years of teaching experience (54.5% and 18.2%) have read about it. The results of audio also show a similar pattern to video. (See Appendix E: E-1, Crosstabulation 2 and 6.) Thirdly, there is a significant relationship between years of teaching experience and the teachers' experience of reading about IV. The teachers with 1 - 5 (6.7%), 6 - 10 (25%) and 11-15 (12.5%) years of teaching experience have read about IV, while those with 16 - 20 and 21 - 25 years of teaching experience have never read about it in 'education' or 'LT/L'. (See Appendix E-1, Crosstabulation 2, 6 and 10.) However, only five out of 48 teachers have read about IV. Finally, there is a significant relationship between gender and the teachers' experience of reading about VR, but only three female teachers (one 'in education' and two 'in LT/L') out of 48 teachers have read about VR. (See Appendix E: E-1, Crosstabulation 13.)

5.2.1.2 How interested are you in the use of media technology in language teaching?

Question 3 of the teachers' questionnaire, question 2 of the students' questionnaire for reference, and question A-3 of interview schedule I and question 1 of interview schedule II addressed this subquestion.

The results in Fig. 8 indicate that the teachers are interested ('Very interested', 45.8% and 'Fairly interested', 45.8%) in the use of media technology in language teaching. Overall, teachers' interest in it for language teaching (91.6%) is higher than that of students (63.6%) (Fig. 8-1)

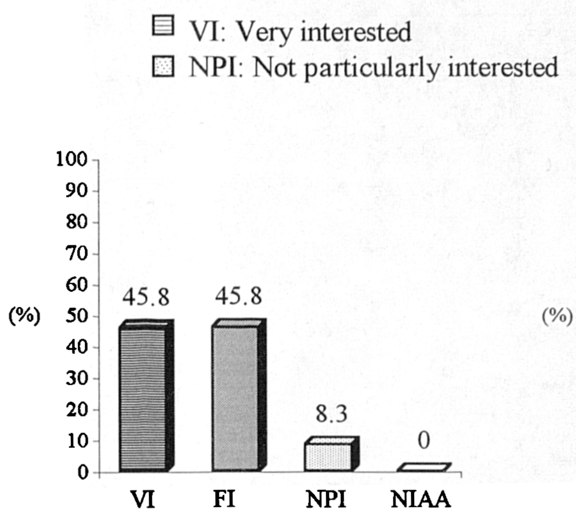

Fig. 8. Teachers' interest in the use of media technology in language teaching

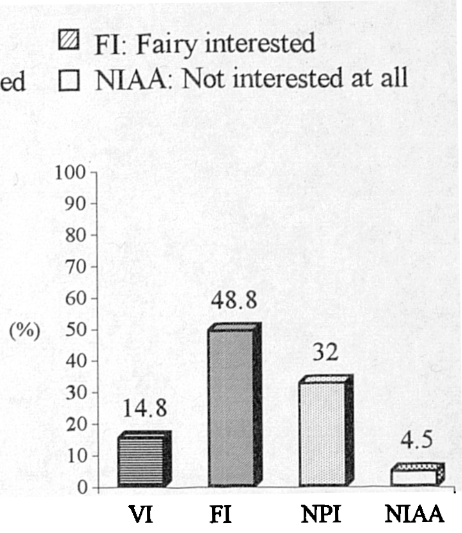

Fig. 8-1. Students' interest in the use of media technology in language learning

According to the teachers' interviews, almost all the teachers and heads are very interested in the use of media technology in FLT/L. They also think it is very useful. Thus, the results of the interviews support that of the questionnaires. One of their statements speaks for their feelings well and explains why they are interested in using it:

> "Oral fluency in foreign language learning has recently been emphasised in our country for various reasons. Of course, it does not mean that written English is not important, but we have spent too many years teaching grammar, structures and vocabulary with written materials, and this has not helped students to improve their speaking skill. Well, then....? We can't replace all our teachers with native speakers. As an alternative way, I think we can use media technology effectively and it can make up for them to some extent. The advantages of media technology, e.g., providing learners with various kinds of authentic audio-visual materials can play a valuable role in foreign language teaching and learning, particularly communicative approach. I personally am very interested in the use of media technology in language teaching. For example, my students were very exciting and satisfied with my teaching methods, when we did role-playing using video materials."

The results of testing association for the teachers' interest in the use of media technology by gender and by the years of teaching experience yielded Chi-Square and

Kendall's tau values, which have significance levels of .5895 and .2339 respectively. There is, therefore, no significant relationship between gender, or years of teaching experience, and their interest in the use of media technology (see Appendix E.1, Crosstabulation 15 and 16). Hypothesis One and Two were not supported.

The results of testing association for the students' responses by gender and by academic year also yielded Chi-Square and Kendall's tau values with significance levels of .0400 ($p<.05$) and .2702. There is a significant relationship between gender and their interest in the use of media technology, but a slight one. For example, 16.6% and 2.95 % of male students (10.9% and 7.8% of female students) are 'very interested' and 'not interested' in the use of media technology. However, there is no significant relationship between academic years and their interest in it. (See Appendix E: E.4, Crosstabulation 1 and 2, pp. E-106.)

The first two research hypotheses for students were formulated as follows. Hypothesis One: There would be differences due to gender in the patterns of students' use of media technology, and their attitudes towards the use of media technology. Hypothesis Two: Students' academic years would affect the patterns of students' use of media technology and their attitudes towards the use of media technology. Therefore, Hypothesis One was supported, but Hypothesis Two was not supported.

5.2.1.3 Have you had experience of using media technology in language teaching?

Question 4 in the teachers' questionnaire, question 3 in the students' questionnaire, and question A - 1, 2, 5, and 6 of interview schedule I addressed this subquestion.

In spite of a high level of interest (91.6%) in the use of media technology (Fig. 8), the teachers' experience of using media technology (Fig. 9) is 68.8%, which is a little less than the students' experience of using it in language learning (77.8%) in Fig. 9-1. It is interesting that the percentage of the students' experience of using it is higher than that of their interest (63.6%) in the use of it in language learning as shown in Fig. 8-1.

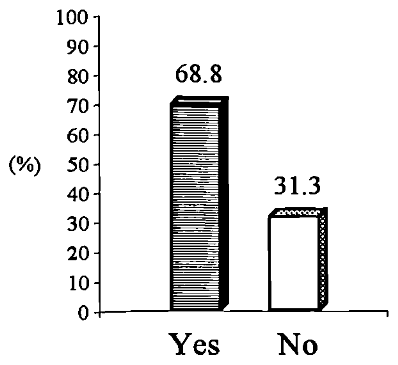

Fig. 9. Teachers' experience of using media technology in language teaching

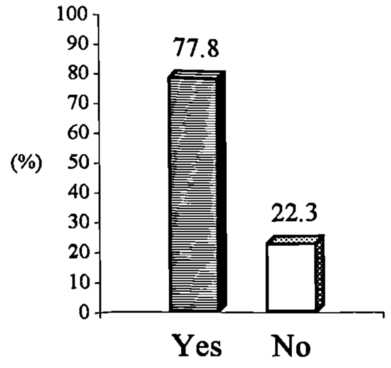

Fig. 9-1. Students' experience of using media technology in language learning

The following statements from the interviews show examples of successful and unsuccessful use of media technology, particularly video and the computer in language teaching. One teacher said:

> "At first, it took exactly three times as long to find appropriate programs using video and particularly computers for our subjects, and to prepare the lessons than to do for the conventional teaching. I had a doubt of their effect. I mean, I was worried about students' reaction.....But I was very happy to find that my students were interested in the use of them. I can say that they might be motivated by them, and *enjoyed* the activities. It was worth spending that amount of time."

The other said:

> "I have tried to use media technology, particularly computers in language teaching. First of all, I have spent lots of time manipulating the machines skilfully, choosing proper programs for my lessons besides. Well.... I am still not accustomed to computers. In fact, I couldn't find exactly what I wanted, Of course, it is a problem due to lack of software though. As you know, we don't have many choices here now. On the other hand, I found that the handbook and instructions of a couple of software are hard to follow, I mean, I don't know what other teachers think about these problems, that their explanations and suggestions seem not to be well-instructed for our teachers, particularly a novice like me. ..... During the sessions I have had some technical problems and spent some time to solve them. Anyhow, I myself was generally not satisfied with my lessons using computers."

The results of testing association for the teachers' experience of using media technology by gender and by the years of teaching experience yielded Chi-Square values which have the significance levels of .3218 and .4287 respectively. There is no significant relationship between gender, or years of teaching experience and their experience of using media technology (see Appendix E: E-7, Crosstabulation 17 and 18, pp. E-7.). Hypothesis One and Two were not supported.

The results of testing association for the students' responses by gender and by academic years also yielded Chi-Square values which have the significance levels of .3287 and .0488 respectively. There is no significant relationship between gender and their experience of using media technology in language learning. However, there is a significant relationship between academic years and their experience of using it, but very slightly. 84% of 3rd year students have used media technology, whereas 76.8% of 4th year, 78% of 2nd year and 68% of 1st year students have used it (see Appendix E: E.4, Crosstabulation 3 and 4). Therefore, Hypothesis One was not supported, but Hypothesis Two was supported.

5.2.1.4 How often do you use media technology yourself and in language teaching?

Questions 4 and 13 in the teachers' questionnaire and question 10 in the students' questionnaire addressed this subquestion. As seen in Fig. 10 and 15, 37.5% of teachers are 'always' (14.6%) or 'almost always' (22.9%) using media technology in language teaching (33.4% of the teachers in 'themselves'). It is interesting that the frequency of using media technology 'themselves' is similar to that of using media technology in language teaching. This suggests that those who are using media technology themselves are also using it in language teaching. 'Sometimes' here was confirmed as once or twice a month by respondents, so this response was regarded as equivalent to 'not using'. Therefore, the results tended to confirm that media technology has not widely been used in language teaching in Korea, as pointed out in the introductory chapter.

On the other hand, it is worth noticing that the students' frequency of using media technology (40.5 %) in language learning (Fig. 11-1) is a little higher than the teachers' (37.5%) in language teaching.

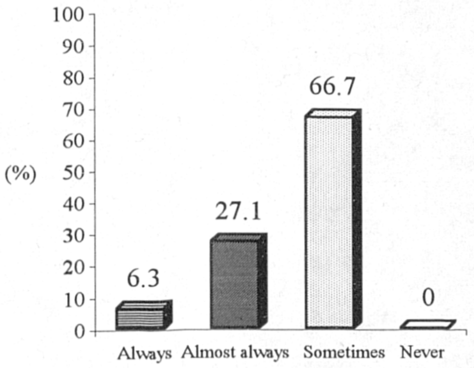

Fig. 10. Teachers' frequency of using media technology themselves

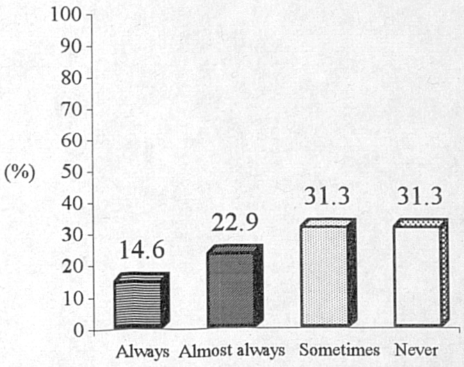

Fig. 11. Teachers' frequency of using media technology in language teaching

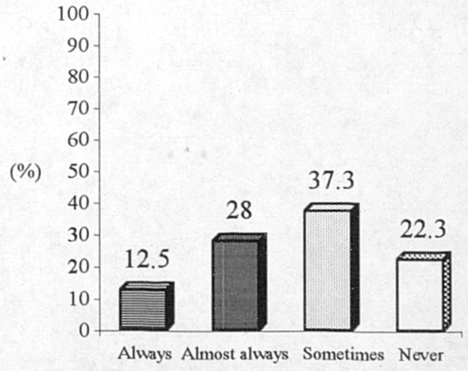

Fig. 11-1. Students' frequency of using media technology in language learning

The results of testing association for the teachers' frequency of using media technology by gender and by years of teaching experience yielded Chi-Square and Kendall's tau values, which have significance levels of .1771 and .0204 in 'themselves', and .3868 and .0058 in 'language teaching'. Therefore, there is no significant relationship between gender and their frequency of using media technology in both 'themselves' and 'language teaching'. However, there is a significant relationship between years of teaching experience and their frequency of using media technology in both of them. Hypothesis One was not supported, but Hypothesis Two was supported. The results show the teachers with less teaching experience (i.e., 1 - 5 and 6 - 10 years of teaching experience) have used media technology more often than the others in 'language teaching'. The results of 'themselves' also show a similar pattern to 'language teaching'. (See Appendix E: E-1, Crosstabulation 20 and 22).

The results of testing association for the students' responses by gender and by academic years also yielded Chi-Square and Kendall's tau values, which have significance levels of .5945 and .3665. There is no significant relationship between gender, or academic years, and their frequency of using media technology in language learning. (See Appendix E: E.4, Crosstabulation 25 and 26). Hypothesis One and Two were not supported.

5.2.1.5 What was the context of use of media technology?

Question 4.1 in the teachers' questionnaire and Question 3.1 in the students' questionnaire addressed this subquestion. A clear pattern emerges from Fig. 12. The teachers use media technology only in whole class teaching (100% of users).

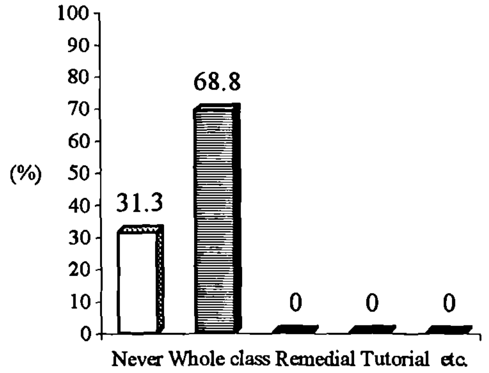

Fig. 12. Teachers' context of using media technology in language teaching

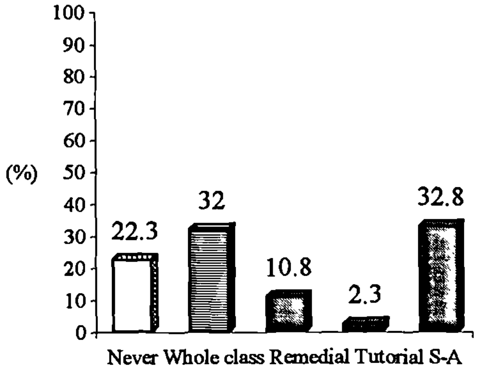

Fig. 12-1. Students' context of using media technology in language learning

In the case of students, for reference, the percentage of 'self-access (S-A)' is 32.8%, which is about the same as 'whole class' (32%) in Fig. 12-1. In terms of the results shown in Fig. 9-1, 10-1, and 12-1, therefore, the students appears to be quite interested in the use of media technology in language learning.

The results of testing association for the teachers' context of using media technology by gender and by years of teaching experience yielded Chi-Square values, which have significance levels of .3218 and .4287. There is no significant relationship between gender, or years of teaching experience, and the teachers' context of using media technology. Hypothesis One and Two were not supported.

The results of testing association for the students' responses by gender and by academic years also yielded Chi-Square values, which have significance levels of .0989 and .0000. There is also no significant relationship between gender and the students' context of using media technology in language learning. However, there is clearly a significant relationship between academic years and the students' context of using media technology in language learning. For example, 54% of 3rd year and 50.8% of 4th year students have used media technology, but only 18.2% of 1st year and 31.9% of 2nd year students have used it in self-access (See Appendix E: E.4, Crosstabulation 5 and 6.) Hypothesis One was not supported, but Hypothesis Two was supported.

5.2.1.6 What media technology did you use?

Question 4.2 in the teachers' and question 3.2 in the students' questionnaire addressed this subquestion. The result of the teachers' use of the seven media technologies is presented in Fig. 13. The order of the most used media technology is audio (65%), video (44%), TV (19%), computer (10%), IV (2%), CD-ROM (2%), and VR (0%) in language teaching. It shows a similar pattern to the results of the teachers' reading experience of media technologies in Fig. 7.

On the other hand, an interesting comparison can be made between this result and that of a similar study by Fox et al. (1990), a survey which aimed to find out the level and range of use of media technology in modern language teaching in higher education in the UK. The results of their study show a similar pattern to that of this study. Fox et al. (1990) reported that the order of the most used media technology is video, audio, computer (Word-processor), TV (Satellite TV), IV, CD-ROM, etc. in language classroom teaching.

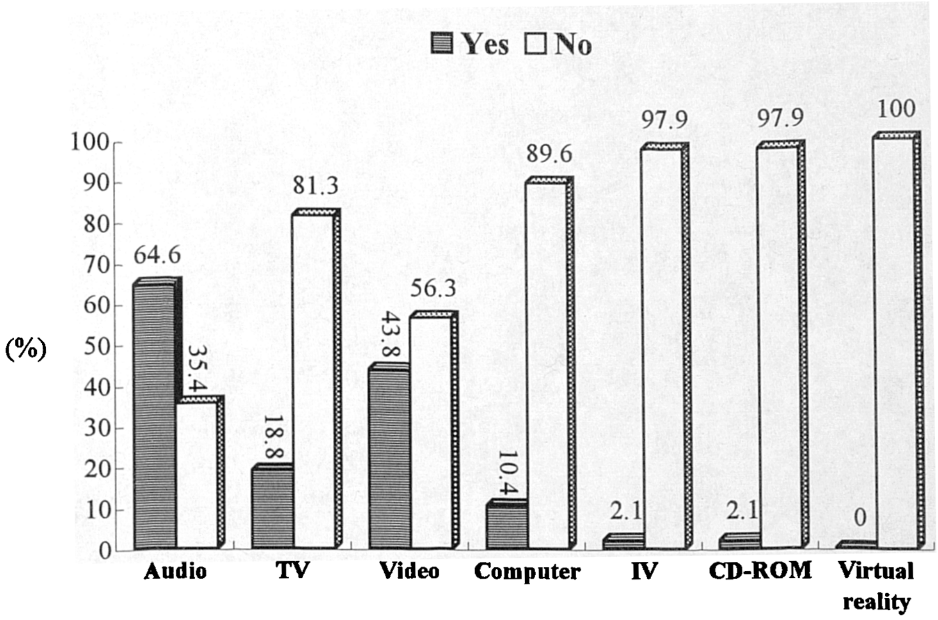

Fig. 13. Teachers' experience of using seven media technology in language teaching

It was hypothesised (Hypothesis Four) that the teachers would make little use of media technology, although they have had some experience of using it in language teaching, and would use low-tech media technology significantly more than hi-tech media technology. In terms of the results from the previous three sections, 5.2.1.3, 5.2.1.4, and 5.2.1.6, Hypothesis Four was supported.

The results of testing association for the teachers' experience of the use of media technology by gender and by years of teaching experience yielded Chi-Square values which are not significant at the 0.05 level of statistical significance. (See Appendix E: E.1, Crosstabulation 26 - 38 in detail). All the significance levels are higher than the .05 level (p>.05) in Table 9. There is no significant relationship between gender, or years of teaching experience, and the teachers' experience of the use of seven media technologies respectively. Hypothesis One and Two were not supported.

Table 9. Significance of tests of association for teachers' experience of using seven media technologies

	Teachers' experience of using						
	Audio	TV	Video	Computer	IV	CD-ROM	Virtual reality
Gender	.1654	.6949	1.000	.0661	1.000	.7209	-
Years of teaching experience	.1530	.2032	.1669	.4113	.5667	.5667	-

'-' Testing association between gender, and between years of teaching experience cannot yield a result.

The students' order of the most used media technology in language learning is exactly the same as the teachers' in Fig. 13-1.

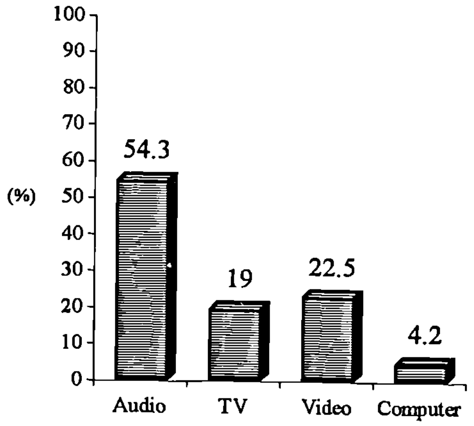

Fig. 13-1. Students' experience of using media technologies in language learning

The results of testing association for the students' experience of the use of the four media technologies by gender and by academic years also yielded Chi-Square values, which have significance levels of .0845 and .1709 ($p>0.05$). There is no significant relationship between gender, or academic years, and their experience of the use of the four media technologies. (See Appendix E: E.4, Crosstabulation 7 and 8.) Hypothesis One and Two were not supported.

5.2.1.7 Do you use any other kind of media not mentioned above regularly?

Question 5 in the teachers' questionnaire addressed this subquestion. Fig. 14 and 15 show that over half of the teachers (56%) do not use any other kind of media, but the blackboard (19%) and the OHP (17%) are also used by the teachers who are using media technology.

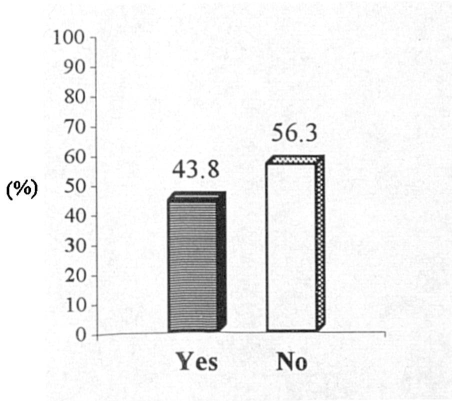

Fig. 14. Teachers' experience of using any other kind of media in language teaching

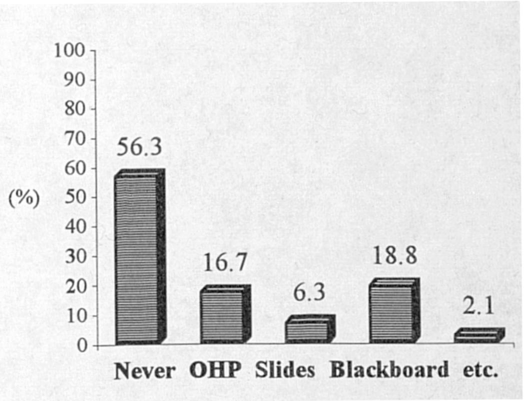

Fig. 15. Teachers' experience of using other media in language teaching

The results of testing association for the teachers' experience of using any other kind of media and the teachers' experience of using other media by gender and by years of teaching experience yielded Chi-Square values, which of the significance levels are .1228 and .1566, and .1233 and .7582 (p>.05) respectively. There is no significant relationship between the variables. (See Appendix E: E.1, Crosstabulation 39 - 42.) Hypothesis One and Two were not supported.

5.2.1.8 To what extent do you think modern media technology is available now in education in general?

Question 6 in the teachers' questionnaire, questions 2 - 6 of the interview schedule II for the heads of colleges and universities, and questions A-7, 8, and 13 of interview I for teachers addressed this subquestion.

Fig. 16 and 17 show quite different patterns between the availability of hardware (64.6%) and software (29.2%). The teachers think that little software for media technology is yet available, despite the availability of hardware in education.

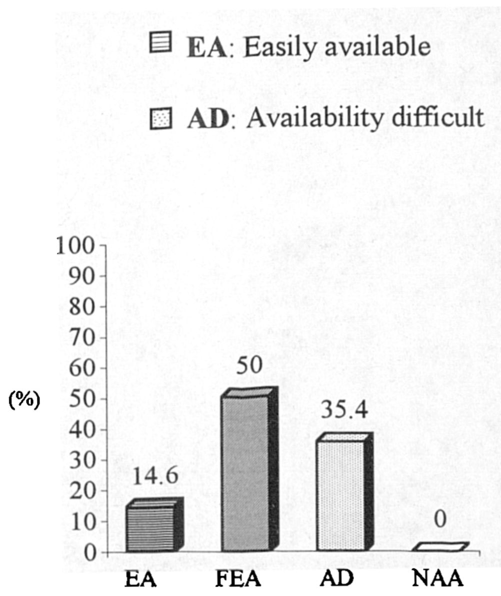

Fig. 16. The present hardware availability in education

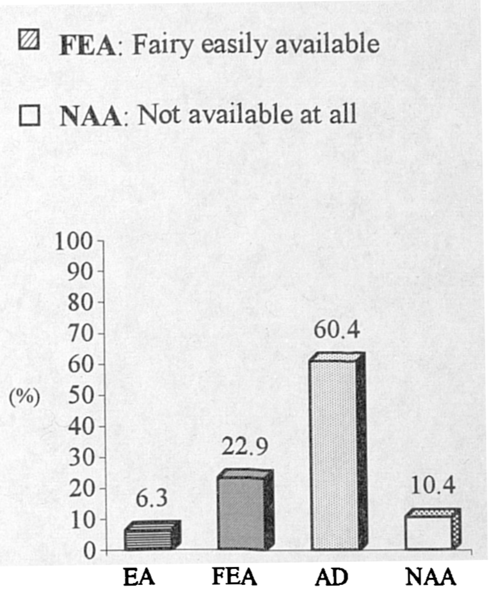

Fig. 17. The present software availability in education

The results of interview schedule I and II show the same trends as the teachers' questionnaire. However, the heads are generally more optimistic than the teachers on the availability of hardware and software. One chancellor's statements speaks for the overall opinions of the others. He said:

> "I think there has been lots of support for teaching staff to be able to use media technology in language teaching. For example, well..., as you see, we have carried out a five-year plan for support of facilities and equipment as planned. Now we have thirteen good language laboratories with audio and video, five big computer rooms, and two big audio and video access rooms for teachers and students to be able to use anytime. What is more, we offered all the teaching staff a personal computer, and have trained them, although I'm not quite sure whether they are satisfied with this, particularly staff training. Furthermore, we send two teachers abroad to attend a training course or to study a course for media technology for Teaching English as a Foreign Language each year regularly. It will go on. Therefore, I think we almost keep up with the current level of other advanced countries."

He continued:

> "However, it is true that we have often heard of not having enough available software from teaching staff. Well, I think it is a matter of opinion. I mean, I would like to say this is a teachers' responsibility. Of course, I don't worry about our teaching staff's abilities to use media technology. If they want some help to develop new software or to purchase commercial ones to be appropriate for language teaching, we are willing to offer financial and technical support."

However, most teachers (84.2% of 19 interviewees) have opinions which are the opposite of those of the heads. They still feel the availability of software lags far behind that in other advanced countries. One teacher said:

> "Though university authorities would say that they are willing to help anything as far as possible, in short, in fact, we don't have enough time to study and develop appropriate software for our students due to our overloaded teaching work. What is worse, second, there have not been appropriate and sufficient training programs on the use of media technology. We sometimes have an opportunity to attend good teacher training programs in the English-speaking countries by some help of the university authorities, but it takes ages to have an opportunity and seems not to be on going. As you know, we have quite lots of teaching staff....... In some cases, in fact, we are still not familiar with its use and have no confidence in its implementation in language teaching."

Another teacher continued:

> "Therefore, we think the university authorities have to make a more practical investment. Above all, they will give us more opportunities to attend appropriate teacher training courses. And we don't have any specialist with whom to discuss the use of media technology in language teaching among our teaching staff. We need a specialist in order to solve this problem in the view of the increased importance of the use of media technology in language teaching."

The results of testing association for the present availability of hardware and software by gender and by years of teaching experience yielded the significance levels of Chi-Square and Kendall's tau values which are .1250 and .3284, and .0070 and .3567. (See Appendix E: E.1, Crosstabulation 43 - 46 in detail). There is no significant relationship between gender, or years of teaching experience, and the present availability of hardware in education. There is also no significant relationship between years of teaching experience and that of software in education, either. However, there is a significant relationship between gender and that of software availability in education. For example, 31.3% of female teachers respond that software is not available at all, but no male teachers (0%) respond in this way (See Appendix E: E.1, Crosstabulation 45). Hypothesis Two was not supported. However, Hypothesis One was supported in terms of the availability of software, while it was not supported in terms of the availability of hardware.

5.2.1.9 If more media technology could be made available for language teaching, how likely would you be to use it?

Question 9 in the teachers' questionnaire and question 7 in the students' addressed this subquestion. A very clear pattern emerges from Fig. 18 - 22. The results show that teachers feel strongly about the necessity of using media technology in language teaching. The teachers' projected future use of video (95.9%) is very high indeed compared to the other media technologies, i.e., computer (83.4%), IV (72.9%), CD-ROM (60.4%), and audio (81.3%). It is worth noticing that the computer is considered the technology most likely to be used among hi-tech media technologies, such as computers, IV and CD-ROM.

▤ **VLU**: Very likely to use ▨ **FLU**: Fairy likely to use

▩ **ULU**: Unlikely to use ☐ **WNU**: Would not use

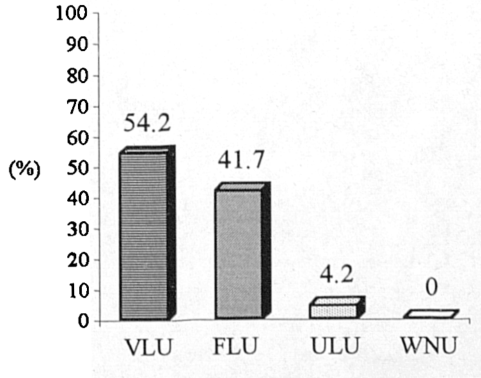

Fig. 18. Teachers' future use of video

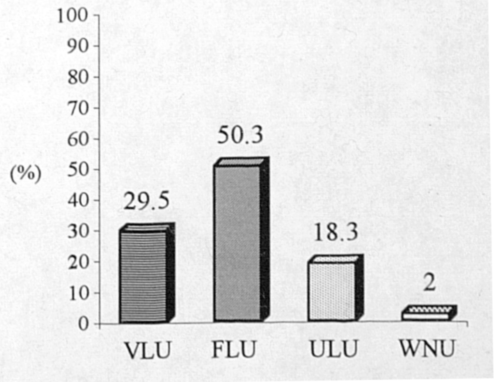

Fig. 18-1 Students' future use of video

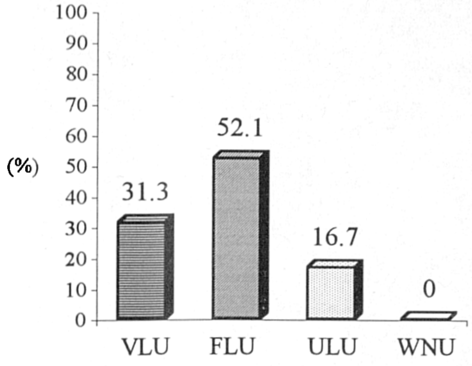

Fig. 19. Teachers' future use of computers

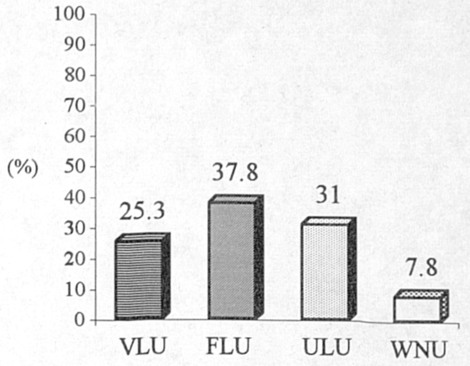

Fig. 19-1. Students' future use of computers

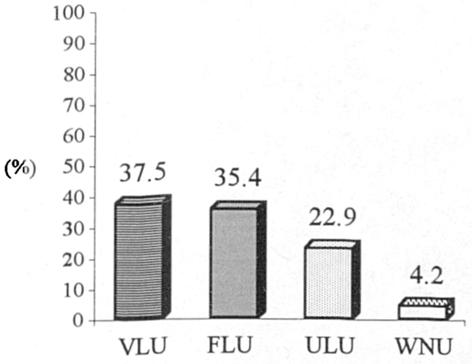

Fig. 20. Teachers' future use of IV

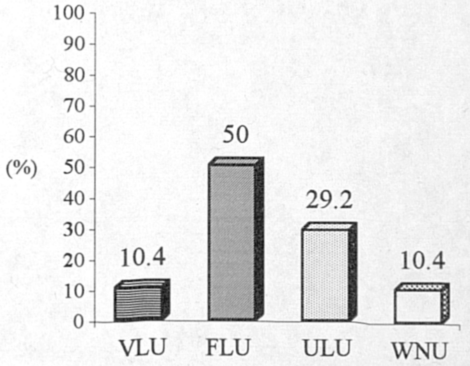

Fig. 21. Teachers' future use of CD-ROM

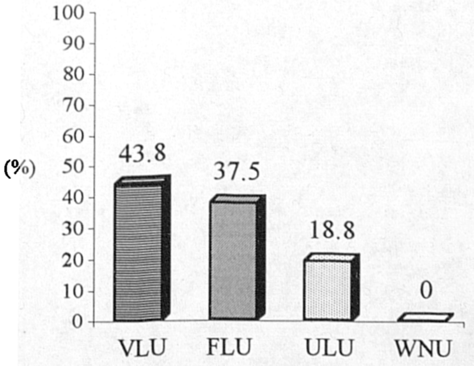

Fig. 22. Teachers' future use of audio

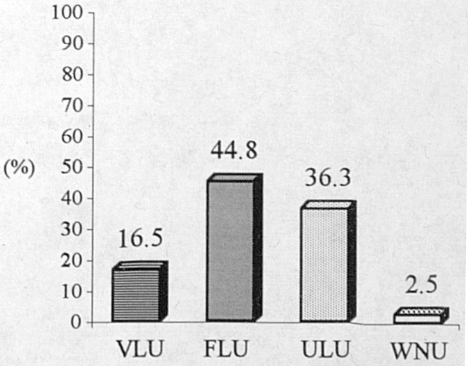

Fig. 22-1. Students' future use of audio

It was hypothesised (Hypothesis five) that the teachers would believe that media technology equipment and materials, particularly computer software, are not widely available in education in general, but the teachers would be likely to use them if they became more widely available for language teaching. In terms of the results from the previous two sections, 5.2.1.8 and 5.2.1.9, Hypothesis five was supported.

For reference, the overall students' response concerning their future use of three media technologies, such as audio, video and computers are a little less positive than the teachers'. However, the rate of the use of the technologies in language learning is still high in Fig. 18-1, 19-1, and 22-1: video 79.8%, computers 63.1%, and audio 61.3%. It is interesting to note that despite its widespread use, the students believe that audio will be less used in future than video and computers. However, it is also worth noticing that the teachers (81.3%) believe that audio will still be widely used.

ANOVA was performed in order to determine whether there is a significant difference between gender, or years of teaching experience in the teachers' projected future use of the five media technologies respectively, and whether there is a significant difference between 2-way interactions of gender and years of teaching experience in that of the five media technologies respectively. The results are reported in Appendix F: F.1, 1 - 5. Table 10 shows that there is no significant difference between male and female teachers, or years of teaching experience in the teachers' projected future use of the five media technologies respectively. There is also no significant difference between 2-way interactions of gender and years of teaching experience in that of the five media technologies respectively. Hypothesis One and Two were not supported.

Table 10. Significance of F of N-Way analysis of variance
by gender and years of teaching experience

	Gender	Years of teaching experience	2-way interactions of gender and years of teaching experience
Video	.499	.241	.825
Computers	.239	.727	.991
IV	.424	.767	.688
CD-ROM	.162	.212	.463
Audio	.589	.335	.826

Finally, multiple regression analysis was performed in order to predict the teachers' and students' future use of media technologies. The stepwise method was used in order to select the optimum regression model. According to the results of multiple regression analysis (See Appendix G: G-1, Equation Number 1 - 5), the following dependent variables, 'the future use of video', 'the future use of computer' and 'the future use of IV' are selected by the only one independent variable, 'Teachers' experience of using media technology' in subquestion 3 (section 4.2.1.1, 'Subquestions for research question 1'). The significance levels of the three are lower than .05 (.0024, .0006, and .0130). Though all five dependent variables, 'the future use of CD-ROM' and 'the future use of audio' in addition to the above three with three independent variables, 'gender', 'years of teaching' and 'Teachers' experience of using media technology' were put into multiple regression, the other independent and dependent variables are removed by the limitation of 'maximum Probability of F to enter (Pin: a significance level of .05)' (See Appendix G: G-1, Equation Number 4 and 5 in detail).

As shown in Table 11, multiple regression yielded R squares, which are .18333, .22792, and .12678. In particular, the last one is comparatively low. This means that researchers would not have great confidence in the regression estimates. Firstly, according to the regression equations below, it can be predicted that 80% of the teachers with experience of using media technology (and 64% of the teachers with no experience) will use video, but the prediction of 'the future use of video' has an 18.3% effect. Secondly, it can be predicted that 70.9% of the teachers with experience of using media technology (and 50% of the teachers with no experience) will use computers, but the prediction of 'the future use of computers' has a 22.8% effect.

Table 11. Summary table of multiple regression analysis
on the future utilisation of media technology

Variable	Multiple R	R Square	Beta	F & (Signif F)
Video	.42817	.18333	.42817	10.32653 (.0024*)
Computer	.47741	.22792	.47741	13.57924 (.0006**)
IV	.35606	.12678	.35606	6.67852 (.0130*)

*p<.05, **p<.001

Thirdly, it can be predicted that 68.2% of the teachers with experience of using media technology (and 48% of the teachers with no experience) will use IV, but the prediction of 'the future use of IV' has a 12.7% effect.

The following regression equations are set up from the list of multiple regression.

Equation 1 for making predictions about the future use of video

Y = 64.00000 + (16.00000) x (Teachers' experience of using media technology)

Y: The percentage of the future use of video
Teachers' experience of using media technology: Yes =1, No =0

Equation 2 for making predictions about the future use of computer

Y = 50.00000 + (20.90909) x (Teachers' experience of using media technology)

Y: The percentage of the future use of computer
Teachers' experience of using media technology: Yes =1, No =0

Equation 3 for making predictions about the future use of IV

Y = 48.00000 + (20.18182) x (Teachers' experience of using media technology)

Y: The percentage of the future use of IV
Teachers' experience of using media technology: Yes =1, No =0

Turning to the students' projected future use of media technologies, according to the results of multiple regression analysis in Appendix G: G.2, all the dependent variables were selected by independent variables, 'Students' experience of using media technology in language learning' or 'Gender'. The significance levels of the three variables are lower than .05 (.0008, .0109, and .0024). However, multiple regression of their future use of audio, video and computer is not significant, since the values of R square are very low (.02806, .01616, and .02286). In other words, the prediction will not be significant, although the researcher could predict their future use of media technologies with these low values of R square.

5.2.1.10 What factors are regarded as important in introducing media technology into university teaching?

Question 11 in the teachers' questionnaire and question 9 in the students' questionnaire addressed this subquestion.

The following Table 12, and Fig. 23 and 23-1 show the results of the teachers' and students' responses. Firstly, in Fig. 23 teachers look upon the financial and technical support of the university authorities as the main priority, appropriate software as 2nd, and favourable teachers' attitudes' as 3rd. There is a narrow margin between them, although 'appropriate software' and 'favourable teachers' attitudes' are listed here 2nd and 3rd in rank order.

Table 12. A summary table of the rank order of importance in introducing media technology into language teaching and learning

The order of importance in introducing media technology into language teaching **Teachers**		The order of importance in introducing media technology into language learning **Students**	
1st	Support of the university authorities	**1st**	Appropriate software
2nd	Appropriate software	**2nd**	Teachers' attitudes (and guidance)
3rd	Favourable teachers' attitudes	**3rd**	Favourable students' attitudes
4th	Staff training	**4th**	Support of the university authorities
5th	Time for preparation	**5th**	Time for preparation
6th	Students' approval	**6th**	Teachers' approval

First of all, they might feel that there is still not enough software in particular, hardware, and facilities to use with students in the language classroom. As was stated in the introductory chapter, the teachers think that teachers' attitudes are one of the most important factors in the use of media technology in language teaching.

Unexpectedly, staff training ranked comparatively lower at fourth place. This is lower than the researcher had expected. Time for preparation ranks low at fifth place.

It was hypothesised (Hypothesis Six) that the teachers would regard their own attitudes, the support of university authorities, and the availability of appropriate software as the most significant factors in implementing media technology in language teaching. Hypothesis Six was supported.

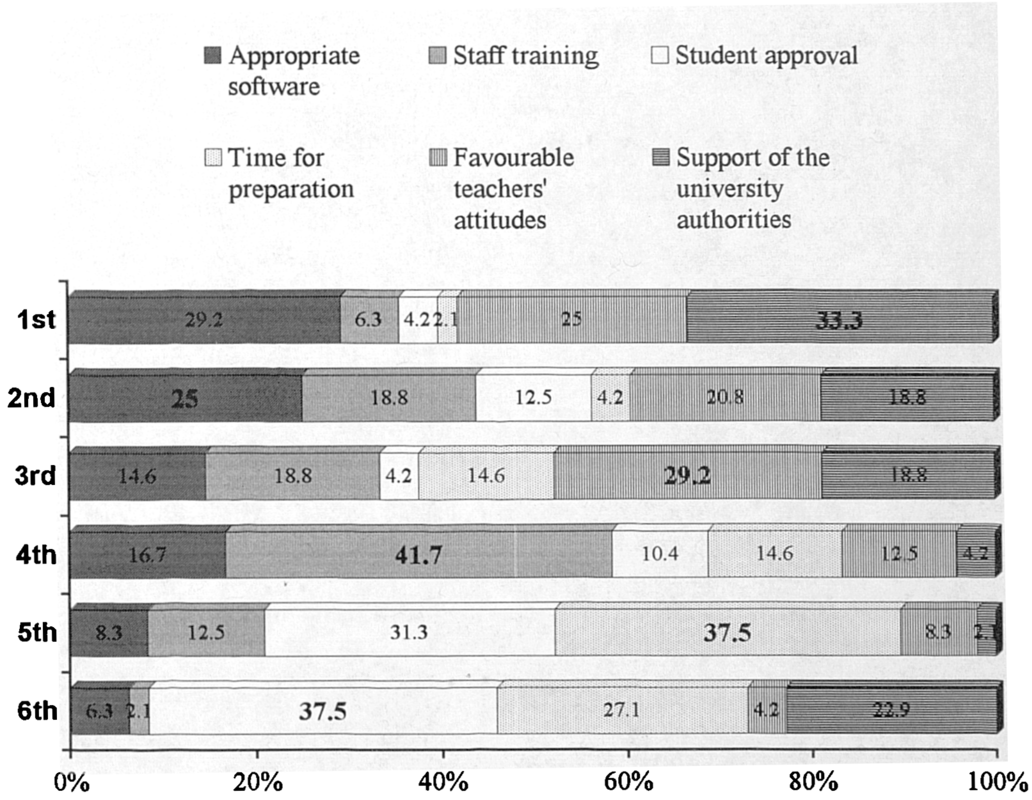

Fig. 23. The order of importance in introducing media technology into language teaching (teachers)

Secondly, it is an interesting finding that favourable attitudes towards media technology ranked as high as 3rd place in both the teachers' and students' rank order. Teachers' attitudes (and guidance) ranks high at second place in the students' rank order. It was hypothesised (Hypothesis Six) that the students would regard their own attitudes, teachers' attitudes (and guidance), and the availability of appropriate software as the most significant factors in implementing media technology in language learning. Hypothesis Six was also supported.

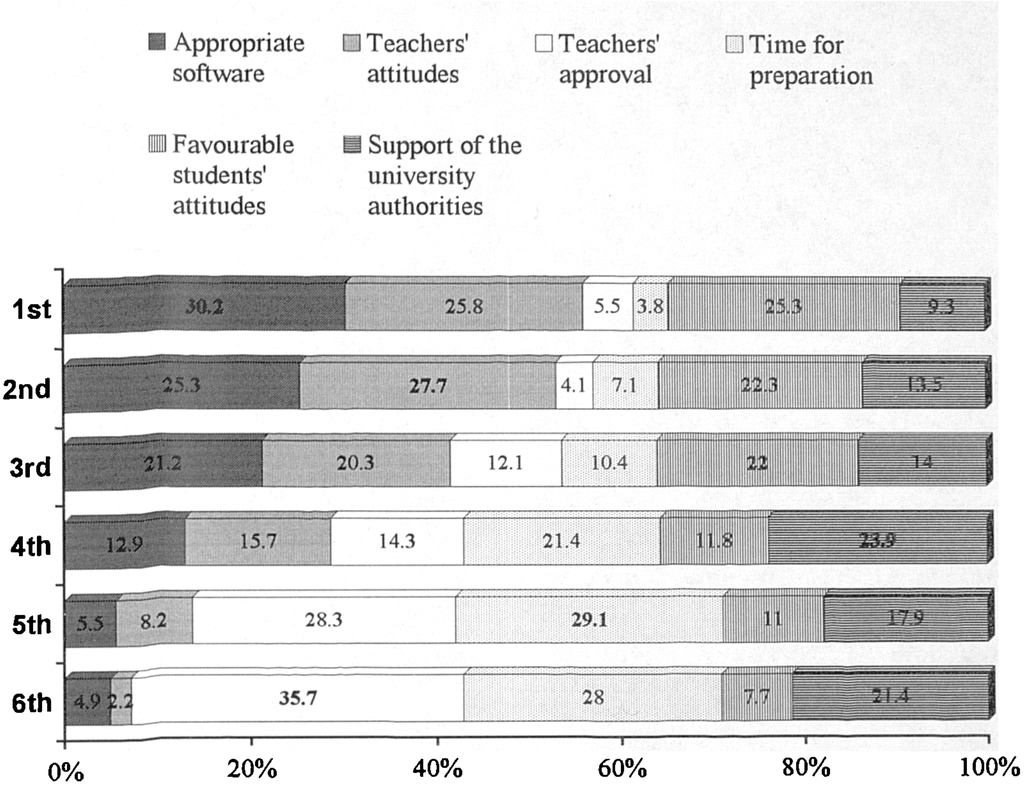

Fig. 23-1. The order of importance in introducing media technology into language learning (students)

The results of testing association for the teachers' rank order by gender and by years of teaching experience yielded the significance levels of Kendall's tau values in Table 13, which are higher than the significant level of .05. There is no significant relationship between gender, or years of teaching experience, and their rank order. (See Appendix E: E-1, Crosstabulation 57 - 68.) Hypothesis One and Two were not supported.

Table 13. Significance of tests of association for the teachers' rank order of importance in introducing media technology into language teaching

	1st	2nd	3rd	4th	5th	6th
Gender	.1397	.2961	.1247	.2688	.4051	.2574
Years of teaching experience	.2001	.3401	.2995	.3091	.0622	.0865

The results of testing association for the students' rank order by gender and by academic years also yielded the significance levels of Kendall's tau values in Table 13-1, which are higher than the significant level of .05, except for two items. (See Appendix E: E.4, Crosstabulation 13 - 24.) There is no significant relationship between gender, or academic years, and their rank order, except for the 2nd and 3rd rank order. In general, Hypothesis One and Two were not supported, although Hypothesis One was supported in terms of the 2nd and 3rd rank order.

Table 13-1. Significance of tests of association for the students' rank order of importance in introducing media technology into language learning

	1st	2nd	3rd	4th	5th	6th
Gender	.0615	.0494*	.0031*	.4879	.2958	.4542
Years of teaching experience	.0602	.4530	.3000	.2112	.1197	.0834

*p<.05

There is a significant relationship between male and female students and the 2nd rank order, but it just reaches the level of significance. For example, 26.9% of the male students rank 'Teachers' attitudes' as the 2nd most important item, while 29.4 % of the female students ranks it as the 2nd one. Secondly, there is also significant relationship between male and female students and the 3rd rank order. For example, 17% of the male students rank 'Favourable students' attitudes' as the third most important item. However, only 5 % of the female students rank it as the third one. (See Appendix E: E.4, Crosstabulation 15 and 17.)

5.2.2 Why do most teachers not use media technology very much?

Users and non-users of media technology were divided into two groups based on the research question 1-4, "How often do you use media technology yourself and in language teaching?". As seen in Fig. 11, 62.6% of teachers are not using media technology in language teaching. (For reference, see Appendix B-3 for the distribution of non-users by gender, age, groups of years of teaching, and status).

This section will be analysed based on the data collected from the non-users and show the reasons why the teachers do not use media technology in language teaching. There were two subquestions identified to answer this research question.

5.2.2.1 Do teachers have a negative attitude towards the use of media technology?

Again, question 3, 7, 8, and 10 in the teachers' questionnaire and three interview items, question B - 1, 2, 3 and 4 in the teachers' interviews addressed this subquestion.

The results of these questions are reported in: Fig. 24. Non-users' interest in the use of media technology; Fig. 25. Non-users' thoughts on the usefulness of media technology for students; Fig. 26. Non-users' thoughts on the usefulness of media technology for teachers; Fig. 27. The average of the sum of non-users' attitudes towards five media technologies rated on seven bipolar adjective scales overall, and Fig. 28. The average of non-users' attitudes towards five media technologies rated on seven bipolar adjective scale respectively. Firstly, non-users' attitudes towards media technology in general show a clear pattern in Fig. 24 - 26.

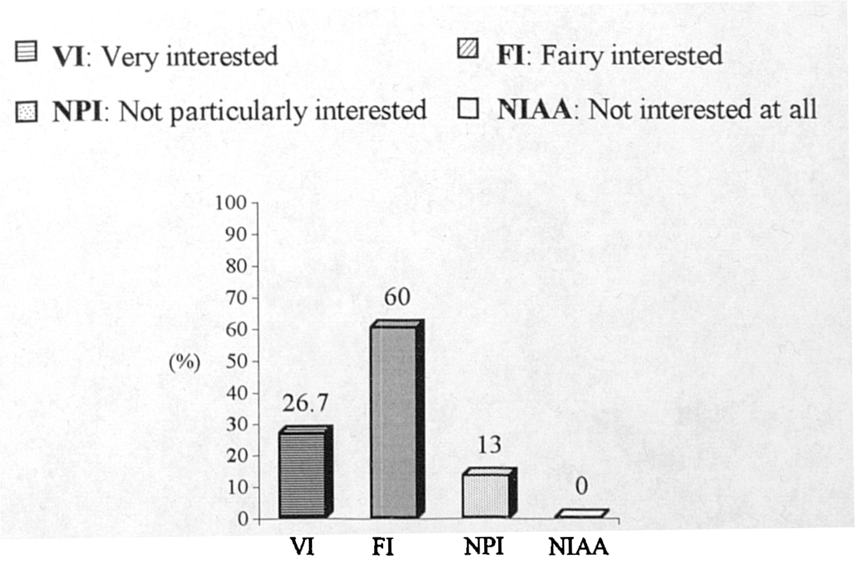

Fig. 24. Non-users' interest in the use of media technology in language teaching

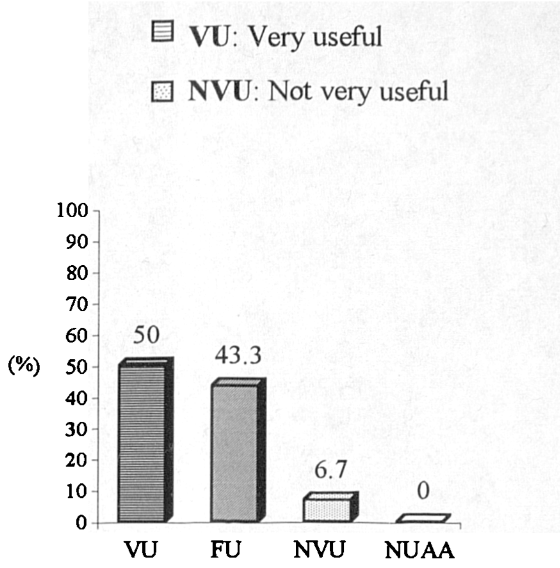

Fig. 25. Non-users' thought on the usefulness of media technology for students

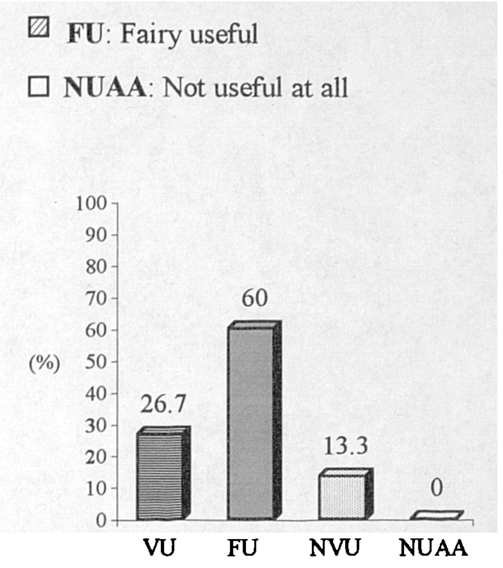

Fig. 26. Non-users' thought on the usefulness of media technology for teachers

The teachers' interest is high. 86.7% of teachers show an interest ('very interested', 26.7% and 'fairly interested', 60%) in the use of media technology in language teaching. 93.3% of teachers think that media technology is 'very useful' (50%) or 'fairly useful' (43.3%) for students in language learning. 86.7% of teachers think that media technology is 'very useful' (26.7%) or 'fairly useful' (60%) for teachers in language teaching. Surprisingly, the non-users' attitudes towards media technology and its use proved to be very positive, although they are not using media technology.

The results of testing association for the non-users' attitudes towards interest in the use of media technology and its usefulness by gender and by years of teaching experience will be discussed in section 5.2.3.6.1 'Users' and non-users' attitudes towards media technology in general' (See Table 17, pp. 236).

Secondly, turning to the non-users' attitudes towards five media technologies[18], audio, video, computer, interactive video (IV), and CD-ROM in detail, Fig. 27 shows the overall results of non-users' attitudes towards the five media technologies rated on

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[18] The technologies, TV and virtual reality among seven media technologies dealt with so far were excluded here, since: first, virtual reality was never used in the language classroom by the teachers and there is no possibility of using it in the near future; second, TV (including satellite TV) has been used in recorded form using video recordings, rather than watching live TV for various reasons mentioned in Chapter 2, sections 2.3.1.1.2 and 2.3.1.1.3 (pp. 38-40)

seven bipolar adjective scales assessed by means of the semantic differential in the questionnaire (See Appendix A: A.1, Question 10).

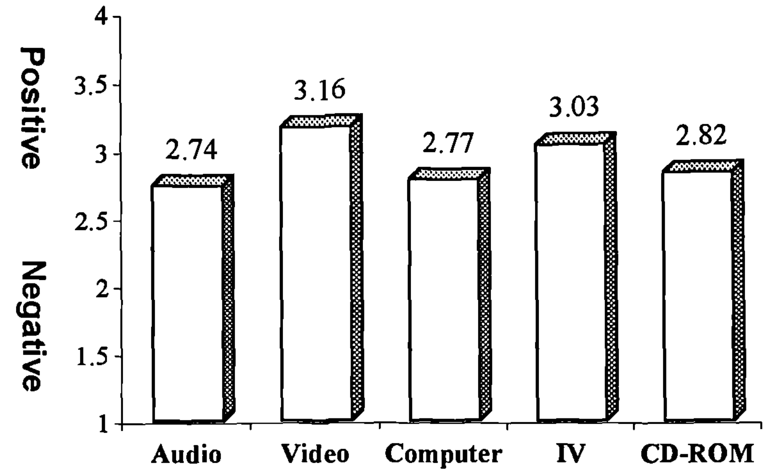

Fig. 27. The average of non-user' attitudes towards five media technologies rated on seven bipolar adjective scales overall

As mentioned in Chapter 4 Design of the study (4.6 The methods of data analysis), the non-users' responses are scored from 4 on the positive side of each scale (e.g., *Useful - Useless*) to 1 on the negative side, and summed across all the scales relevant to five media technologies. The average score was taken as an index of non-users' attitudes towards the five media technologies. It is clear that the non-users' attitudes towards all the five media technologies, even the newer or advanced technologies which have not been widely used in the language classroom, such as computers, CD-ROM and IV are positive (audio: 2.74, video: 3.16, computer: 2.77, IV: 3.03 and CD-ROM: 2.82), as the results of the teachers' attitudes towards media technology in general showed above. It confirmed that the teachers also consider the five media technologies as effective sources of authentic material and tools in FLT/FLL. In particular, the teachers' attitudes towards video (3.16) and IV (3.03), which can offer audio and visual materials together, are very positive. Interestingly, audio (2.74) which has been widely used, was rated least positively among the five media technologies.

Thirdly, Fig. 28 shows the results of non-users' attitudes towards the five media technologies rated on the seven bipolar adjective scales respectively. The results will be discussed in section 5.2.3.6.2, 'Users' and non-users attitudes towards five media technologies'.

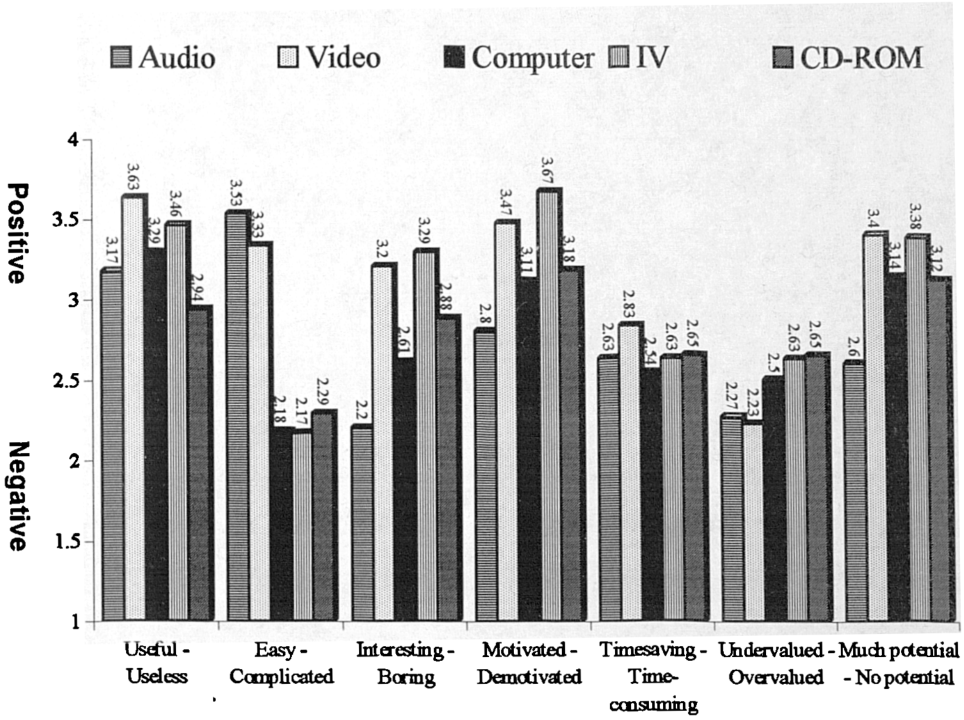

Fig. 28. The average of non-user' attitudes towards five media technologies rated on seven bipolar adjective scale respectively

The results of testing association for the teachers' responses by gender and by years of teaching experience will also be discussed in section 5.2.3.6.2 (See Table 18 - 24.)

5.2.2.2 Why do teachers not use media technology?

This subquestion was further subdivided into thirteen subquestions. Question 17 in the teachers' questionnaire, and questions B - 4, 5, 6, 7 and 9 in Interview I addressed this subquestion. Fig. 29 and 29-1 show the results of non-users' responses. The results show clearly the reasons why the teachers do not use media technology, although they have a positive attitude towards it, as seen in the previous section.

I do not use media technology because:

1 I am suspicious about the claims made for media technology and its application.

2 I do not like using technology in teaching.

3 it is dehumanising.

4 it is non-communicative.

5 I do not know how to use and apply it in the EFL classroom.

6 I am not trained to use it.

7 I do not have enough choice of software.

8 I think the available software is not effective enough to be used with Korean students in the EFL classroom.

9 I am reluctant to invest time and energy in providing the right software (i.e., through design, evaluation, and classroom preparation).

10 I am worried about having to apply new ways of assessing learning which I am not sure about.

11 students are not keen on using it.

12 I feel there is a gap between communicative trends in FLT and the application of technology.

13 all examinations exclude the use of technology in Korea.

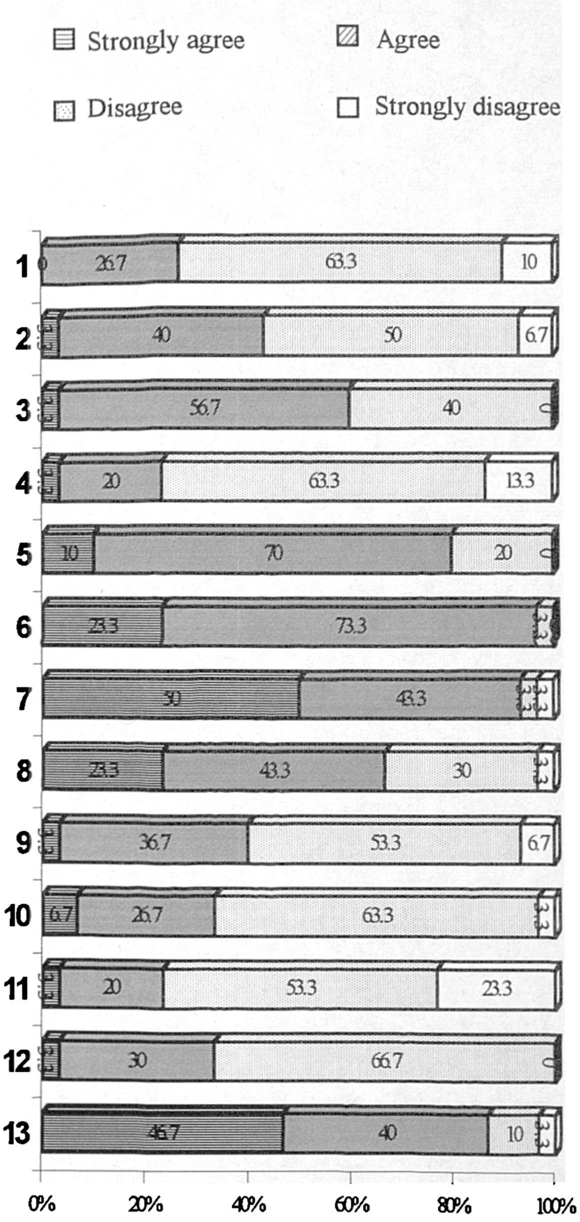

Fig. 29. The reasons for not using media technology in language teaching

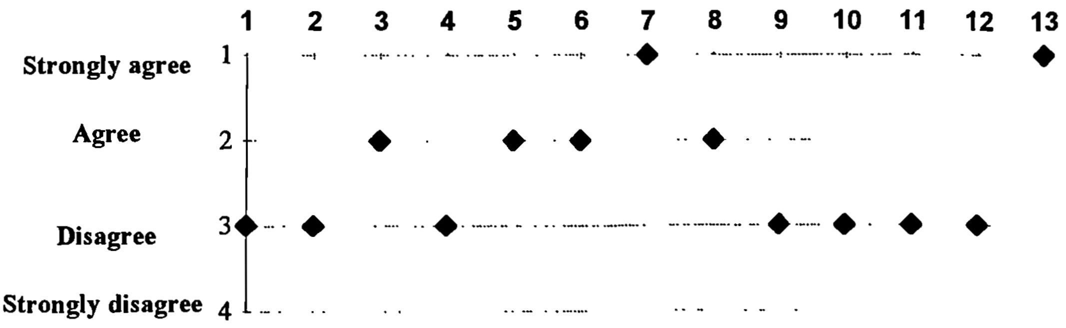

Fig. 29-1. The outline of the reasons for not using media technology in language teaching

The teachers do not use media technology, because: firstly, they think it is dehumanising (60%: 'Strongly agree', 3.3% and 'Agree' 56.7%); secondly, they do not know how to use and apply it in the EFL classroom (80%: 'Strongly agree', 10% and 'Agree', 70%); thirdly, they are not trained to use it (96.6%: 'Strongly agree', 23.3% and 'Agree', 73.3%); fourthly, they do not have a wide enough choice of software (93.3%: 'Strongly agree', 50% and 'Agree', 43.3%); fifthly, they think the available software is not effective enough to be used with Korean students in the EFL classroom (66.6%: 'Strongly agree', 23.3% and 'Agree', 43.3%); finally, all examinations exclude the use of media technology (86.7%: 'Strongly agree', 46.7% and 'Agree', 40%). Thus, only these six statements out of 13 reasons stated (i.e., statement **3**, **5**, **6**, **7**, **8**, and **13**) show a tendency to the 'Strongly agree' or 'Agree'. In particular, statements **7** and **13** turn out to be the most strongly supported reasons of all the statements.

In addition, the responses from the teachers' interviews show their difficulties very well. One teacher spoke for the others:

> "Now our students want to *speak* English for various reasons. They were tired of the traditional methods not helping them to speak English well. In particular, they believe a new method of use of media technology in language learning may help them somewhat to improve their speaking skill. Of course, I agree that some teachers' claims which some media technologies can provide an excellent way of explaining all the aspects of a communicative situation, since they can bring real situations into the classroom, and individualised learning and interactivity and so on. But, as you know, we, particularly old generation teachers are not an electronic generation, but a typewrite generation. Even I had some difficulties to manipulate a console in the audio lab. You can understand what I mean."

Another teacher added:

> "We have several problems, as you stated in your questionnaire, for example, financial, technical and institutional in using media technology in our current circumstances. For example, particularly, we don't have enough software and training on how to use it. What is worse, we have too many students in a class, though this is an example of institutional problems which cannot be solved at once. Of course, an effective use of media technology may even solve this problem......... But the only thing we can do at the moment, I mean in this circumstances, is to do our best ourselves. It will be much helpful, if we can have in-service training or a colleague who is an expert in this field."

It was hypothesised (Hypothesis Nine) that the non-users would not use media technology, particularly because of its dehumanising effect, lack of software, lack of knowledge, and not being trained to use it. Hypothesis Nine was supported.

The results of testing association for the reasons for not using media technology by gender and by years of teaching experience yielded Chi-Square and Kendall's tau values (see Appendix E: E.2, Crosstabulation 80 - 104.), and the significance levels of those are indicated in Table 14. There is no significant relationship between gender and the reasons why the teachers do not use media technology. There is also no significant relationship between years of teaching experience and the reasons, except for statement **7** and **13**.

Table 14. The results of testing association for the reasons of not using media technology in language teaching

	Gender	Years of teaching experience
1	.1365	.3166
2	.2264	.2827
3	.0598	.0626
4	.3134	.1097
5	.2406	.1162
6	.2302	.4522
7	.2308	.0444*
8	.2014	.0839
9	.2080	.2607
10	.4045	.1989
11	.1635	.1858
12	.3350	.4286
13	.6523	.0094*

*p<.05

However, there is significant relationship between years of teaching experience and statement **7** "I do not have enough choice of software.", and **13** "All examinations exclude the use of technology in Korea." Hypothesis One and Two were generally not supported, although Hypothesis Two was supported in terms of statement **7** and **13**.

Firstly, for example, 20% of teachers with 1-5 years of teaching experience strongly agree with statement **7**, while 33.3% of teachers with 6-10 years , 66.7% of teachers with 11-15 years and 60% of teachers with 21-25 years of teaching experience agree with it. (See Appendix E: E.2, Crosstabulation 92 in detail).

Secondly, 100% of teachers with 1-5 years of teaching experience agree with statement **13**, while 50% of teachers with 6-10 years, 16.7% of teachers with 11-15 years and 20% of teachers with 21-25 years of teaching experience agree with it, and in particular, 33.3% of teachers with 6-10 years, 50% of teachers with 11-15 years and 70% of teachers with 21-25 years of teaching experience strongly agree with it. (See Appendix E: E.2, Crosstabulation 104.)

5.2.2.3 Are they satisfied with their teaching methods which do not involve using media technology?

Question 18 in the teachers' questionnaire addresses this subquestion. Fig. 30 shows the results of non-users' responses to the satisfaction with their teaching methods which do not involve using media technology.

The majority of non-users (80%) are not satisfied with their teaching methods which do not include the use of media technology in language teaching as shown in Fig. 30. It was hypothesised (Hypothesis Ten) that the teachers would not be satisfied with their teaching methods whether they use media technology or not. Hypothesis Ten was supported.

The majority of students (70%) are also not satisfied with their teachers' teaching methods which do not use media technology as seen in Fig. 30-1, although their satisfaction with it is a little higher than teachers'. It was also hypothesised (Hypothesis Seven) that the students would not be satisfied with their teachers' teaching methods whether the teachers use media technology or not. Hypothesis Seven was supported.

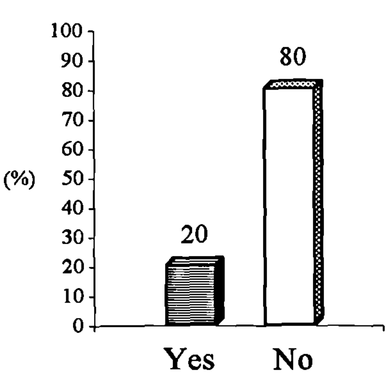

Fig. 30. Non-users' satisfaction with their teaching methods not using media technology

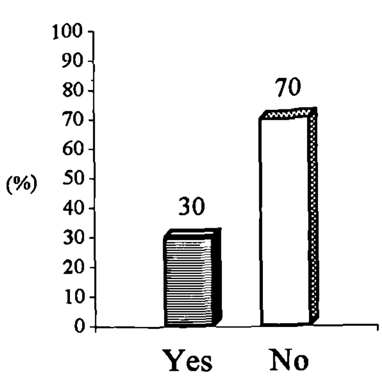

Fig. 30-1. Students' satisfaction with teachers' teaching methods not using media technology

The results of testing association for the non-users' satisfaction with their teaching methods which do not involve using media technology by gender and by years of teaching experience yielded Chi-Square values' significance levels of 1.0000 and .4688 respectively. (See Appendix E: E.2, 105 and 106.) There is no significant relationship between gender, or years of teaching experience, and the teachers' satisfaction with their teaching methods which do not involve using media technology. Hypothesis One and Two were not supported.

On the other hand, the results of testing association for the students' satisfaction with teachers' teaching methods which do not involve using media technology by gender and by academic years indicate that there is no significant relationship between gender and the students' satisfaction with them (Chi-Square value's significance levels of .8519). However, there is significant relationship between academic years and the students' satisfaction with them (Chi-Square value's significance levels of .0046). Hypothesis One was not supported, but Hypothesis Two was supported. For example, 80.6% of the 3rd year students are not satisfied with teachers' teaching methods, while 63% of the 1st year, 61.3% of the 2nd year and 68.3% of the 4th year students are not satisfied with them. (See Appendix E: E.4, Crosstabulation 11 and 12 in detail.)

5.2.3 Why do some teachers use it?

As stated in Section 5.2.2, the respondents were also divided into the users and non-users of media technology based on the research question 1-4. 18 out of 48 respondents (37.5%) use media technology in language teaching. There were 6 subquestions identified. Each is now considered in turn.

5.2.3.1 What proportion of teachers use media technology and with what frequency?

Questions 4 and 13 in the teachers' questionnaire addressed this subquestion. First of all, as seen in Fig. 11 of section 5.2.1.4, 37.5% of 48 respondents use media technology in language teaching. Fig. 31 and 32 show users' frequency of use of media technology themselves and in language teaching.

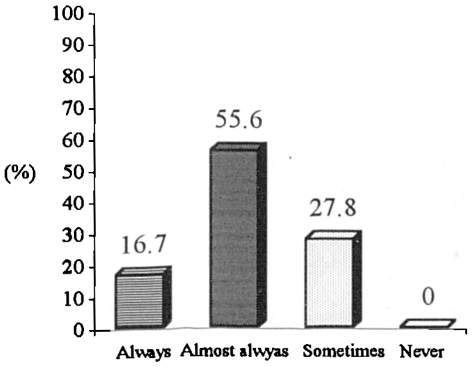

Fig. 31. Users' frequency of using media technology for themselves

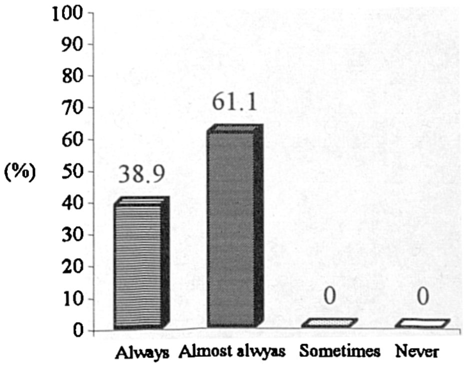

Fig. 32. Users' frequency of using media technology in language teaching

It is interesting that all the users (100%) 'always' (38.9%) or 'almost always' (61.1%) use media technology in language teaching, while 27.8% of users 'sometimes' uses it themselves ('always', 16.7% and 'almost always', 55.6%). The results indicate that the users more often use it 'in language teaching' than 'themselves'.

The results of testing association for the users' responses to the frequency of using media technology themselves and in language teaching by gender and by years of teaching experience yielded Chi-squares, Fisher's exact test and Kendall's tau values. The tests of association have the significance levels of .3104, .1391, .2640 and .0604 respectively. (See Appendix E: E.3, Crosstabulation 77 - 80 in detail.) There is no significant relationship between gender, or years of teaching experience, and the frequency of use of media technology themselves and in language teaching. Hypothesis One and Two were not supported.

5.2.3.2 Why do these teachers use media technology?

This subquestion was subdivided into eight subquestions again. Question 14 in the teachers' questionnaire addressed this subquestion. Fig. 33 displays the overall results of the users' responses, and Fig. 33-1 shows an outline of their responses.

I use media technology because:

1 it can help students to reinforce language skills.

2 it can provide students with more than one way to access information.

3 it can give students the authenticity of spoken language.

4 it can bring the real world into the classroom.

5 it can offer a wide range of learning and practice opportunities.

6 it can supply activities which are adjustable to the students' needs.

7 it can provide students with sufficient variety to maintain their interests.

8 it can make it easier to teach language.

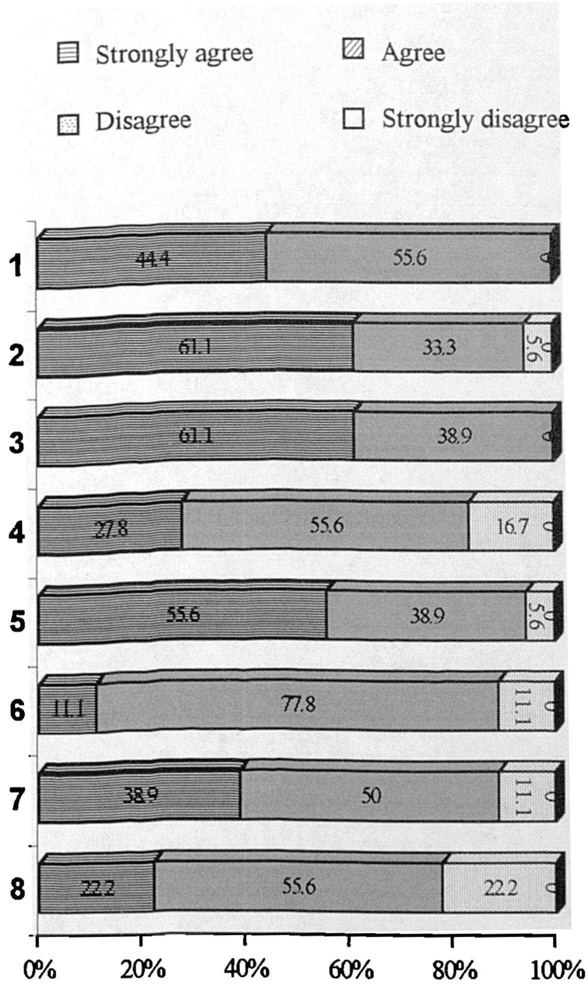

Fig. 33. The reasons for using of media technology

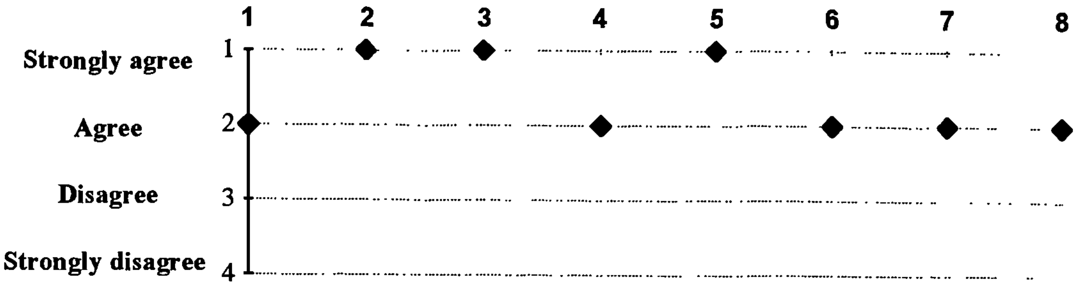

Fig. 33-1. The outline of the reasons for using of media technology

A clear pattern emerges from Fig. 33 and 33-1. Almost all the teachers' responses show a tendency to 'Strongly agree' or 'Agree'. Therefore, the teachers use media technology because of its advantages as shown in Fig. 33. In particular, statement **2** ('Strongly agree', 61.1% of the respondents and 'Agree', 33.3%), statement **3** ('Strongly agree', 61.1% and 'Agree', 38.9%), statement **5** ('Strongly agree', 55.6% and 'Agree', 38.9%), and statement **1** ('Strongly agree', 44.4% and 'Agree', 56.6%) turned out to be the most crucial reasons of all the statements.

The results of testing association for the responses to the reasons for using media technology by gender and by years of teaching experience yielded Chi-Square, Fisher's exact test and Kendall's tau values as reported in Appendix E: E.3, Crosstabulation 81 - 96. The significance levels are given in Table 15. There is a significant relationship between gender and statement **3** (.0088), and between years of teaching experience and statement **5** (.0270). However, there is no significant relationship between gender, or years of teaching experience, and the other statements. Hypothesis One and Two were generally not supported, although Hypothesis One was supported in terms of statement **3**, and Hypothesis Two was supported in terms of statement **5**.

Table 15. The results of testing association for the reasons for using media technology

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Gender	.1344	.4458	.0088*	.3800	.2791	.1278	.9841	.6745
Years of teaching experience	.1884	.1089	.4403	.2546	.0270*	.4079	.1409	.0604

*p<.05

Firstly, there is significant relationship between gender and statement **3**. The male teachers strongly agree (90%) and agree (10%) with statement **3**, while the female teachers strongly agree (25%) and agree (75%) with it. Secondly, there is also significant relationship between years of teaching experience and statement **5**. The teachers with 1-5 years of experience agree with statement **5** as follows, strongly agree (30%), agree (60%) and disagree (10%), but 100% of 6-10, 11-15 and 16-20 years of teaching experience strongly agree with it. (See Appendix E: E.3, Crosstabulation 85 and 90 in detail.)

5.2.3.3 Are they forced to use it?

Two statements of question 14 in the teachers' questionnaire also addressed this subquestion.

Fig. 34 and 34-1 show the results of the users' agreement with being expected to use media technology by the university authorities and by students, and its outline. The teachers' responses show a tendency to disagree ('Strongly disagree', 0% and 'Disagree', 61.1%) with statement **1**, and to agree ('Strongly agree', 16.7% and 'Agree', 44.4%) with statement **2**.

1 Teachers are expected to use it by the university authorities.

2 Students expect teachers to use it.

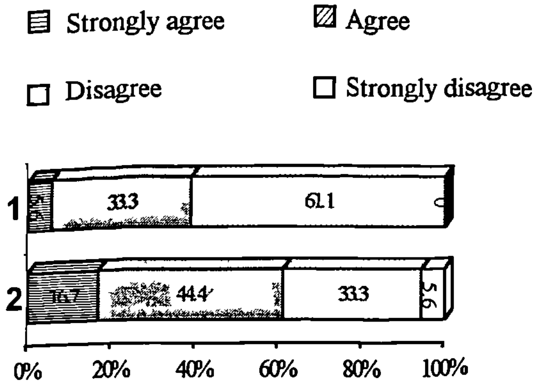

Fig. 34. Teachers' agreement with being expected to use media technology by the university authorities and by students

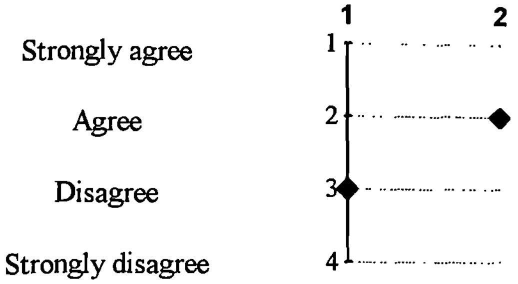

Fig. 34-1. The outline of teachers' agreement with being expected to use media technology by the university authorities and by students

The results of testing association by gender and by years of teaching experience for the teachers' responses to their agreement with being expected to use media technology by the university authorities and by students yielded Chi-Square and Kendall's tau values (See Appendix E: E.3, Crosstabulation 97 - 100), which have significance levels of .6442 and .3837 concerning statement **1**, and .5113 and .0947 concerning statement **2**. There is clearly no significant relationship between gender, or years of teaching experience, and teachers' agreement with being expected to use media technology by the university authorities and by students. Hypothesis One and Two were not supported.

5.2.3.4 What helps them to use it?

Three statements of question 14 in the teachers' questionnaire and question A-7 and 8 in the teachers' interview addressed this subquestion. Fig. 35 and 35-1 indicate the results of the teachers' responses and its outline. The teachers strongly agree or agree with all the statements. Therefore, it can be concluded that all of them play an important role in the use of media technology in language teaching. In particular, their agreement with statement **2**, "I enjoy using media technology." (94.4%: 'Strongly agree', 16.7% and 'Agree', 77.8%) is much stronger than that with the others (statement **1**: 72.2% and statement **3**: 66.7%).

In addition, according to the teachers' interviews, seven teachers out of nineteen respondents (36.8%) had have training on the use of media technology. Three of them have had training in English-speaking countries with the financial help of the university authorities. Four teachers attended a one-year course on the use of media technology for teaching English as a foreign language. Three teachers participated in a one-month training course on the use of video in language teaching. One of them spoke for the others claiming the importance of training and the help of the university authorities:

> "It was really helpful. I was very happy not only because I have learnt new knowledge and methods of using media technology, e.g., video, computers, and CD-ROM in language teaching, but because I could make a continued exchange of new information through that opportunity. So I would like to emphasise the necessity of a continuing support of the university authorities to other teachers."

1 The university authorities provide some help.

2 I enjoy using media technology.

3 I am personally committed to it.

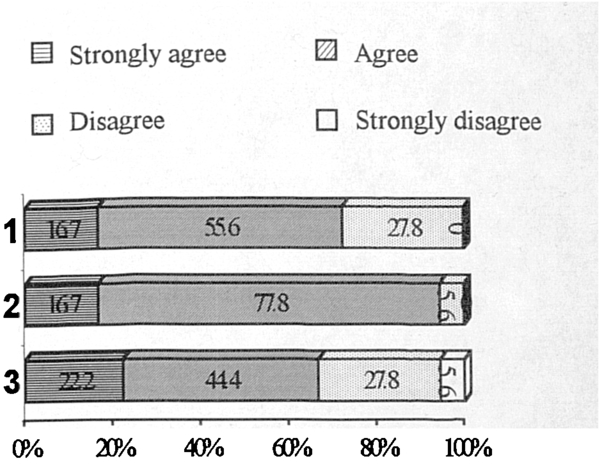

Fig. 35. The results of the teachers' agreement with what helps them to use it

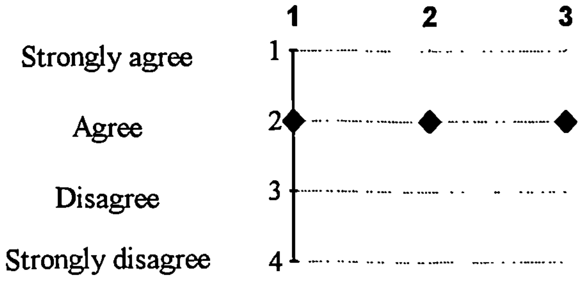

Fig. 35-1. The outline of the results of the teachers' agreement with what helps them to use it

It was hypothesised (Hypothesis Eight) that the users would use media technology, particularly because: they believe claims about the potential of media technology that some writers make; they have favourable attitudes towards the use of it; and they are forced to use media technology from the university authorities and students. In terms of the results from the three preceding sections, 5.2.3.2, 5.2.3.3, and 5.2.3.4, therefore, Hypothesis Eight was generally supported, although the teachers do not use media technology due to being forced to use it by the university authorities.

The results of testing association for the teachers' responses by gender and by years of teaching experience yielded the significance levels of Chi-Square and Kendall's tau values (Table 16) (see also Appendix E: E.3, Crosstabulation 101 - 106). There is no significant relationship between gender and their agreement with the statements, but there is significant relationship between years of teaching experience and statement **3** alone. Hypothesis One and Two were generally not supported, although Hypothesis Two was supported in terms of statement **3**.

Table 16. The results of testing association for the reasons for using media technology

	1	**2**	**3**
Gender	.3104	.5698	.2479
Years of teaching experience	.4624	.2071	.0359*

*p<.05

For example, the teachers with 1-5 and 6 -10 years of teaching experience strongly agree (30% and 0%), agree (50% and 75%), and disagree (20% and 25%) with statement **3**, while those with 11-15 years of teaching experience strongly agree (50%) and disagree (50%) with it (See Appendix E: E.3, Crosstabulation 106.).

5.2.3.5 Are they satisfied with their teaching methods which involve using media technology?

Question 18 in the teachers' questionnaire addressed this subquestion. Fig. 36 shows the results of users' responses to the satisfaction with their teaching methods of using media technology. The results are interesting, when compared with those of non-users' in Fig. 30 'Non-users' satisfaction with their teaching methods of not using media technology' (and Fig. 30-1 for students) of section 5.2.2.3. Similarly, the majority of users (72.2%) are still not satisfied with their teaching methods which do involve using media technology in language teaching, but their dissatisfaction is less than that of non-users (80%). However, almost half of the students (42.8%) are satisfied with their teachers' teaching methods which do involve using media technology as seen in Fig. 36-1, but 30% of them are satisfied with their teachers' teaching methods which do not involve using media technology in Fig. 30-1. Again, it was hypothesised (Hypothesis Ten) that the teachers would not be satisfied with their teaching methods whether they use media technology or not. Hypothesis Ten was also supported.

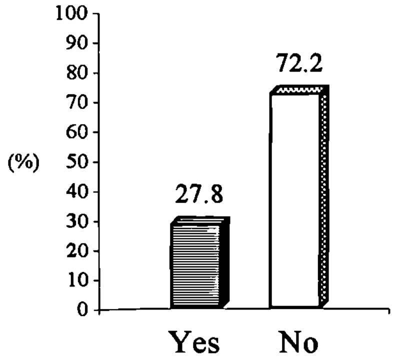

Fig. 36. Users' satisfaction with their teaching methods of using media technology

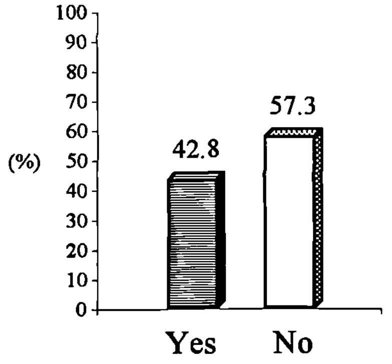

Fig. 36-1. Students' satisfaction with teachers' teaching methods of using media technology

The results of testing association for the teachers' responses by gender and by years of teaching experience yielded Fisher's Exact Test and Chi-Square values, which have the significance levels of .1961 and .6810. (See Appendix E: E.3, Crosstabulation 107 - 108.) There is no significant relationship between gender, or years of teaching experience, and the teachers' satisfaction with their teaching methods which do not involve using media technology. Hypothesis One and Two were not supported.

On the other hand, the results of testing association for the students' responses by gender and by academic years yielded Chi-Square values, which have the significance levels of .3467 and .8324. (See Appendix E: E.4, Crosstabulation 9 - 10.) There is also no significant relationship between gender, or academic years, and students' satisfaction with teachers' teaching methods which do not involve using media technology. Hypothesis One and Two were not supported.

5.2.3.6 Do such teachers by comparison with the group of non-users have a positive attitude towards the use of media technology?

Questions 3, 7, 8 and 10 in the teachers' questionnaire, and interview items (Question A-1, 3, 5, 6 and 12, and Question B-1, 2 and 3) in the teachers' interviews addressed the question of finding out users' attitudes and to compare users' attitudes with non-users' towards the use of media technology.

Firstly, the results of their attitudes towards the use of it in general and tests of association are reported in Fig. 37 - 39 and Table 17. Secondly, Figures, 40 and 41 - 47 show the details of the two groups' attitudes towards the use of the five media technologies rated on seven bipolar scales respectively, and Tables, 18 - 24 present the results of testing association.

5.2.3.6.1 Users' and non-users' attitudes towards media technology in general

First of all, a very clear pattern emerges from Fig. 37 - 39, based on the results analysed from Question 3, 7 and 8. The users' attitudes towards media technology in general are very positive, and surprisingly non-users' attitudes are also very positive. However, the users' attitudes are more positive than the non-users'. All the users (100%) are very or fairly interested in the use of media technology (non-users, 87%).

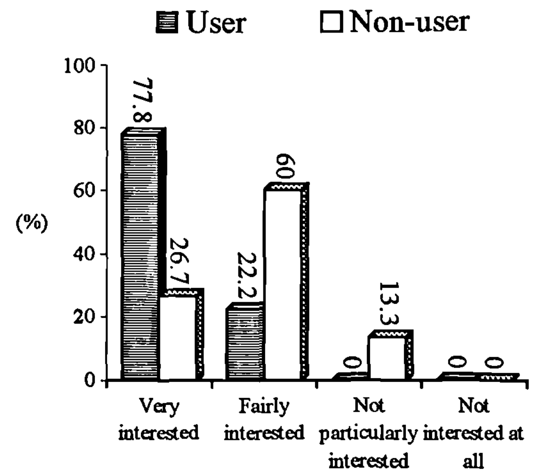

Fig. 37. User' and non-users' interest in the use of media technology in language teaching

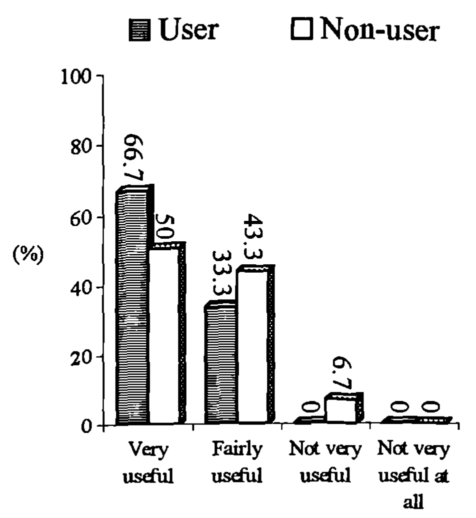

Fig. 38. Users' and non-users' attitudes towards the usefulness of media technology for students

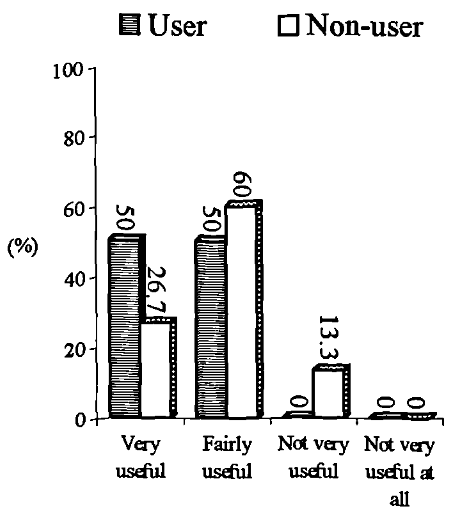

Fig. 39. Users' and non-users' attitudes towards the usefulness of media technology for teachers

Second, they (100%) think that media technology is very or fairly useful for students in language learning (non-users, 93%). Third, they (100%) think that media technology is very or fairly useful for teachers in language teaching (non-users, 87%).

The results of testing association for the users' and non-users' attitudes by gender and by years of teaching experience yielded Chi-Square, Fisher's Exact Test and Kendall's tau values. (See Appendix E: E.2, Crosstabulation 1 - 6 for non-users and Appendix E: E.3, Crosstabulation 1 - 6 for users.) The significance levels are indicated in Table 17 below.

Table 17. Significance of tests of association for the users and non-users by gender and by years of teaching experience

	User		**Non-user**	
	Gender	Years of teaching experience	Gender	Years of teaching experience
Teachers' interest in the use of media technology	.3137	.2406	.9859	.1180
Teachers' thoughts on the usefulness of media technology for students	.1697	.2343	.6573	.2947
Teachers' thoughts on the usefulness of media technology for teachers	.2419	.2321	.3779	.4495

All the significance levels are higher than .05. Therefore, there is no significant relationship between gender, or years of teaching experience, and their attitudes towards the use of media technology. Hypothesis One and Two were not supported.

5.2.3.6.2 Users' and non-users' attitudes towards five media technologies

As the results showed in the previous section, both users and non-users have very positive attitudes towards media technology in general, with no significant relationship between gender and between years of teaching experience and the variables, although the users' attitudes were more positive than non-users'.

This section presents the teachers' attitudes towards the use of five media technologies which are and will be available in the language classroom, audio, video, computer, IV and CD-ROM in relation to each of seven bipolar adjective scales.

Users' and non-users' attitudes towards the use of five media technologies rated on seven bipolar adjective scales

Fig. 40 shows the overall results of the teachers' attitudes towards the use of the five media technologies assessed by means of the semantic differential in the questionnaire (See Appendix A: A.1, Question 10). It is clear that users' and non-users attitudes towards the five media technologies are also positive, as the results of their attitudes towards the use of media technology in general showed in the previous section, although the users' attitudes also show a tendency to be more positive than the non-users' in all the media technologies. This confirms that the teachers consider the five media technologies as effective sources of authentic materials and tools in FLT/L.

It was hypothesised (Hypothesis Seven) that the teachers would have positive attitudes towards the use of media technology, but users would have more positive attitudes towards it than non-users. In terms of the results from the sections, 5.2.3.6.1 and 5.2.3.6.2, Hypothesis Seven was supported.

First of all, video and IV rank 1st and 2nd respectively in terms of both users' and non-users' attitudes towards them as shown in Fig. 40, and their scores of the technologies are relatively higher than those of other technologies. Interestingly, secondly, the level of users' attitudes towards audio (2.93) here is similar to that towards CD-ROM (2.91), and is a little more positive than that towards the computer (2.82), despite the fact that there is evidence in the previous scale that the teachers have no greater interest in using audio in the classroom or in the language lab. The computer is viewed the least positively among the five media technologies, although they appear to have become more interested in the use of it. On the part of non-users, their attitudes towards the technologies are as follows, CD-ROM (2.82), the computer (2.77) and audio (2.74). They seem to think that the newer technologies will be somewhat more effective in various ways than audio technologies.

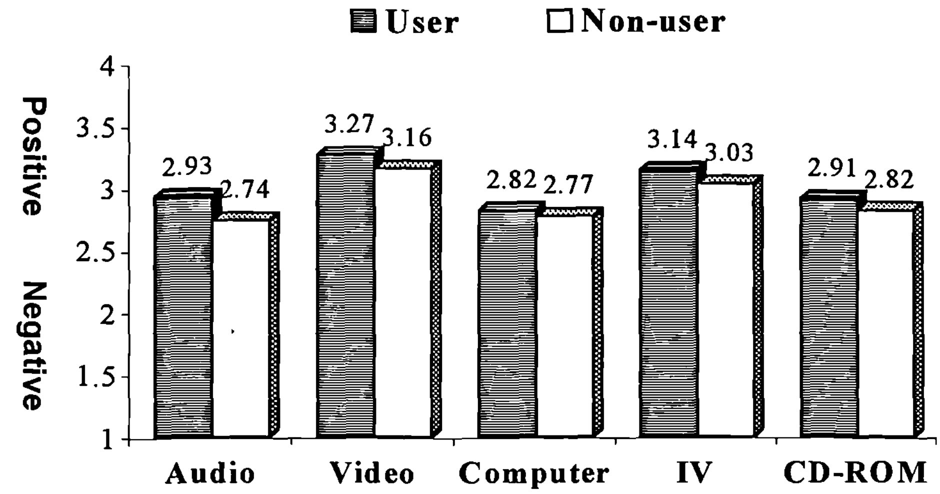

Fig. 40. Users' and non-user' attitudes towards five media technologies rated on seven bipolar adjective scales overall

Users' and non-users' attitudes towards the use of the five media technologies on seven bipolar adjective scales respectively

Figure 41 - 47 show the results of the users' and non-users' attitudes rated on seven bipolar adjective scales respectively. First of all, the responses of the two groups illustrate a similar pattern in three scales, 'Useful - Useless', 'Interesting - Boring', and 'Much potential - No potential' in that the teachers' attitudes are generally positive towards the technologies, but the users' attitudes are more positive than the non-users'. Secondly, the teachers' attitudes are also positive towards the technologies in

the 'Motivated - Demotivated' and 'Timesaving - Time-consuming' scales, but it is very interesting to find that there are different patterns from the three scales above, e.g., non-users' attitudes towards IV and CD-ROM are more positive than users' in the 'Motivated - Demotivated' scale. However, it is worth noticing that their attitudes towards the technologies in the 'Easy - Complicated' and 'Undervalued - Overvalued' scales show a tendency to be negative, except for audio and video in the 'Easy - Complicated' scale, and IV and CD-ROM in the 'Undervalued - Overvalued' scale.

The results of testing association for the teachers' responses to the seven bipolar scale by gender and by years of teaching experience yielded Chi-Square (or Fisher's Exact Test) and Pearson's *r* values. The values of the tests of association are generally not significant at the 0.05 level. See Appendix E: E.2 for non-users and E.3 for users, Crosstabulation 7 - 64. The significance levels are also reported in Table 18 - 24.

Useful - Useless

Both users' and non-users' attitudes towards all the technologies are very positive in this scale (Fig. 41). However, the users' attitudes are more positive than the non-users'. Hypothesis Seven was also supported in this scale.

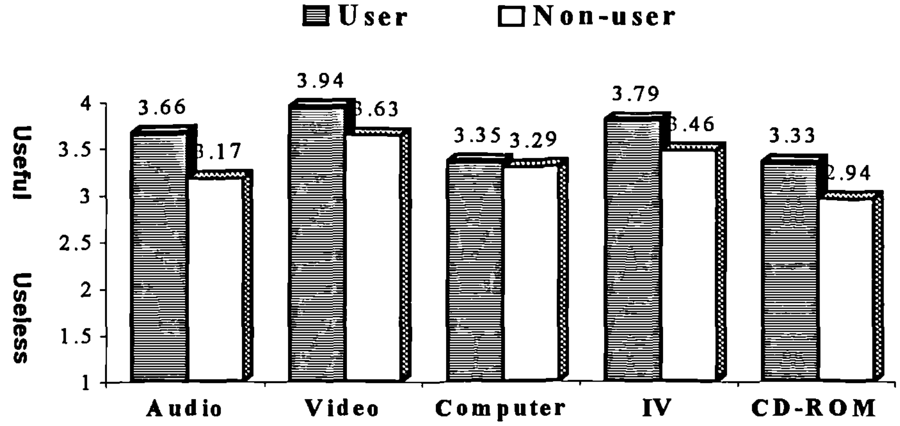

Figure 41. The average of users' and non-user' attitudes towards five media technologies rated on a 'Useful -Useless' scale

In particular, the teachers' attitudes towards video (users: 3.94 and non-users: 3.63) and IV (3.79 and 3.46) are more positive than those towards the other technologies. It is worth nothing that audio is considered more useful than the newer or advanced technologies, i.e., computers and CD-ROM by users in particular, although it is considered a little less useful than computers by non-users. In the meantime, CD-ROM is unexpectedly seen as the least useful among the five media technologies.

Again, it is interesting to compare a part of the research study by Fox et al. (1990) with this study, although the purpose of their study is a little different (i.e., their study was not intended to produce hard statistical data as much as to gain an impression of usage and attitudes). The result of their study, the assessment of effectiveness or usefulness of media technology shows a slightly different pattern. They reported that the teaching staff (heads or equivalents) of modern language departments in higher education place the following items in rank order, audio (Language Lab.), video, computers (Word-processor), STV, IV, CD-ROM, etc. of effectiveness in language teaching (Fox et al. 1990). In their study, in fact, CD-ROM is considered much less effective than the above items. However, it is interesting that the teachers regard video as 'most effective', but CD-ROM as 'least effective' in terms of rank order in both studies.

Table 18 presents the significance levels of testing association for the teachers' responses in the 'Useful -Useless' scale by gender and by years of teaching experience.

Table 18. Significance of tests of association for the 'Useful - Useless' scale
by gender and years of teaching experience

	User		**Non-user**	
	Gender	**Teaching experience**	**Gender**	**Teaching experience**
Audio	.3167	.2107	.5662	.2104
Video	.4444	.1661	.6273	.1848
Computers	.0676	.3491	.3448	.0828
IV	.4038	.3819	.8586	.4529
CD-ROM	.9292	.0453*	.2683	.2997

*p< .05

There is no significant relationship between gender and teachers' attitudes towards the usefulness of the five media technologies. There is also no significant relationship between years of teaching experience and teachers' attitudes towards that of the four media technologies, except for CD-ROM by users. Hypothesis One and Two were generally not supported. Unexpectedly, however, the users with 11 - 15 or more years of teaching experience (100%) responded that CD-ROM is very useful, while those with 1 - 5 (40%) and 6 -10 (50%) years of teaching experience responded so. (See Appendix E: E.3, Crosstabulation 64.)

Easy - Complicated

Fig. 42 clearly shows that the advanced technologies, such as computers, IV and CD-ROM are regarded as complicated by both users and non-users. Interestingly, the users' attitudes towards the technologies, IV (users: 1.57 and non-users: 2.17), CD-ROM (1.88 and 2.29) and the computer (2 and 2.18) show a tendency to view them as more 'complicated' than the non-users'. However, the teachers' attitudes towards old and familiar technologies, audio (3.72 and 3.53) and video (3.17 and 3.33) show a tendency to view them as 'very easy'. Therefore, Hypothesis Seven was generally not supported in this scale.

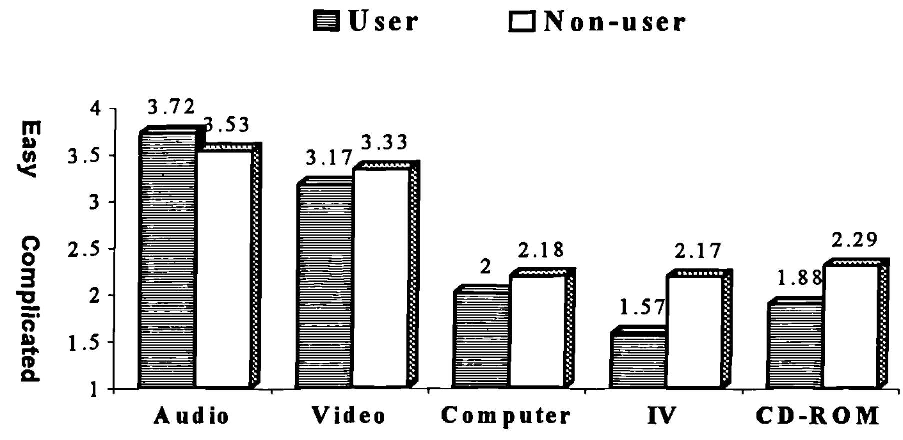

Figure 42. The average of users' and non-user' attitudes towards five media technologies rated on a 'Easy - Complicated' scale

The significance levels of testing association for the 'Easy - Complicated' scale are shown in Table 19. There is clearly no significant relationship between gender, or years of teaching experience, and teachers' attitudes towards the five media technologies on the 'Easy - Complicated' scale. Hypothesis one and two were not supported.

Table 19. Significance of tests of association for the 'Easy - Complicated' scale by gender and years of teaching experience

	User		**Non-user**	
	Gender	Teaching experience	Gender	Teaching experience
Audio	.4931	.1392	.6718	.2943
Video	.1713	.2303	.3309	.4565
Computers	.4499	.2148	.2093	.1418
IV	.4046	.3832	.5338	.4599
CD-ROM	.4624	.2062	.3564	.2502

Interesting - Boring

Both users' and non-users' attitudes towards all the technologies are very positive on this scale (Fig. 43) with the exception of audio, but the users' attitudes are more positive than the non-users'. Their attitudes towards audio (2.33 and 2.22) alone among the technologies are found to be 'boring' in this scale, although their attitudes are very positive in the previous 'Useful - useless' and 'Easy - Complicated' scales. Hypothesis Seven was generally supported in this scale, except for audio.

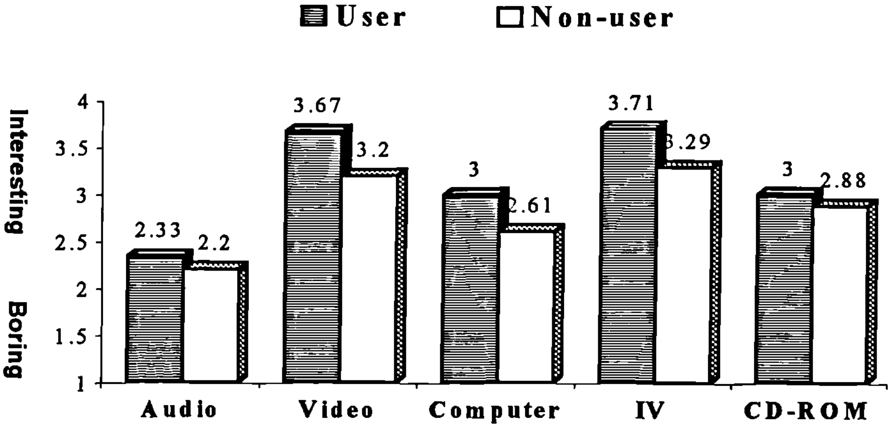

Figure 43. The average of users' and non-user' attitudes towards five media technologies rated on a 'Interesting - Boring' scale

The teachers' attitudes towards IV (3.71 and 3.29) and video (3.67 and 3.2) show a tendency to be continuously more positive than the other technologies as seen in the 'Useful - Useless' scale. It is worth noticing that the teachers' attitudes, particularly the users' towards the newer or advanced technologies, the computer (3 and 2.61) and CD-ROM (3 and 2.88) are also fairly positive. It is also interesting that the users' attitudes towards all the technologies are more positive than the non-users', as they were in media technology in general in the previous section.

The significance levels of testing association for the 'Interesting - Boring' scale are indicated in Table 20. There is clearly no significant relationship between gender, or years of teaching experience, and teachers' attitudes towards interest of the five media technologies. Hypothesis One and Two were not supported.

Table 20. Significance of tests of association for 'Interesting - Boring' scale by gender and by years of teaching experience

	User		**Non-user**	
	Gender	Teaching experience	Gender	Teaching experience
Audio	.7364	.1252	.1603	.4898
Video	.3620	.3450	.4782	.3892
Computers	.2620	.1020	.7324	.4068
IV	.4406	.4190	.5954	.2357
CD-ROM	.3367	.2020	.5918	.1783

Motivated - Demotivated

All the technologies are found to be motivating for students, although audio is less motivating than the others (Fig. 44). In terms of the overall trend, the teachers' attitudes towards video and IV are still more positive than those towards other technologies. It is worth noticing that hi-tech media technologies, computer and CD-ROM are here considered more motivating for students than audio. On the other hand, it is interesting that the non-users' attitudes towards video (3.47), IV (3.67) and CD-ROM (3.18) are slightly more positive than users'. Therefore, Hypothesis Seven was generally supported, although it was not accepted in terms of the comparison of the users' to non-users' attitudes towards video, IV and CD-ROM in this scale.

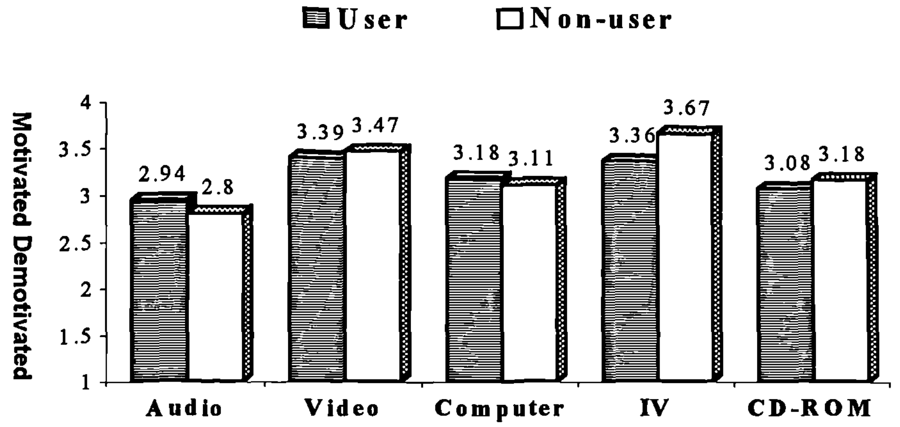

Figure 44. The average of users' and non-user' attitudes towards five media technologies rated on a 'Motivated - Demotivated' scale

Almost all the teachers, from their interviews, agreed that students can be motivated by the use of the five media technologies. For instance, the statement mentioned in the previous section, 4.2.1.3 is an example of the successful implementation of media technology related to the aspects of interest and motivation in LT/L.

The results of testing association for the teachers' attitudes in this scale show that there is a significant relationship between gender and teachers' attitudes towards the motivation for students of the computer alone by non-users (Table 21). 95% of the male teachers respond that students are motivated by the computer, but only 57% of the female teachers respond so. (See Appendix E: E.2, Crosstabulation 41.) However, there is clearly no significant relationship between years of teaching experience and the teachers' attitudes towards the motivation for students of the five media technologies. Hypothesis Two was not supported, and neither, generally, was Hypothesis One.

Table 21. Significance of tests of association for 'Motivated - Demotivated' scale by gender and by years of teaching experience

	User		**Non-user**	
	Gender	Teaching experience	Gender	Teaching experience
Audio	.7710	.3291	.6068	.1038
Video	.6588	.1336	.3074	.1472
Computers	.5191	.3057	.0439*	.4822
IV	.2946	.2183	1.0000	.2856
CD-ROM	.9023	.3844	.3415	.4131

*p< .05

Time saving - Time-consuming

Both users and non-users believe that the five media technologies can generally save time to some extent (Fig. 45). The users have much more positive attitudes towards the advanced, but apparently complicated technologies, IV (3.36) and CD-ROM (3.08) than towards the other technologies, while they have less positive attitudes towards audio (2.56). However, the results of non-users' attitudes show a similar pattern towards all the technologies, ranging from 2.83 to 2.54, although their attitudes towards video (2.83) are slightly more positive than towards the other technologies. It is worth noticing that non-users have less positive attitudes towards computers (2.54). Finally, it is interesting that non-users have more positive attitudes towards video and audio than users do. Hypothesis Seven was generally supported, but was not accepted in terms of the comparison of the users' to non-users' attitudes towards audio and video in this scale.

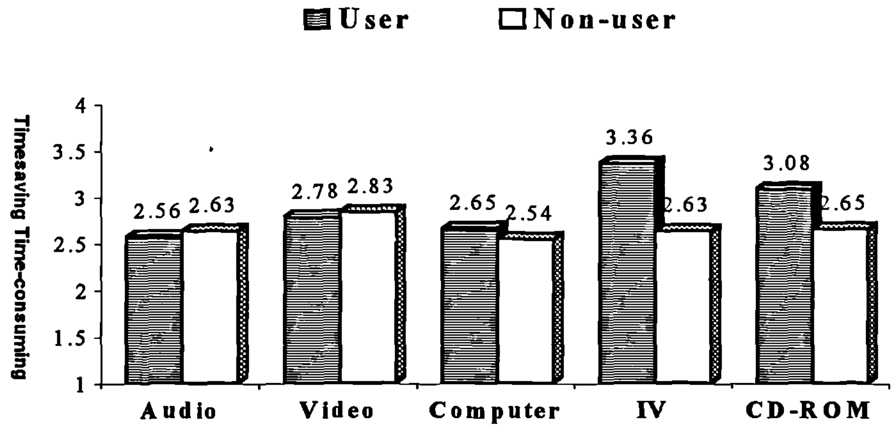

Figure 45. The average of users' and non-user' attitudes towards five media technologies rated on a 'Timesaving - Time-consuming' scale

In addition, the results of interviews show that some of the teachers (26% of 19 interviewees) are uncertain about the effect of timesaving in the use of media technology. An example from the interviews supports the results above:

> "I have had experience of using media technology, particularly computers in FLT. It took about two or three times more to prepare the sessions, particularly using the computer than conventional ones. First of all, I have spent lots of time

> manipulating the machines skilfully and choosing appropriate programmes for the level of my students and the subjects. In fact, I couldn't find exactly what I wanted. What is worse, I had about 40 students in my class. We couldn't carry out some activities well by using video and computer. Even I couldn't monitor all the students. It was very hard on me, although my students seemed to be interested in the activities."

The results of testing association for the 'Timesaving - Time-consuming' scale by gender and by years of teaching experience show that there is a particularly significant relationship between years of teaching experience and teachers' attitudes towards timesaving in the three media technologies on the part of the users (Table 22). In general, therefore, Hypothesis One and Two were not supported, but Hypothesis two, particularly on the part of users, was generally supported in this scale.

Table 22. Significance of tests of association for the 'Timesaving - Time-consuming' scale by gender and by years of teaching experience

	User		**Non-user**	
	Gender	Teaching experience	Gender	Teaching experience
Audio	.5606	.0114*	.6639	.3867
Video	.8794	.0001**	.1749	.1972
Computers	.0535·	.2254	.2520	.0813
IV	.8425	.3024	.0223*	.2360
CD-ROM	.3322	.0281*	.8548	.0100*

*p< .05, **p< .001

Firstly, there is a significant relationship between years of teaching experience and teachers' attitudes towards timesaving in audio and video on the part of users. The teachers with 1 - 5 years of teaching experience (40%) respond that audio is time saving, but those with 6-10 (50%), 11 - 15 (100%) or more years of teaching experience (100%) respond so. They (40%) also respond that video is time saving, but those with 6-10 (75%), 11 - 15 (100%) or more years of teaching experience (100%) respond so. Secondly, there is also a significant relationship between years of teaching experience and teachers' attitudes towards timesaving in CD-ROM on the part of both users and non-users. The users (60%) with 1 - 5 years of teaching experience (non-users 0%) respond that CD-ROM is time saving, but those with 6 - 10 (users 100%, non-users 50%), 11 - 15 (users 100%, non-users 25%), and 21 - 25 years of teaching experience (users 100%, non-users 80%) respond so. (See Appendix E-2, Crosstabulation 72 for non-users, and Appendix E-3, Crosstabulation 16, 30 and 72 for users.)

There is also a significant relationship between gender and teachers' attitudes towards timesaving in IV alone on the part of non-users. Unexpectedly, only 28% of the male teachers respond that IV is time saving, but 100% of the female teachers respond so. (See Appendix E-2, Crosstabulation 57 in detail.)

Undervalued - Overvalued

Both users and non-users have generally negative attitudes towards the value of the five media technologies (Fig. 46). However, it is worth noticing that the non-users' have positive attitudes towards the value of the newer or advanced, but complicated technologies, the computer (2.5), IV (2.63) and CD-ROM (2.65), although their scores are relatively low.

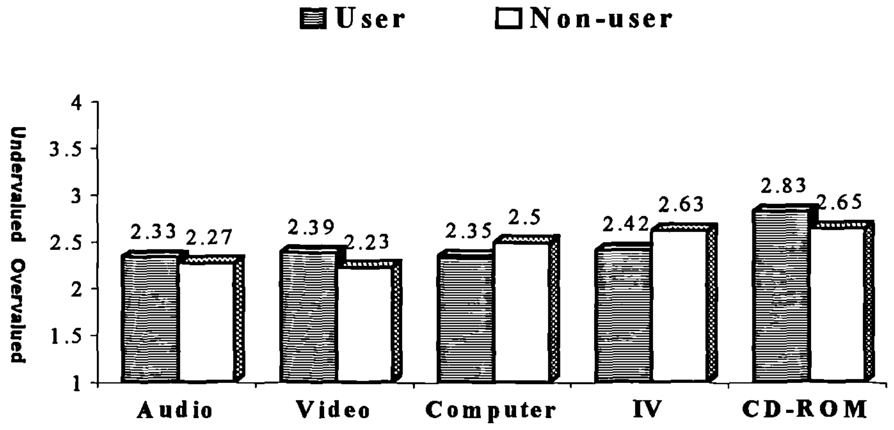

Figure 46. The average of users' and non-user' attitudes towards five media technologies rated on a 'Undervalued - Overvalued' scale

Interestingly, the users' attitudes are negative towards the value of the technologies, except for CD-ROM (2.83). Hypothesis Seven was generally not supported in this scale, although users' have more positive attitudes towards the use of media technologies, such as audio, video and CD-ROM.

The following statements from the interviews express well the teachers' negative attitudes towards the value of the technologies:

> "I agree that the application of media technology can bring a considerable enrichment to the teaching and learning. In some cases, I think that it has some disadvantages. Well, for example, it may be a fundamental problem of its application in language teaching and learning. In short, we can be enslaved by media technology. I mean that it can interfere with the interaction of teachers and students. Of course, it depends on the teachers' ability to use media technology. I have seen this kind of problem happen in the classroom. It was time to listen to the teacher's instruction, nevertheless a couple of students kept on doing their unfinished work. Thus, we are not convinced of its usefulness (effectiveness) for all but the occasional computer freak."

Another added:

> "As you know, we spoke and wrote foreign languages a long time ago, when there was neither audio nor video. There has recently been a tendency to depend too much on it as omnipotent. It sometimes makes us and our students confused. I have tried it several times in teaching, but it was just a tool like other materials."

The results of testing association for the 'Undervalued - Overvalued' scale by gender and by years of teaching experience are indicated in Table 23. There is no significant relationship between gender and teachers' attitudes towards the value of the five media technologies, except for computers alone on the part of non-users. There is also no significant relationship between years of teaching experience and teachers' attitudes towards the value of the five media technologies, except for CD-ROM alone on the part of users. Hypothesis One and Two were generally not supported.

Firstly, the male teachers respond that the computer is 'undervalued' (10%), 'less undervalued' (33%) and 'less overvalued' (57%), while the female teachers respond that it is 'undervalued' (14%), 'less undervalued' (43%), 'less overvalued' (14%) and 'overvalued' (29%). In short, the female teachers are more positive towards the value of computers than the male teachers. Secondly, 80% and 100% of the teachers with 1 - 5 and 6 - 10 years of teaching experience respond that CD-ROM is undervalued, but 50% and 0% of those with 11 - 15 and 21 - 25 years of teaching experience respond so. (See Appendix E-3, Crosstabulation 74 in detail.)

Table 23. Significance of tests of association for 'Under valued - Over valued' scale by gender and by years of teaching experience

	User		Non-user	
	Gender	Teaching experience	Gender	Teaching experience
Audio	.6488	.2565	.5313	.3094
Video	.1689	.1314	.8858	.4743
Computers	.6768	.3168	.0393*	.4719
IV	.2615	.1021	.0518	.4774
CD-ROM	.4624	.0408*	.8545	.0618

*p< .05

Much-potential - No potential

Finally, the teachers' attitudes towards all the technologies including even the newer or advanced or complicated technologies show a tendency to be very positive in this scale, except for audio which is less positive, particularly on the part of non-users (Fig. 47). Hypothesis Seven was clearly supported.

Fig. 47 shows that IV (users: 3.79 and non-users: 3.4), video (3.56 and 3.38), the computer (3.18 and 3.14) and CD-ROM (3.17 and 3.19) achieve high scores, while audio scores (2.94 and 2.6). Both the users and the non-users think that all the technologies have definite potential in language teaching and learning, although they think the technologies are generally overvalued at present according to Fig. 50. However, the users' attitudes towards the potential of the technologies are generally more positive than non-users'.

For reference, Fox et al. (1990), in their studies, also attempted to assess the future potential of media technology. However, their study cannot be compared directly with this one, since they did not ask questions about two technologies, audio and video. The rank order of items in terms of the average score in relation to 'how promising' (i.e., 'Very' to 'Not at all') is as follows: computers (Word-processor) (2.47), Satellite TV (2.47), CD-ROM (2.37), IV (2.35), Interactive audio (1.89), etc.

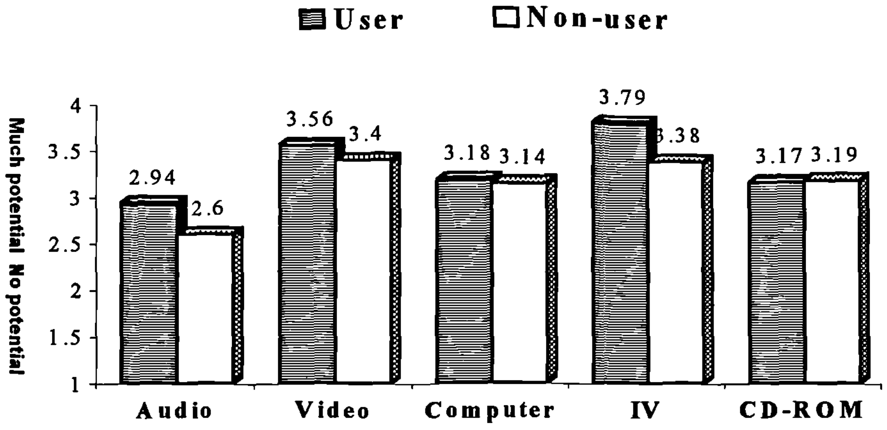

Figure 47. The average of users' and non-user' attitudes towards five media technologies rated on a 'Much potential - No potential' scale

The results of testing association for the 'Much potential - No potential' scale by gender and by years of teaching experience show that there is only a significant relationship between years of teaching experience and teachers' attitudes towards the potential of video on the part of non-users (Table 24). In the meantime, there is no significant relationship between gender and teachers' attitudes towards the potential of the five media technologies. Hypothesis One was not supported, and neither, generally, was Hypothesis Two in this scale.

Table 24. Significance of tests of association for 'Much potential - No potential' scale by gender and years of teaching experience

	User		Non-user	
	Gender	Teaching experience	Gender	Teaching experience
Audio	.1634	.4823	.3379	.1061
Video	.3181	.1989	.6773	.0107*
Computers	.6060	.4310	.1146	.1929
IV	.4038	.0794	.4768	.1451
CD-ROM	.9023	.1244	.4682	.1302

*p< .05

In video, non-users' responses show comparatively different distributions, depending on their amount of teaching experience. 100% of the teachers with 1 - 5 years of teaching experience respond that video has 'potential', but those with 6 - 10 years of teaching experience respond that it has 'much potential' (50%), 'potential' (33.3%) and 'less potential' (16.7%). The teachers with 11 - 15 years of teaching experience respond that video has 'much potential' (33.3%), 'potential' (50%) and 'less potential' (16.7%), but those with 21 - 25 years of teaching experience respond that it has 'much potential' (60%) and 'potential' (40%). (See Appendix E-2, Crosstabulation 34.)

5.3 Results of classroom observations

5.3.1 Class A

Subject:	English Conversation I (Compulsory for 1st year students)
Instructor:	Lecturer (Male)
Students:	48 students of the Dept. of Environmental Engineering (Male: 46, Female: 2)
Lesson No.:	Lesson 2 in the 1st semester (14 weeks)
Time:	10.00 - 10.50 am
Level:	Elementary
Materials:	Textbook, audio, and video
Place:	Language laboratory

5.3.1.1 Synopsis

10.00 - 10.10 am
The teacher asks students to hand in their homework (listening Unit 1 *LISTENING* and dictation). They submit their homework.
T: Could you understand the passage you listened to at home? (Most of the students say, *'Yes'*, while some of them say, *'Not all of it'*)
T: Then, let's listen to it again. First, listen the whole of the passage, and then I'll let you listen to it again, sentence by sentence. OK?
Ss: Yes.
He asks the students to put their headphones on and turns on an audio cassette in the console without difficulty. They listen to the passage about the story of a famous dancer who had a son. When listening to it sentence by sentence, he gives them a pause and has them repeat it. He corrects it, when they make mistakes, and explains some phonetic rules and grammatical points in Korean.
T: Well done. Let's look at page 2.

The teacher and students go through the questions about the passage they have listened in the textbook. He asks them some questions, requesting them to answer the questions in complete sentences, for example;

T: First, was the dancer unknown or well-known?

Ss: The dancer was well-known. (The teacher gives them generous praise, whenever they answer correctly, such as *'Excellent', 'Very well done'*, etc. ....

T: Finally, did the father have the same teacher or a different teacher?

Ss: He had the same teacher.

T: The same teacher?

Ss: Oh, no. A different teacher.

T: Yes, right. He had a different teacher.

10.11 - 10.14

T: OK, then, let's go to viewing.

The teacher asks them to read a summary of viewing and pre-viewing questions in the textbook, and to guess what it is all about. During this period, he gets the video ready for viewing and turns on two TVs.

10.15 - 10.18

T: Are you ready?

Ss: Yes, ready. (Students watch Situation 1 and 2 in the video, in sequence.)

10.19 - 10.21

T: Interesting? Do you understand the gist of it?

Ss: Yes, very interesting. Ummmm. Well, (Most of students hesitate.) *Introducing himself?* (Some of them say, "*I don't know*".)

T: Yes, exactly. Talking about yourself, in the customs in Situation 1, and in the Mr. European contest in Situation 2. Very good. Let's listen and watch again, you can understand more of it at this time. Please pay attention to how to ask and answer the questions in the situations. (The teacher rewinds the tape when talking. He skilfully handles the machine.)

10.22 - 10.30

T: After viewing the whole of each sequence once again, let's watch it sequence by sequence. Wait a moment, shall we have a look at key words and phrases, first? You can see some of them on page 6. Ummm, what is surname? (The teacher writes down some words and phrases on the chalkboard.)

Ss: Last name. (Some of them answer it in Korean.)

T: Yes, last name or family name. Okay, then, Passport?

Ss: Passport (in Korean).

T: You could listen to it in British English accent, /pa:s/ - port, instead of /pæ:s/ - port. (The teacher gives them further explanations about some differences between the British English accent and the American English accent in Korean.) *Occupation?*

Ss: Occupation (in Korean).

T: Yes, occupation, it means, 'job'.

Approvingly repeating their utterances and writing them down along with some synonyms on the blackboard, the teacher gives additional explanations and information related to the words, phrases and expressions to the students in English and Korean.

10.31 - 10.37

T: OK, then, let's watch the video again.

The students watch the whole of each scene again, and then, sequence by sequence once again. The video is started at the exact spot of the video extract to watch. When viewing sequence by sequence, he asks them to repeat what they heard. He skips easy expressions and corrects the parts where they made mistakes, speaking slowly and loudly. Sometimes, he assigns a couple of students to repeat it. He also asks them to answer the pre-viewing questions they have read.

10.38 - 10.43

T: OK, let's go to the viewing questions. No. 15. What is Mr. William's first name?

S_{15}: *Ummm. James.*
T: Very good.
The teacher assigns more students to answer the questions. If a student gives a wrong answer, he asks the whole class to repeat the correct answer.
T: Well done. You have just learnt how to talk about yourself, and asking and answering questions about yourself with some useful words and expressions. You can introduce yourself to others, ask something and answer about yourself and your family or friends, can't you?
Ss: Yes. Sure.
10.44 - 10.50
T: OK. It's time to check-up. Please prepare your Check-up Sheet.
Ss: Oh, no. (Some of them whisper, *"We have to do it every time?"*)
The teacher immediately realises there is an unhappy atmosphere.
T: (Smiling) *Something wrong? Didn't you say that it was a piece of cake last week? Don't be afraid, as it says it's just a check-up. If you don't want to do it, don't. It's up to you, but you will pay for it later. I'm not responsible for it. Are you ready* (loudly, cheering them up)?
The students understand what he means and laughs at his joke. Nevertheless, students clean up their desks, unpleasantly and unwillingly. He turns on the video. They answer the questions (Multiple-choice, gap-filling and short answers) on the Check-up Sheet, watching and listening to the sequences again. They hand in the sheet.
End of the lesson.

5.3.1.2 Commentary

As the synopsis and transcript shows, this appears to be one of the well-executed lessons making the best use of the materials, audio, video and a textbook, based on the syllabus. This might be a good model of how media technologies can be integrated into the existing curriculum and syllabus, in which the main aims are to help students develop their listening and speaking skills, giving them confidence in learning a foreign language and to practise the skills needed in real situations.

The lesson may have been successful, partly because the teacher carried out the activities as he planned, based on a well-designed syllabus. However, there are obviously several other reasons why the lesson might have been successful, in terms of the researcher's subjective viewpoint.

Firstly, the materials used were commensurate with the length of the lesson, providing sufficient practice and exercises. In fact, the lesson was somewhat tightly- integrated, based as it is on the syllabus: going through the assignment; listening and watching the audio and video materials; working out the questions in the textbook; testing. This course requires teachers to manipulate and control the equipment skilfully, since they are supposed to use audio and video in addition to the written material during a specified time. He was technically quite good at handling the media technologies in addition to having good teaching methodology, e.g., rewinding and searching for the exact part the students will listen to and watch again. This might make a contribution to saving much precious learning and teaching time. First, for example, they could listen to or watch the materials twice or three times more than they had expected, and second, could carry out other activities, rather than wasting time or inviting a disaster from the teacher's point of view, e.g., ending up making a fool of himself in front of the class. Secondly, the teaching was thorough and clear and at the right level for the students, giving students appropriate feedback when needed in English and Korean. However, the researcher should note that the use of Korean may be the only criticism of this lesson and will be dealt with later. Thirdly, there were sufficient activities and adequate language production exercises, including practising the skills students need at this level by using a variety of materials: repeating what they heard; writing down predictions; answering the questions, although there was no pairwork or group work. However, the researcher thought that it might be worth trying to do pairwork or group work so that the students can practise what they have learnt through the materials in real situations, although there did not seem to be enough time to do it. A variety of these activities and exercises seemed to motivate the students, involving them actively in the learning process. Finally, the teacher seemed to have a positive attitude towards and confidence in the use of the media technology in the language classroom, which might have helped him take full command of the lesson and make the lesson successful. He might believe that it is best at this level to have the students exposed to the authentic language in real situations as much as possible by using audio and visual materials. From the follow-up interview, he said;

> "I do believe that audio and video materials, whatever they are, can provide the students with valuable, real situations and authentic language which we, non-native teachers cannot instantly produce in this kind of course, but which native speakers can do. So, I am personally committed to it. Maybe there is no other way for us besides using audio and visual materials."

As mentioned above, one criticism is that the teacher ought have used the target language throughout the lesson, since the students can have more opportunities to listen to it other than through the materials studied. However, he told the researcher that he used both English and Korean as a way of running the classroom. According to him:

> "I know that it may be useful for the students to use the target language throughout the lesson, since the course clearly particularly aims to cover developing listening skills, and hopefully speaking skills. However, at this level, we cannot expect them to understand all our instructions, if we use it. I mean that the students might be overloaded by the flood of the target language and then, this may demotivate them. My job is to make them learn efficiently and effectively. Maybe I am wrong, but we have some results. It has been reported that most of the students whose work with either native speakers or non-native teachers who use the target language often complain about the lessons and were frustrated simply because they do not understand their instructions, and that this was the cause of the lack of interaction between the teachers and students and lack of involvement during the lesson. The teachers also reported that they struggle to cope with the difficulties and problems during the first semester. I firmly believe that at this level, using both languages can increase the efficiency and quality of presentation, as well as enhance the motivation of students to learn."

The following results from the students' interviews and questionnaires (students were interviewed and invited to fill in a questionnaire at the end of a class observation session) shows that 92% of the students were satisfied with the lesson using audio and video materials. 85% of them felt that it was enjoyable, and 93% of them thought it was useful. As the researcher expected, 77% of the students thought that there was not enough time to do other activities, but 33% of the students wish to do pairwork or group work.

5.3.2 Class B

Subject:	English Conversation I (Compulsory for 1st year students)
Instructor:	Professor (Male)
Students:	46 students of the Dept. of Chemical engineering (Male)
Lesson No.:	Lesson 3 in the 1st semester (14 weeks)
Time:	1.00 - 1.50 p.m.
Level:	Elementary

Materials: Textbook and audio
Place: Language laboratory

5.3.2.1 Synopsis

1.00 - 1.05 p.m.
The teacher introduces today's topic and task, introducing yourself and asking about your friends, and explains how to do it in pairs. In particular, he put emphasis on actively participating in tasks and activities. He encourages his students to have confidence and relax themselves during this lesson.
T: Don't be disappointed in yourself, even if you can't listen and speak well. Don't be afraid of making mistake when talking. Always relax yourself in this class. Got it? (Smiling)
Ss: Got it. (Also smiling)
T: First, you will listen to the tape with a topic, 'talking about themselves', in which a reporter interviews two people, David and Susanne in the street. Listen carefully, this will give you a good guide in carrying out today's task, later. I think it is a good idea for you to write down some useful expressions in the interviews so that you can use them, when working in pairs. Are you ready?
Ss: Ready. (The students put on their headphones.)
1.06 - 1.09
He turns on an audio cassette in the console without difficulty. The students listen to the passage about the interviews.
1.10 - 1.17
T: Can you understand it? What are they talking about?
Ss: (All together) *Ummm. first, name, second, what do you do for living?, and then, what do you do for fun?. Ummm.*
T: OK, the reporter is asking about his/her name, occupation, and hobbies, anything else? (The teacher rewinds the tape, when talking.)
Ss: Ummm. The most exciting things in his/her life? (Only a few students respond.)
T: Good, let's listen to it again, there are a couple of things more. (The students listen to it again.)
T: How about that? What are they talking about at the end of the interviews?
Ss: Who do you admire the most, and what do you want to be five years from now?
T: Well done. Finally, let's listen to it sentence by sentence at this time.
1.18 - 1.23
They listen it sentence by sentence, and repeat it all together, when the teacher gives them a pause. He also asks the students some questions about the interviewees, David and Susanne, and they answer the questions. He corrects them, when they make mistakes, and gives more English equivalents related to the expressions in the interviews.
1.24 - 1.32
T: OK. it's time to work in pairs. Work with the one next to you. Ask your partner anything you are interested in. Of course, in English. Try to use some useful words, phrases and expressions you have just heard on the tape. Please don't forget to use polite forms of language, when asking and answering.
The students work in pairs. They try to use the target language, sometimes with gestures to explain what they want to talk about, if their partners do not understand it. Some of them either give their partners some English equivalents or ask for them to clarify what they are talking about. Many of them struggle to talk with their partners in English. Some of them are frustrated, because they do not understand their partners, or cannot make them understand, but they enjoy their conversation, laughing and trying to speak again. The teacher monitors and

sometimes helps them in clarifying some meanings and some grammatical points. Some of them switch to Korean at once if their partners do not understand what they are talking about. The teacher goes to the pairs and asks them not to use Korean. He works with them.
1.33 - 1.36
The teacher asks for attention.
T: Well done. I'm very happy to see you work very hard, in spite of having some difficulties in expressing yourself in English. Very good. You have just practised how to talk about yourself, and asking and answering some questions with some useful words and expressions. You can introduce yourself and your partners to the whole class, can't you?
Ss: The whole class? (Most of them say, *'Sure'*, while some keep silent, being embarrassed.)
The teacher gives them a couple of minutes to review what they have done and prepare for the presentation.
1.37 - 1.47
T: Who will talk about yourself and your partner, first? After finishing the presentation, ask anything you want, if you want to know more about your friend and her/his partner.
A student stands and comes. He introduces himself to the whole class and talks about his partner. The students enjoy his talking. They are very interested in his partner's family, and several students ask him some questions about his partner's family and girl friend. The teacher asks for more students to present. Two students voluntarily take part. He helps them continue to talk when they falter or make mistakes, giving some clues and sometimes correcting their words. He is satisfied with his students' active participation.
1.48 -1.50
T: Very good. Well done. Now you can introduce yourself, your family and friends to others at any time, at any place. It is easy, isn't it? Please remember some useful words and expressions we have learnt today, and practise them with your friends.
Ss: Yes, sir.
The teacher tells them that he will deal with asking and answering about occupations next time.
End of the lesson.

5.3.2.2 Commentary

Like Class A, this also seems to the researcher a thoroughly competent lesson. Only audio was used, but a lot of time was spent on the pairwork and follow-up presentations, and the activities seemed to be challenging at this level. The researcher, in fact, found that the students had many difficulties talking about the topic in pairwork and in the presentations and were rather frustrated. Some of their interactions were apparently neither understandable nor genuinely 'communicative' since they largely tried to imitate and practise what they heard. However, it can be argued that most of their interactions were 'communicative', since they used every means they could, in order to make their partners understand, speaking just words and phrases, even gesturing, etc. Nevertheless, the students' participation and classroom spirit was high throughout the lesson. The researcher was impressed with their effort. Indeed, the teacher had spent much time doing administrative activities in order to encourage them and give them confidence to carry out the activities and talk in the target language, e.g., joking, talking about his own experience, giving some advice This seemed to motivate the students to actively take part in the activities in spite of the difficulties and problems. The students made a big effort to communicate with each other, using the items input during the activities. However, it is arguable whether it was an authentic discourse, although it was productive.

The teacher tended to use Korean mostly as a vehicle for introducing the activities, grammatical explanations, and classroom management. The teacher played his role as far as he could, as a monitor, facilitator, and a participant in order to encourage them to talk in the pairwork and in the presentations. The teacher's clear aim in running the class was to arm the students with some knowledge of the functional language needed in a certain (real) situation and to give them an opportunity to practise by using a variety or appropriate materials and activities. According to him;

> "I know it is hard for them to carry out these activities in English. It is rather above their level, and it seems to leave them somewhat frustrated. But it is worth doing, since they can use and practise the words, phrases and expressions they have learnt. I am very satisfied with their effort. They will be accustomed to these kinds of activities."

93% of the students were satisfied with the lesson. They thought that the activities, particularly pairwork were useful (92%), and enjoyable and interesting (94%), since they could use and practise the words, phrases and expressions they had learnt when talking in the pairwork and presentation.

5.3.3 Class C

Subject:	English Conversation II (Optional for 2nd, 3rd and 4th year students)
Instructor:	Professor (Female)
Students:	21 students from the various departments in the 2nd, 3rd, and 4th year (Male: 14, Female : 7)
Materials:	Textbook and handouts
Lesson No.:	Lesson 3 in the 1st semester (14 weeks)
Time:	1.00 - 1.50 p.m.

Level: Upper intermediate
Place: Conventional classroom

5.3.3.1 Synopsis

1.00 - 1.04 p.m.
The teacher begins by mentioning today's headline news. The teacher and students spontaneously discuss one of the interesting issues..
1.05 - 1.07
Turning to the main task to do today, she asks students, if they have prepared for the presentation, based on the assignment for which they, first, had to choose one out of five short stories, second, summarise it and then, present a personal experience similar to the story. They look tense. She is aware of a tense atmosphere and makes a joke, in order to relax the tension.
1.08 - 1.22
She nominates a student to present.
T: Mr. Kim, would you come up and tell us one of your interesting, memorable stories, please? (The students laugh out loudly, when he comes.) *What's your story?*
Mr. Kim: I have had two or three very impressive birthday parties as far as I remember. I'd like to tell you one of them, when I was in the Air Force, two years ago.
T: Aha! So, you chose Story No. 5, 'Jane's 11th birthday'? Tell us what it is all about, first?
He summarises the story and tells the students about his 24th birthday party in the Air Force. She assigns two more students to present. One of them, whose birthday is Christmas Eve, also tells about one of his funniest birthday parties. The other tells them her bad experience about camping when she was a high school girl in relation to Story No. 4.
During the presentation, the teacher induces the students to take part in their friends' stories and to help them to continue, when they falter, asking some questions and offering some expressions they are looking for. The teacher also helps them, clarifying what they said and offering some English equivalents, and explaining some grammatical points where they made mistakes.
1.23 - 1.26
Giving them generous complements, the teacher prepares some other activities to do during the rest of time. She explains what to do and how to do it.
T: You did very well, we have about 20 minutes to go. I actually have a plan to do some other activities in pairs, 'Story matching'. I wonder if 20 minutes is too short, because you have to read some stories, first. I know how difficult it is, but, please read it as fast as you can so that we can fully use 20 minutes, OK?
Ss: (Nodding) *Yes.*
T: I will hand out these unfinished, incomplete stories. Each of you will take half of any kind of the story. You have to look for the other half, by walking around. Don't say that this is my story, what is yours? This is not the way. You have to find the other half of your story, by talking, exchanging the stories. To do that, you have to summarise your own part, all right?
Ss: All right.
T: And if you think two parts can be combined, sit together and work together. You have to summarise the whole story, and one of you is supposed to present the story to the whole class. As soon as you understand your story, stand up and find the other half. (The teacher distributes sheets of paper with the incomplete stories.)
1.27-1.31
The students read them and those who have finished reading start to look for their partners. Some of them speak loudly about their topics to search for their partners. The teacher asks

them not to speak so loudly, but to talk with them, walking around. Some of them start to work together.

1.32 - 1.40

All the students work in pairs, and the teacher monitors them, moving from pairs to pairs. She sometimes joins them.

1.41 - 1.47

The teacher asks the pairs whether they have finished matching the story and are ready to present. Most of them continue to talk with their partners, responding that they were not ready yet. She finally finds one pair who are ready to present. She asks the students to pay attention to him.

T: Why don't you come up here? (He brings his copy of the story.) *No, no, without your copy. Make your story as interestingly as you can. What is your story?*

S_1: A kind of medicine.

T: Good, there is a story of medicine. Listen carefully and ask him if you want to know more.

S_1:: Well, sickness is not good, as you know, it makes us unhappy. A long long time ago, there was no good medicine and few good doctors, but there were some ways to reduce and cure the pain.

Ss: How long? When is it?

S_1:: Well, a hundred years ago. Am I right? (He asks his partner, whether he is right or not. His partner gives him some help. With his partner's help, he continues his presentation and completes.)

1.48 - 1.50

T: You did well, Sangjin. What do you think about his presentation?

Ss: Very good. He is really good. A++. (They all laugh a lot.)

T: What do you think about yourself?

S_1:: Thanks everyone, but I think I was a little bit excited, I could have done well, but...

T: That's all right, because you now realise what you have done. That's an improvement. Think it over at home. You can do better next time. Well done. We'll have a couple of more presentations next time.

The teacher suggests that they switch their copies to partners' and take it home and make preparations for the presentation in the next lesson.

End of the lesson.

5.3.3.2 Commentary

The aim of this course, English conversation II is to develop students' oral fluency by practising listening and speaking skills through giving them appropriate tasks and activities based on the syllabus, by using a variety of materials, such as textbook, audio, video, computers, etc. The teachers are usually supposed to talk more extensively in the target language in this course.

This seems to be a typical well-organised lesson that teachers can do with written materials in the conventional language classroom. The teacher continually used the target language as a vehicle for running the classroom, although she was not a native speaker. In short, she was an experienced teacher who spoke the target language fluently and knew what she could do with this level of students in the normal classroom.

The lesson was divided into four stages as usual. The teacher's instruction and feedback was well-presented in a clear manner and in an interesting way at the right level for the students, with the appropriate amount of time spent on classroom management, e.g., joking and comments related to the activities without interrupting students' interaction, all of which seemed to contribute to encouraging natural communication. In the warm-up session, for example, the teacher begins to talk, choosing an item of news that the students were interested in and inducing them to join in. When taking part in the interaction and giving them feedback, the teacher used real communicative language in a way that gave them confidence and encouraged them to continue to talk, e.g., *'Aha', so you chose the story, No. 5.', 'You did very well.', 'OK?', 'Very good'*, etc.

Both the students and the teacher seemed to be very satisfied their work done. 93% of the students were satisfied with the lesson.

One of the students said:

> We are very happy to have her as a teacher. She is a very experienced teacher. She knows what we can do in this class. We enjoy her lesson and are satisfied with her teaching methods and methodologies. She always gives us interesting and appropriate materials to practise speaking skills and improve our oral fluency, and proper feedback in a interesting way in the right place.

90% of the student felt that it was enjoyable, and 92% of them thought it was useful.

5.3.4 Class D

Subject:	English Conversation II (Optional for 2nd, 3rd and 4th year students)
Instructor:	Professor
Students:	21 students from various departments in the 2nd, 3rd, and 4th year (Male: 14, Female : 7)
Materials:	Video and handouts

Lesson No.:	Lesson 4 in the 1st semester (14 weeks)
Time:	1.00 - 1.50 am
Level:	Upper intermediate
Place:	Language laboratory

5.3.4.1 Synopsis

1.00 - 1.05
The teacher writes down some words and phrases on the chalkboard, such as jog(ger), directions, valley, fire station, traffic signs, walk straight, turn right, etc. She explains what the class will do today.
T: These are, I wrote down some words and phrases, in order to give you the pre-information. Please look at these, and use your imagination. What kind of a video program you will watch. (The students are looking at those.) *Can you understand my handwriting? Guess what? What do you think the topic of the video will be?*
Ss: Ummm. Finding a building, fire station?, Jogging in the morning? Asking directions? (The students respond at the same time, but differently.)
T: Please, one student at a time. What else?, Other guesses?
S_1: The video might be related to something about how to find a place.
T: Any other predictions?
S_2: Showing the way?
S_3: Introducing a town, a new town?
T: What do you mean? Do you mean that a person introduces a new place to a tourist or someone?
S_2: Yes.
T: Well, maybe. I think some of your predictions sound quite similar to the video you'll watch. Let's watch the video. I'll not give you the whole video completely. First you will watch the video without sound. I mean, viewing just pictures only, so you still have to use your imagination. First, let me give you some questions you have to answer, after viewing the video silently. Here are the questions.
1.06 - 1.09
She write down five questions on the chalkboard. The students read them.
T: So, you think about what the answers of these questions can be, OK? Again, when watching, please pay attention to looking for the answers.
1.10 - 1.15
The teacher turns on the two TVs and the VCR, but the students cannot see the video scenes. She struggles to make the video work for a couple of minutes, but it does not work.
T: It might be someone's wish to give you more time to think about the questions. (The students laugh a lot, taking her joke.)
Having the students think more about what the answers will be, she asks a teaching assistant for help. Finally, she makes the video work with the help of the teaching assistant.
1.16 - 1.25
They watch the video without sound. After viewing, the teacher asks the students the questions she gave them.
T: Question No. 1. Who appears first?
Ss: A man and a woman.
T: Yes, of course, everybody knows that. I mean, more detail, what do they look like? Can you guess what his job is?
Ss: Ah ha!
S_1: Probably, he seems to be a businessman. And, she is a jogger.

T: Yes, he wears a very nice formal suit with an executive attaché case, and she is running, wearing jogging pants.
S_2: He is bold.
T: What? Old?
S_2: Bold (/bəʊld/). (He confuses 'bold' with 'bald'.)
T: Ah, bald (/b ɔːld/). (She corrects his pronunciation.) *He has little hair on the top of his head?* (The students laugh out.) *I didn't recognise it. You're really concentrating. Very good. By the way, is he bald?*
Ss: No. Probably not.
T: OK, what can the relationship between the man and the woman be? Where are they?
Ss: Well, a stranger, in the street?
T: Just strangers? Yes, they just met in the street. Why are they stopping in the street?
Ss: Because, the man seems to ask her something and she tells him something.
T: Something what?
Ss: Asking the way? How to find the place?
T: Maybe, right. Can you remember that they are staying quite a bit of time in the street, and she is pointing in a direction?
S_4: Also, they are looking at a kind of book. It might be a map.
T: Excellent. Finally, could you remember the last part of the scene? Why does she suddenly start running and the man is about to follow her?
S_5: Because he didn't understand what she said.
T: OK, anything else? (Smiling.) *Maybe, she is very attractive, so he chases her?*
Ss: No. (They enjoy her joke.). *Nothing related to that.*
S_6: Maybe, she suggested that he follow her.
1.26 - 1.30
T: Good. Well done. I think your answers sound quite reasonable. Now let's watch the video with sound. You can find out what is happening in detail. So, before watching, let me give you some more specific questions. Would you write them down?
The teacher dictates five questions.
1.31 - 1.34
She rewinds the tape and turns it on, but as before, there is no sound. She again tries to make it work. It takes time (about a minute) to make it work. They watch the video with sound.
1.35 - 1.40
T: Do you think one viewing is enough for you to answer the questions? Do you understand the whole scene? I think you could understand most part of the scene.
Ss: One more, please. (Some of them say, '*Yes.*' and the others say, '*Not completely.*' Most of them want to watch one more time.)
T: OK, I'll let you have one more viewing. First, let's work out the questions. Answer the following questions.
The teacher asks the questions, and the students answer them without difficulty.
1.41 - 1.43
Viewing again, the teacher makes the video work without difficulty this time. She hands out the gap-filling worksheets, when the students are watching the tape.
1.44 -1.50
The teacher asks them a couple of more specific questions, and the students answer them.
The teacher asks them to fill in the blanks on the worksheet. The students fill in the missing words, phrases, and sentences to complete the dialogue. She asks them to read loudly, and if they make mistakes, she corrects them. More discussion about 'Asking the way'.
End of lesson.

5.3.4.2 Commentary

The teacher seemed to be familiar with video, particularly in terms of a methodological approach, but unfortunately not the technical aspects of this lesson, which will be discussed in detail later. She used its potential as an audio-visual aid in language teaching and learning efficiently and effectively, dividing the teaching of the sequence into three stages, pre-viewing, viewing and post-viewing. In addition, she applied an integrative methodology for teaching language skills during the lesson: reading the pre-information and talking; writing down predictions and discussing; listening and watching and answering the questions; writing-up the story and discussing. In the viewing, for example, she first let the students watch the video without sound in order to induce them to guess what the topic was, second write down their predictions, and then talk about them. This might be one of the desirable ways of using video in the language classroom. That is, the teacher did not leave them as passive viewers, which often happens in the video lesson, but had the students actively take part in the activity. Thus, there were sufficient and adequate language production exercises and activities at the right level for the students, and was 'communicative' interaction between the teacher and the students and between the students.

As mentioned in the beginning, one negative aspect of this lesson is that the lesson was interrupted a couple of times, because of a failure to control the video equipment and facilities. The teacher spent about five minutes in making the video work as she and the students wanted. This might have distracted the students' attention from the learning process, although she coped with the problems to some extent, showing her ability as an experienced teacher. She did not make the best use of some facilities and functions that video has, such as 'Search', which looks for the frames, 'Count', 'Pause', etc., which gives video versatility and gives the teachers control over the output of the program if properly used. She was likely to be mainly concerned with the pedagogical aspects, and the technical aspects seemed unimportant to her. However, lack of output control prevents teachers from concentrating on pedagogical and methodological aspects, and they cannot adjust and adapt their teaching to match learner-reaction to the material presented (Kennedy 1983).

She said:

> "Well, it is true that I was a little embarrassed, but not much (smiling). Since I have had these kinds of difficulties and problems a couple of times so far, so I could quickly cope with them. It was not so bad, was it? I have used the facilities and equipment for many years and think that I am familiar with them to some extent. I don't know, it just happened. I admit that I should have checked them before the class. Anyway, we are fortunate in having technicians and teaching assistants to help us."

This lesson shows that to use audio-visual materials effectively in language teaching, the teachers should be well-armed in terms of both the technical and methodological aspects. Despite the technical problems, the teacher seemed to be satisfied with the lesson and have a relatively positive attitude towards the use of video. She said;

> "It is worth exploiting. I think video, well, I mean, all technologies, including audio and computers, are very useful for us as a support or aid, particularly non-native teachers who lack linguistic skills, when teaching listening and speaking skills, in comparison with native speakers, and maybe also for native speakers as well. They provide teachers a variety of authentic materials and information to use in the language classroom."

91% of the students were satisfied with the lesson. 89% of the students felt that it was enjoyable, while 93% of them thought it was useful. The results show that they seemed to be much keener on pedagogical than on technical aspects of the class because the lesson did not end up a disaster or they maybe showed a friendly feeling for her failure to control the video. One student said:

> "The video lesson is generally more relaxed, maybe easier, and useful compared with the normal lesson, since we can listen and watch native speakers talk and act in a real situation."

Some interesting results are emerging from the comparison between Class C and D. First, the teacher appeared to be satisfied with both the video lesson and the conventional classroom. Second, she (same teacher) in class C used far more English than in Class D. Third, the results from the students' interviews and questionnaire suggest that it is arguable whether the use of video is more effective than conventional methods in teaching listening and speaking skills or *vice versa*. In fact, there were no big differences between the conventional lesson and the video lesson, although the former was considered a little more satisfactory and enjoyable than the latter by the students - this may be due to the teacher's lack of output control of the video equipment and facilities - while it was considered a little less useful. Therefore, it can be interpreted that using audio and visual materials can be more effective in the language classroom if properly used in terms of technical and methodological aspects, since: 1) it provides teachers, particularly non-native teachers a variety of authentic materials and information to exploit in the language classroom, in addition to linguistic skills; 2) it can save teachers' time in the teaching process to some extent and make the teachers more pay attention to students' behaviour and activities; 3) it can motivate students and keep them coming to class; 4) it can maintain their attention to a task and help them attain the task during the class.

5.3.5 Class E

Subject:	English Conversation II (Optional for 2nd, 3rd and 4th year students)
Instructor:	Lecturer
Students:	18 students from various departments in the 2nd, 3rd, and 4th year (Male: 13, Female: 5)
Materials:	Computers (Program used: *London Adventure*) and handouts
Lesson No.:	Lesson 3 in the 1st semester (14 weeks)
Time:	11.00 - 11.50 am
Level:	Lower intermediate
Place:	Computer room

5.3.5.1 Synopsis

11.00 - 11.09 am
The teacher installed a computer adventure game, *London Adventure*, in the six stand-alone computers before the class.
The teacher introduces students to a computer adventure game, *London Adventure*, and hands out brief operating instructions. She arranges the students in three groups of four and two groups of three to carry out the game. She explains that the students in each group have to negotiate in the target language, in order to solve the problems they will meet at each phase and reach an ultimate goal, when carrying out the adventure game. Again, she emphasises that the

most important thing to do in this task is to come to an agreement and solve problems through negotiation and discussion in English, whether they attain the goal or not. She suggests that a single student in each group, rather than all the students writes down some information in order to solve problems, if they feel a need for it.

11.10 - 11.47

The students start to work in groups and begin interacting by talking about the items on the screen texts. The teacher as a monitor and a facilitator goes around group to group, and sometimes takes part in the game as a member of a group.

$G1S_1$: (He reads the initial information on the screen.) *Walk to the kiosk? Stop a tax? Walk to the tube? What do you want to do?* (He asks his partners, pressing the arrow keys.)

$G1S_4$: Well, well.

$G1S_3$: (Writing down the words, 'kiosk' and 'tube') *By the way, what are 'kiosk' and 'tube'?*

$G1S_4$: I don't know. We can find the words in a dictionary, can't we? (He looks for a dictionary.)

$G1S_1$: Ask her, whether we can use it or not. (S_2 call the teacher who is joining in Group 2.)

$G1S_2$: Excuse me, can we use a dictionary? (She comes to Group 2.) *What's the tube?*

T: You can use a dictionary, but discuss them with your partners first, before looking up words in a dictionary. (She speaks loudly so that all the students in the classroom can hear.) *Tube? Anyone knows what 'the tube station' is?* (Nobody answers. She explain it.)

T: Especially in London, the tube means a subway in American English, which we used to use. In some cities in Europe, they used to call it 'the metro', instead of 'the tube' or 'a subway'. So, the tube station is?

Ss: A subway station. (All together)

The students in groups begin to work again, talking each other, and she takes part in Group 1.

$G5S_1$: What is statue?

$G5S_2$: Well, is it 'height'?

$G5S_4$: No, no. I don't think so, it's ummm. (S_4 interrupts S_1 and tries to explain what it is in English with gestures) *It's a kind of mould, ummm, we make it, using stone.* (But other students do not understand what he says. So, he explains it in Korean.)

The teacher overhears him explaining about 'statue' in Korean, and comes to the group.

T: Wouldn't you try to discuss it in English, as far as you can? I know it is not easy, but try it. If your partner is stuck, you can help him and keep it up, can't you? You can learn from each other. As I told you at the beginning, this is why we are doing this task. (The students agree with her, nodding.) *Go on.* (Nobody responds.) *That's right, we mould a statue, well, in short, it's a sculpture of a person or an animal, made of bronze or marble, etc., for example, a bronze statue of General Yi Soonsin. Do you understand what I mean?*

$G5S_4$: (Interrupting her) *That's exactly what I wanted to explain.* (They laugh out loudly.)

They keep on going and the teacher joins them.

$G2S_2$: It's hard, isn't it?

$G2S_4$: Yes. (He keeps reading information on the screen and asks his partners what he will choose among a sequence of options, pressing the arrow keys. They negotiate, but do not make up their minds. The teacher comes and monitors how it is progressing.)

$G2S_3$: (Looking at the teacher) *It is complicated.*

T: Well, maybe it is, but I think it is good for you, because it makes you keep talking to each other to go further and working on and on. I mean, it makes you take a greater interest, doesn't it? If it is easy, you may lose your interest at once.

$G2S_3$: I understand what you mean. I think so. (They begin negotiating. S_1 proposes the second option to them, they agree with him.)

T: Very good, this is what I want from you. This is exactly why we are doing this game.

The students in Group 5 ask for help.

$G5S_3$: I think the computer broke down. The keys doesn't work at all.

T: What happened?

$G5S_2$: I don't know, it suddenly stopped.
T: Let's have a look. (The teacher brings another floppy disk and struggles to reinstall it, but the computer does not work.)
$G5S_1$: This computer has a hardware?
T: Hardware? What do you mean? Ah, do you mean a hard disk drive?
$G5S_1$: Yes.
T: No, this computer does not have a hard disk drive. (The computer still does not work.) *You are right, I think this computer might completely break down. Well, would you join the Group 4 during the rest of time? I will report it to our technician.* (They join the Group 4.)
11.48 - 11.50
The teacher asks attention.
T: It's time to stop working. Has any group successfully reached Heathrow airport? No?
Ss: Maybe, we need more time to do. (The students ask the teacher whether they can continue to work to finish the game after this class.)
T: Well, that's OK. You worked very well. If you want to keep working, you can. Next time, we will carry out follow-up work, for example, in pairs, asking for information and buying something, using polite forms of language, and in groups, discussion about tourism. See you next week in this room. Have a nice weekend.
The end of the lesson.

5.3.5.2 Commentary

This CALL lesson was the second try for the teacher and the first attempt for the students in this course. She might have the confidence to work well, since she had gained a fruitful result from the first attempt with a different program the previous semester.

First of all, the adventure program, *London Adventure* was a relevant task for the lesson topic, 'Travelling' based on the syllabus, and suitable for students who have no CALL experience, since it requires neither particular skills, e.g., typing skills and word-processing skills nor computer competence. However, this activity seemed to be a challenge and rather above their level, since it is meant to be a speaking activity that requires a certain level of oral fluency, with a considerable amount of reading.

The teacher, although not a native speaker, used English throughout the CALL lesson. She gave the students a clear introduction in the pre-computer work, as described in the synopsis and transcript. In the computer work, she played her role as a monitor, a facilitator and a participant, moving around from group to group and encouraging them to converse and discuss the problems, which are necessary to carry out a computer assisted speaking lesson effectively. The interaction patterns shown by the teacher were answering students' questions, suggesting some clues, and explaining the meaning of the words or phrases. The students of each group were trying to help each other, reading information, inquiring and discussing any aspect of the target including meaning, in order to solve the problems in each phase. As the researcher expected, however, it was arguable whether their interaction was productive and meaningful, since much of their talking and discussion was at a surface level, e.g., just speaking words and vocabulary using the items in the screen texts. Some of them did not understand their partners' explanations in English, and some then switched to Korean. The teacher went from group to group and encouraged them to use English instead of Korean. There was no time for discussion of the results of the computer work and the post-computer work.

In general, this CALL lesson might achieve the aims of the course to some extent, in terms of pedagogy and methodology, i.e., carrying out student-centred and oral fluency activities, including much reading. The students were impressed with a new approach to learning a foreign language, particularly in developing reading and speaking skills and appeared to enjoy working together in groups throughout the CALL activities. However, there are some criticisms of this lesson. One main criticism is that the activity was not finished off within the lesson, and there was no post-computer work which is important. This timing problem might happen, since too much time was spent on dealing with words and vocabulary items in the computer work. This should have been dealt with in the pre-computer work. For a problem-solving activity it is also important to get a solution (Parkinson 1992), although its value in language learning lies in the process, as the teacher emphasised in the beginning. She said:

> "I should have dealt with some vocabulary in the pre-computer work, which might give them more time to concentrate on the activity and maybe let the students finish the game. We spent too much time dealing with the words and vocabulary."

Another issue is the technical problem. The computer in Group 5 broke down and the students had to work with Group 4. In this case, the technical problem might not be the teacher's responsibility. If the class has at least one or two more computers, this problem can easily be solved. However, this shows that to carry out a CALL lesson successfully, teachers need to have some low level technical expertise, besides methodological skill, e.g., how the computer works. She said:

> "As you said, if I just reboot the computer with the system disk, it will work. The teachers does need a proper training in terms of technical and methodological aspects to produce efficient CALL lessons."

92% of the students responded that they were satisfied with the CALL lesson. 96% of them said that they enjoyed the activity. 92% of them thought that it was useful. The students of Group 2 said;

> "The lesson was very interesting, and it was good, because we can work together, asking each other about the items we don't understand and discussing how to solve the problems. The program was also interesting and useful, because we can choose an appropriate answer from the examples of language forms on the screen to suit a certain situation."

5.4 Summary

This section presented the results of the patterns of teachers' (and students') use of media technology and of their attitudes towards the use of it in general and towards the five media technologies in particular at university level in Korea.

The majority of Korean university teachers are not using media technology, although they have had some experience of reading about it and of using it, particularly low-tech media technology significantly more than hi-tech media technology in FLT. They think that media technology equipment and materials, particularly hi-tech media technology software, are not widely available in education in general, but they would be likely to use them if they were more widely available for language teaching. They regard the support of university authorities, appropriate software, and their attitudes as the most significant factors in implementing media technology in language teaching.

The teachers' attitudes towards the use of media technology are very positive, with generally no significant differences related to gender or years of teaching experience, although the majority of them are not using it at present, particularly hi-tech media technology. The reasons that the teachers (particularly the non-users) give for not using it in FLT/L are as follows: lack of media technology equipment and materials, particularly appropriate software; lack of knowledge about them; lack of teacher training. Both the users and the non-users generally have positive attitudes towards the use of media technology in general, and towards the five technologies in particular according to the results of analysis of the seven bipolar adjective scales, with generally no significant relationship between gender and between years of teaching experience, and the scales. However, the users' attitudes towards the technologies are generally more positive than non-users'. In particular, the teachers' attitudes toward audio-visual materials, i.e., video and IV are more positive than the other technologies. It is worth noticing that they generally still have positive attitudes towards the use of audio, although they appear to be less interested in it. They also seem to believe that the newer or advanced technologies have great potential to improve language teaching and learning, and can provide themselves with opportunities to apply new teaching methods in language teaching, although their attitudes towards the technologies show a slight negative tendency, in terms of ease of use. However, paradoxically they think the technologies are generally overvalued at present, despite their positive attitudes towards them.

For reference, the patterns of the students' use of media technology and their attitudes towards it are very similar to those of the teachers'.

CHAPTER 6

DISCUSSION

6.1 Introduction

This chapter presents the discussion of the major findings with a summary of the results. It is divided into three main parts as follows: 1) Summary and discussion of the results; The patterns of teachers' use of media technology in language teaching at university level in Korea; The teachers' attitudes towards the use of media technology; 2) Implications for improving the use of media technology; The effective use of the existing facilities and materials; A model of teacher training; 3) Summary.

6.2 Summary and discussion of the results

6.2.1 The patterns of teachers' use of media technology in language teaching at university level in Korea

6.2.1.1 The teachers' experience of reading about the use of media technology

The majority of Korean teachers in this study have read about the use of media technology, but more about readily accessible and familiar technologies, audio and video than the newer or advanced technologies, such as computers, IV, and CD-ROM multimedia in education or in language teaching and learning or in both.

The results tend to show that the teachers' experience of reading about the technologies is proportional to their familiarity and availability at home or school. The teachers have read little about the use of IV, CD-ROM multimedia (CD-ROM), and VR. This appears to be because information about these technologies is not widely available, or because not much was written about them, and because their value in education and FLT/L is not fully realised yet in Korea. However, it is worth noticing that over half of the teachers have read as much about the use of computers as about TV, a technology which is easily accessible anywhere. This suggests the strength of teachers' interest in this newer or advanced technology. Therefore, it might be a promising sign that the teachers have continually looked for other materials for effective teaching and learning, besides written materials in FLT/L.

There is a significant relationship between gender and the reading experience of computers and VR, and between years of teaching experience and the reading experience of audio, video and IV. Firstly, the result indicated that the female respondents have read more about computers than the male respondents in 'education' or 'LT/L' or 'both'. However, it is arguable whether there is a meaningful gender difference, i.e., whether female teachers have necessarily read more about the computer than male teachers. Interestingly, the results of the teachers' interviews showed that most of the female teachers have had training in the use of media technology in countries that are advanced in this field. Therefore, the result appears to be not because of gender, but because of the fact that more female teachers have been trained abroad (This fact seems to happen by chance in this study.). This is the most likely explanation of the fact that they have read more than the male teachers about the use of this technology. Secondly, only three female respondents (one 'in education' and two 'in LT/L') have read about VR, and only five teachers out of all 48 teachers have read about IV. It also appears hard to conclude that there are meaningful gender and years of teaching experience differences, since the number of the teachers who have read about them was too small and restricted. Thirdly, as the results show, the patterns of reading about audio and video are similar. However, these do not seem to show a particular trend, since, for example, the results of the teachers' experience of reading about video show different distributions in 'LT/L, and 'both' (i.e., in LT/L and education), but similar distributions in the total percentage of the two divisions. Therefore, there appears not to be enough evidence to conclude that there is a significant relationship between gender and between years of teaching, and reading experience about the technologies, although there is still a statistically significant relationship between the variables.

6.2.1.2 The teachers' experience of using media technology and actual use of it in language teaching

The teachers make little use of media technology, although the majority of them have had some experience of using it in language teaching, and use low-tech media technology significantly more than hi-tech media technology.

However, only 37.5% of the teachers actually use media technology in language teaching, and they use it in whole class teaching (i.e., with equipment controlled by them). Thus, media technology *has not been widely used in language teaching for* some reasons. It is interesting that the frequency with which the teachers use media technology for themselves is similar to that of their use of media technology in language teaching, i.e., those who are using media technology themselves are also using it in language teaching. This tends to suggest that the more teachers use media technology for their own *personal work, the more likely they are to use it in their* teaching.

For the teachers, the order of the most used media technology in language teaching is audio, video, TV, computer, IV, CD-ROM, and VR (0%). This shows a similar pattern to the results of the teachers' experience of reading about the use of media technology. Therefore, it can be interpreted that either reading about media technology encourages its use, or the teachers are more likely to read about the technology they use already. However, the computer is still not as widely used in language teaching as the teachers' experience of reading about it would lead us to expect. This seems to show that the teachers make the most use of readily accessible media technologies, such as audio and video. It can also be interpreted as meaning that the teachers use the technologies that they are most familiar with, which are the most available and which are easy to use. They may not use computers or CD-ROM or IV because of: inaccessibility; lack of familiarity; lack of appropriate software; lack of knowledge; lack of teacher training; lack of time for preparation at university level in Korea.

On the other hand, over half of the teachers do not regularly use any other kind of media. It is particularly interesting that only 19% of the teachers use a chalkboard in the language classroom. It seems that in general, they probably do not write on it on purpose when teaching, but prefer to talk. They seem to think that frequent use of chalkboard and writing down a lot of information on the chalkboard can distract students from the main goal of the lesson, since the students may be interested in or concentrate on only copying the information on the chalkboard. The teachers may believe that speaking the target language throughout the lesson instead of writing is better for their students, since the students can have more opportunities to listen to English. The result of the follow-up teacher's interview to the classroom observation (Class A), "I know that it may be useful for the students to use (speak) the target language throughout the lesson, since the course clearly particularly aims to cover developing listening skills, and hopefully speaking skills." supports this possible explanation.

Therefore, it can be interpreted that the three factors of: the teachers' reading experience of using media technology; their interest in the use of it; their casual experience of using media technology do not necessarily seem to have *influenced* the actual use of media technology in the language classroom. The implementation of media technology in language teaching and learning seems to be rather complicated. Maybe other factors, in addition, such as more access to media technology, more sufficient and appropriate software, more experience and knowledge of it, more familiarity with it, and proper teacher training influence the successful implementation of media technology in the language classroom.

For reference, it is worth noticing that the Korean university students' experience of using media technology (77.8%) and actual use of it in language learning (40.5 %) is a little more than their teachers'. As some related research studies show, this appears to prove that in contrast to teachers, most students readily accept media technology, particularly computer technology, enjoying and not being afraid of the technology. Students accept it a little more readily (Knezek et al. 1993), and are often far more experienced in using it than their teachers (Johnston 1985). It is promising that the coming generation of teachers will have more experience of and confidence with particularly hi-tech media technology, and so will probably use it more than teachers do at present (Knezek et al. 1993).

There is no significant relationship between gender and the use of media technology. Contradicting the stereotypical attitude suggested by some research studies, such as Bellanger (1986), Durndell et al. (1987), Warner (1988), i.e., that males (particularly boys) tend to use media technology, particularly computer technology more than females (girls), the female teachers in this study, at least in the language teaching profession, use media technology the same as the male teachers do. On the other hand, the results of this study seem to support some relevant research findings, such as Lage (1991), Lightbody and Durndell (1993), Pelgrum and Plomp (1991), Steward (1990), etc. i.e., as people grow older, gender differences in the use of computers and media technology in general (and attitudes towards them) tend to diminish or are not found.

There are significant differences related to years of teaching experience concerning the frequency of using media technology 'in language teaching' and 'in themselves'. The younger generation of teachers have less teaching experience, but they have used media technology more often than the older generation of teachers. However, it is not that the less teaching experience they have, the more they use the technology. Age and the amount of teaching experience of subjects in this study always go together. So the use of media technology is more likely to be due to age than to the amount of teaching experience. A possible explanation of this result seems to be that the younger they are, the more likely they are to have had experience of media technology, since the younger generation is more likely to have used it at home or in school as students than the older generation.

6.2.1.3 The current availability and the future use of media technology in education and in language teaching and learning

The teachers think that the equipment and materials of media technology, particularly hi-tech media technology software, are not widely available in education in general, but they would be likely to use them if they were more widely available for language teaching.

6.2.1.3.1 The current availability of media technology

The reason that the teachers think software is not widely available appears to be particularly due to a lack of hi-tech media technology software, such as computer software and CD-ROMs, although they think hardware is available to some extent in education in general and in language teaching and learning in particular. As the results of the heads' interviews show, many Korean universities have invested heavily in the facilities and hardware of media technology including computer technology and software as well for the implementation of media technology for the last couple of years. In fact, there were considerable amounts of materials, at least in audio and video, when the researcher visited the universities. However, the teachers seem to feel that the availability of software and hardware, particularly hi-tech media technology is still far behind that in other advanced countries. In relation to the previous section, therefore, the lack of appropriate software appears to be one of the barriers to the implementation of media technology in the classroom. The issue of the lack of appropriate software will be discussed in detail in section 6.2.2.1, 'The teachers' attitudes towards the use of media technology in general'.

There is a significant gender difference in terms of the perception of software availability in education. The female teachers' view of the availability of software is more negative than the male teachers'. This might be caused by the results of their view of the availability of hi-tech media technology software, particularly computer software. One possible explanation of this may be made in relation to their reading experience of computers in the previous section. As shown in the previous section, the female teachers have relatively more reading experience and so probably have more knowledge of computers than the male teachers. Meanwhile it appears that the male teachers are generally more satisfied with the software that is available, since they do not know exactly what kind of software they need for the effective use of computers.

6.2.1.3.2 The future use of media technology

The results of the research concerning the future use of media technology show that overall teachers feel strongly about the need to use it in language teaching. It is worth noticing that the teachers' positive response concerning their future use of video is very high indeed (95.9%), compared to the other media technologies. The teachers seem to believe that audio-visual materials can make positive contributions to FLT/L, helping it to be more lively and flexible. However, their future use of IV (72.9%) is relatively lower than that of video, despite its potential and its advantages in comparison with video, as mentioned in sections 2.3.3.1.2. and 2.3.4.1. This may be because they have some doubts about its future availability in the language classroom, in terms of its current development and the expense of the equipment, or because they think it is rather complicated.

The computer (83.4%) is considered as the technology to be used the most among hi-tech media technologies. In short, the teachers seem to put a high value on its capabilities and believe its future potential in language teaching and learning. Unexpectedly, CD-ROM (60.4%) is considered as the technology least likely to be used among the five media technologies, although the teachers' expectation of it is still high. This may be due to the quality and quantity of materials available on CD-ROMs at the time when the survey carried out. There were only a few pieces of software available for language teaching and learning, and they could not deliver a high quality or quantity of sound, graphics and moving pictures.

On the other hand, it is also interesting that the teachers' views suggest a high level of future use of audio (80.3%). This suggests that audio will continue to be used in the language classroom, because of its distinctive characteristics, e.g., wide availability, ease of use, and its versatility as a language teaching and learning aid delivering controlled pattern practice, drills and testing in spoken languages, etc.

The overall students' expectations of their future use of media technologies, such as audio, video and computers are a little less positive than the teachers', although their rating of technologies in language learning is still high. This can be interpreted to mean that teachers are very aware of the benefits and potential of the technologies in FLT/L, but the students are not as aware of them as their teachers are. For example, they may not know what the computer can actually do or how to use the computer in language learning (in self-access), although they are keen on the use of it. On the other hand, teachers' expectations about their future use of hi-tech technologies may be over-inflated, because they are just interested in the newer or advanced technologies or believe some writers' claims about their potential and advantages. They may, however, express negative feelings about them, after becoming familiar with them.

For the students, like their teachers, video (79.8%) is also considered as a technology which is very likely to be used. This may simply be due to the fact that they naturally enjoy and are interested in the experience of viewing. Another reason for this result may be the same as that mentioned for the teachers' response concerning their future use of video. It is interesting to note that despite its widespread current use, the students' beliefs about the level of future use of audio are lower than those of video and the computer. Two plausible explanations may be that the students could not obtain the desired results in language learning by using audio, or that they feel bored with it, since they are more interested in more sophisticated audio-visual materials and hi-tech media technology.

6.2.1.4 The most important factors in introducing media technology into university teaching

The teachers regard the support of university authorities, appropriate software, and their own attitudes as the most significant factors in implementing media technology in language teaching.

In view of the results of this study so far, this appears to be a natural consequence. The teachers look upon the support of the university authorities as the 1st important factor, appropriate software as the 2nd, and favourable teachers' attitudes' as the 3rd, although there is a narrow margin among them. First of all, they seem to consider the financial and technical support of the university authorities as the priority, since they feel there are still not enough software and hardware and facilities, particularly computers, to use with students in the language classroom. There is no doubt that lack of hardware and software would inhibit the teachers from implementing media technology in the language classroom, even though they are interested in the use of media technology and have positive attitudes towards its use. As the researcher mentioned in the introductory chapter, the teachers think that teachers' attitudes are one of the most important factors in the use of media technology in language teaching. One plausible explanation is that they think the teacher is eventually the implementor of media technology in the language classroom. Johnson (1993) also stated that the implementation of media technology activities was primarily dependent on individual teachers' initiatives. This result also supports the research findings or claims of other related research studies, such as Barley (1990), Clement (1981), Garrette (1991), Harrison and Hodgkinson (1995), Johnson (1993), Johnston (1987b), Tomlinson and Henderson (1995), Wilson (1990), etc., i.e., teachers' attitudes are crucial or the single most important factor in the successful implementation of media technology.

Unexpectedly, staff training (or teacher training) ranked lower at fourth place, which is lower than the researcher had expected. The teachers do not think it is important. It can be interpreted as meaning that they are not likely to realise how important teacher training is, since they do not have appropriate teacher training courses. As mentioned in section 2.3.5.2, 'Teacher Training', appropriate teacher training, particularly dealing with methodological approaches can overcome many difficulties including the shortage of hardware and software, and make the teachers use existing resources better. Even if they are aware of the potential of media technology in FLT/L and have enough hardware and software, they may be unsure of how to use it in the classroom and can ascribe this to lack of appropriate software.

Time for preparation ranks low at fifth place. This may be an encouraging fact, since teachers often mentioned lack of time for preparation as one of the reasons not to use media technology. In short, these results suggest that if they have enough appropriate software and hardware, the teachers are willing to invest time and effort in using media technology in the language classroom.

For reference, teachers' attitudes (and guidance) ranks high at second place in the students' rank order. This shows that students think their teachers' attitudes towards the use of media technology will be an important factor affecting the quality of their experience and use of media technology in language learning (McBride and Austin 1986 in Todman and Dick 1993). It confirms again the significance of teachers' attitudes towards the use of media technology in language teaching and learning. It is an interesting finding that favourable attitudes towards media technology ranked as high as 3rd place in both the teachers' and student' rank order. This indicates that students' attitudes as well as teachers' play a vital role in the success or failure of the implementation of media technology, for negative reactions will inhibit learning whereas positive ones will make them more receptive to the learning activities (Johnson 1993, Johnston 1987a). It also confirms the results of some research findings by Askar et al. (1992), Johnson (1993), Johnston (1987b), McBride and Austin (1986), Todman and Dick (1993), *etc.*, *i.e.*, *teachers' attitudes as well as students'* towards the use of media technology are of crucial importance to its successful implementation in the language classroom.

There is a significant relationship between gender and the 3rd rank order item, 'Favourable students' attitudes', i.e., more male students than female students consider it as the third most important item. This suggests that male students think that the students' own attitudes will influence the success or failure of the implementation of media technology in language learning, while the female students do not necessarily think so. As the majority of research studies, such as Collis and Williams (1987), Durndell (1991), Harvey and Wilson (1985), Shashaanni (1993), Siann et al. (1988), etc. show, this may reflect a stereotypical attitude, in which in general male students have more favourable attitudes towards or are more interested in computer technology or media technology in general than female students, although there is no consistent gender difference.

6.2.2 The teachers' attitudes towards use of media technology in FLT at university level

6.2.2.1 The teachers' attitudes towards the use of media technology in general

6.2.2.1.1 Users' and non-users' attitudes towards the use of media technology in general

The teachers have positive attitudes towards the use of media technology in general, but users have more positive attitudes towards it than non-users, with no significant gender and years of teaching experience differences.

The users' interest is very high, and they think that media technology is very useful for teachers in language teaching and for students in language learning. The non-users' level of interest is also very high, and they also think that media technology is very useful for teachers in language teaching and for students in language learning. Surprisingly, therefore, the non-users' attitudes towards media technology and its use are proven to be very positive, although they are not using it.

The teachers seem to think that media technology offers a considerable enrichment of the teaching and learning environment, particularly for FLT/L, supplying things which teachers cannot present and deliver, but students need in the classroom. In other words, they might believe that it can serve to make FLT/L more lively and meaningful, since it can offer the opportunity of exposure to authentic language in context within the classroom, as the spoken word and the 'real world' can both be included (Van Els et al. 1984). However, users' attitudes towards media technology are more positive than non-users'. This suggests that users were interested in its use and found it effective when they used it, and this led them to have more positive attitudes towards the use of media technology than those of non-users in FLT. Therefore, it is possible to predict that once non-users have the opportunity to use media technology by being provided with hardware, software and training, they are likely to become users and develop a greater interest and confidence in the usefulness of media technology in FLT.

The overall teachers' interest in media technology in language teaching is considerably higher than the students' in language learning. The same interpretations about the comparison between the overall students' expectations and the teachers' on the future use of media technologies, as mentioned before (the first paragraph of page 279), can apply to these results.

There is a significant relationship between gender and the interest of the use of media technology. Male students are slightly more positive than female students. Again, this seems to confirm the stereotypical attitude mentioned before, that males generally tend to be more interested in the use of media technology than females.

6.2.2.1.2 The reasons that non-users do not use media technology

The non-users do not use media technology, particularly because of its dehumanising effect, lack of software, knowledge and training.

The non-users' responses to the issues on the use of media technology confirm again that they have generally positive attitudes towards the use of media technology in FLT/L. They seem not only to feel that it can contribute to FLT/L, even to the new demands of FLT, e.g., CLT, because of its potential and advantages, but they also like using media technology and are willing to invest time and effort to use it. However, the non-users do not use media technology, because they feel or believe that: 1) it is dehumanising; 2) they do not know how to use and apply it in the EFL classroom; 3) they are not trained to use it; 4) they do not have enough choice of software; 5) the available software is not effective enough to be used with Korean students in the EFL classroom; 6) all examinations exclude the use of media technology. In particular, statements 4) and 6) turn out to be the most important of all the reasons.

Firstly, all the non-users might not be technophobic, but they rather seem to think that it is dehumanising, just because of the preconception that media technologies are machines, or particularly because of hi-tech media technology, e.g., computer technology. As mentioned in Chapter 2, section 2.3.2.1.1, for example, it has been argued by some critics, such as Clifford (1987), Hirvela (1988, 1989), Kenning and Kenning (1983), Sanders and Kenner (1984), and Schank (1984) that computers or CALL can interfere with humanistic aspects of language learning. However, it has been claimed by some writers, such as Bickes and Scott (1989), Cook (1988), Higgins (1988a, 1988b), Jones and Fortescue (1987), Phillips (1985, 1987), Stevens (1989, 1992), Wyatt (1984a), etc. that the criticism has been misleading, and that, using certain methodological approaches, CALL can be humanistic.

Secondly, the results of the teachers' response to the current software availability showed that there is not enough suitable software for education in general and FLT/L in particular. However, most of the heads have differing opinions from the teachers' on software, according to their interviews. The heads are more optimistic than the teachers on the availability of hardware and software. They said that it is partly due to teachers' responsibility that there is not enough suitable software, and that they are always willing to invest in purchasing software, if the teachers ask for it, but rarely do they ask for anything. Heads also think staff can develop software, but teachers think that they do not have enough time to do so.

Thirdly, the majority of non-users agree that they are not trained to use media technology, although a few of them have had some sorts of teacher training courses, according to the results of their interviews. This seems to indicate that they did not have appropriate teacher training in the use of media technology in language teaching, or were not satisfied with the courses.

Therefore, the fact that the teachers think there is not enough suitable software may be due to not only an actual lack of software, but also to their lack of knowledge about how media technology can be used. The fact that they feel that it is dehumanising also appears to be because of the latter, and of not being properly trained. This suggests that the teachers should, first, be taught about what media technology can do, second, how to select media technology in terms of both hardware and software, and third, how to use them in language teaching. Knezek et al. (1993) stated that an emphasis should be put in teacher training on encouraging teachers to select educational software to match their existing syllabus and curriculum. A proper teacher training focused on acquiring sufficient knowledge of the capabilities of media technology, familiarity with the hardware and software, and methodological solutions in language teaching and learning, rather than its specific technological aspects in particular could help the teachers select suitable materials, use them properly in the language classroom and have more positive attitudes towards the use of media technology.

There are significant differences between teachers with amounts of teaching experience concerning statement **7** "I do not have enough choice of software." in the teachers' questionnaire. In general, for example, the older generation teachers are more likely to strongly agree with it than the younger generation teachers. In relation to the results of this study so far, the latter, who have had more experience of and are more familiar with media technology, particularly hi-tech technology, appear to have some more knowledge of it and more positive attitudes towards the choice of software than the former. Therefore, the younger generation teachers *seem to think that they can select* suitable programs amongst the existing software and use them in the language classroom, although there is not enough hi-tech technology software.

The majority of non-users are not satisfied with their teaching methods which do not include the use of media technology in language teaching. One possible explanation may be that the non-users feel guilty about not using it, although they have positive attitudes towards the use of it, i.e., they believe the use of media technology can make an important contribution to FLT/L and is motivating for students, and are interested in the use of it, as the results of this study have shown. For reference, the majority of students are also not satisfied with their teachers' teaching methods which do not use media technology, although their satisfaction with them is a little higher than the teachers'. The students also seem to believe in the potential and advantages of media technology, and believe that it can help them in FLL. This shows that they are expecting to use it in the language classroom, and are willing to accept it if their teachers are willing to introduce and use it.

6.2.2.1.3 The reasons that users use media technology

The users use media technology particularly because: they believe claims about the potential and the advantages of media technology that some writers make; they have favourable attitudes towards the use of it; they feel that they are forced to use media technology by students, but not by the university authorities.

In relation to the results of the previous section, i.e., teachers' positive attitudes towards the use of media technology, this result confirms that the users have very positive attitudes towards its use. Firstly, the users strongly agree or agree with all the statements which generally describe the potential and the advantages of media technology, e.g., helping students to reinforce language skills, providing them with rich learning environments, giving them the authenticity of spoken language, offering a wide range of learning and practice opportunities, etc. This appears to show that they had positive attitudes towards its use and found the use of media technology useful and effective, when they have actually used it in the language classroom. Secondly, the results of their responses to the statements 'I enjoy using media technology.' and 'I am personally committed to it.' show that the teachers' positive attitudes towards the use of media technology help them to use it. Again, it proved to be true that teachers' attitudes are one of the most important factors in using media technology in language teaching, as stated in the previous section, 5.2.1.10. Thirdly, as mentioned in sections 6.2.1.2 and 6.2.1.4, it also turned out to be true that the support of university authorities is another of the most important factors in using it in language teaching. Judging from these results, the teachers' positive attitudes may be attributed not only to their interest, but also to the actual effectiveness of media technology as a tool and a partner to work with.

In the meantime, the users seem to feel some pressure to use media technology from their students who are interested in it in language learning, and some knowledge and experience of using it . This can be interpreted as meaning that the users seem to feel that, for their students, teachers have to look for authentic (spoken) materials to suit to the current trends of language teaching and learning, e.g., the communicative approach and individualisation, and that they consider media technology as an alternative way to contribute to the trends, although their students do not ask them directly to use it.

Finally, are they satisfied with their teaching methods of using media technology? It is interesting to comparing the results with those of non-users in Fig. 30 Non-users' satisfaction with their teaching methods of not using media technology (and Fig. 30-1 for students) of section 5.2.2.3. Similarly, the majority of users (72.2%) are still not satisfied with their teaching methods which do use media technology in language teaching, although their satisfaction is a little higher than that of non-users (80%). However, almost half of the students (42.8%) are also satisfied with their teachers' teaching methods which do use media technology as seen in Fig. 36-1, but 30% of them are satisfied with their teachers' teaching methods which do not use media technology in Fig. 30-1. Two plausible explanations for the results may be that the teachers do not have confidence in the use of media technology, probably due to lack of knowledge of it and teacher training, although they use it in the language classroom, or because they are modest, i.e., they seem to think that they still need more technical and methodological knowledge to improve their teaching, when using it. On the basis of classroom observations, it appears that those who have been trained have confidence and are satisfied with their teaching methods of using media technology.

Turning to the results of testing for association, there is, firstly, a significant relationship between gender and the statement, 'It can give students the authenticity of spoken language.', although both male and female teachers have positive attitudes towards the statement. The male teachers agree with the statement more strongly than the female teachers. This result may be due to the limited audio-visual materials output of computer technology at the time when the survey was carried out. For example, the females seem to think that the statement does not actually apply to the computer, but the males seem to see its potential for the computer controlling audio. Secondly, there is a significant relationship between years of teaching experience and the statement, "It can offer a wide range of learning and practice opportunities.", although all the teachers have positive attitudes towards the statement. The teachers with 1-5 years of experience strongly agree (30%) and agree (60%) with the statement, but 100% of the teachers with 6-10, 11-15 and 16-20 years of teaching experience strongly agree with it. Finally, there is a significant relationship between years of teaching experience and the statement, "I am personally committed to it". In general, the younger generation teachers with less teaching experience agree with the statement more strongly than the old generation teachers with more teaching experience. Therefore, the younger generation teachers generally seem to accept the responsibilities of using media technology more than the old generation teachers.

6.2.2.2 The teachers' attitudes towards the use of five media technologies

6.2.2.2.1 Users' and non-users' attitudes towards five media technologies overall

It is clear that users' and non-users attitudes towards the five media technologies are also positive, although the users' attitudes show a slight tendency towards being more positive than the non-users' for all media technologies. It confirms that the teachers also consider the five media technologies as effective sources of authentic material and tools in FLT/L.

Video and IV rank 1st and 2nd respectively, in terms of both users' and non-users' attitudes towards them as shown in Fig. 40, and their scores for these technologies are relatively higher than those of other technologies. This may not be an unexpected result, given the teachers' familiarity with video and the wide availability of hardware and software in the language classroom. Another reason why the teachers might place video above IV is simply that they can use it to record things, which they cannot do with IV. IV is placed 2nd, although it is far superior to video or any other existing technology in a number of ways due to the fact that it integrates all the advantages of two media, computer and video, e.g., the ability to find video sequences with much greater speed and accuracy under computer control (Laurillard 1987, Fox et al. 1990). The fact that IV is not more popular than video, despite all those advantages, is presumably because it is still not widely available due to the expense of the equipment and lack of software, but the teachers nevertheless put a high value on its capabilities. Thus, the teachers seem to be aware of the effectiveness of using both channels, audio and video, as suggested by some authors, such as Adams (1987), Amthor (1991), Perzylo (1993), Rühlmann (1995), etc. who claimed that the presentation of information with the channels can provide learners with increased interest, higher retention and improved success rates in learning. From these aspects of video and IV, the teachers may expect that the technologies can make a significant contribution to FLT and help them keep pace with the current trends which place more emphasis on student-centred and communicative approaches in FLT/L, since they have distinctive characteristics which can offer still or moving pictures with sound.

Interestingly, the level of users' attitudes towards audio here is similar to that towards CD-ROM and more positive than that towards the computer, despite the fact that there is evidence in this study that the teachers have no greater interest in using audio in the classroom or in the language lab. This suggests that it is still used in the language classroom or the language lab in delivering controlled pattern practice, drills and testing in spoken languages, and that teachers' familiarity with, and the availability of hardware and software, and its usability are actually more important than interest in it or its perceived potential in the language classroom. These more positive attitudes towards audio (and video and IV) suggest that oral and aural presentations are seen by teachers as more useful than textual ones available on computers and CD-ROMs in FLT/L. However, it reflects the quality and quantity of materials available on CD-ROMs at the time when the survey was carried out. There were only a few pieces of software available for language teaching and learning, and they could not deliver a high quality or quantity of sound, graphics and moving pictures.

Unexpectedly the computer is viewed the least positively of the five media technologies, although the potential of computers has been demonstrated, in terms of the development of hardware and the quantity of software created during the last decade (Hope et al. 1984, Stevens 1989). It seems that the users were generally not satisfied with the effectiveness of the computer in FLT/L. There may be a number of plausible explanations for the result. Firstly, it may be due to the fact that few foreign language programs have been produced, and that there was a lack of experience in using it, and a lack of teacher training to help teachers take advantage of its expanded capabilities. Secondly, exaggerated claims about the effectiveness of computers might have set up unrealistic expectations about them. The users might, therefore, think that it is not as effective as some writers' claims about the computer suggest. The attitudes of non-users are slightly different from those of users. They seem to think that the newer technologies, computers and CD-ROM will be somewhat more effective in various ways than audio technologies. This may, however, be due to the fact that they believe the claims about these technologies which some writers make. Based on a review of the literature by Dupagne and Krendl (1992), Knezek et al. (1993) stated that about two decades were required for teachers in the USA to evolve from a less positive than the general public's attitude towards computers, to their current, generally positive state. Therefore, it can be expected that new generation teachers in the future, i.e., when the current generation of computer users in schools takes its place as teachers, should be confident about working with computers with well developed computer (use) skills and will have positive attitudes (Knezek et al. 1993).

6.2.2.2.2 Users' and non-users' attitudes towards five media technologies respectively

Usefulness

Both users' and non-users' attitudes towards all the five media technologies are very positive in this scale, with generally no significant gender and years of teaching experience differences.

The teachers appear to be very aware of the usefulness of the technologies. In particular, the attitudes of users and non-users towards video and IV are more positive than those towards the other technologies. Again, this suggests that the teachers think they are more useful than the other technologies due to characteristics that can offer a richer and more varied language environment with audio-visual materials, which can bring the real world to the classroom and present complete communicative situations, so that they can provide learners with a source of practice to improve listening and speaking skills in the target language. Interestingly, audio is considered more useful than the newer technologies, i.e., computers and CD-ROM, by users in particular, although it is considered a little less useful than computers by non-users. This may be due to the fact that audio has the advantage of presenting communication in action and providing learners with the opportunity to practise with spoken materials which the computers and CD-ROM could not provide to the same degree at that time. Unexpectedly, CD-ROM is considered as the least useful of the five media technologies. This may probably be because of lack of hardware and software at the time when the survey was carried out, even though it is now ahead of IV in terms of hardware and software developments. In short, insufficient software might have been an obstacle to the wide application of this technology.

The attitudes of users tend to be more positive than those of non-users' on the 'Useful - Useless' scale. This may be because the users use these media technologies because they already feel positive towards them, and then, once they start to use them they become convinced of their usefulness and their attitudes become more positive.

There is only a significant relationship between years of teaching experience and the usefulness of CD-ROM by users. Unexpectedly, the old generation teachers with more teaching experience have more positive attitudes towards it than the younger generation teachers with less teaching experience. It might be expected that the teachers with 1 - 5 years of teaching experience who are familiar with the technologies think it is still insufficient and unsuitable for language teaching and learning, in terms of the stage which the development of hardware and software has reached, whereas the teachers with more teaching experience who may have less experience of the reality seem to be satisfied with it and see its potential.

Easy

Is hi-tech media technology complicated? The hi-tech technologies, computers, IV and CD-ROM are regarded as complicated by both users' and non-users', with no significant gender and years of teaching experience differences.

It may be reasonable for the teachers to think they are more complicated than low-tech media technologies. Audio is a simple and rather static technology, in terms of the development of hardware and software. Everybody knows what to do with audio, as they do with a book, i.e., people open and read it. It is nothing but listening and recording. Video is also simple and easy to use, like audio, although there is still some development taking place, e.g., Super VHS, Hi-Fi stereo, long play tapes, etc. It is also to be expected that the teachers think audio and video are easy to use in the language classroom, since they are familiar with them through the widespread availability of hardware and software at home or school. Therefore, lack of access to hardware and software, training, and familiarity with the advanced technologies, and lack of help in integrating them into their methodology may well lead them to believe the newer technologies are more complicated than they really are. However, given that IV, for example, offers more storage capacity, great speed and flexibility of access, more intermixing of various forms of mediated information, greater durability, less maintenance and easier use than any other media (Hill 1987, Latchem et al. 1993, Gardner and McNally 1995), it may be that familiarity with this technology would overcome the teachers' fears about its complexity. The technologies are not so complicated that the teachers should be unable to use them. Like old technologies, the use of the newer technologies requires a basic and appropriate training related to their existing teaching practices, i.e., how to integrate them effectively and efficiently using teachers' methodological expertise into the existing curriculum and syllabus. Once the teachers have access to the technologies and become used to them, they may find they are as easy to use in the language classroom as audio and video.

Interestingly, however, the users' attitudes towards the hi-tech technologies show a tendency to see them as more 'complicated' than the non-users'. This means that the users, despite having more familiarity and training find them more complicated. This may, in fact, still be a reasonable reaction as the technologies may be easier to use than the teachers think. They are still nevertheless more complicated than the old technologies. As mentioned above, once people have learnt about books, audio and video as well, there is no serious problem in using them. However, even though they have learnt to use computers and a bit of software for example, they have to learn and learn again, since the technologies are continually developing and upgrading in terms of hardware and particularly software. This suggests that both users and non-users are right to see them as more complicated than the old technologies, but also underlines the need for appropriate training to help the users understand how the technologies can be used. In other words, it seems that the training they got was probably inadequate, because there was very little training available and because the training is very often given by people with technical and scientific interests, which is often not appropriate for language teachers. As a result, they might gain the impression that they need deep technical knowledge to use these technologies, whereas what the teachers really need is methodological knowledge, and what they really need in training courses are basic skills in handling these technologies and some insight into how their existing methodological knowledge can be used to make use of these new technologies in their syllabuses. Again, once the teachers have learnt about the technologies as mentioned above, they can have some ideas about what and how to do with them, even though there is continual development taking place in the technologies

Interesting

Despite the fact that audio is found to be useful, audio alone among the technologies is seen as boring by both users and non-users.

There may be two explanations. One is that audio is an old and unspectacular technology, but is settled and stable. Is an audio tape interesting? It may not be. It would be interesting to compare these results with attitudes towards books. Books have been around for hundreds of years, and whether people use books or not, has got nothing to do with whether they find the technology itself interesting. It is purely to do with content. Audio may be rather like a book, unlike the other technologies. In most circumstance, people would not even ask themselves, whether audio is interesting or not. All they really think about is content. However, the teachers may be tired of and bored with audio technology as suggested before, probably because it has been widely available in FLT without any development or because it is affected by the arrival of the newer or sophisticated technologies, which can offer a variety of vivid audiovisual materials (see the second explanation in more detail below). This could apply to the newer technologies as well. As teachers become more familiar with computers, IV and

CD-ROM, they will appreciate that these are somehow better than the other technologies, because they bring them together. Sooner or later, however, when the reality actually catches up with the advertising, it may be that the positive interest towards the technologies goes into decline in the way that interest towards audio is declining. Second, it may be because the teachers' attitudes towards technology are to a large extent shaped by fashion. Audio is a very beneficial, but old, technology. The benefits of audio are immediately obvious, i.e., audio is listening and recording, but there is nothing to change and there is no development of audio. However, computer technology is becoming fashionable in terms of hardware and software, i.e., there are lots of things to change, improve and develop. There is lots of potential. Therefore, this appears to stimulate teachers' interest in the technology.

On the other hand, the result confirms that the useful technology is not necessarily seen as interesting and vice versa. Even if people find something is not interesting, they might still recognise they are useful, like books. However, there is no doubt that if they find something interesting and useful, they are likely to make more use of it. This seems to apply to media technology. Even if they find audio boring, they still consider it as useful. However, they are less likely to use it. In general, if teachers find media technology interesting and useful, they are much more likely to use it. What we can draw from this is that the technology should ideally be seen as both useful and interesting on the grounds that the more teachers are interested in, the more time and effort they might put into finding software for it, perhaps even making software for it, and finding ways of integrating it into their classes. Therefore, the result suggests that the potential problem of audio is that as mentioned before, teachers become tired of it, whether it is useful or not, and are not likely to make very much use of it, unless they have their interest rekindled in it. There are two ways of doing that. One is it to put on training courses, which show new ways of using audio, and second, to combine audio with other media in multimedia computer packages, because other parts of the data suggest that they find, for example, computers more interesting than audio, while they find audio more useful than computers. Therefore, if they can be shown how audio, which they find useful, can be combined with computers, which they find interesting, that might lead to a resurgence of interest in how audio can be used in their teaching, but this time as a part of multimedia computer package.

IV and video rank 1st and 2nd in terms of how interesting users and non-users found them. It is a widely held view that human beings naturally enjoy the experience of viewing. This view has been supported in the field of language teaching and learning by some authors, Kemp (1980), Bowen (1982), Allan (1985), Lonergan (1984), Romiszowski (1988), and so on, i.e., visual images hold learners' interest. A reasonable explanation of the results seems to be that the teachers are very interested in audio-visual materials due to the fact that learners are stimulated and helped by the verbal and non-verbal aspects of communication which the technologies enable.

The users are more interested in all the technologies than non-users, as they are in media technology in general. However, it is worth noticing that this scale shows considerable interest in the newer technologies on the part of non-users, but particularly on the part of users. This suggests that they are interested in the characteristics which can help in improving language teaching and learning, such as interactivity, individualisation, flexibility, etc., and in having the opportunity to introduce the newer technologies to enhance learning into the language classroom.

Motivation

All the technologies are found to be motivating for students, although audio is less motivating than the others.

Video and IV are slightly more motivating, but audio is less motivating for students than other technologies. This may be due to the fact that they can offer some advantages in presenting materials in various ways such as, sound, graphics and texts, and providing learners with the opportunity to practise written and spoken languages together with audio. Computers and CD-ROM here are considered more motivating to students than audio. In the previous scale, all the technologies except for audio are found to be interesting. 'Interesting' and 'motivating' are very close concepts, but 'interesting' and 'useful' are rather further apart as mentioned in 'Interesting' section (pp. 293-294). Therefore, it may be natural that the technologies are found to be interesting and then motivating, as shown in the two scales. It seems likely that if it is not a new fashionable technology, in itself it is not interesting and therefore not particularly motivating.

However, there is an odd result in audio, i.e., audio is boring, but motivating. Audio is boring in the sense that it is an old technology, and is, therefore, *not* interesting, but it is still motivating. It seems that 'boring' or 'interesting' is being interpreted by teachers in terms of their own feeling towards media technology, e.g., audio. 'Motivated' or 'demotivated' is being interpreted in terms of how the students react towards the materials teachers present to them. Therefore, it is probably predictable that the teachers are interpreting 'motivating for the learners' to mean that audio allows the learners exposure to authentic examples of the target language. In other words, although it is a boring technology, audio is still motivating in the circumstances in Korea where learners have largely learnt a foreign language from texts by non-native teachers, since it can provide authentic materials in FLT/L which non-native teachers cannot provide.

On the other hand, non-users think that video, IV and CD-ROM would be more motivating for students than users do. The explanation here is the one that has come up before, which is that the newer technologies appear to be interesting and have lots of potential, but at the time when the survey was conducted, the software did not realise the potential, so that non-users are judging the technologies on the basis of their interest and the potential they have read about, whereas the users are judging the technologies on the basis of the current reality.

All the respondents in the interviews agreed that students are motivated by the use of media technology. Although the statement mentioned in section 5.2.1.3 is about computers and video, it may reflect a general feeling about all the technologies.

There is a significant relationship between gender and the motivation for the computer alone, for non-users. The male teachers have more positive attitudes towards computers than the female teachers in terms of the motivation that the computer provides. This may seem to be related to a stereotypical attitude as mentioned previously.

Timesaving

The results indicated that both users and non-users believe that the five media technologies can generally save time, with generally no significant gender and years of teaching experience differences. The attitudes of teachers are particularly positive towards the hi-tech but apparently complicated technologies. Users in particular have much more positive attitudes towards IV and CD-ROM than towards any other technologies in this scale. The results for non-users, however, show a similar pattern towards all the technologies, although they show slightly more positive attitudes towards video. Users find the computer, IV and CD-ROM more timesaving than non-users do. However, non-users have more positive attitudes towards audio and video than users do.

First of all, non-users might expect that the newer and more advanced technologies are not more timesaving, because of their complexity. However, the results suggest that users actually discovered in practice that IV and CD-ROM may be complicated, but are more timesaving in use, although computers are less timesaving. In terms of hardware, in fact, there is no argument that IV is much faster in searching for information and data than video and video tape, since IV allows fast, precise and random access due to being controlled by the computer. This is also true in CD-ROM as well. Despite the fact that it is slower than a hard disc, CD-ROM is similar to IV in the sense that it is a medium which can hold a large quantity of data and allow access to it relatively quickly, and can be carried around moving from machine to machine. Therefore, the users seem to have discovered some of their capabilities, holding a large amount of data, random access and speed of finding information, i.e., just clicking or typing words, titles, topics, etc. through lessons, and ultimately to have had a positive attitude towards the technologies, which can save time. Thus the technologies provided clear advantages, not only just in terms of speed of access and finding information, but in terms of the amount of data they could hold, compared to any other computer medium. So in that sense, both users and non-users seem to think that IV and CD-ROM are more timesaving than computers.

Secondly, the results suggest that the computer may save time in language teaching and learning in some ways, but users and non-users still doubt its effectiveness in saving time. In other words, it seems that the teachers do not see some of the advantages users can get from the computer. This may be caused by the teachers' general attitude that it is complicated to use in the language classroom, whether they used it or not. This also suggests that they have little experience of CALL. First, for example, they probably think that things like word-processing do not save much time, although it leads to a better quality of work. Even if they work on word-processing and have experience of it, it is not so much quicker than handwriting, because they are actually slow typists. In addition, word-processing their work may be more time-consuming, simply because they end up doing more work on their text than if they were writing it by hand. For them it may well be that even word-processing on the computer does not provide any advantage of timesaving. However, having word-processed, they can then edit texts, which they might well not do with hand-written texts. Word-processing allows the production of different versions of text from the same basic copy. Second, as mentioned in section 2.3.2.1.2, 'The potential of computers', teachers and students can work with computers in CALL, and the computers can provide immediate and informative feedback, and therefore intensify the learning process and save teaching and learning time to some extent.

Thirdly, can audio and video save time? In self-access, it might be expected that audio and video would save teacher time like other technologies. Therefore, they are less time-consuming for the teachers, since students sit and work through the materials on their own. Why, then, do users have less positive attitudes towards the timesaving aspects of audio and video? There may be a number of plausible interpretations. One is that IV and CD-ROM are likely to be used both on a self-access basis if they are in a self-access lab for example, and in front of the whole class as well. The user might think that the technologies are more timesaving than audio and video due to the advantages mentioned above, such as holding a large amount of data, speed of access and finding information. A second interpretation is that audio and video may be seen as something which tends to be used in the class. The teachers have to set up equipment and to control it themselves. So this involves preparation time, and time may be wasted in the class and even in the lab, searching backward and forward for the right part of the tape. For this reason, the users might feel that these technologies are less timesaving. So it may be that the teachers are particularly thinking of the whole class only, whereas in IV and CD-ROM, the teachers are thinking of self-access and classroom teaching. This may account for the less positive responses, because the teachers have to do preparation and control the equipment themselves in the classroom situation. The example from the interviews mentioned in the previous chapter (pp. 245-246) supports this interpretation.

The results of testing association showed that there is a significant relationship between gender and particularly between years of teaching experience, and the timesaving aspects of three media technologies, as follows. In general, firstly, the old generation teachers have more positive attitudes towards the timesaving aspects of audio and video than the younger generation teachers on the part of users. First, the former who are familiar with the technologies might think that audio and video are timesaving, since they are easier to handle and therefore easier to use than hi-tech media technologies on their part. Whereas the latter seem to think that they are still less timesaving, although they are easy to use, since teachers have to set up equipment and to control it themselves as mentioned above. Second, the former seem to think of them as being used on a self-access basis as mentioned above, so that they might think they are less time-consuming for them.

Secondly, the female teachers have more positive attitudes towards the timesaving aspects of IV than the male teachers on the part of non-users. In terms of hardware, as mentioned above, the former seem to think that IV is timesaving, simply because it is an advanced technology and allows fast, precise and random access, whereas the latter might think that it is not, since it is a complicated machine and therefore may not be easy to use.

Value

Unexpectedly, both users and non-users have generally negative attitudes towards the value of the technologies, except for CD-ROM by users and non-users, and computers and IV by non-users, with generally no significant gender and years of teaching experience differences.

Despite their positive attitudes and the great prospects which teachers, whether users or non-users, believe media technology holds for the development of FLT, as seen in several scales so far, the use of media technology is perceived to be overvalued. This suggests that teachers are generally not convinced of the value of the technologies yet, even on audio and video which have been widely used in FLT/L. However, the results indicated that CD-ROM is undervalued and so may be a technology whose usefulness will increase in the language classroom. In fact, this appears to have been the case in practice, since this questionnaire was administered. Interestingly, non-users show more positive attitudes towards the newer technologies than the old technologies.

There may be two possible interpretations of this trend. The first interpretation is that it may be partly due to scepticism on the part of users and non-users. The non-users expect the technologies, particularly the newer technologies, to be effective, because they believe the claims made in publications by people who write about the technologies, but non-users may be still sceptical about the claims made in the literature, or probably the technologies themselves. Users are also sceptical, because, whilst they anticipated that the technologies might be useful, they have found them in practice less useful than the literature claimed. This may be the fault of literature which exaggerates the potential, perhaps even knowing that the current reality falls short of the potential. Some authors sometimes tend to write about the technology in terms of its development and potential rather than necessarily writing about what these technologies can do at present.

Second, it is likely that this question is being answered in relation to the current reality and probable potential. Therefore, the negative results may be due to the current hardware and software or methodology not matching their expectations. The results for the old technologies as well as the newer technologies are very similar. The teachers may expect the old technologies to develop technologically and in particular pedagogically. They might think that there must actually be much more to do and that there ought to be better-designed audio and video materials for FLT/L in particular. For the newer technologies, it could well be that teachers do not think the technologies offer what they have expected. In fact, it may be due to the fact that they do not understand how to use them, and so cannot extract the value and potential from the technologies. In other words, the value of these technologies is not fully realised, because teachers do not know how to use them and do not have training which would allow them to realise that value. Their claims that they do not have enough time may be true, because of their tight teaching schedule, so that they do not have time to find out how to use the technologies, to work out how they can integrate the technologies into the classes, and to increase their expertise. This comes down to a lack of understanding about how to use the technologies in the classroom which in turn is due to the lack of training.

There is a significant relationship between gender and the value of computers on the part of non-users, and between years of teaching experience and the value of CD-ROM on the part of users. Firstly, the female teachers have more positive attitudes towards the value of computers than the male teachers. This can be explained in relation to the results of their experience of reading about computers mentioned in sections 5.2.1.1 and 6.2.1.1. The former have read more about computers than the latter and seem to believe the claims made in literature, and are, therefore, likely to be convinced of the value of computers, whereas the latter still appear to be sceptical about their value.

Secondly, in general, users among the younger generation teachers have more positive attitudes towards the value of CD-ROM than users among the older generation teachers. This can be explained in relation to the result of section 6.2.1.2 'The teachers' experience of using media technology and actual use of it in language teaching'. The former have used it more often than the latter and discovered its usefulness, and therefore seem to believe in the value of CD-ROM.

Potential

Both users' and non-users' attitudes towards the potential of the five media technologies show a tendency to see them as having 'much potential', with generally no significant gender and years of teaching experience differences, although the teachers' attitudes, particularly non-users' towards audio, are a little less positive than other technologies. Thus, despite the teachers' negative or less positive attitudes towards the value of the technologies, they consider that the technologies have definite potential in language teaching and learning, and that particularly, the new or advanced technologies and video as well have great potential.

However, the potential of the technologies may actually be taken in conjunction with the value of the technologies. The question on the value is probably being answered in relation to the current reality, whereas that on the potential is clearly being answered in relation to how they hope or believe the technologies would develop in the future. So in that way, they are optimistic. That is, they look at the technologies now and they are not satisfied with them, but they have a faith in the ability of people developing hardware and software to produce something better in the future.

The results could be explained in relation to the following two aspects of potential here: One is the technological development of the technologies, and the other is pedagogical potential for FLT/L.

Firstly, audio scores relatively lower than the other technologies, particularly in the non-users' responses. Audio is the oldest technology among them, and has been around for a long time. The teachers appear to feel that it has nowhere else it can go, and to be less interested in it. What else can they do with audio apart from record tapes? Maybe they can use record CDs. However, that is fundamentally different from audio tapes, just providing better quality of sound. An audio tape allows the teachers and students to record their voice to it, for example, whereas an audio CD does not. It is not, in this respect, actually more advanced than an audio tape. In the meantime, all other technologies have somewhere to go. So the teachers can see there is potential improvement of quality of both hardware and software. As mentioned before, for example, video is not a newer technology, but is still developing in a way that audio is not. They may also feel that video has potential in terms of technological development, because they can see that it links to computers, i.e., IV. The advanced technology, CD-ROM has clearly the potential for further development with computers. In short, computers, CD-ROM, and IV are the newer or advanced technologies, and they will continue to be developed technologically. These interpretations are based on the potential they can see for technical development.

From the pedagogical point of view, secondly, their answers about audio seem to be based on the fact that audio has reached, in their mind, a sort of peak in terms of this pedagogical value. What more can teachers do with it apart from using authentic utterances, although it allows students to record their voices? Of course, it might be expected that this result may be due to lack of awareness, ignorance, and insufficient research studies into the use of audio in comparison with the newer or advanced technologies, such as computers, IV, and CD-ROM. Video can provide them with audiovisual materials and also allows them to record the materials. With the advanced technologies, the teachers can not only provide learners with interactive scenes, as they can with video, but they can allow them control over the scenes. They can see the technologies bring together text, audio and video in terms of multimedia software, and might think that they are all useful in FLT/L. Therefore, the teachers seem to assume that all of these technologies have some potential for helping FLT/L.

It can be expected that audio will continue to be used at the stable level it has reached. Video will continue to contribute to the development of FLT/L and remain one of the technologies with the most potential for FLT/L for the time being. The use of computers and particularly CD-ROM multimedia will certainly increase, which may hold back the use of video, simply because teachers and students are motivated by multimedia software. IV and its use in FLT/L are still at the exploratory phase because of its cost. However, the teachers seem to believe that it has immense potential and many distinctive advantages over other technologies as a tool and a partner in FLT/L, particularly its high level of interactivity. But there appears to be no possibility of using it in the language classroom, if the problem is not solved in the near future.

These may be plausible interpretations as to why the teachers are positive about the potential of all these technologies, particularly hi-tech media technology.

6.3 Implications for improving the use of media technology

This section deals with some implications for improving the use of media technology to apply to FLT/L at university level in Korea, based on the findings of this study.

The results of this study showed that the teachers' (both users' and non-users') attitudes are generally very positive towards the use of media technology, with some having read about it and some having experience of using it. However, the majority of them are not using it, particularly hi-tech media technology. The reasons that the non-users give for not using it in FLT/L at university level in Korea were as follows: lack of hardware and appropriate software for media technology, particularly hi-tech media technology (i.e., inaccessibility of it); lack of knowledge of it; lack of familiarity with it; lack of teacher training.

In order to solve these problems, i.e., to provide the teachers with sufficient knowledge of the capabilities of media technology and to encourage them to use it, more access to hardware and software is necessary, and training to familiarise teachers with the hardware and software and its potential for language teaching is essential. Therefore, the following two suggestions can be made on the basis of these findings: 1) the effective use of existing facilities and materials; 2) a model for teacher training courses.

6.3.1 The effective use of existing facilities and materials

One of the results in this study indicated that the Korean teachers do not use media technology in the language classroom, since there is not enough media technology equipment and materials, particularly hi-tech media technology for FLT/L. However, it is promising that the teachers are willing to use it, if there are more media technology hardware and software available for FLT. This means that they believe the use of media technology can improve the quality of their teaching, keeping up with the current trends of FLT/L, e.g., the communicative approach and learner-centred tasks, and meeting their students' needs.

First of all, there might be some financial difficulties in setting up a so called Media Technology Access Centre (particularly with high-performance computers and CD-ROM multimedia, and their software) for only FLT/L in most universities. In short, it costs a lot and takes time, although the university authorities, particularly the heads who were interviewed for this study, declare that they are willing to invest in media technology hardware and software to use in the language classroom. What can the teacher do now, in order to solve these problems?

At the time that this study was carried out, the researcher found that almost all universities already had well-equipped language labs with audio and video equipment and materials (i.e., enough software to use for FLT/L, if used with appropriate methodology) and some computer labs (or rooms) in Korea. After that, when the researcher visited the universities again for the '95 CALL Workshop' (this will be described in detail in a later section, 6.3.2.1), they had well-equipped computing labs (with lots of high-performance computers and CD-ROM multimedia, and with some software that can be used for FLT/L), although they are not just for FLT/L. The availability of computers and CD-ROM multimedia, like audio and video several years ago, has therefore increased to a point where there are on average at least four or five or more networked computer labs (or rooms) that can be used for 20 to 50 students at the same time per university in Korea.

From the follow-up interviews to the '95 CALL Workshop' one of the directors who is in charge of the computing labs said:

> "The equipment and materials are for all the students and teachers, including language teachers and students. There will be no problem to use the facilities, if they give us a notice or a schedule for using them in advance, or a long term plan before starting the new semester."

Therefore, language teachers and students can use the facilities at the time that they want, depending on the schedule. The availability of and limited access to media technology, including hi-tech media technology no longer appears to be a problem. He added:

> "Everybody can use our facilities and materials according to schedule. Unfortunately, however, we have rarely been asked for the use of our facilities from language teachers."

This means that the existing media technology resources are not likely to be fully used. At present, therefore, this is the best way for language teachers and students to make the best use of the existing resources with appropriate software for language teaching and learning. That is, to select and purchase some software to suit to language teaching and learning using the existing facilities is a more realistic way than to make a proposal to set up a so called, Media Technology Access Centre for FLT/L and wait for an actual investment decision from the university authorities.

6.3.2 A model of teacher training

The use of media technology, including hi-tech media technology, such as computers and CD-ROM multimedia, particularly in terms of hardware, now appears to become more widespread than a couple of years ago, as mentioned in the previous section. As some writers, such as Johnston (1987b), Knezek et al. (1993), Windeatt (1990), etc. claimed and the results of this study showed, teacher training, particularly appropriate teacher training, seems to be important at present. In his study, for example, Johnston (1987b) stated that more and better teacher training is wanted and needed, as well as greater access to hardware and software for computers, since teachers seem to be frustrated by lack of access to the equipment and/or lack of experience or training.

Appropriate teacher training may be important, since it provides teachers with a starting point of experience of and familiarity with the use of media technology. Then, what kind of teacher training can be called 'a proper teacher training'? Teachers should be trained to gain at least the following four items. Above all, throughout an appropriate teacher training course, particularly one that deals with methodological approaches, teachers can: 1) obtain more knowledge about media technology in practice than through reading about it; 2) overcome many problems and barriers in using media technology, e.g., how to select appropriate materials and programs, the lack of hardware and software, etc. to some extent; 3) have confidence in the use of media technology 4) use the existing resources better. There is evidence from classroom observations in this study of how teacher training is a crucial component in the implementation of media technology. For example, the teachers in Class B and D made their own materials to suit their students - in particular, it is worth noticing that five (or maybe less) minutes' worth of media technology materials can be adequate for a lesson - and the teacher in Class E chose one among the existing software for her lesson, and then carried out some activities successfully. From the follow-up interviews, it was found that three out of four teachers have been trained in the advanced countries in this field. In addition, it can positively influence the teachers' attitudes. As the results of this study showed, for example, those who are more familiar with and have had teacher training in the use of media technology have more positive attitudes, e.g., some female teachers who are more familiar with it and had some related training courses have more positive attitudes towards the use of hi-tech media technologies (e.g., computers and CD-ROM multimedia) than those who have not. In short, it seems that teacher training is a crucial factor influencing teachers' attitudes towards the use of media technology and the successful implementation of it in the language classroom.

The following section presents an example of teacher training courses, particularly for CALL which could be regarded as a kind of proper teacher training course.

6.3.2.1 '95 CALL Workshop

6.3.2.1.1 Background to the workshop

Korean language teachers have recently become interested in CALL and aware of the importance of teacher training for the successful implementation of it in the language classroom. However, most of the short training courses specially organised for teaching staff or in-service training courses which focused on the introduction of the computer dealt with its technical aspects, or trained them to use a simple programming language and some general purpose programs, e.g., Basic, a word-processor, a spreadsheet, etc. These kinds of training courses appeared not to be helpful for the teachers in solving the practical problems and difficulties they have had in using computers in the language classroom. In order to provide them with an appropriate teacher training course for language teaching and learning that can help them solve the problems and difficulties, therefore, a three-days CALL Workshop ('95 CALL Workshop) was carried out at Inha University in Korea.

6.3.2.1.2 General aims

The workshop was designed: 1) to provide language teachers with basic skills and knowledge needed to use computers for FLT/L; 2) to introduce and familiarise them with software types that can be used for language teaching and learning in particular; 3) to provide examples of good practice in the use of computers for FLT/L (Windeatt and Lee 1995 in Unpublished '95 CALL Workshop Schedule). (For reference, see Appendix H, Specific Aims.)

6.3.2.1.3 Participants

Teacher trainees: 42 Language teachers who are working at secondary schools, colleges, and universities in Seoul, Incheon, and Kyunggi-do.

Teacher trainers: 4 teacher trainers (See Appendix H, '95 CALL Workshop Timetable' in detail.)

6.3.2.1.4 Workshop Timetable

The '95 CALL Workshop was held under auspices of the Foreign Language Education Center of Inha University in Korea at the University from 14 June to 16 June 1995, with the help of Newcastle University in the UK and the British Council in Korea. Details of the timetable are as follows.

Table 25. '95 CALL Workshop timetable

🕘	**Day 1 (14 June)**	**Day 2 (15 June)**	**Day 3 (16 June)**
10.00 -12.00		Self-access	Self-access
Session 1 2.00-2.50	Opening speech - Introduction to CALL (software)	Using computer-based text and concordance software	Introduction to multimedia software
Session 2 3.00-3.50	Overview of CALL software	Using the Internet	Using and authoring hypertext software
Session 3 4.00-4.50	Integrating CALL software	The use of media technology in FLT/FLL at university level in Korea	Conclusion: What next? Closing speech

6.3.2.2 The evaluation of the '95 CALL Workshop

The purpose of the evaluation of the '95 CALL Workshop is, first, to find out the participants' reaction to it, and second, to compare the results of some parts of this study with those in the data obtained from the workshop using questionnaires and interviews (see 'Methods' below).

6.3.2.2.1 Methods

The subjects were 35 Korean professors, lecturers, and secondary school teachers (6) who teach English and English language in Incheon and Kyunggi-do (who have attended at the second and the final day of the workshop).

The participants were asked to complete the following questions (i.e., Section A: 3, 4, 6, 7, 8, 11, Section B: 13, and Section C) (see Appendix A) in the teachers' questionnaire of this study and four additional questions after the session 3 of Day 2 (see 'Questions for the workshop').

Questions for the workshop

1. Did you enjoy the workshop?

Very much _____ A little _____ Not very much _____ Not at all _____

2. Did you find the workshop useful?

Very useful _____ Fairly useful _____ Not very useful _____ Not useful at all _____

3. How much do you think you learnt from the workshop?

Very much _____ A little _____ Not very much _____ Nothing _____

4. Would you like to attend the same kind of workshop again?

Very much _____ A little _____ Not very much _____ Not at all _____

Twenty six out of 35 questionnaire were returned. A whole-group discussion was then conducted, and 5 teachers among them were also selected for personal interviews. The details of the subjects are as follows:

Number of teachers: 26
Gender: Male (18), Female (8)
Years of teaching experience: 1- 5 (6), 6 - 10 (5), 11-15 (7), 16-20(4), 21-25 (4)

The data gathered by means of questionnaires and interviews were analysed through the same procedures as the main study. Frequency tables with statistics were used for all the questions, in order to find out participants' attitudes towards the workshop, and the patterns of participants' use of media technology and their attitudes towards its use. The frequency tables with statistics are given in Appendix D Frequency Tables, D.5. Chi-Square test and Kendall's tau for testing association according to variable levels were also performed to determine whether significant differences existed between male and female respondents and between years of teaching experience. The results of tests of significance and Crosstabulations are presented in Appendix E Crosstabulations and Tests of association, E.5.

6.3.2.2.2 The assessment of the workshop

The workshop was evaluated by means of the four questions and the follow-up interviews, in order to judge whether it was successful or not, i.e., whether it was the kind of teacher training course that language teachers want.

A very clear pattern emerges from the results analysed from the questions. The participants have very positive attitudes towards the workshop, with no significant gender and years of teaching experience differences (see Table 26 and Appendix E: E.5, Crosstabulation 27 - 34 in detail.).

Firstly, almost all the participants (92.3%) enjoyed the workshop very much (65.4%) or a little (26.9%), while only 7.7% of them did not enjoy it very much. Secondly, they (96.2%) responded that it was very (73.1%) or fairly (23.1%) useful, while only 3.8% of them did that it was not very useful. Thirdly, they (80.8%) think they learned very much (46.2%) or a little (34.6%) from the workshop, while 19.2% of them respond that they did not learn very much from it. Finally, 100% of them responded that they would like to attend the same kind of workshop again very much (92.3%) or a little (7.7%).

The following statements from the interviews and the whole group discussion also support the results. 100% of the interviewees said that it was enjoyable and useful. One spoke for the others:

> "It was a great pleasure to attend this workshop, and I am completely satisfied with it. I seem to know how to use CALL materials in the language classroom, particularly in terms of methodological approaches. In short, this kind of teacher training course is exactly what we need. Well, I think the other teachers will agree with me."

Another added:

> "As I expected, it was very useful. I realised again how important proper teacher training is. I can say it was a *proper* teacher training course, well, not because it's to pay a respect because you, teacher trainers worked very hard, but because I learned a lot from this workshop, particularly I got some ideas from it what can I

> do now with computers in the language classroom. It is clear that in order to implement media technology, particularly computers in language teaching and learning effectively and efficiently, we will have to have this kind of teacher training course continually for time being. Probably in-service teacher training course is more desirable for us, not just ending for once like this workshop. In addition, we need experts and facilities to work with."

The teachers seem to think that the workshop offered the methodological solutions and knowledge which they need for CALL lessons in FLT/L in particular, including introducing, demonstrating, providing hands-on practice, and evaluating a variety of software types which other training courses did not. Therefore, it can be interpreted that once teachers have proper teacher training, they are likely to develop not only a greater interest and confidence in the use of media technology in FLT, but also their ideas about how to use the programs in the language classroom.

Table 26. Significance of tests of association for the four questions by gender and by years of teaching experience

	Gender	Years of teaching experience
Did you enjoy the workshop?	.1349	.1060
Did you find the workshop useful?	.5134	.0836
How much do you think you learnt from the workshop?	.0995	.5000
Would you like to attend the same kind of workshop again?	1.0000	.0767

6.3.2.2.3 The comparison of the results of workshop participants' responses to the selected questions with those of the teachers' in the main study

This section presents the results of the comparison of workshop participants' responses to the seven selected questions about the patterns of their use of media technology and their attitudes towards it with the teachers' in the main study, in order to find out whether there are some changes or not during a period of three years.

The workshop participants' attitudes towards media technology in general

Question 3, 7, and 8 in the teachers' questionnaire were asked to find out the participants' attitudes towards the use of media technology. The results show that the participants' attitudes towards the use of media technology in general are very positive, with no significant gender and years of teaching experience differences (see Table 27 below and Appendix E: E.5, Crosstabulation 1 - 6 in detail.).

Firstly, all of them are very (69.2%) or fairly interested (30.8%) in the use of media technology. Secondly, they think that media technology is very (65.4%) or fairly useful (34.6%) for students in language learning. Secondly, they think that media technology is very (61.5%) or fairly useful (38.5%) for teachers in language teaching (see Appendix D: D.5, Frequency table 1 - 3.).

Table 27. Significance of tests of association for the workshop participants by gender and by years of teaching experience

	Gender	Years of teaching experience
The participants' interest in the use of media technology	.3390	.1599
The participants' thoughts on the usefulness of media technology for students	.5140	.1814
The participants' thoughts on the usefulness of media technology for teachers	.6143	.2765

The participants also believe that media technology can contribute much to FLT/L for various reasons, as discussed in the main study. It is interesting to find that the workshop participants' attitudes are more positive than the teachers' in the main study in terms of the ratio between their responses to 'Very interested' and 'Very useful'. The interpretation described in the main study could be applied here. That is, the participants have had more opportunities to use media technology by being provided with hardware, software and training than the teachers have had at the time that the main study was carried out, and therefore, they seem to have a greater interest and confidence in the usefulness of it.

The participants' frequency of using media technology themselves and in language teaching

Like the teachers of the main study, the majority of participants are not using media technology in language teaching either, although their use of media technology in 'language teaching' is a little increased, compared to the teachers of the main study. 42.3% of the participants (37.5% of the teachers: 'always', 14.6 and 'almost always', 22.9%) are 'always' (15.4%) or 'almost always' (26.9%) using media technology in language teaching. Again, the results suggest that media technology has not been widely used in language teaching in Korea. However, it is worth noticing in particular that the degree to which they use media technology 'themselves' is considerably increased. 57.7% of the participants (33.4% of the teachers: 'always', 6.3% and 'almost always' 27.1%) are 'always' (19.2%) or 'almost always' (42.3%) using media technology in 'themselves'. Therefore, over half of the participants are using media technology themselves.

The fact that many of them are using media technology themselves, but are not using it in language teaching seems to be due to a lack of hardware and appropriate software and to lack of knowledge of how to use it in the language classroom, i.e., they do not know how to integrate it into language teaching. As mentioned before, again, teacher training may help them solve the problems and help them use it in the language classroom, if they have more knowledge of it and confidence in it.

The results of testing association for the teachers' frequency of using media technology by gender and by years of teaching experience yielded Chi-Square and Kendall's tau values, which have significance levels of .7225 and .4904 in 'themselves', and .8639 and .3857 in 'language teaching' (see Appendix E: E.5, Crosstabulation 7 -10 in detail.). Therefore, there is no significant relationship between the variables.

The participants' thoughts about the availability of media technology in education in general

The results show a similar pattern to those of the main study. That is, the participants think that media technology software is not widely available yet, although hardware is now available to some extent in education. Again, the reason that they think there is not enough software seems to be due to a lack of hi-tech media technology software, such as computers and CD-ROM multimedia. However, it a promising that the availability of both hardware (69.2%) and software (34.6%) increased by about 5%, when the two results are compared. This shows that the university authorities are interested in the use of media technology and have invested in equipment and materials, as they promised.

The results of testing association for the present availability of hardware and software by gender and by years of teaching experience yielded significance levels of Chi-Square and Kendall's tau values of .7562 and .1146, and .3769 and .1232. (See Appendix E.5, Crosstabulation 11 - 14). There is no significant relationship between the variables.

The important factors in introducing media technology into university teaching

The following Table 28 shows the comparison of the teachers' responses in the main study with those of the participants' of the '95 CALL Workshop.

Table 28. A summary table of the rank order of importance in introducing media technology into language teaching and learning

The results of the main study		The results of '95 CALL Workshop	
1st	Support of the university authorities	**1st**	Staff training
2nd	Appropriate software	**2nd**	Favourable teachers' attitudes
3rd	Favourable teachers' attitudes	**3rd**	Appropriate software
4th	Staff training	**4th**	Support of the university authorities
5th	Time for preparation	**5th**	Time for preparation
6th	Students' approval	**6th**	Students' approval

There are major differences between the two results, with four changes of order in the results of the '95 CALL Workshop, although the last two items are the same in each table. Firstly, it is an interesting finding that the participants regard staff training as the most important factor. Secondly, 'favourable teachers' attitudes' and 'appropriate software' are listed here 2nd and 3rd in rank order. Thirdly, the support of the university authorities ranks comparatively lower at fourth place.

These may not be unexpected results in relation to the results of the previous sections, although the fact that staff training ranks first among the items may be due to the participants' positive attitude towards the workshop. The participants seem to think that media technology equipment and materials are available to some extent, but particularly hi-tech media technology software is still not widely enough available. They might have some problems and difficulties in using it in the language classroom, e.g., because of lack of knowledge about it, lack of understanding how to use it, and lack of confidence, in terms of the results that the majority of them are not using it in language teaching. Now they appear to be aware of the significance of teacher training in introducing (or implementing) media technology into language teaching, and think that it will help them to solve the problems and difficulties. In short, they believe that teacher training is crucial at the present time, and that teachers' attitudes are another important factor in the use of media technology in language teaching.

The results of testing association for the teachers' rank order by gender and by years of teaching experience yielded the significance levels for Kendall's tau values in Table 29, which are higher than the significant level of .05.

Table 29. Significance of tests of association for the participants' rank order of importance in introducing media technology into language teaching

	1st	**2nd**	**3rd**	**4th**	**5th**	**6th**
Gender	.4085	.4431	.1720	.1813	.4880	.3501
Years of teaching experience	.1663	.1166	.4441	.1534	.4126	.2193

There is no significant relationship between gender, or years of teaching experience, and their rank order. (See Appendix E: E-5, Crosstabulation 15 - 26 in detail.)

6.4 Summary

A summary of the results of this study was presented, and the major findings from the results were discussed in this chapter. Based on the findings, recommendations which are practically feasible in the current circumstances at university level in Korea are suggested for the effective use of the existing facilities and materials, and for a model that could be adopted for teacher training courses.

A CALL workshop based on this model was carried out in a Korean university and evaluated by means of four questions for the workshop and follow-up interviews. The results showed that the participants' *attitudes towards the CALL workshop were very* positive. In addition, a comparative study of the Korean teachers' patterns of use of media technology and their attitudes towards its use (i.e., a comparison of the workshop participants' responses with the teachers' in the main study, by means of seven questions taken from the main questionnaire used in this study) was carried out, in order to identify any change that had taken place in the three years since the original study was carried out. The results showed that there was no radical change in their patterns of use of media technology, or in their attitudes towards its use, except for their ranking of 'The important factors in introducing media technology into university teaching'.

CHAPTER 7

CONCLUSIONS, RECOMMENDATIONS, AND SUGGESTIONS

7.1 Introduction

This chapter presents conclusions, recommendations, and suggestions, based on the results of this study. It is divided into three sections: 1) Conclusions; 2) Recommendations; 3) Suggestions.

7.2 Conclusions

The major conclusions of this study can be summarised as follows.

1. The majority of Korean university teachers in this study have read about the use of media technology, and have read significantly more about low-tech media technology than hi-tech media technology.

2. The majority of teachers make little use of media technology, although they have had some experience of using it in language teaching, and use low-tech media technology significantly more than hi-tech media technology.

3. The teachers think that media technology equipment and materials, particularly hi-tech media technology software, are not widely available in education in general, but they would be likely to use them if they were more widely available for language teaching.

4. The teachers regard the support of university authorities, the availability of appropriate software, and their attitudes as the most significant factors in implementing media technology in language teaching.

5. The teachers have positive attitudes towards the use of media technology in general

and of the five specific media technologies (i.e., audio, video, computers, IV, and CD-ROM multimedia), but users have generally more positive attitudes towards it than non-users, with generally no significant gender and years of teaching experience differences.

6. The reasons non-users give for not using media technology, include its dehumanising effect, lack of software, and lack of knowledge and training on their part.

7. Those who do use media technology do so particularly because: they believe the claims about the potential of media technology that some writers make; they have favourable attitudes towards the use of it; and they are encouraged to use media technology by their students.

8. The majority of non-users are not satisfied with their teaching methods which do not include the use of media technology in language teaching.

9. The majority of users are also not satisfied with their teaching methods which do include the use of media technology in language teaching.

10. There is generally no significant relationship between gender and the patterns of teachers' use of media technology, and their attitudes towards the use of it.

11. There is also generally no significant relationship between years of teaching experience and the patterns of teachers' use of media technology, and their attitudes towards the use of it.

For reference, the patterns of Korean university students' use of media technology and their attitudes towards the use of it in FLT/L in this study, can be summarised as follows, and tend to be very similar to the teachers':

1. The students make little use of media technology, although they have had some experience of using it in language learning, and use low-tech media technology significantly more than hi-tech media technology.

2. The students would be likely to use media technology equipment and materials, particularly computer software, if they were more widely available for language learning.

3. The students have positive attitudes towards the use of media technology.

4. The students regard their own attitudes, teachers' attitudes (and guidance), and the availability of appropriate software as the most significant factors in implementing media technology in language learning.

5. The students tend to adopt and follow their teachers' attitudes and guidance in using media technology in language learning.

6. The students are not satisfied with their teachers' teaching methods whether they use media technology or not in language teaching.

7. There is generally no significant relationship between gender and the patterns of students' use of media technology, and their attitudes towards the use of it.

8. There is also generally no significant relationship between academic years and the patterns of students' use of media technology, and their attitudes towards the use of it.

In terms of the results obtained in this study, therefore, the future use of media technology in FLT/L in higher education in Korea looks promising, particularly because the teachers and students have positive attitudes towards its use, believing that it can help them in FLT/L, and this will positively impact on its use. Indeed, this study confirms that teachers' attitudes towards its use are one of the most significant factors in its successful implementation in FLT/L, and teachers' attitudes (and guidance) towards its use have significantly influenced their students' attitudes towards it, and the actual use of it in FLL.

However, it is worth noticing that teachers' positive attitudes towards media technology and its use alone do not necessarily ensure its actual use in FLT. As the results of this study show, their actual use of it, particularly of hi-tech media technology is very limited, although the teachers have positive attitudes towards the use of it, believing in its potential and effectiveness and being interested in it. Lack of equipment and appropriate materials for FLT/L, lack of knowledge, lack of teacher training, and lack of experts are identified as the main barriers encountered in the actual use of media technology in FLT/L. A number of research studies that are mentioned in section 3.4.1 'Teachers' attitudes towards media technology and its use in education and in FLT/L at all levels' also confirm that these factors have positively influenced teachers' attitudes towards the use of media technology, and its successful implementation in FLT/L.

There is no doubt that no one can expect the teachers to use it successfully in the language classroom without solving these problems, even though the teachers' attitudes towards the use of media technology are positive. Therefore, the problems should urgently be solved, in order to realise its value and implement it successfully in FLT/L in higher education in Korea. There must be: 1) more investment in the equipment and particularly in appropriate materials for hi-tech media technology in order for the teachers and students to gain access to them freely for curricular or extra-curricular activities; 2) proper teacher training (or in-service training), particularly workshop-based training courses, so as to provide the teachers with sufficient methodological and technical knowledge and skills to use them; 3) sufficient time off for teachers, so that they can spend some time familiarising themselves with them and gaining confidence in their use; 4) an adequate number of experts (or probably well-trained teachers) and technicians, in order that the teachers can continually have access to appropriate support from them at the right time. These can encourage more positive attitudes among the teachers towards the use of media technology, and more confidence in it, and encourage wider usage in FLT. Without such effort, media technology may simply remain a potential tool that is ignored or misused by the teachers and students (Rich 1991). Undoubtedly, the four items stated above can be achieved by the support of the university authorities. In this respect, it is clear that the support of the university authorities, along with positive teachers' attitudes, is crucial to the successful implementation of media technology in FLT/L in higher education in Korea.

7.3 Recommendations

Based on these findings and conclusions, it is clear that to provide the teachers with sufficient knowledge of the capabilities of media technology, to develop more positive attitudes towards its use, and to encourage wider usage in FLT, more access to hardware and software is necessary, and proper teacher training to familiarise teachers with the hardware and software and its potential for FLT is essential. Therefore, the following two recommendations which are practically feasible in the current circumstances at university level in Korea are suggested.

Firstly, the teachers and students should use the existing facilities effectively and efficiently. As mentioned in section 6.3, 'Implications for improving the use of media technology', almost all universities already have well-equipped language labs (with plenty of audio and video equipment and materials) and computing labs (with lots of high-performance computers and a number of CD-ROM multimedia machines, as well as some software that can be used for FLT/L), although they are not used for FLT/L alone, and teachers and students should make use of these facilities. The effective use of existing resources can to some extent make up for the lack of media technology equipment and materials, particularly hi-tech media technology in FLT/L.

Secondly, a programme of proper teacher training courses, particularly focused on hands-on practice and methodological solutions in FLT/L, e.g., a workshop-based training course suggested in section 6.3.2 should be carried out. This will help familiarise the teachers with media technology and give them confidence in using it, develop some ideas about how to integrate it into the current curriculum, and in addition, help them overcome the lack of its equipment and adequate materials to some extent in FLT/L.

7.4 Suggestions

Further research in this field is needed, since, despite their importance, there are very few research studies on the use of media technology, particularly teachers' attitudes towards the use of it in FLT/L at university level in Korea as confirmed in a number of relevant research studies. First of all, therefore, two suggestions for further research will be made.

Firstly, similar follow-up studies with larger samples (and probably with some refinements to the methodology) should be conducted in other areas or in Korea nationwide, to find out whether they will show a similar pattern, since this study was confined to the universities of the central districts in Korea, with a relatively small number of samples.

Secondly, longitudinal studies should be conducted, in order to investigate the effects of a teacher training course of the kind suggested, or similar kinds of training courses, on the subsequent use of media technology in the language classroom, i.e., to examine whether teachers (particularly non-users) will have more positive attitudes towards the use of media technology and actually use it more, after having more access to hardware and software, and after developing more familiarity with them through the training courses.

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APPENDICES

Appendix A Questionnaires and Interview Schedules

A.1 Questionnaire on the use of media technology in language teaching

Questionnaire on the use of media technology in language teaching

This questionnaire aims to discover teachers' attitudes towards the use of media technology in language teaching at university level in Korea. It is part of a research project which is examining the problems and benefits of the use of media technology. The answers will be grossed up and only general trends will be reported. The answers you give will be regarded as confidential.

The questionnaire is in three sections. **Section A** explores general views and experiences of media technology. **Section B** looks at the reasons why media technology is and is not used. **Section C** is a short biographical section. I therefore hope that you will be willing to spend about 15 minutes completing this questionnaire.

* **Media technology:** In this questionnaire media technology is defined as modern tools (or machines) of delivering or supporting teaching including TV, video, computers, audio, etc.

A. General Questions

Please tick (√) the appropriate column. (Please tick all that apply.)

1 Have you ever read any publications on media technology? Yes ___ No ___

1.1 If yes, on which media?

Audio ___
Video ___
Computer ___
CD-ROM ___

TV (including Satellite TV) ___
Multimedia[1] (IV) ___
Virtual reality[2] ___
Other (Please specify.) ________________

2 Have you ever read any publications on the use of media technology in education or in language teaching and learning? Yes ___ No ___

If yes, please complete the box below.
Please tick (√) the appropriate column.(Please tick all that apply.)

Media	**In education**	**In language teaching and learning**
Audio		
TV (including Satellite TV)		
Video		
Computer		
IV		
CD-ROM (multimedia)		
Virtual reality		
Other (Please specify.)		

---

[1] This refers to the applications of technology in which two media are used together, particularly Interactive Video (IV) here, computer plus video (tape or disc). Video is controlled by computer.

[2] New technology which simulates three dimensional images, so that the operator has the sensaion of being in a 'real' three dimensional space.

3 How interested are you in the use of media technology in language teaching? Please tick (√) and give your reasons.

Very interested ___	Fairly interested ___	Not particularly interested ___	Not interested at all ___

Why? ____

____

4 Have you had experience of using media technology in language teaching?

Yes ____ No ____

How often do you use media technology in language teaching?

Always ___ Almost always ___ Sometimes ___ Never ___

4.1 If yes, what was the context of use e.g., whole class, remedial, tutorial, etc.? Please specify here.____

4.2 What media did you use? (Please tick all that apply.)

Audio	___	TV (including Satellite TV)	___
Video	___	*CD-ROM (multimedia)*	___
Computer	___	Virtual reality	___
IV	___	Other (Please specify.)	________________

5 Do you use any other kind of media not mentioned in the list above regularly e.g., Over Head Project (OHP), Slides.? Yes ___ No ___

5.1 If yes, please specify here. ____

6 To what extent do you feel modern media technology is available now in education?

Media	**Easily available**	**Fairly easily available**	**Availability difficult**	**Not available at all**
In hardware				
In software				

7 How useful do you think media technology is for students in language learning?

Very useful ____ Fairly useful ____ Not very useful ____ Not useful at all ____

8 How useful do you think media technology is for university teachers in language teaching?

Very useful ____ Fairly useful ____ Not very useful ____ Not useful at all ____

9 If more media technology could be made available for language teaching, how likely would you be to use it?

Please tick the appropriate column for each media.

Media	**Very likely to use (90)**	**Fairly likely to use (60)**	**Unlikely to use (30)**	**Would not to use (0)**
More videos				
More computer programs				
More IV packages				
More CD-ROM software				
More audio materials				

10 Please indicate what you think of each of the technologies given below. Please a tick on the line at the point which best represents your view (e.g., if you think that audio is very undervalued, you would place a tick next to the word under-valued on the line. Overvalued __ __ __ __ Undervalued).

Audio	Useful	___ ___ ___ ___	Useless
	Easy	___ ___ ___ ___	Complicated
	Boring	___ ___ ___ ___	Interesting
	Motivated (students)	___ ___ ___ ___	Demotivated (students)
	Timesaving	___ ___ ___ ___	Time-consuming
	Overvalued	___ ___ ___ ___	Undervalued
	Much potential	___ ___ ___ ___	No potential
Video	Useful	___ ___ ___ ___	Useless
	Easy	___ ___ ___ ___	Complicated
	Boring	___ ___ ___ ___	Interesting
	Motivated (students)	___ ___ ___ ___	Demotivated (students)
	Timesaving	___ ___ ___ ___	Time-consuming
	Overvalued	___ ___ ___ ___	Undervalued
	Much potential	___ ___ ___ ___	No potential
Computers	Useful	___ ___ ___ ___	Useless
	Easy	___ ___ ___ ___	Complicated
	Boring	___ ___ ___ ___	Interesting
	Motivated (students)	___ ___ ___ ___	Demotivated (students)
	Timesaving	___ ___ ___ ___	Time-consuming
	Overvalued	___ ___ ___ ___	Undervalued
	Much potential	___ ___ ___ ___	No potential
IV	Useful	___ ___ ___ ___	Useless
	Easy	___ ___ ___ ___	Complicated
	Boring	___ ___ ___ ___	Interesting
	Motivated (students)	___ ___ ___ ___	Demotivated (students)
	Timesaving	___ ___ ___ ___	Time-consuming
	Overvalued	___ ___ ___ ___	Undervalued
	Much potential	___ ___ ___ ___	No potential
CD-ROM (multimedia)	Useful	___ ___ ___ ___	Useless
	Easy	___ ___ ___ ___	Complicated
	Boring	___ ___ ___ ___	Interesting
	Motivated (students)	___ ___ ___ ___	Demotivated (students)
	Timesaving	___ ___ ___ ___	Time-consuming
	Overvalued	___ ___ ___ ___	Undervalued
	Much potential	___ ___ ___ ___	No potential

11 Various factors are regarded as important in introducing media technology into university teaching. They are given below. Please place them in rank order of importance. (1 = most important, 6 = least important)

Appropriate software ___
Staff training ___
Student approval ___
Time for preparation ___
Favourable teacher attitudes ___
Support of the university authorities ___

* If you have any additional item(s) which you consider to be more important than any of above list, please specify it/them here.____

12 If you would like to make further comments, please state here.

B. The reasons why media technology are and are not used.

If you have used or are using media technology, please complete Questions 13 - 15.

If you have not used and do rarely use media technology, please complete Questions 16 - 18.

****

13 How often do you use media technology yourself?

Always ___ Almost always ___ Sometimes ___ Never ___

14 Listed below are 13 reasons that have been given for using media technology. Please indicate by a tick in the appropriate column the extent of your agreement or disagreement with each one.

I use media technology because	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
- it can help students to reinforce language skills.				
- it can provide students with more than one way to access information.				
- it can give students the authenticity of spoken language.				
- it can bring the real world into the classroom.				
- it can offer a wide range of learning and practice opportunities.				
- it can supply activities which are adjustable to the students' needs.				
- it can provide students with sufficient variety to maintain their interests.				
- it can make it easier to teach language.				
- teachers are expected to use it by the university authorities.				
- students expect teachers to use it.				
- the university authorities provide some help.				
- I enjoy using media technology.				
- I am personally committed to it.				

15 Are you satisfied with your current teaching methods when using media technology?

Yes ___ Please state why? ____

No ___ Please state why? ____

Please go to Section C.

16 How often do you use media technology yourself?

Always ___ Almost always ___ Sometimes ___ Never ___

17 Listed below are 13 reasons that have been given for not using media technology. Please indicate by a tick in the appropriate column the extent of your agreement or disagreement with each one.

I do not use media technology because	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
-I am suspicious about the claims made for media technology and its application.				
- I do not like using technology in teaching.				
- it is dehumanising.				
- it is non-communicative.				
- I do not know how to use and apply it in the EFL classroom.				
- I am not trained to use it.				
- I do not have enough choice of software.				
- I think the available software is not effective enough to be used with Korean students in the EFL classroom.				
- I am reluctant to invest time and energy in providing the right software (i.e., through design, evaluation, and classroom preparation).				
-I am worried about having to apply new ways of assessing learning which I am not sure about.				
- students are not keen on using it.				
- I feel there is a gap between new communicative trends in EFL teaching and the application of technology.				
- all examinations exclude the use of technology in Korea.				

18 Are you satisfied with your current teaching methods which do not include the use of media technology? Yes ___ No ___

Yes ____ Please state why? ____

____

____

No ____ Please state why? ____

____

____

C Biographical Section

Please tick (√) as appropriate.

Gender: Male ____ Female ____

Age: 26 - 30 ____ 31 - 35 ____ 36 - 40 ____ 41 - 45 ____

46 - 50 ____ Over 50 ____

Years of teaching experience: ____ Years

Position: ______________________________

I wish to receive a copy of the results of this questionnaire. ___

I am prepared to be included in a short follow up interview sample. ___

Name: ______________________________

Address: ______________________________

Telephone contact if possible: ______________________________

****

Your name, address and telephone number will be only used to contact you, if you are prepared to be interviewed and/or if want to receive a copy of the results.

Thank you very much for your help!

A.2 Questionnaire for students on the use of media technology in language learning

Questionnaire on the use of media technology in language learning

This questionnaire aims to discover students' attitudes towards the use of media technology in language learning at university level in Korea. It is part of a research project which is examining the problems and benefits of the use of media technology. The answers will be grossed up and only general trends will be reported. The answers you give will be regarded as confidential.

The questionnaire is in three sections. **Section A** is a short biographical section. **Section B** explores general views and experiences of media technology. **Section C** looks at the reasons why media technology is and is not used.

I therefore hope that you will be willing to spend about 15 minutes completing this questionnaire.

* **Media technology:** In this questionnaire media technology is defined as modern tools (or machines) of delivering or supporting teaching and learning including, video, computers, audio, etc.

A Biographical Section

Please tick (√) as appropriate.

Gender: Male ____ Female ____

Age: 18 - 20 ____ 21 - 23 ____ 24 - 26 ____ 27 - 29 ____ Over 29 ____

Academic year: ____ Year

Department and University: ____

I am prepared to be included in a short follow up interview sample. ___

Name: ____

Address: ____

Telephone contact if possible: ____

Your name, address and telephone number will be only used to contact you, if you are prepared to be interviewed.

B General Questions

Please tick (√) the appropriate column. (Please tick all that apply.)

1 Have you ever read any publications on the use of media technology in general or in language learning ? Yes ___ No ___

1.1 If yes, please complete the box below.

Please tick (√) the appropriate column. (Please tick all that apply.)

Media	In general	In language learning
Audio		
TV (including Satellite TV)		
Video		
Computer		
Other (Please specify.)		

2 How interested are you in the use of media technology in language learning? Please tick (√) and give your reasons.

Very interested ___ Fairly interested ___ Not particularly interested ___ Not interested at all ___

Why? ____

____

3 Have you had experience of using media technology in language learning ? Yes ___ No ___

3.1 If yes, what was the context of use e.g., whole class, remedial, tutorial, self-access, etc.? Please specify here.____

3.2 What media did you use? (Please tick all that apply.)

Audio ___ TV (including Satellite TV) ___
Video ___ Computer ___ Other (Please specify.) ___________

4 Do you think you are better at using media technology than teachers?

Much better ___ Better ___ Less good ___ Much less good ___

5 Are you satisfied with teachers' teaching methods when using media technology?

Yes ___ No ___

Please state why? ____

____

6 Are you satisfied with teachers' teaching methods which do not include the use of media technology? Yes ___ No ___

Please state why? ____

____

7 If more media technology could be made available for language teaching, how likely would you be to use it?

Please tick the appropriate column for each media.

Media	**Very likely to use (90)**	**Fairly likely to use (60)**	**Unlikely to use (30)**	**Would not to use (0)**
More audio materials				
More videos				
More computer programs				

8 Please indicate what you think of each of the technologies given below. Please a tick on the line at the point which best represents your view (e.g., if you think that audio is very undervalued, you would place a tick next to the word under-valued on the line. Overvalued _ _ _ _ Undervalued).

Audio	Useful	___ ___ ___ ___	Useless
	Easy	___ ___ ___ ___	Complicated
	Boring	___ ___ ___ ___	Interesting
	Motivated (students)	___ ___ ___ ___	Demotivated (students)
	Timesaving	___ ___ ___ ___	Time-consuming
	Overvalued	___ ___ ___ ___	Undervalued
	Much potential	___ ___ ___ ___	No potential
Video	Useful	___ ___ ___ ___	Useless
	Easy	___ ___ ___ ___	Complicated
	Boring	___ ___ ___ ___	Interesting
	Motivated (students)	___ ___ ___ ___	Demotivated (students)
	Timesaving	___ ___ ___ ___	Time-consuming
	Overvalued	___ ___ ___ ___	Undervalued
	Much potential	___ ___ ___ ___	No potential
Computers	Useful	___ ___ ___ ___	Useless
	Easy	___ ___ ___ ___	Complicated
	Boring	___ ___ ___ ___	Interesting
	Motivated (students)	___ ___ ___ ___	Demotivated (students)
	Timesaving	___ ___ ___ ___	Time-consuming
	Overvalued	___ ___ ___ ___	Undervalued
	Much potential	___ ___ ___ ___	No potential

9 Various factors are regarded as important in introducing media technology into language learning. They are given below. Please place them in rank order of importance. (1 = most important, 6 = least important)

Appropriate software ___
Teachers' attitudes (and guidance) ___
Teacher approval ___
Time for preparation ___
Favourable students' attitudes ___
Support of the university authorities ___

* If you have any additional item(s) which you consider to be more important than any of above list, please specify it/them here. ______________________________

C. The reasons why media technology are and are not used.

If you have used or are using media technology, please complete Questions 10 - 12.

If you have not used and are rarely using media technology, please complete Questions 13 - 14.

****

10 Have you used media technology in self-access? If yes, please describe.

Which media? ______________________________

What purposes? ______________________________

How often? Always ___ Almost always ___ Sometimes ___ Never ___

11 Listed below are 13 reasons that have been given for using media technology. Please indicate by a tick in the appropriate column the extent of your agreement or disagreement with each one.

I use media technology because	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
- it can help students to reinforce language skills.				
- it can provide students with more than one way to access information.				
- it can give students the authenticity of spoken language.				
- it can bring the real world into self-access.				
- it can offer a wide range of learning and practice opportunities.				
- it can supply activities which are adjustable to the students' needs.				
- it can provide students with sufficient variety to maintain their interests.				
- it can make it easier to learning language.				
- students are expected to use it by the university authorities.				
- teachers expect students to use it.				
- the university authorities have provided resources some help.				
- I enjoy using media technology.				
- I am personally committed to it.				

12 Are you satisfied with your current learning methods when using media technology?

Yes ___ Please state why? ______________________________

____

____

No ___ Please state why? ______________________________

____

____

13 Listed below are 13 reasons that have been given for not using media technology. Please indicate by a tick in the appropriate column the extent of your agreement or disagreement with each one.

	Strongly agree	**Agree**	**Disagree**	**Strongly disagree**
I do not use media technology because				
-I am suspicious about the claims made for media technology and its application.				
- it is dehumanising.				
- it is non-communicative.				
- it is time-consuming.				
- I do not know how to use and apply it in self-access.				
- I am not trained to use it.				
- I do not like using technology in learning.				
- I do not have enough choice of software.				
- I think the available software is not effective enough to be used with Korean students in self-access.				
-I am worried about having to apply new ways of assessing learning which I am not sure about.				
- teachers are not keen on using it.				
- I feel there is a gap between new communicative trends in EFL learning and the application of technology.				
- all examinations exclude the use of technology in Korea.				

14 Are you satisfied with your current learning methods which do not include the use of media technology? Yes ___ No ___

Yes ____ Please state why? ____

____

____

No ____ Please state why? ____

____

____

****

* If you would like to make further comments, please stae here.

Thank you very much for your help!

A.3 Interview Schedule I for Teachers

Interview Schedule I

A For those who use media technology

1 Describe an example of successful use of media technology in your own teaching.

2 Have you had any unsuccessful experiences of using media technology? Describe them.

3 How do you feel about using media technology?

1) Are there anxieties, worries and doubts about your own competence?
2) Does it make you feel good as a teacher?
3) Does it make you feel more professional?

4 Have you experienced any technical problems?

1) If yes, how did you cope with them?

5 Did it take you a long time to prepare the sessions in which you use it?

1) Does it take longer than usual?
2) Is it worth the effort? Why?

6 How do the students react? Are there different reactions?

1) Do they have any problems?

7 Have you had training in the use of media technology?

1) What was it?
2) Was it any good?

8 Have you had any other help in using media technology?

1) Was it only once? or Is it going on?

9 Do you think using media technology changes the role of the teacher?
If so, how?

1) Does the teacher, for example, become a manager and facilitator of learning?
2) Is this a role you want yourself?
3) Is it a good or bad development?

10 How does media technology affect the role of the student in acquiring knowledge and skill?

1) Is the student more responsible for his own learning?
2) is this a good thing or bad thing?

11 Would you say that media technology made it easier or harder to teach with a Communicative Language Teaching theory?

12 Why do you think some lecturers fail to use media technology?

1) Is it the assessment system for example?

13 Why do you think the take up of media technology is slow in the University?

B For those who not use media technology

1 Have you ever tried to use media technology in your teaching?

If yes,
1) Could you describe what you did?
2) Were you pleased or unhappy about it? Why?

If no,
1) Have you ever seen another teacher using media technology?

If yes,
1) Did you think it was effective or not? Why?

2. Have you ever considered using media technology yourself?

If yes,
1) Why have you not done so?

If no,
1) Do you have any fundamental reason for not doing so?

3. Are there any circumstances in which you would be prepared to use media technology?

4. If you had an opportunity to attend a training course on the use of media technology, would you be prepared to attend?

5. How do you think your students would react to media technology?

6. Why do you think some teachers do use media technology in their classroom?

7. What is the best way to approach Communicative Language Teaching (CLT) here?

8. Do you feel that media technology would make CLT easier or harder?

9. Do you think there are any institutional barriers to the use of media technology?

A.4 Interview Schedule II for Heads

Interview Schedule II

1 Do you think the use of media technology is useful in language teaching and learning at university level in Korea?

If yes, could you describe why?

If no, could you describe why?

2 How do you feel the current level of media technology utilisation compares to that of English-speaking countries?

1) Are you satisfied with it?

If yes, why?

If no, why? Do you have any plan to improve the level? How?

3 Do you think the take up of media technology is slow or fast in the university?

If slow, what facts have made it slow?

If fast, what facts have helped it?

4 Have there been any training programmes for teachers in the use of media technology?

If yes, how successful have they been used? Please describe an example of a successful programme?
1) Is there follow-up support after training?

If no, are there any plans? Please describe.

5 Are there any plans to give teachers more training course in the use of media technology?

If yes, what kinds of training? How will it go on?

If no, why? Please describe.

6 How do you feel about the competence of your teachers to use media technology?

1) Are there anxieties, worries and doubts?

If yes, what kinds?

7 Have you had any financial problems?

If yes, please describe how you have overcome them.

8 Have you had any technical problems?

If yes, please describe how you have overcome them.

9 Do you have any other plans to improve the use of media technology in language teaching?

If yes, please describe them in detail, if possible.

A.5 Questionnaire for students in Korean

외국어 학습에 있어서 미디어 테크(Media technology) 이용에 관한 설문조사

이 설문조사는 대학 수준에서 미디어 테크의 활용을 통한 영어 학습에 대한 학생들의 태도를 알아보고, 앞으로 미디어 테크를 이용하는 영어 학습의 보다 폭넓은 실행 가능성에 대한 기초 자료로 삼고자 하는데 목적이 있습니다. 또한 이 조사는 미디어 테크 이용의 장점과 문제점을 분석 · 연구하는 영국 뉴캐슬 대학교의 박사과정 연구 논문의 일부입니다.

이 설문조사는 편의상 A, B, C, 세 부분으로 나누어져 있습니다. A는 인적 사항이고, B는 미디어 테크 이용에 대한 일반 사항이며, 마지막으로 C는 미디어 테크를 사용하거나, 혹은 사용하지 않는 이유에 대한 사항들입니다.

응답해주시는 내용은 연구 목적에만 사용될 것이며, 가까운 장래에 한국의 모든 대학교에서 미디어 테크를 이용하는 외국어 학습의 실시에 귀중한 자료가 될 것입니다. 귀하께서 평소 생각하시는 바를 빠짐없이 성의껏 답해 주시면 감사하겠습니다.

***미디어 테크(Media technology)**: 이 설문조사에서 미디어 테크는 텔레비전, 비디오, 컴퓨터, 오디오 레코더등을 포함한 외국어 교육 및 학습에 이용되는 도구로써 최신 과학 기자재를 의미합니다.

A. 인적사항

다음 질문에 적당한 내용을 기입하시거나, 해당되는 곳 ____ 위에 V표를 해주시기 바랍니다.

성 별 : 남 ____ 여 ____
연 령 : 18-20 ___ 21-23 ___ 24-26 ___ 27-29 ___ 30 이상 ___
학 년 : ________ 학년
학 과 : ____________________

다음 귀하의 성명, 주소 및 전화번호는 이 실문조사를 보충하기 위한 간단한 인터뷰가 필요할 경우 연락을 취하기 위해 필요한 것이니, 가능하다면 기입해 주시기 바랍니다.

성 명 :
주 소 :
전화번호:

B. 일반사항

1. 외국어 학습 혹은 그 이외에 미디어 테크의 이용에 관한 서적이나 기사 등을 읽어보신 적이 있습니까? 예 ____ 아니오 ____

1-1. 만약 읽어본 적이 있다면 아래의 해당되는 모든 빈 칸에 V표를 해주십시오.

	외국어 학습	외국어 학습에 관계되는 것 이외에
오디오		
텔레비전 (위성TV도 포함)		
비디오		
컴퓨터		
이외에 다른 것이 있으시면 명시해 주십시오		

2. **외국이 학습에 있어서 미디어 테크 이용에 대한 귀하의 관심은 어떻습니까?**
매우 흥미 있다 ___ 흥미 있다 ___ 특별히 흥미가 있지는 않다 ___ 전혀 흥미가 없다 ___

위의 답에 대한 이유를 간단히 설명해 주십시오. ______________________________

____

____

3. **외국어 학습에 있어서 미디어 테크를 사용하신 적이 있습니까?** 예 ____ 아니오 ____

3.1. **사용하신 적이 있으면, 사용하신 내용을 설명하여 주십시오.** (예: 정규수업, 보충수업, 개별 지도 시간, 자습 등) ______________________________

3.2. **어떤 미디어 테크를 사용하셨습니까? (해당되는 모든 곳에 V표를 하십시오.)**
오디오 ___ 텔레비전(위성 TV포함) ___ 비디오 ___ 컴퓨터 ___
이외의 다른 미디어 테크 (명시해 주십시오) ______________

4. **귀하는 미디어 테크 사용의 숙련도에 있어서 수업 담당자와 비교하여 어떻다고 생각합니까?**
훨씬 더 숙달되어 있다 ____ 숙달되어 있다 ____ 못하다 ____ 훨씬 못하다 ____

5. **귀하는 미디어 테크를 사용하는 수업 담당자의 교수법에 만족합니까?** 예 ___ 아니오 ___
이유를 간단히 설명해 주십시오. ______________________________

____

____

6. **귀하는 미디어 테크를 사용하지 않는 수업 담당자의 교수법에 만족합니까?** 예 ___ 아니오 ___
이유를 간단히 설명해 주십시오. ______________________________

____

____

7. **앞으로 외국어 학습에 있어서 더 많은 미디어 테크의 프로그램이 사용 가능하다면, 귀하는 어느 정도 사용할 것입니까? (해당되는 빈칸에 V표를 하십시오.)**

	아주 많이	많이	가끔	사용 안함
더 많은 오디오 프로그램				
더 많은 비디오 프로그램				
더 많은 컴퓨터 프로그램				

8. **외국어 학습에 있어서 아래 주어진 각 미디어 테크에 대해 귀하의 생각을 해당되는 곳 __ 위에 V표를 해주시기 바랍니다.** (예를 들면, 오디오가 지나치게 과소 평가되고 있다면, V표를 '과소 평가됨' 바로 옆 ___ 위에 표시해 주시기 바랍니다. 과대 평가됨 ___ ___ ___ ___ 과소 평가됨)

오디오

유용함 ___ ___ ___ ___ ___ 쓸모 없음
쉬 움 ___ ___ ___ ___ ___ 어렵고 복잡함
지루함 ___ ___ ___ ___ ___ 재미있음
학생의 동기를 유발시킴 ___ ___ ___ ___ ___ 학생의 동기를 유발시키지 못함
시간 낭비임 ___ ___ ___ ___ ___ 시간이 절약됨
과대 평가됨 ___ ___ ___ ___ ___ 과소 평가됨
많은 잠재성 ___ ___ ___ ___ ___ 잠재성이 없음

비디오

유용함	___ ___ ___ ___ ___	쓸모 없음
쉬 움	___ ___ ___ ___ ___	어렵고 복잡함
지루함	___ ___ ___ ___ ___	재미있음
학생의 동기를 유발시킴	___ ___ ___ ___ ___	학생의 동기를 유발시키지 못함
시간 낭비임	___ ___ ___ ___ ___	시간이 절약됨
과대 평가됨	___ ___ ___ ___ ___	과소 평가됨
많은 잠재성	___ ___ ___ ___ ___	잠재성이 없음

컴퓨터

유용함	___ ___ ___ ___ ___	쓸모 없음
쉬 움	___ ___ ___ ___ ___	어렵고 복잡함
지루함	___ ___ ___ ___ ___	재미있음
학생의 동기를 유발시킴	___ ___ ___ ___ ___	학생의 동기를 유발시키지 못함
시간 낭비임	___ ___ ___ ___ ___	시간이 절약됨
과대 평가됨	___ ___ ___ ___ ___	과소 평가됨
많은 잠재성	___ ___ ___ ___ ___	잠재성이 없음

9. 미디어 테크를 외국어 학습에 도입 · 적용하는데 있어서 아래와 같이 여러 가지 요인들이 고려될 수 있습니다. 그 요인들을 중요한 순서대로 나열해 *주십시오. (1=가장 중요함, 6=가장 중요하지 않음)*

적절한 소프트웨어 (프로그램) ____
수업 담당자의 지도 ____
수업 담당자의 승인 ____
준비 시간 ____
호의적인 학생의 태도 . ____
대학 당국의 보조 ____

* 만약 귀하께서 위 사항들보다 더 중요하다고 생각하는 것들이 있으시면 여기에 명시해 주십시오.

____

C. 미디어 테크를 사용하는 이유와 사용하지 않는 이유

*** 귀하께서 미디어 테크를 사용하고 있거나 사용한 적이 있으시면 10 - 12번 문항만 답하시고, 사용하지 않거나 사용한 적이 없다면 13 - 14번 문항만 답하십시오.**

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10. 귀하는 자율학습 시간에 미디어 테크를 사용한 적이 있습니까?

그렇다면, 어떤 미디어 테크? ______________________
무슨 목적으로 ? ______________________
사용한 빈도는 ? 항상 ____ 자주 ____ 가끔 ____

11. 미디어 테크를 사용하는 이유로서 다음 13가지 사항들이 있습니다. 각 사항에 귀하의 생각을 해당하는 란 밑에 V표를 해 주십시오.

	전적으로 동의한다	**조금은 동의한다**	**동의하지 않는다**	**전혀 동의 하지 않는다**
나는 다음과 같은 이유로 미디어 테크를 사용한다:				
- 학생들의 외국어 능력을 향상시키는데 도움을 줄 수 있다.				

- 학습자료나 정보를 얻는데 보다 더 많은 방법을 제공할 수 있다.

- 진정한 구어를 학생들에게 제공할 수 있다.

- 실제 상황을 자율학습으로 가져다 줄 수 있다.

- 보다 광범위한 학습과 연습의 기회를 제공할 수 있다.

- 학생의 필요에 따라 조절이 가능한 학습활동을 제공할 수 있다.

- 학생들의 흥미를 유지할 수 있는 다양성을 제공할 수 있다.

- 외국어 학습을 더 용이하게 할 수 있다.

- 대학 당국은 학생들이 미디어 테크를 사용하기를 기대한다.

- 수업 담당자들은 학생들이 미디어 테크를 사용하기를 기대한다.

- 대학 당국은 시설 및 자료를 제공해 왔다.

- 나는 미디어 테크를 사용하는 것을 즐긴다.

- 나는 개인적으로 미디어 테크가 도움이 된다는 확신을 가지고 사용하고 있다.

12. **귀하께서는 미디어 테크를 사용할 때, 현재의 방법에 만족합니까?** 예 ____ 아니오 ____

이유를 간단히 설명해 주십시오. ____

____

____

****

13. **미디어 테크를 사용하지 않는 이유로 다음 13가지 사항들이 있습니다. 각 사항에 귀하의 생각을 해당하는 란 밑에 V표를 해 주십시오.**

	전적으로 동의한다	**조금은 동의한다**	**동의하지 않는다**	**전혀 동의 하지 않는다**
나는 다음과 같은 이유로 미디어 테크를 사용하지 않는다:				
- 나는 미디어 테크에 대한 주장과 이것의 적용에 대해 의심스럽다.				
- 미디어 테크는 비인간적이다.				
- 의사 소통적이 아니다.				
- 시간 낭비이다.				
- 나는 자율학습 시간에 미디어 테크를 사용하거나 적용하는 방법을 모른다.				
- 나는 미디어 테크를 활용하는 교육을 받지 못했다.				
- 나는 학습할 때 미디어 테크 이용하는 것을 좋아하지 않는다.				

- 나는 프로그램을 선택할 정도로 충분히
  소프트웨어를 가지고 있지 못하다.

- 나는 사용 가능한 소프트웨어 프로그램이 한국
  대학생들이 자율학습에 사용할 정도로 충분히
  효과적이지 못하다고 생각한다.

- 나는 내가 확신을 가지지 못하는 새로운 학습
  방법을 적용하는데 대해 근심스럽다.

- 수업 담당자들은 미디어 테크를 이용하는 것을
  좋아하지 않는다.

- 나는 외국어 학습에 있어서 의사 소통을 위주로
  하는 방법과 미디어 테크를 적용하는 방법과는
  관련이 없다고 생각한다.

- 한국에서 모든 시험 (국가시험을 포함)은 미디어
  테크를 이용하지 않는다.

14. 귀하께서는 미디어 테크를 사용하지 않는 현 학습방법에 만족하고 있습니까?
예 ____ 아니오 ____

이유를 간단히 설명해 주십시오. ____
____
____

* 지금까지 응답하신 것 이외에 제시하고 싶은 의견들이 있으시면 아래 공란에 진술하여 주십시오.

*** 감사합니다. ***

A.6 Observation sheets

Evaluation Checklist

1. **Course:**
2. **Level of Class:**
3. **Number of Students:**
4. **Length of Lesson:** ____ minutes
5. **Time spent on Computers:** ____ minutes
   Video : ____ minutes
   Audio : ____ minutes
6. **Layout of the Classroom**

7. **Classroom Activities**

a) *Media technology*

* Scale: **1** (Very good), **2** (Good), **3** (Average), **4** (Poor), **5** (Very poor)

Contents	**Yes**	**No**	**1**	**2**	**3**	**4**	**5**
How appropriate for the target group?							
To what extent does the content cover the requirements of the existing syllabus?							
To what extent does it have the students' attention?							
Does it integrate four language skills?							
Is it interesting?							
Does it provide an authentic use of language?							
Does it provide sufficient practice exercise?							

Comments:

b) Instruction

Contents	**Yes**	**No**	**1**	**2**	**3**	**4**	**5**
Is the language used at the right level for students?							
Is it presented in a clear manner?							
Is it understandable for students?							
Is it interesting?							
Is it communicative?							
Is its purpose defined well?							
Is it well-matched with media?							
Does it allow students to carry out individual work?							
Is there adequate and appropriate feedback at end?							

Comments:

c) Activity for students

Contents	Yes	No	1	2	3	4	5
Is it sufficient?							
Is it motivating?							
Is it interesting?							
Is it too simple for students?							
Is it too complicated for students?							
Does it include and practise the skills the students need?							
Are there adequate language production exercises?							
Is it integrated into the practice of other skills?							
Does it allow for free production of language?							
Is there any feedback during the activity?							

Comments:

8. Which activity types were covered in the class?

9. Which skills were supposed to be practised by media technology?

Was this achieved?

10. What do you think was the aim of the lesson?

11. Was the aim of the lesson attained?

A.7 Questionnaire for the Classroom Activities

Questionnaire on the Classroom Activities

Please complete this questionnaire after the lesson. * Delete as appropriate.

Course:

Years:

Dept.:

Gender:

1 Have you had an experience on **audio/video/computers*** in FLL?
Yes ____ No ____

2 Did you enjoy the lesson?

Very much _____ A little ____ Not *very much* ____ *Not at all* ____

3 Did you find the lesson useful?

Very useful ____ Fairly useful ____ Not very useful ____ Not useful at all ____

4 Are you satisfied with teachers' teaching methods when using media technology?

Yes ___ No ___

Please state why?

5 Please write what you have found difficult in the activities.

-
-
-

6 Please write what you have found easy in the activities.

-
-
-

7 Please write what you have found interesting in the activities.

-
-
-

8. Please write any comments you wish.

Appendix B Biographical Details of the Subjects and Their Crosstabulations

B.1 Biographical details of teachers

Variables	N	Percent (%)
Gender		
Male	32	66.7
Female	16	33.7
Age		
26-30	7	14.6
31-35	8	16.7
36-40	8	16.7
41-45	6	12.5
46-50	5	10.4
Over 50	14	29.2
Years of teaching experience		
1-5	15	31.3
6-10	10	20.8
11-15	8	16.7
16-20	2	4.2
21-25	11	22.9
26-30	2	4.2
Position		
Professor	25	52.1
Lecturer	23	47.9

B.1.1 Crosstabulation: GENDER By YRTEACIN (Years of teaching experience)

```
             Count |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Tot Pct |        |        |        |        |        |        | Row
                   |       1|       2|       3|       4|       5|       6|Total
GENDER     --------+--------+--------+--------+--------+--------+--------+
                 1 |    10  |     6  |     5  |     2  |     7  |     2  |   32
  Male             |  20.8  |  12.5  |  10.4  |   4.2  |  14.6  |   4.2  | 66.7
                   +--------+--------+--------+--------+--------+--------+
                 2 |     5  |     4  |     3  |        |     4  |        |   16
  Female           |  10.4  |   8.3  |   6.3  |        |   8.3  |        | 33.3
                   +--------+--------+--------+--------+--------+--------+
            Column     15       10        8        2       11        2      48
             Total    31.3     20.8     16.7      4.2     22.9      4.2  100.0
```

```
Chi-Square    D.F.      Significance       Min E.F.      Cells with E.F.< 5
----------    ----      ------------       --------      ------------------
  2.30795       5          .8051             .667        7 OF    12 ( 58.3%)

Number of Missing Observations =       0
```

B.1.2 Crosstabulation: AGE By GENDER

```
             Count  |Male     |Female   |
GENDER->    Tot Pct |         |         | Row
                    |       1 |       2 | Total
AGE         --------+---------+---------+
                 1  |     3   |     4   |     7
  26-30             |   6.3   |   8.3   |  14.6
                    +---------+---------+
                 2  |     6   |     2   |     8
  31-35             |  12.5   |   4.2   |  16.7
                    +---------+---------+
                 3  |     5   |     3   |     8
  36-40             |  10.4   |   6.3   |  16.7
                    +---------+---------+
                 4  |     5   |     1   |     6
  41-45             |  10.4   |   2.1   |  12.5
                    +---------+---------+
                 5  |     4   |     1   |     5
  46-50             |   8.3   |   2.1   |  10.4
                    +---------+---------+
                 6  |     9   |     5   |    14
  over 50           |  18.8   |  10.4   |  29.2
                    +---------+---------+
            Column      32        16         48
             Total     66.7      33.3      100.0
```

```
Chi-Square    D.F.      Significance       Min E.F.      Cells with E.F.< 5
----------    ----      ------------       --------      ------------------
  3.28393       5          .6563             1.667       9 OF    12 ( 75.0%)

Number of Missing Observations =       0
```

B.1.3 Crosstabulation: AGE By YRTEACIN

```
              Count  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Tot Pct  |        |        |        |        |        |        | Row
                     |      1 |      2 |      3 |      4 |      5 |      6 |Total
AGE          --------+--------+--------+--------+--------+--------+--------+
                  1  |     7  |        |        |        |        |        |    7
  26-30              |  14.6  |        |        |        |        |        | 14.6
                     +--------+--------+--------+--------+--------+--------+
                  2  |     7  |     1  |        |        |        |        |    8
  31-35              |  14.6  |   2.1  |        |        |        |        | 16.7
                     +--------+--------+--------+--------+--------+--------+
                  3  |     1  |     6  |     1  |        |        |        |    8
  36-40              |   2.1  |  12.5  |   2.1  |        |        |        | 16.7
                     +--------+--------+--------+--------+--------+--------+
                  4  |        |     1  |     4  |     1  |        |        |    6
  41-45              |        |   2.1  |   8.3  |   2.1  |        |        | 12.5
                     +--------+--------+--------+--------+--------+--------+
                  5  |        |     1  |     1  |        |     3  |        |    5
  46-50              |        |   2.1  |   2.1  |        |   6.3  |        | 10.4
                     +--------+--------+--------+--------+--------+--------+
                  6  |        |     1  |     2  |     1  |     8  |     2  |   14
  over 50            |        |   2.1  |   4.2  |   2.1  |  16.7  |   4.2  | 29.2
                     +--------+--------+--------+--------+--------+--------+
             Column      15       10        8        2       11        2      48
              Total     31.3     20.8     16.7      4.2     22.9      4.2   100.0
```

```
         Statistic                    Value            Significance
         ---------                    -----            ------------
Pearson's R                          .86802               .0000

Number of Missing Observations =       0
```

B.1.4 Crosstabulation: POSITION By GENDER

```
              Count  |Male     |Female  |
GENDER->    Tot Pct  |         |        |  Row
                     |       1 |      2 | Total
POSITION    ---------+---------+--------+
                  1  |    18   |     7  |   25
  Professor          |  37.5   |  14.6  |  52.1
                     +---------+--------+
                  2  |    14   |     9  |   23
  Lecturer           |  29.2   |  18.8  |  47.9
                     +---------+--------+
              Column      32       16       48
               Total    66.7     33.3    100.0

 Chi-Square      D.F.       Significance        Min E.F.      Cells with E.F.< 5
 ----------      ----       ------------        --------      ------------------
   .26087          1           .6095             7.667        None
   .66783          1           .4138           ( Before Yates Correction )

Number of Missing Observations =        0
```

B.1.5 Crosstabulation: POSITION By YRTEACIN

```
             Count  |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN-> Tot Pct  |         |         |         |         |         |         | Row
                    |       1 |       2 |       3 |       4 |       5 |       6 |Total
POSITION   ---------+---------+---------+---------+---------+---------+---------+
                 1  |     1   |     4   |     6   |     2   |    10   |     2   |  25
  Professor         |   2.1   |   8.3   |  12.5   |   4.2   |  20.8   |   4.2   | 52.1
                    +---------+---------+---------+---------+---------+---------+
                 2  |    14   |     6   |     2   |         |     1   |         |  23
  Lecturer          |  29.2   |  12.5   |   4.2   |         |   2.1   |         | 47.9
                    +---------+---------+---------+---------+---------+---------+
             Column      15        10         8         2        11         2      48
              Total    31.3      20.8      16.7       4.2      22.9       4.2   100.0

 Chi-Square      D.F.       Significance        Min E.F.      Cells with E.F.< 5
 ----------      ----       ------------        --------      ------------------
  24.99036         5           .0001                .958      7 OF    12 ( 58.3%)

Number of Missing Observations =        0
```

B.2 Biographical details of the non-users

Variables	N	Percent (%)
Gender		
Male	22	73.3
Female	8	26.7
Age		
26-30	0	0
31-35	4	13.3
36-40	4	13.3
41-45	6	20.0
46-50	5	16.7
Over 50	11	36.7
Years of teaching experience		
1-5	5	16.7
6-10	6	20.0
11-15	6	20.0
16-20	1	3.3
21-25	10	33.3
26-30	2	6.7
Position		
Professor	22	73.3
Lecturer	8	26.7

B.2.1 Crosstabulation: GENDER By YRTEACIN

```
              Count  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->           |        |        |        |        |        |        |  Row
                     |       1|       2|       3|       4|       5|       6|  Total
GENDER       --------+--------+--------+--------+--------+--------+--------+
                  1  |     4  |     4  |     4  |     1  |     7  |     2  |    22
  Male               |        |        |        |        |        |        |  73.3
                     +--------+--------+--------+--------+--------+--------+
                  2  |     1  |     2  |     2  |        |     3  |        |     8
  Female             |        |        |        |        |        |        |  26.7
                     +--------+--------+--------+--------+--------+--------+
             Column        5        6        6        1       10        2       30
              Total     16.7     20.0     20.0      3.3     33.3      6.7    100.0

 Chi-Square       D.F.        Significance        Min E.F.     Cells with E.F.< 5
 ----------       ----        ------------        --------     ------------------
   1.53409          5             .9091             .267        11 OF   12 ( 91.7%)

Number of Missing Observations =        0
```

B.2.2 Crosstabulation: AGE By GENDER

```
               Count  |Male     |Female   |
GENDER->              |         |         | Row
                      |       1 |       2 | Total
AGE           --------+---------+---------+
                    2 |     3   |     1   |     4
  31-35               |         |         |  13.3
                      +---------+---------+
                    3 |     3   |     1   |     4
  36-40               |         |         |  13.3
                      +---------+---------+
                    4 |     5   |     1   |     6
  41-45               |         |         |  20.0
                      +---------+---------+
                    5 |     4   |     1   |     5
  46-50               |         |         |  16.7
                      +---------+---------+
                    6 |     7   |     4   |    11
  over 50             |         |         |  36.7
                      +---------+---------+
               Column      22         8        30
                Total    73.3      26.7     100.0

 Chi-Square     D.F.       Significance       Min E.F.     Cells with E.F.< 5
 ----------     ----       ------------       --------     ------------------
   .96074        4            .9157             1.067      9 OF    10 ( 90.0%)

Number of Missing Observations =       0
```

B.2.3 Crosstabulation: AGE By YRTEACIN

```
               Count  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->            |        |        |        |        |        |        | Row
                      |      1 |      2 |      3 |      4 |      5 |      6 | Total
AGE           --------+--------+--------+--------+--------+--------+--------+
                    2 |    4   |        |        |        |        |        |     4
  31-35               |        |        |        |        |        |        |  13.3
                      +--------+--------+--------+--------+--------+--------+
                    3 |    1   |    3   |        |        |        |        |     4
  36-40               |        |        |        |        |        |        |  13.3
                      +--------+--------+--------+--------+--------+--------+
                    4 |        |    1   |    4   |    1   |        |        |     6
  41-45               |        |        |        |        |        |        |  20.0
                      +--------+--------+--------+--------+--------+--------+
                    5 |        |    1   |    1   |        |    3   |        |     5
  46-50               |        |        |        |        |        |        |  16.7
                      +--------+--------+--------+--------+--------+--------+
                    6 |        |    1   |    1   |        |    7   |    2   |    11
  over 50             |        |        |        |        |        |        |  36.7
                      +--------+--------+--------+--------+--------+--------+
               Column      5        6        6        1       10        2       30
                Total   16.7     20.0     20.0      3.3     33.3      6.7    100.0

          Statistic                    Value         Significance
          ---------                    -----         ------------
Pearson's R                           .82902            .0000

Number of Missing Observations =       0
```

B.2.4 Crosstabulation: POSITION By GENDER

```
               Count  |Male     |Female   |
GENDER->              |         |         | Row
                      |       1 |       2 | Total
POSITION      --------+---------+---------+
                    1 |    17   |     5   |    22
  Professor           |         |         |  73.3
                      +---------+---------+
                    2 |     5   |     3   |     8
  Lecturer            |         |         |  26.7
                      +---------+---------+
               Column      22         8        30
                Total    73.3      26.7     100.0
```

```
 Chi-Square     D.F.      Significance       Min E.F.     Cells with E.F.< 5
 ----------     ----      ------------       --------     ------------------
    .11719        1          .7321            2.133      1 of     4 ( 25.0%)
    .65470        1          .4184          ( Before Yates Correction )

Number of Missing Observations =        0
```

B.2.5 Crosstabulation: POSITION By YRTEACIN

```
            Count  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->         |        |        |        |        |        |        | Row
                   |      1 |      2 |      3 |      4 |      5 |      6 | Total
POSITION   --------+--------+--------+--------+--------+--------+--------+
                1  |    1   |    3   |    6   |    1   |    9   |    2   |   22
  Professor        |        |        |        |        |        |        |  73.3
                   +--------+--------+--------+--------+--------+--------+
                2  |    4   |    3   |        |        |    1   |        |    8
  Lecturer         |        |        |        |        |        |        |  26.7
                   +--------+--------+--------+--------+--------+--------+
           Column       5        6        6        1       10        2      30
            Total    16.7     20.0     20.0      3.3     33.3      6.7   100.0
```

```
 Chi-Square     D.F.      Significance       Min E.F.     Cells with E.F.< 5
 ----------     ----      ------------       --------     ------------------
  13.63636        5          .0181              .267     11 OF    12 ( 91.7%)

Number of Missing Observations =        0
```

B.3 Biographical details of the users

Variables	N	Percent (%)
Gender		
Male	10	55.6
Female	8	44.4
Age		
26-30	7	38.9
31-35	4	22.2
36-40	4	22.2
Over 50	3	16.7
Years of teaching experience		
1-5	10	55.6
6-10	4	22.2
11-15	2	11.1
16-20	1	5.6
21-25	1	5.6
Position		
Professor	3	16.7
Lecturer	15	83.3

B.3.1 Crosstabulation: GENDER By YRTEACIN

```
               Count  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->            |        |        |        |        |        |  Row
                      |      1 |      2 |      3 |      4 |      5 | Total
GENDER        --------+--------+--------+--------+--------+--------+
                  1   |    6   |    2   |    1   |    1   |        |   10
  Male                |        |        |        |        |        |  55.6
                      +--------+--------+--------+--------+--------+
                  2   |    4   |    2   |    1   |        |    1   |    8
  Female              |        |        |        |        |        |  44.4
                      +--------+--------+--------+--------+--------+
              Column      10        4        2        1        1       18
               Total     55.6     22.2     11.1      5.6      5.6    100.0

 Chi-Square      D.F.      Significance       Min E.F.     Cells with E.F.< 5
 ----------      ----      ------------       --------     ------------------
  2.20500          4           .6981              .444      9 OF    10 ( 90.0%)

Number of Missing Observations =        0
```

B.3.2 Crosstabulation: AGE By GENDER

```
                Count   |Male    |Female  |
GENDER->                |        |        | Row
                        |      1 |      2 | Total
AGE             --------+--------+--------+
                     1  |     3  |     4  |     7
  26-30                 |        |        |  38.9
                        +--------+--------+
                     2  |     3  |     1  |     4
  31-35                 |        |        |  22.2
                        +--------+--------+
                     3  |     2  |     2  |     4
  36-40                 |        |        |  22.2
                        +--------+--------+
                     6  |     2  |     1  |     3
  over 50               |        |        |  16.7
                        +--------+--------+
                Column      10        8       18
                 Total     55.6     44.4    100.0

 Chi-Square    D.F.      Significance       Min E.F.      Cells with E.F.< 5
 ----------    ----      ------------       --------      ------------------
   1.26964       3          .7364             1.333      8 OF     8 (100.0%)

Number of Missing Observations =        0
```

B.3.3 Crosstabulation: AGE By YRTEACIN

```
                Count   |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->              |        |        |        |        |        | Row
                        |      1 |      2 |      3 |      4 |      5 | Total
AGE             --------+--------+--------+--------+--------+--------+
                     1  |     7  |        |        |        |        |     7
  26-30                 |        |        |        |        |        |  38.9
                        +--------+--------+--------+--------+--------+
                     2  |     3  |     1  |        |        |        |     4
  31-35                 |        |        |        |        |        |  22.2
                        +--------+--------+--------+--------+--------+
                     3  |        |     3  |     1  |        |        |     4
  36-40                 |        |        |        |        |        |  22.2
                        +--------+--------+--------+--------+--------+
                     6  |        |        |     1  |     1  |     1  |     3
  over 50               |        |        |        |        |        |  16.7
                        +--------+--------+--------+--------+--------+
                Column      10        4        2        1        1       18
                 Total     55.6     22.2     11.1      5.6      5.6    100.0

          Statistic                       Value             Significance
          ---------                       -----             ------------
Pearson's R                              .91678                 .0000

Number of Missing Observations =        0
```

B.3.4 Crosstabulation: POSITION By GENDER

```
                Count   |Male    |Female  |
GENDER->                |        |        | Row
                        |      1 |      2 | Total
POSITION        --------+--------+--------+
                     1  |     1  |     2  |     3
  Professor             |        |        |  16.7
                        +--------+--------+
                     2  |     9  |     6  |    15
  Lecturer              |        |        |  83.3
                        +--------+--------+
                Column      10        8       18
                 Total     55.6     44.4    100.0

          STATISTIC                      One Tail           Two Tail
          ---------                      --------           --------
Fisher's Exact Test                       .41176             .55882

Number of Missing Observations =        0
```

B.3.5 Crosstabulation: POSITION By YRTEACIN

```
          Count  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->       |        |        |        |        |        | Row
                 |      1 |      2 |      3 |      4 |      5 | Total
POSITION  -------+--------+--------+--------+--------+--------+
              1  |        |      1 |        |      1 |      1 |     3
  Professor      |        |        |        |        |        |  16.7
                 +--------+--------+--------+--------+--------+
              2  |     10 |      3 |      2 |        |        |    15
 Lecturer        |        |        |        |        |        |  83.3
                 +--------+--------+--------+--------+--------+
         Column      10        4        2        1        1       18
          Total     55.6     22.2     11.1      5.6      5.6    100.0

Chi-Square      D.F.        Significance        Min E.F.       Cells with E.F.< 5
----------      ----        ------------        --------       ------------------
  12.60000        4              .0134             .167        9 OF    10 ( 90.0%)

Number of Missing Observations =          0
```

B.4 Biographical details of students

Variables	N	Percent (%)
Gender		
Male	271	67.8
Female	129	32.3
Academic years		
1st year	81	20.3
2nd year	93	23.3
3rd year	144	36.0
4th year	82	20.5

B.4.1 Crosstabulation: GENDER By YEAR

```
          Count  |1       |2       |3       |4       |
 YEAR->          |        |        |        |        | Row
                 |      1 |      2 |      3 |      4 | Total
GENDER    -------+--------+--------+--------+--------+
              1  |     50 |     65 |    103 |     53 |   271
 Male            |        |        |        |        |  67.8
                 +--------+--------+--------+--------+
              2  |     31 |     28 |     41 |     29 |   129
 Female          |        |        |        |        |  32.3
                 +--------+--------+--------+--------+
         Column      81       93      144       82       400
          Total     20.3     23.3     36.0     20.5    100.0

Chi-Square      D.F.        Significance        Min E.F.       Cells with E.F.< 5
----------      ----        ------------        --------       ------------------
   2.84454        3              .4162          26.122         None

Number of Missing Observations =          0
```

Appendix C List of Variables

C.1 List of Variables for the Analysis of Teachers' Questionnaire

1 **RELTAUD:** Have you ever read any publications on audio in education or in language teaching and learning?
2 **RELTTV:** Have you ever read any publications on TV in education or in language teaching and learning?
3 **RELTVID:** Have you ever read any publications on video in education or in language teaching and learning?
4 **RELTCOMP:** Have you ever read any publications on computers in education or in language teaching and learning?
5 **RELTIV:** Have you ever read any publications on IV in education or in language teaching and learning?
6 **RELTCD:** Have you ever read any publications on CD-ROM (multimedia) in education or in language teaching and learning?
7 **RELTVIR:** Have you ever read any publications on virtual reality in education or in language teaching and learning?
8 **INTRSTLT:** How interested are you in the use of media technology in language teaching?
9 **USEMTLT:** Have you had experience of using media technology in language teaching?
10 **HOFTNYU:** How often do you use media technology yourself?
11 **HOFTNCLS:** How often do you use media technology in class?
12 **USEWHE:** What was the context of use e.g., whole class, remedial, tutorial, etc.?
13 **USEAUD:** Did you use audio?
14 **USETV:** Did you use TV?
15 **USEVID:** Did you use video?
16 **USEIV:** Did you use IV?
17 **USECOMP:** Did you use computers?
18 **USEVIRT:** Did you use virtual reality?
19 **USECD:** Did you use CD-ROM (multimedia)?
20 **USEOTHER:** Do you use any other kind of media?
21 **USEWHA:** What media do you use e.g., OHP, Slides, blackboard, etc.?
22 **AVAHARD:** To what extent do you feel hardware of modern media technology is available now in education?
23 **AVASOFT:** To what extent do you feel software of modern media technology is available now in education?
24 **USEFLL:** How useful do you think media technology is for students in language learning?
25 **USEFTEAC:** How useful do you think media technology is for university teachers in language teaching?
26 **IFMORVII:** If more videos could be made available for language teaching, how likely would you be to use it?
27 **IFMORCOI:** If more computer programs could be made available for language teaching, how likely would you be to use it?
28 **IFMORIVI:** If more IV packages could be made available for language teaching, how likely would you be to use it?
29 **IFMORCDI:** If more CD-ROM software could be made available for language teaching, how likely would you be to use it?

30 **IFMORAUI:** If more audio materials could be made available for language teaching, how likely would you be to use it?
31 **AUUSF:** Do you think audio is useful?
32 **AUEASY:** Do you think audio is easy?
33 **AUINTRS:** Do you think audio is interesting?
34 **AUMOTIV:** Do you think audio motivates students?
35 **AUTMSAV:** Do you think audio is timesaving?
36 **AUVALU:** Do you think audio is undervalued?
37 **AUPOTEN:** Do you think audio is much potential?
38 **VIUSF:** Do you think video is useful?
39 **VIEASY:** Do you think video is easy?
40 **VIINTRS:** Do you think video is interesting?
41 **VIMOTIV:** Do you think video motivates students?
42 **VITMSAV:** Do you think video is timesaving?
43 **VIVALU:** Do you think video is undervalued?
44 **VIPOTEN:** Do you think video is much potential?
45 **COMUSF:** Do you think the computer is useful?
46 **COMEASY:** Do you think the computer is easy?
47 **COMINTRS:** Do you think the computer is interesting?
48 **COMMOTIV:** Do you think the computer motivates students?
49 **COMTMSAV:** Do you think the computer is timesaving?
50 **COMVALU:** Do you think the computer is undervalued?
51 **COMPOTEN:** Do you think the computer is much potential?
52 **IVUSF:** Do you think IV is useful?
53 **IVEASY:** Do you think IV is easy?
54 **IVINTRS:** Do you think IV is interesting?
55 **IVMOTIV:** Do you think IV motivates students?
56 **IVTMSAV:** Do you think IV is timesaving?
57 **IVVALU:** Do you think IV is undervalued?
58 **IVPOTEN:** Do you think IV is much potential?
59 **CDUSF:** Do you think CD-ROM (multimedia) is useful?
60 **CDEASY:** Do you think CD-ROM (multimedia) is easy?
61 **CDINTRS:** Do you think CD-ROM (multimedia) is interesting?
62 **CDMOTIV:** Do you think CD-ROM (multimedia) motivates students?
63 **CDTMSAV:** Do you think CD-ROM (multimedia) is timesaving?
64 **CDVALU:** Do you think CD-ROM (multimedia) is undervalued?
65 **CDPOTEN:** Do you think CD-ROM (multimedia) is much potential?
66 **IMPFAC1:** What factor is regarded as the most important in introducing media technology into university teaching?
67 **IMPFAC2:** What factor is regarded as the second important in introducing media technology into university teaching?
68 **IMPFAC3:** What factor is regarded as the third important in introducing media technology into university teaching?
69 **IMPFAC4:** What factor is regarded as the forth important in introducing media technology into university teaching?
70 **IMPFAC5:** What factor is regarded as the fifth important in introducing media technology into university teaching?
71 **IMPFAC6:** What factor is regarded as the least important in introducing media technology into university teaching?
72 **RFOR4LS:** Do you agree media technology can help students to reinforce language skills?

73 **MORINFO:** Do you agree media technology can provide students with more than one way to access information?

74 **AUTHSPL:** Do you agree media technology can give students the authenticity of spoken language?

75 **REALSIT:** Do you agree media technology can bring the real world into the classroom?

76 **PRACTIC:** Do you agree media technology can offer a wide range of learning and practice opportunities?

77 **STNEED:** Do you agree media technology can supply activities which are adjustable to the students' needs?

78 **STINTRS:** Do you agree media technology can provide students with sufficient variety to maintain their interests?

79 **EASYLT:** Do you agree media technology can make it easier to teach language?

80 **BYUAUTH:** Do you agree teachers are expected to use media technology by the university authorities?

81 **BYSTUD:** Do you agree students expect teachers to use media technology?

82 **UAUTHELP:** Do you agree the university authorities have provided some help?

83 **ENJOY:** Do you agree you enjoy using media technology?

84 **COMMIT:** Do you agree you are personally committed to media technology?

85 **STFYTEAH:** Are you satisfied with your current teaching methods when using media technology?

86 **SUSPMT:** Do you agree you are suspicious about the claims made for media technology and its application?

87 **DISLIKE:** Do you agree you do not like using technology in teaching?

88 **DEHUMAN:** Do you agree media technology is dehumanising?

89 **NONCOMM:** Do you agree media technology is non-communicative?

90 **DONNOHW:** Do you agree you do not know how to use and apply media technology in the EFL classroom?

91 **NOTTRAIN:** Do you agree you are not trained to use media technology?

92 **NOCHOICE:** Do you agree you do not have enough choice of software?

93 **INEFFECT:** Do you agree you think the available software is not effective enough to be used with Korean students in the EFL classroom?

94 **RELUCT:** Do you agree you are reluctant to invest time and energy in providing the right software (i.e., through design, evaluation, and classroom preparation)?

95 **WORYNEW:** Do you agree you are worried about having to apply new ways of assessing learning which you are not sure about?

96 **STNOKEEN:** Do you agree the students are not keen on using media technology?

97 **GAPCLTMT:** Do you agree you feel there is a gap between new communicative trends in EFL teaching and the application of technology?

98 **EXAMEXCL:** Do you agree all examinations exclude the use of technology in Korea?

99 **SATFNOMT:** Are you satisfied with your current teaching methods which do not include the use of media technology?

100**YRTEACIN:** Years of teaching experience.

C.2 List of Variables for the Analysis of Students' Questionnaire

1 **YEAR:** Academic year
2 **HWINTRMT:** How interested are you in the use of media technology in language learning?
3 **EXPEMTLL:** Have you had experience of using media technology in language learning?
4 **WHERUSE:** What was the context of use e.g., whole class, remedial, tutorial, self-access, etc.?
5 **WHMEDIA:** What media did you use?
6 **SATTMUSE:** Are you satisfied with teachers' teaching methods when using media technology?
7 **SATTMNOT:** Are you satisfied with teachers' teaching methods which do not include the use of media technology?
8 **IFMOREAUI:** If more audio materials could be made available for language learning, how likely would you be to use them?
9 **IFMOREVII:** If more videos could be made available for language learning, how likely would you be to use them?
10 **IFMORECOI:** If more computer programs could be made available for language learning, how likely would you be to use them?
11 **IMPFAC1:** What factor is regarded as the most important in introducing media technology into language learning?
12 **IMPFAC2:** What factor is regarded as the second important in introducing media technology into language learning?
13 **IMPFAC3:** What factor is regarded as the third important in introducing media technology into language learning?
14 **IMPFAC4:** What factor is regarded as the forth important in introducing media technology into language learning?
15 **IMPFAC5:** What factor is regarded as the fifth important in introducing media technology into language learning?
16 **IMPFAC6:** What factor is regarded as the least important in introducing media technology into language learning?
17 **HOFTMTS:** How often do you use media technology in self-access?

Appendix D Frequency Tables

D.1 Frequency tables for 5.2.1 What are the patterns of Korean teachers' use of media technology in language teaching at university level?

1 RELTAUD

```
                                                       Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

NA                           0        12       25.0     25.0     25.0
In education                 1         3        6.3      6.3     31.3
In language teaching         2        15       31.3     31.3     62.5
Both                         3        18       37.5     37.5    100.0
                                  -------   -------  -------
                           TOTAL      48      100.0    100.0

Mode          3.000
Valid Cases      48      Missing Cases     0
```

2 RELTTV

```
                                                       Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

NA                           0        23       47.9     47.9     47.9
In education                 1         7       14.6     14.6     62.5
In language teaching         2         9       18.8     18.8     81.3
Both                         3         9       18.8     18.8    100.0
                                  -------   -------  -------
                           TOTAL      48      100.0    100.0

Mode           .000
Valid Cases      48      Missing Cases     0
```

3 RELTVID

```
                                                       Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

NA                           0        13       27.1     27.1     27.1
In education                 1         2        4.2      4.2     31.3
In language teaching         2        14       29.2     29.2     60.4
Both                         3        19       39.6     39.6    100.0
                                  -------   -------  -------
                           TOTAL      48      100.0    100.0

Mode          3.000
Valid Cases      48      Missing Cases     0
```

4 RELTCOMP

```
                                                       Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

NA                           0        23       47.9     47.9     47.9
In education                 1        11       22.9     22.9     70.8
In language teaching         2         5       10.4     10.4     81.3
Both                         3         9       18.8     18.8    100.0
                                  -------   -------  -------
                           TOTAL      48      100.0    100.0

Mode           .000
Valid Cases      48      Missing Cases     0
```

5 RELTIV

```
                                                      Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

NA                               0         43     89.6     89.6     89.6
In education                     1          2      4.2      4.2     93.8
In language teaching             2          2      4.2      4.2     97.9
Both                             3          1      2.1      2.1    100.0
                                      -------  -------  -------
                             TOTAL         48    100.0    100.0

Mode             .000
Valid Cases        48      Missing Cases      0
```

6 RELTCD

```
                                                      Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

NA                               0         43     89.6     89.6     89.6
In education                     1          4      8.3      8.3     97.9
Both                             3          1      2.1      2.1    100.0
                                      -------  -------  -------
                             TOTAL         48    100.0    100.0

Mode             .000
Valid Cases        48      Missing Cases      0
```

7 RELTVIR

```
                                                      Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

NA                               0         45     93.8     93.8     93.8
In education                     1          2      4.2      4.2     97.9
Both                             3          1      2.1      2.1    100.0
                                      -------  -------  -------
                             TOTAL         48    100.0    100.0

Mode             .000
Valid Cases        48      Missing Cases      0
```

8 INTRSTLT

```
                                                      Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

Very interested                  1         22     45.8     45.8     45.8
Fairly interested                2         22     45.8     45.8     91.7
Not particularly int             3          4      8.3      8.3    100.0
                                      -------  -------  -------
                             TOTAL         48    100.0    100.0

Median          2.000
Valid Cases        48      Missing Cases      0
```

9 USEMTLT

```
                                                      Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

No                               0         15     31.3     31.3     31.3
Yes                              1         33     68.8     68.8    100.0
                                      -------  -------  -------
                             TOTAL         48    100.0    100.0

Mode            1.000
Valid Cases        48      Missing Cases      0
```

10 USEWHE

```
                                                      Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

NA                              0         15     31.3     31.3     31.3
Whole class                     1         33     68.8     68.8    100.0
                                    -------  -------  -------
                            TOTAL         48    100.0    100.0

Mode          1.000
Valid Cases      48      Missing Cases     0
```

11 USEAUD

```
                                                      Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

No                              0         17     35.4     35.4     35.4
Yes                             1         31     64.6     64.6    100.0
                                    -------  -------  -------
                            TOTAL         48    100.0    100.0

Mode          1.000
Valid Cases      48      Missing Cases     0
```

12 USETV

```
                                                      Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

No                              0         39     81.3     81.3     81.3
Yes                             1          9     18.8     18.8    100.0
                                    -------  -------  -------
                            TOTAL         48    100.0    100.0

Mode           .000
Valid Cases      48      Missing Cases     0
```

13 USEVID

```
                                                      Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

No                              0         27     56.3     56.3     56.3
Yes                             1         21     43.8     43.8    100.0
                                    -------  -------  -------
                            TOTAL         48    100.0    100.0

Mode           .000
Valid Cases      48      Missing Cases     0
```

14 USEIV

```
                                                      Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

No                              0         47     97.9     97.9     97.9
Yes                             1          1      2.1      2.1    100.0
                                    -------  -------  -------
                            TOTAL         48    100.0    100.0

Mode           .000
Valid Cases      48      Missing Cases     0
```

15 USECOMP

```
                                                      Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

No                                 0         43     89.6     89.6     89.6
Yes                                1          5     10.4     10.4    100.0
                                        -------  -------  -------
                               TOTAL         48    100.0    100.0

Mode              .000
Valid Cases         48      Missing Cases      0
```

16 USEVIRT

```
                                                      Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

No                                 0         48    100.0    100.0    100.0
                                        -------  -------  -------
                               TOTAL         48    100.0    100.0

Mode              .000
Valid Cases         48      Missing Cases      0
```

17 USECD

```
                                                      Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

No                                 0         47     97.9     97.9     97.9
Yes                                1          1      2.1      2.1    100.0
                                        -------  -------  -------
                               TOTAL         48    100.0    100.0

Mode              .000
Valid Cases         48      Missing Cases      0
```

18 USEOTHER

```
                                                      Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

No                                 0         27     56.3     56.3     56.3
Yes                                1         21     43.8     43.8    100.0
                                        -------  -------  -------
                               TOTAL         48    100.0    100.0

Mode              .000
Valid Cases         48      Missing Cases      0
```

19 USEWHA

```
                                                      Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

NA                                 0         27     56.3     56.3     56.3
OHP                                1          8     16.7     16.7     72.9
Slides                             2          3      6.3      6.3     79.2
Blackboard                         3          9     18.8     18.8     97.9
etc                                4          1      2.1      2.1    100.0
                                        -------  -------  -------
                               TOTAL         48    100.0    100.0

Mode              .000
Valid Cases         48      Missing Cases      0
```

20 AVAHARD

```
                                                          Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

Easily available                1          7     14.6     14.6     14.6
Fairly easily availa            2         24     50.0     50.0     64.6
Availability difficu            3         17     35.4     35.4    100.0
                                     -------  -------  -------
                            TOTAL         48    100.0    100.0

Median          2.000
Valid Cases        48      Missing Cases      0
```

21 AVASOFT

```
                                                          Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

Easily available                1          3      6.3      6.3      6.3
Fairly easily availa            2         11     22.9     22.9     29.2
Availability difficu            3         29     60.4     60.4     89.6
Not available at all            4          5     10.4     10.4    100.0
                                     -------  -------  -------
                            TOTAL         48    100.0    100.0

Median          3.000
Valid Cases        48      Missing Cases      0
```

22 USEFLL

```
                                                          Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

Very useful                     1         27     56.3     56.3     56.3
Fairly useful                   2         19     39.6     39.6     95.8
Not very useful                 3          2      4.2      4.2    100.0
                                     -------  -------  -------
                            TOTAL         48    100.0    100.0

Median          1.000
Valid Cases        48      Missing Cases      0
```

23 USEFTEAC

```
                                                          Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

Very useful                     1         17     35.4     35.4     35.4
Fairly useful                   2         27     56.3     56.3     91.7
Not very useful                 3          4      8.3      8.3    100.0
                                     -------  -------  -------
                            TOTAL         48    100.0    100.0

Median          2.000
Valid Cases        48      Missing Cases      0
```

24 IFMORVII

```
                                                          Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

                               30          2      4.2      4.2      4.2
                               60         20     41.7     41.7     45.8
                               90         26     54.2     54.2    100.0
                                     -------  -------  -------
                            TOTAL         48    100.0    100.0

Mean          75.000      Std Err       2.526      Median       90.000
Mode          90.000      Std Dev      17.504      Variance    306.383
Kurtosis       -.490      S E Kurt       .674      Skewness      -.671
S E Skew        .343      Range        60.000      Minimum      30.000
Maximum       90.000      Sum        3600.000
```

```
Valid Cases       48      Missing Cases     0
```

25 IFMORCOI

```
                                                     Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

                                30          8     16.7     16.7     16.7
                                60         25     52.1     52.1     68.8
                                90         15     31.3     31.3    100.0
                                      -------  -------  -------
                             TOTAL         48    100.0    100.0


Mean           64.375      Std Err        2.961      Median        60.000
Mode           60.000      Std Dev       20.515      Variance     420.878
Kurtosis        -.793      S E Kurt        .674      Skewness       -.192
S E Skew         .343      Range         60.000      Minimum       30.000
Maximum        90.000      Sum         3090.000
Valid Cases        48      Missing Cases      0
```

26 IFMORIVI

```
                                                     Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

                                 0          2      4.2      4.2      4.2
                                30         11     22.9     22.9     27.1
                                60         17     35.4     35.4     62.5
                                90         18     37.5     37.5    100.0
                                      -------  -------  -------
                             TOTAL         48    100.0    100.0

Mean           61.875      Std Err        3.832      Median        60.000
Mode           90.000      Std Dev       26.550      Variance     704.920
Kurtosis        -.675      S E Kurt        .674      Skewness       -.510
S E Skew         .343      Range         90.000      Minimum         .000
Maximum        90.000      Sum         2970.000
Valid Cases        48      Missing Cases      0
```

27 IFMORCDI

```
                                                     Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

                                 0          5     10.4     10.4     10.4
                                30         14     29.2     29.2     39.6
                                60         24     50.0     50.0     89.6
                                90          5     10.4     10.4    100.0
                                      -------  -------  -------
                             TOTAL         48    100.0    100.0

Mean           48.125      Std Err        3.544      Median        60.000
Mode           60.000      Std Dev       24.552      Variance     602.793
Kurtosis        -.262      S E Kurt        .674      Skewness       -.350
S E Skew         .343      Range         90.000      Minimum         .000
Maximum        90.000      Sum         2310.000
Valid Cases        48      Missing Cases      0
```

28 IFMORAUI

```
                                                     Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

                                30          9     18.8     18.8     18.8
                                60         18     37.5     37.5     56.3
                                90         21     43.8     43.8    100.0
                                      -------  -------  -------
                             TOTAL         48    100.0    100.0

Mean           67.500      Std Err        3.282      Median        60.000
Mode           90.000      Std Dev       22.738      Variance     517.021
Kurtosis       -1.100      S E Kurt        .674      Skewness       -.459
S E Skew         .343      Range         60.000      Minimum       30.000
```

```
Maximum       90.000       Sum         3240.000
Valid Cases       48       Missing Cases      0
```

29 IMPFAC1

```
                                                   Valid     Cum
  Value Label            Value  Frequency  Percent  Percent  Percent

1                            1        14     29.2     29.2     29.2
2                            2         3      6.3      6.3     35.4
3                            3         2      4.2      4.2     39.6
4                            4         1      2.1      2.1     41.7
5                            5        12     25.0     25.0     66.7
6                            6        16     33.3     33.3    100.0
                                 -------  -------  -------
                         TOTAL        48    100.0    100.0

Mode           6.000
Valid Cases       48       Missing Cases      0
```

30 IMPFAC2

```
                                                   Valid     Cum
  Value Label            Value  Frequency  Percent  Percent  Percent

1                            1        12     25.0     25.0     25.0
2                            2         9     18.8     18.8     43.8
3                            3         6     12.5     12.5     56.3
4                            4         2      4.2      4.2     60.4
5                            5        10     20.8     20.8     81.3
6                            6         9     18.8     18.8    100.0
                                 -------  -------  -------
                         TOTAL        48    100.0    100.0

Mode           1.000
Valid Cases       48       Missing Cases      0
```

31 IMPFAC3

```
                                                   Valid     Cum
  Value Label            Value  Frequency  Percent  Percent  Percent

1                            1         7     14.6     14.6     14.6
2                            2         9     18.8     18.8     33.3
3                            3         2      4.2      4.2     37.5
4                            4         7     14.6     14.6     52.1
5                            5        14     29.2     29.2     81.3
6                            6         9     18.8     18.8    100.0
                                 -------  -------  -------
                         TOTAL        48    100.0    100.0

Mode           5.000
Valid Cases       48       Missing Cases      0
```

32 IMPFAC4

```
                                                   Valid     Cum
  Value Label            Value  Frequency  Percent  Percent  Percent

1                            1         8     16.7     16.7     16.7
2                            2        20     41.7     41.7     58.3
3                            3         5     10.4     10.4     68.8
4                            4         7     14.6     14.6     83.3
5                            5         6     12.5     12.5     95.8
6                            6         2      4.2      4.2    100.0
                                 -------  -------  -------
                         TOTAL        48    100.0    100.0

Mode           2.000
Valid Cases       48       Missing Cases      0
```

33 IMPFAC5

```
                                                        Valid     Cum
  Value Label                   Value  Frequency  Percent  Percent  Percent

1                                   1          4      8.3      8.3      8.3
2                                   2          6     12.5     12.5     20.8
3                                   3         15     31.3     31.3     52.1
4                                   4         18     37.5     37.5     89.6
5                                   5          4      8.3      8.3     97.9
6                                   6          1      2.1      2.1    100.0
                                         -------  -------  -------
                                TOTAL         48    100.0    100.0

Mode           4.000
Valid Cases       48      Missing Cases      0
```

34 IMPFAC6

```
                                                        Valid     Cum
  Value Label                   Value  Frequency  Percent  Percent  Percent

1                                   1          3      6.3      6.3      6.3
2                                   2          1      2.1      2.1      8.3
3                                   3         18     37.5     37.5     45.8
4                                   4         13     27.1     27.1     72.9
5                                   5          2      4.2      4.2     77.1
6                                   6         11     22.9     22.9    100.0
                                         -------  -------  -------
                                TOTAL         48    100.0    100.0

Mode           3.000
Valid Cases       48      Missing Cases      0
```

35 HOFTNYU

```
                                                        Valid     Cum
  Value Label                   Value  Frequency  Percent  Percent  Percent

Always                              1          3      6.3      6.3      6.3
Almost always                       2         13     27.1     27.1     33.3
Sometimes                           3         32     66.7     66.7    100.0
                                         -------  -------  -------
                                TOTAL         48    100.0    100.0

Median         3.000
Valid Cases       48      Missing Cases      0
```

36 HOFTNCLS

```
                                                        Valid     Cum
  Value Label                   Value  Frequency  Percent  Percent  Percent

Always                              1          7     14.6     14.6     14.6
Almost always                       2         11     22.9     22.9     37.5
Somtimes                            3         15     31.3     31.3     68.8
Never                               4         15     31.3     31.3    100.0
                                         -------  -------  -------
                                TOTAL         48    100.0    100.0

Median         3.000
Valid Cases       48      Missing Cases      0
```

D.2 Frequency tables for 5.2.2 Why do most teachers not use media technology very much?

1 INTRSTLT

```
                                                          Valid     Cum
  Value Label                 Value  Frequency  Percent  Percent  Percent

Very interested                  1          8     26.7     26.7     26.7
Fairly interested                2         18     60.0     60.0     86.7
Not particularly int             3          4     13.3     13.3    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Median         2.000
Valid Cases       30      Missing Cases      0
```

2 USEFLL

```
                                                          Valid     Cum
  Value Label                 Value  Frequency  Percent  Percent  Percent

Very useful                      1         15     50.0     50.0     50.0
Fairly useful                    2         13     43.3     43.3     93.3
Not very useful                  3          2      6.7      6.7    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Median         1.500
Valid Cases       30      Missing Cases      0
```

3 USEFTEAC

```
                                                          Valid     Cum
  Value Label                 Value  Frequency  Percent  Percent  Percent

Very useful                      1          8     26.7     26.7     26.7
Fairly useful                    2         18     60.0     60.0     86.7
Not very useful                  3          4     13.3     13.3    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Median         2.000
Valid Cases       30      Missing Cases      0
```

4 AUUSF

```
                                                          Valid     Cum
  Value Label                 Value  Frequency  Percent  Percent  Percent

3                                2          8     26.7     26.7     26.7
2                                3          9     30.0     30.0     56.7
1                                4         13     43.3     43.3    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Mean          3.167     Std Err        .152     Median        3.000
Mode          4.000     Std Dev        .834     Variance       .695
Kurtosis     -1.487     S E Kurt       .833     Skewness      -.333
S E Skew       .427     Range         2.000     Minimum       2.000
Maximum       4.000     Sum          95.000
Valid Cases      30     Missing Cases     0
```

5 AUEASY

```
                                                       Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

3                              2          2      6.7      6.7      6.7
2                              3         10     33.3     33.3     40.0
1                              4         18     60.0     60.0    100.0
                                    -------  -------  -------
                           TOTAL         30    100.0    100.0

Mean             3.533     Std Err         .115     Median        4.000
Mode             4.000     Std Dev         .629     Variance       .395
Kurtosis          .113     S E Kurt        .833     Skewness     -1.025
S E Skew          .427     Range          2.000     Minimum       2.000
Maximum          4.000     Sum          106.000
Valid Cases         30     Missing Cases      0
```

6 AUINTRS

```
                                                       Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

4                              1          6     20.0     20.0     20.0
3                              2         14     46.7     46.7     66.7
2                              3          8     26.7     26.7     93.3
1                              4          2      6.7      6.7    100.0
                                    -------  -------  -------
                           TOTAL         30    100.0    100.0

Mean             2.200     Std Err         .155     Median        2.000
Mode             2.000     Std Dev         .847     Variance       .717
Kurtosis         -.308     S E Kurt        .833     Skewness       .321
S E Skew          .427     Range          3.000     Minimum       1.000
Maximum          4.000     Sum           66.000
Valid Cases         30     Missing Cases      0
```

7 AUMOTIV

```
                                                       Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

4                              1          1      3.3      3.3      3.3
3                              2          8     26.7     26.7     30.0
2                              3         17     56.7     56.7     86.7
1                              4          4     13.3     13.3    100.0
                                    -------  -------  -------
                           TOTAL         30    100.0    100.0

Mean             2.800     Std Err         .130     Median        3.000
Mode             3.000     Std Dev         .714     Variance       .510
Kurtosis          .261     S E Kurt        .833     Skewness      -.292
S E Skew          .427     Range          3.000     Minimum       1.000
Maximum          4.000     Sum           84.000
Valid Cases         30     Missing Cases      0
```

8 AUTMSAV

```
                                                       Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

4                              1          1      3.3      3.3      3.3
3                              2         13     43.3     43.3     46.7
2                              3         12     40.0     40.0     86.7
1                              4          4     13.3     13.3    100.0
                                    -------  -------  -------
                           TOTAL         30    100.0    100.0

Mean             2.633     Std Err         .140     Median        3.000
Mode             2.000     Std Dev         .765     Variance       .585
Kurtosis         -.440     S E Kurt        .833     Skewness       .259
S E Skew          .427     Range          3.000     Minimum       1.000
Maximum          4.000     Sum           79.000
Valid Cases         30     Missing Cases      0
```

9 AUVALU

```
                                                         Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

4                                1          3     10.0     10.0     10.0
3                                2         16     53.3     53.3     63.3
2                                3         11     36.7     36.7    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Mean          2.267     Std Err        .117      Median        2.000
Mode          2.000     Std Dev        .640      Variance       .409
Kurtosis      -.554     S E Kurt       .833      Skewness      -.291
S E Skew       .427     Range         2.000      Minimum       1.000
Maximum       3.000     Sum          68.000
Valid Cases      30     Missing Cases     0
```

10 AUPOTEN

```
                                                         Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

3                                2         13     43.3     43.3     43.3
2                                3         16     53.3     53.3     96.7
1                                4          1      3.3      3.3    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Mean          2.600     Std Err        .103      Median        3.000
Mode          3.000     Std Dev        .563      Variance       .317
Kurtosis      -.835     S E Kurt       .833      Skewness       .198
S E Skew       .427     Range         2.000      Minimum       2.000
Maximum       4.000     Sum          78.000
Valid Cases      30     Missing Cases     0
```

11 VIUSF

```
                                                         Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

2                                3         11     36.7     36.7     36.7
1                                4         19     63.3     63.3    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Mean          3.633     Std Err        .089      Median        4.000
Mode          4.000     Std Dev        .490      Variance       .240
Kurtosis     -1.784     S E Kurt       .833      Skewness      -.583
S E Skew       .427     Range         1.000      Minimum       3.000
Maximum       4.000     Sum         109.000
Valid Cases      30     Missing Cases     0
```

12 VIEASY

```
                                                         Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

3                                2          3     10.0     10.0     10.0
2                                3         14     46.7     46.7     56.7
1                                4         13     43.3     43.3    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Mean          3.333     Std Err        .121      Median        3.000
Mode          3.000     Std Dev        .661      Variance       .437
Kurtosis      -.620     S E Kurt       .833      Skewness      -.484
S E Skew       .427     Range         2.000      Minimum       2.000
Maximum       4.000     Sum         100.000
Valid Cases      30     Missing Cases     0
```

13 VIINTRS

```
                                                     Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

4                             1         2      6.7      6.7      6.7
3                             2         2      6.7      6.7     13.3
2                             3        14     46.7     46.7     60.0
1                             4        12     40.0     40.0    100.0
                                  -------  -------  -------
                          TOTAL        30    100.0    100.0

Mean           3.200    Std Err         .155    Median       3.000
Mode           3.000    Std Dev         .847    Variance      .717
Kurtosis       1.275    S E Kurt        .833    Skewness    -1.139
S E Skew        .427    Range          3.000    Minimum      1.000
Maximum        4.000    Sum           96.000
Valid Cases       30    Missing Cases      0
```

14 VIMOTIV

```
                                                     Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

2                             3        16     53.3     53.3     53.3
1                             4        14     46.7     46.7    100.0
                                  -------  -------  -------
                          TOTAL        30    100.0    100.0

Mean           3.467    Std Err         .093    Median       3.000
Mode           3.000    Std Dev         .507    Variance      .257
Kurtosis      -2.127    S E Kurt        .833    Skewness      .141
S E Skew        .427    Range          1.000    Minimum      3.000
Maximum        4.000    Sum          104.000
Valid Cases       30    Missing Cases      0
```

15 VITMSAV

```
                                                     Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

4                             1         2      6.7      6.7      6.7
3                             2         8     26.7     26.7     33.3
2                             3        13     43.3     43.3     76.7
1                             4         7     23.3     23.3    100.0
                                  -------  -------  -------
                          TOTAL        30    100.0    100.0

Mean           2.833    Std Err         .160    Median       3.000
Mode           3.000    Std Dev         .874    Variance      .764
Kurtosis       -.474    S E Kurt        .833    Skewness     -.319
S E Skew        .427    Range          3.000    Minimum      1.000
Maximum        4.000    Sum           85.000
Valid Cases       30    Missing Cases      0
```

16 VIVALU

```
                                                     Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

4                             1         5     16.7     16.7     16.7
3                             2        13     43.3     43.3     60.0
2                             3        12     40.0     40.0    100.0
                                  -------  -------  -------
                          TOTAL        30    100.0    100.0

Mean           2.233    Std Err         .133    Median       2.000
Mode           2.000    Std Dev         .728    Variance      .530
Kurtosis       -.957    S E Kurt        .833    Skewness     -.396
S E Skew        .427    Range          2.000    Minimum      1.000
Maximum        3.000    Sum           67.000
Valid Cases       30    Missing Cases      0
```

17 VIPOTEN

```
                                                      Valid     Cum
 Value Label           Value  Frequency  Percent  Percent  Percent

3                          2          2      6.7      6.7      6.7
2                          3         14     46.7     46.7     53.3
1                          4         14     46.7     46.7    100.0
                               -------  -------  -------
                       TOTAL        30    100.0    100.0

Mean          3.400     Std Err       .113     Median       3.000
Mode          3.000     Std Dev       .621     Variance      .386
Kurtosis      -.534     S E Kurt      .833     Skewness     -.517
S E Skew       .427     Range        2.000     Minimum      2.000
Maximum       4.000     Sum        102.000
Valid Cases      30     Missing Cases    0
```

18 COMUSF

```
                                                      Valid     Cum
 Value Label           Value  Frequency  Percent  Percent  Percent

3                          2          3     10.0     10.7     10.7
2                          3         14     46.7     50.0     60.7
1                          4         11     36.7     39.3    100.0
                           .          2      6.7  MISSING
                               -------  -------  -------
                       TOTAL        30    100.0    100.0

Mean          3.286     Std Err       .124     Median       3.000
Mode          3.000     Std Dev       .659     Variance      .434
Kurtosis      -.623     S E Kurt      .858     Skewness     -.376
S E Skew       .441     Range        2.000     Minimum      2.000
Maximum       4.000     Sum         92.000
Valid Cases      28     Missing Cases    2
```

19 COMEASY

```
                                                      Valid     Cum
 Value Label           Value  Frequency  Percent  Percent  Percent

4                          1          5     16.7     17.9     17.9
3                          2         15     50.0     53.6     71.4
2                          3          6     20.0     21.4     92.9
1                          4          2      6.7      7.1    100.0
                           .          2      6.7  MISSING
                               -------  -------  -------
                       TOTAL        30    100.0    100.0

Mean          2.179     Std Err       .155     Median       2.000
Mode          2.000     Std Dev       .819     Variance      .671
Kurtosis       .175     S E Kurt      .858     Skewness      .519
S E Skew       .441     Range        3.000     Minimum      1.000
Maximum       4.000     Sum         61.000
Valid Cases      28     Missing Cases    2
```

20 COMINTRS

```
                                                      Valid     Cum
 Value Label           Value  Frequency  Percent  Percent  Percent

4                          1          4     13.3     14.3     14.3
3                          2          5     16.7     17.9     32.1
2                          3         17     56.7     60.7     92.9
1                          4          2      6.7      7.1    100.0
                           .          2      6.7  MISSING
                               -------  -------  -------
                       TOTAL        30    100.0    100.0

Mean          2.607     Std Err       .157     Median       3.000
Mode          3.000     Std Dev       .832     Variance      .692
Kurtosis       .048     S E Kurt      .858     Skewness     -.782
S E Skew       .441     Range        3.000     Minimum      1.000
Maximum       4.000     Sum         73.000
```

```
Valid Cases      28       Missing Cases     2
```

21 COMMOTIV

```
                                                       Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

3                                2          4     13.3     14.3     14.3
2                                3         17     56.7     60.7     75.0
1                                4          7     23.3     25.0    100.0
                                 .          2      6.7   MISSING
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Mean            3.107      Std Err        .119      Median        3.000
Mode            3.000      Std Dev        .629      Variance       .396
Kurtosis        -.270      S E Kurt       .858      Skewness      -.075
S E Skew         .441      Range         2.000      Minimum       2.000
Maximum         4.000      Sum          87.000
Valid Cases        28      Missing Cases     2
```

22 COMTMSAV

```
                                                       Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

4                                1          3     10.0     10.7     10.7
3                                2         10     33.3     35.7     46.4
2                                3         12     40.0     42.9     89.3
1                                4          3     10.0     10.7    100.0
                                 .          2      6.7   MISSING
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Mean            2.536      Std Err        .158      Median        3.000
Mode            3.000      Std Dev        .838      Variance       .702
Kurtosis        -.377      S E Kurt       .858      Skewness      -.121
S E Skew         .441      Range         3.000      Minimum       1.000
Maximum         4.000      Sum          71.000
Valid Cases        28      Missing Cases     2
```

23 COMVALU

```
                                                       Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

4                                1          2      6.7      7.1      7.1
3                                2         13     43.3     46.4     53.6
2                                3         10     33.3     35.7     89.3
1                                4          3     10.0     10.7    100.0
                                 .          2      6.7   MISSING
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Mean            2.500      Std Err        .150      Median        2.000
Mode            2.000      Std Dev        .793      Variance       .630
Kurtosis        -.243      S E Kurt       .858      Skewness       .240
S E Skew         .441      Range         3.000      Minimum       1.000
Maximum         4.000      Sum          70.000
Valid Cases        28      Missing Cases     2
```

24 COMPOTEN

```
                                                       Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

3                                2          4     13.3     14.3     14.3
2                                3         16     53.3     57.1     71.4
1                                4          8     26.7     28.6    100.0
                                 .          2      6.7   MISSING
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0
```

```
Mean          3.143      Std Err         .123      Median        3.000
Mode          3.000      Std Dev         .651      Variance       .423
Kurtosis      -.486      S E Kurt        .858      Skewness      -.142
S E Skew       .441      Range          2.000      Minimum       2.000
Maximum       4.000      Sum           88.000
Valid Cases      28      Missing Cases      2
```

25 IVUSF

```
                                                       Valid      Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

4                                1          1      3.3      4.2      4.2
3                                2          1      3.3      4.2      8.3
2                                3          8     26.7     33.3     41.7
1                                4         14     46.7     58.3    100.0
                                 .          6     20.0  MISSING
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Mean          3.458      Std Err         .159      Median        4.000
Mode          4.000      Std Dev         .779      Variance       .607
Kurtosis      3.097      S E Kurt        .918      Skewness     -1.656
S E Skew       .472      Range          3.000      Minimum       1.000
Maximum       4.000      Sum           83.000
Valid Cases      24      Missing Cases      6
```

26 IVEASY

```
                                                       Valid      Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

4                                1          7     23.3     29.2     29.2
3                                2          8     26.7     33.3     62.5
2                                3          7     23.3     29.2     91.7
1                                4          2      6.7      8.3    100.0
                                 .          6     20.0  MISSING
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Mean          2.167      Std Err         .197      Median        2.000
Mode          2.000      Std Dev         .963      Variance       .928
Kurtosis      -.879      S E Kurt        .918      Skewness       .277
S E Skew       .472      Range          3.000      Minimum       1.000
Maximum       4.000      Sum           52.000
Valid Cases      24      Missing Cases      6
```

27 IVINTRS

```
                                                       Valid      Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

4                                1          1      3.3      4.2      4.2
3                                2          2      6.7      8.3     12.5
2                                3         10     33.3     41.7     54.2
1                                4         11     36.7     45.8    100.0
                                 .          6     20.0  MISSING
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Mean          3.292      Std Err         .165      Median        3.000
Mode          4.000      Std Dev         .806      Variance       .650
Kurtosis      1.369      S E Kurt        .918      Skewness     -1.147
S E Skew       .472      Range          3.000      Minimum       1.000
Maximum       4.000      Sum           79.000
Valid Cases      24      Missing Cases      6
```

28 IVMOTIV

```
                                                       Valid      Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

2                                3          8     26.7     33.3     33.3
```

```
1                              4        16      53.3     66.7     100.0
                               .         6      20.0   MISSING
                                   -------   -------  -------
                           TOTAL        30     100.0    100.0

Mean          3.667     Std Err         .098      Median          4.000
Mode          4.000     Std Dev         .482      Variance         .232
Kurtosis     -1.568     S E Kurt        .918      Skewness        -.755
S E Skew       .472     Range          1.000      Minimum         3.000
Maximum       4.000     Sum           88.000
Valid Cases      24     Missing Cases      6
```

29 IVTMSAV

```
                                                         Valid      Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

4                                  1         1       3.3      4.2      4.2
3                                  2        12      40.0     50.0     54.2
2                                  3         6      20.0     25.0     79.2
1                                  4         5      16.7     20.8    100.0
                                   .         6      20.0   MISSING
                                      -------   -------  -------
                               TOTAL        30     100.0    100.0

Mean          2.625     Std Err         .179      Median          2.000
Mode          2.000     Std Dev         .875      Variance         .766
Kurtosis      -.859     S E Kurt        .918      Skewness         .431
S E Skew       .472     Range          3.000      Minimum         1.000
Maximum       4.000     Sum           63.000
Valid Cases      24     Missing Cases      6
```

30 IVVALU

```
                                                         Valid      Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

4                                  1         2       6.7      8.3      8.3
3                                  2         7      23.3     29.2     37.5
2                                  3        13      43.3     54.2     91.7
1                                  4         2       6.7      8.3    100.0
                                   .         6      20.0   MISSING
                                      -------   -------  -------
                               TOTAL        30     100.0    100.0

Mean          2.625     Std Err         .157      Median          3.000
Mode          3.000     Std Dev         .770      Variance         .592
Kurtosis       .172     S E Kurt        .918      Skewness        -.458
S E Skew       .472     Range          3.000      Minimum         1.000
Maximum       4.000     Sum           63.000
Valid Cases      24     Missing Cases      6
```

31 IVPOTEN

```
                                                         Valid      Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

3                                  2         3      10.0     12.5     12.5
2                                  3         9      30.0     37.5     50.0
1                                  4        12      40.0     50.0    100.0
                                   .         6      20.0   MISSING
                                      -------   -------  -------
                               TOTAL        30     100.0    100.0

Mean          3.375     Std Err         .145      Median          3.500
Mode          4.000     Std Dev         .711      Variance         .505
Kurtosis      -.621     S E Kurt        .918      Skewness        -.705
S E Skew       .472     Range          2.000      Minimum         2.000
Maximum       4.000     Sum           81.000
Valid Cases      24     Missing Cases      6
```

32 CDUSF

```
                                                         Valid     Cum
 Value Label                   Value  Frequency  Percent  Percent  Percent

4                                 1         2       6.7     11.1     11.1
3                                 2         2       6.7     11.1     22.2
2                                 3         9      30.0     50.0     72.2
1                                 4         5      16.7     27.8    100.0
                                  .        12      40.0   MISSING
                                      -------   -------  -------
                              TOTAL        30     100.0    100.0

Mean           2.944      Std Err         .221       Median         3.000
Mode           3.000      Std Dev         .938       Variance        .879
Kurtosis        .334      S E Kurt       1.038       Skewness       -.844
S E Skew        .536      Range          3.000       Minimum        1.000
Maximum        4.000      Sum           53.000
Valid Cases       18      Missing Cases     12
```

33 CDEASY

```
                                                         Valid     Cum
 Value Label                   Value  Frequency  Percent  Percent  Percent

4                                 1         3      10.0     17.6     17.6
3                                 2         7      23.3     41.2     58.8
2                                 3         6      20.0     35.3     94.1
1                                 4         1       3.3      5.9    100.0
                                  .        13      43.3   MISSING
                                      -------   -------  -------
                              TOTAL        30     100.0    100.0

Mean           2.294      Std Err         .206       Median         2.000
Mode           2.000      Std Dev         .849       Variance        .721
Kurtosis       -.426      S E Kurt       1.063       Skewness        .046
S E Skew        .550      Range          3.000       Minimum        1.000
Maximum        4.000      Sum           39.000
Valid Cases       17      Missing Cases     13
```

34 CDINTRS

```
                                                         Valid     Cum
 Value Label                   Value  Frequency  Percent  Percent  Percent

4                                 1         1       3.3      5.9      5.9
3                                 2         3      10.0     17.6     23.5
2                                 3        10      33.3     58.8     82.4
1                                 4         3      10.0     17.6    100.0
                                  .        13      43.3   MISSING
                                      -------   -------  -------
                              TOTAL        30     100.0    100.0

Mean           2.882      Std Err         .189       Median         3.000
Mode           3.000      Std Dev         .781       Variance        .610
Kurtosis       1.002      S E Kurt       1.063       Skewness       -.672
S E Skew        .550      Range          3.000       Minimum        1.000
Maximum        4.000      Sum           49.000
Valid Cases       17      Missing Cases     13
```

35 CDMOTIV

```
                                                         Valid     Cum
 Value Label                   Value  Frequency  Percent  Percent  Percent

3                                 2         3      10.0     17.6     17.6
2                                 3         8      26.7     47.1     64.7
1                                 4         6      20.0     35.3    100.0
                                  .        13      43.3   MISSING
                                      -------   -------  -------
                              TOTAL        30     100.0    100.0

Mean           3.176      Std Err         .176       Median         3.000
Mode           3.000      Std Dev         .728       Variance        .529
Kurtosis       -.890      S E Kurt       1.063       Skewness       -.290
S E Skew        .550      Range          2.000       Minimum        2.000
```

```
Maximum       4.000      Sum          54.000
Valid Cases      17      Missing Cases    13
```

36 CDTMSAV

```
                                                   Valid     Cum
  Value Label             Value  Frequency  Percent  Percent  Percent

3                             2          8     26.7     47.1     47.1
2                             3          7     23.3     41.2     88.2
1                             4          2      6.7     11.8    100.0
                              .         13     43.3  MISSING
                                  -------  -------  -------
                          TOTAL         30    100.0    100.0

Mean          2.647      Std Err        .170      Median         3.000
Mode          2.000      Std Dev        .702      Variance        .493
Kurtosis      -.576      S E Kurt      1.063      Skewness        .634
S E Skew       .550      Range         2.000      Minimum        2.000
Maximum       4.000      Sum          45.000
Valid Cases      17      Missing Cases    13
```

37 CDVALU

```
                                                   Valid     Cum
  Value Label             Value  Frequency  Percent  Percent  Percent

3                             2          8     26.7     47.1     47.1
2                             3          7     23.3     41.2     88.2
1                             4          2      6.7     11.8    100.0
                              .         13     43.3  MISSING
                                  -------  -------  -------
                          TOTAL         30    100.0    100.0

Mean          2.647      Std Err        .170      Median         3.000
Mode          2.000      Std Dev        .702      Variance        .493
Kurtosis      -.576      S E Kurt      1.063      Skewness        .634
S E Skew       .550      Range         2.000      Minimum        2.000
Maximum       4.000      Sum          45.000
Valid Cases      17      Missing Cases    13
```

38 CDPOTEN

```
                                                   Valid     Cum
  Value Label             Value  Frequency  Percent  Percent  Percent

3                             2          4     13.3     23.5     23.5
2                             3          7     23.3     41.2     64.7
1                             4          6     20.0     35.3    100.0
                              .         13     43.3  MISSING
                                  -------  -------  -------
                          TOTAL         30    100.0    100.0

Mean          3.118      Std Err        .189      Median         3.000
Mode          3.000      Std Dev        .781      Variance        .610
Kurtosis     -1.241      S E Kurt      1.063      Skewness       -.219
S E Skew       .550      Range         2.000      Minimum        2.000
Maximum       4.000      Sum          53.000
Valid Cases      17      Missing Cases    13
```

39 HOFTNYU

```
                                                   Valid     Cum
  Value Label             Value  Frequency  Percent  Percent  Percent

Almost always                 2          3     10.0     10.0     10.0
Sometimes                     3         27     90.0     90.0    100.0
                                  -------  -------  -------
                          TOTAL         30    100.0    100.0

Median        3.000
Valid Cases      30      Missing Cases     0
```

40 SUSPMT

```
                                                       Valid     Cum
 Value Label                 Value  Frequency  Percent  Percent  Percent

Agree                            2          8     26.7     26.7     26.7
Disagree                         3         19     63.3     63.3     90.0
Strongly disgaree                4          3     10.0     10.0    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Median          3.000
Valid Cases        30       Missing Cases      0
```

41 DISLIKE

```
                                                       Valid     Cum
 Value Label                 Value  Frequency  Percent  Percent  Percent

Strongly agree                   1          1      3.3      3.3      3.3
Agree                            2         12     40.0     40.0     43.3
Disagree                         3         15     50.0     50.0     93.3
Strongly disgaree                4          2      6.7      6.7    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Median          3.000
Valid Cases        30       Missing Cases      0
```

42 DEHUMAN

```
                                                       Valid     Cum
 Value Label                 Value  Frequency  Percent  Percent  Percent

Strongly agree                   1          1      3.3      3.3      3.3
Agree                            2         17     56.7     56.7     60.0
Disagree                         3         12     40.0     40.0    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Median          2.000
Valid Cases        30       Missing Cases      0
```

43 NONCOMM

```
                                                       Valid     Cum
 Value Label                 Value  Frequency  Percent  Percent  Percent

Strongly agree                   1          1      3.3      3.3      3.3
Agree                            2          6     20.0     20.0     23.3
Disagree                         3         19     63.3     63.3     86.7
Strongly disgaree                4          4     13.3     13.3    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Median          3.000
Valid Cases        30       Missing Cases      0
```

44 DONNOHW

```
                                                       Valid     Cum
 Value Label                 Value  Frequency  Percent  Percent  Percent

Strongly agree                   1          3     10.0     10.0     10.0
Agree                            2         21     70.0     70.0     80.0
Disagree                         3          6     20.0     20.0    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Median          2.000
Valid Cases        30       Missing Cases      0
```

45 NOTTRAIN

```
                                                       Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

Strongly agree                   1          7     23.3     23.3     23.3
Agree                            2         22     73.3     73.3     96.7
Disagree                         3          1      3.3      3.3    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Median        2.000
Valid Cases      30       Missing Cases      0
```

46 NOCHOICE

```
                                                       Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

Strongly agree                   1         15     50.0     50.0     50.0
Agree                            2         13     43.3     43.3     93.3
Disagree                         3          1      3.3      3.3     96.7
Strongly disgaree                4          1      3.3      3.3    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Median        1.500
Valid Cases      30       Missing Cases      0
```

47 INEFFECT

```
                                                       Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

Strongly agree                   1          7     23.3     23.3     23.3
Agree                            2         13     43.3     43.3     66.7
Disagree                         3          9     30.0     30.0     96.7
Strongly disgaree                4          1      3.3      3.3    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Median        2.000
Valid Cases      30       Missing Cases      0
```

48 RELUCT

```
                                                       Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

Strongly agree                   1          1      3.3      3.3      3.3
Agree                            2         11     36.7     36.7     40.0
Disagree                         3         16     53.3     53.3     93.3
Strongly disgaree                4          2      6.7      6.7    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0

Median        3.000
Valid Cases      30       Missing Cases      0
```

49 WORYNEW

```
                                                       Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

Strongly agree                   1          2      6.7      6.7      6.7
Agree                            2          8     26.7     26.7     33.3
Disagree                         3         19     63.3     63.3     96.7
Strongly disgaree                4          1      3.3      3.3    100.0
                                      -------  -------  -------
                             TOTAL         30    100.0    100.0
Median        3.000
Valid Cases      30       Missing Cases      0
```

50 STNOKEEN

```
                                                    Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

Strongly agree                 1          1      3.3      3.3      3.3
Agree                          2          6     20.0     20.0     23.3
Disagree                       3         16     53.3     53.3     76.7
Strongly disgaree              4          7     23.3     23.3    100.0
                                    -------  -------  -------
                           TOTAL         30    100.0    100.0

Median          3.000
Valid Cases        30      Missing Cases      0
```

51 GAPCLTMT

```
                                                    Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

Strongly agree                 1          1      3.3      3.3      3.3
Agree                          2          9     30.0     30.0     33.3
Disagree                       3         20     66.7     66.7    100.0
                                    -------  -------  -------
                           TOTAL         30    100.0    100.0

Median          3.000
Valid Cases        30      Missing Cases      0
```

52 EXAMEXCL

```
                                                    Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

Strongly agree                 1         14     46.7     46.7     46.7
Agree                          2         12     40.0     40.0     86.7
Disagree                       3          3     10.0     10.0     96.7
Strongly disgaree              4          1      3.3      3.3    100.0
                                    -------  -------  -------
                           TOTAL         30    100.0    100.0

Median          2.000
Valid Cases        30      Missing Cases      0
```

53 SATFNOMT

```
                                                    Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

No                             0         24     80.0     80.0     80.0
Yes                            1          6     20.0     20.0    100.0
                                    -------  -------  -------
                           TOTAL         30    100.0    100.0

Mode             .000
Valid Cases        30      Missing Cases      0
```

D.3 Frequency tables for 5.2.3 Why do some teachers use it?

1 HOFTNYU

```
                                                         Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

Always                            1         3     16.7     16.7     16.7
Almost always                     2        10     55.6     55.6     72.2
Sometimes                         3         5     27.8     27.8    100.0
                                          -------  -------  -------
                               TOTAL       18    100.0    100.0

Median         2.000
Valid Cases       18      Missing Cases      0
```

2 HOFTNCLS

```
                                                         Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

Always                            1         7     38.9     38.9     38.9
Almost always                     2        11     61.1     61.1    100.0
                                          -------  -------  -------
                               TOTAL       18    100.0    100.0

Median         2.000
Valid Cases       18      Missing Cases      0
```

3 INTRSTLT

```
                                                         Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

Very interested                   1        14     77.8     77.8     77.8
Fairly interested                 2         4     22.2     22.2    100.0
                                          -------  -------  -------
                               TOTAL       18    100.0    100.0

Median         1.000
Valid Cases       18      Missing Cases      0
```

4 USEMTLT

```
                                                         Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

Yes                               1        18    100.0    100.0    100.0
                                          -------  -------  -------
                               TOTAL       18    100.0    100.0

Mode           1.000      Std Dev         .000      Variance        .000
Valid Cases       18      Missing Cases      0
```

5 USEFLL

```
                                                         Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

Very useful                       1        12     66.7     66.7     66.7
Fairly useful                     2         6     33.3     33.3    100.0
                                          -------  -------  -------
                               TOTAL       18    100.0    100.0

Median         1.000
Valid Cases       18      Missing Cases      0
```

6 USEFTEAC

```
                                                       Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

Very useful                     1          9     50.0     50.0     50.0
Fairly useful                   2          9     50.0     50.0    100.0
                                    -------  -------  -------
                            TOTAL         18    100.0    100.0

Median          1.500
Valid Cases        18      Missing Cases      0
```

7 AUUSF

```
                                                       Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

2                               3          6     33.3     33.3     33.3
1                               4         12     66.7     66.7    100.0
                                    -------  -------  -------
                            TOTAL         18    100.0    100.0

Mean            3.667      Std Err        .114     Median          4.000
Mode            4.000      Std Dev        .485     Variance         .235
Kurtosis       -1.594      S E Kurt      1.038     Skewness        -.773
S E Skew         .536      Range         1.000     Minimum         3.000
Maximum         4.000      Sum          66.000
Valid Cases        18      Missing Cases     0
```

8 AUEASY

```
                                                       Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

3                               2          1      5.6      5.6      5.6
2                               3          3     16.7     16.7     22.2
1                               4         14     77.8     77.8    100.0
                                    -------  -------  -------
                            TOTAL         18    100.0    100.0

Mean            3.722      Std Err        .135     Median          4.000
Mode            4.000      Std Dev        .575     Variance         .330
Kurtosis        3.849      S E Kurt      1.038     Skewness       -2.072
S E Skew         .536      Range         2.000     Minimum         2.000
Maximum         4.000      Sum          67.000
Valid Cases        18      Missing Cases     0
```

9 AUINTRS

```
                                                       Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

4                               1          4     22.2     22.2     22.2
3                               2          7     38.9     38.9     61.1
2                               3          4     22.2     22.2     83.3
1                               4          3     16.7     16.7    100.0
                                    -------  -------  -------
                            TOTAL         18    100.0    100.0

Mean            2.333      Std Err        .243     Median          2.000
Mode            2.000      Std Dev       1.029     Variance        1.059
Kurtosis        -.871      S E Kurt      1.038     Skewness         .324
S E Skew         .536      Range         3.000     Minimum         1.000
Maximum         4.000      Sum          42.000
Valid Cases        18      Missing Cases     0
```

10 AUMOTIV

```
                                                      Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

4                               1          1      5.6      5.6      5.6
3                               2          3     16.7     16.7     22.2
2                               3         10     55.6     55.6     77.8
1                               4          4     22.2     22.2    100.0
                                     -------  -------  -------
                            TOTAL         18    100.0    100.0

Mean           2.944     Std Err        .189      Median        3.000
Mode           3.000     Std Dev        .802      Variance       .644
Kurtosis        .766     S E Kurt      1.038      Skewness      -.663
S E Skew        .536     Range         3.000      Minimum       1.000
Maximum        4.000     Sum          53.000
Valid Cases       18     Missing Cases     0
```

11 AUTMSAV

```
                                                      Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

4                               1          1      5.6      5.6      5.6
3                               2          7     38.9     38.9     44.4
2                               3          9     50.0     50.0     94.4
1                               4          1      5.6      5.6    100.0
                                     -------  -------  -------
                            TOTAL         18    100.0    100.0

Mean           2.556     Std Err        .166      Median        3.000
Mode           3.000     Std Dev        .705      Variance       .497
Kurtosis        .201     S E Kurt      1.038      Skewness      -.219
S E Skew        .536     Range         3.000      Minimum       1.000
Maximum        4.000     Sum          46.000
Valid Cases       18     Missing Cases     0
```

12 AUVALU

```
                                                      Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

3                               2         13     72.2     72.2     72.2
2                               3          4     22.2     22.2     94.4
1                               4          1      5.6      5.6    100.0
                                     -------  -------  -------
                            TOTAL         18    100.0    100.0

Mean           2.333     Std Err        .140      Median        2.000
Mode           2.000     Std Dev        .594      Variance       .353
Kurtosis       2.219     S E Kurt      1.038      Skewness      1.683
S E Skew        .536     Range         2.000      Minimum       2.000
Maximum        4.000     Sum          42.000
Valid Cases       18     Missing Cases     0
```

13 AUPOTEN

```
                                                      Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

3                               2          5     27.8     27.8     27.8
2                               3          9     50.0     50.0     77.8
1                               4          4     22.2     22.2    100.0
                                     -------  -------  -------
                            TOTAL         18    100.0    100.0

Mean           2.944     Std Err        .171      Median        3.000
Mode           3.000     Std Dev        .725      Variance       .526
Kurtosis       -.904     S E Kurt      1.038      Skewness       .086
S E Skew        .536     Range         2.000      Minimum       2.000
Maximum        4.000     Sum          53.000
Valid Cases       18     Missing Cases     0
```

14 VIUSF

```
                                                 Valid     Cum
  Value Label            Value  Frequency  Percent  Percent  Percent

2                            3          1      5.6      5.6      5.6
1                            4         17     94.4     94.4    100.0
                                  -------  -------  -------
                         TOTAL         18    100.0    100.0

Mean          3.944    Std Err        .056    Median        4.000
Mode          4.000    Std Dev        .236    Variance       .056
Kurtosis     18.000    S E Kurt      1.038    Skewness     -4.243
S E Skew       .536    Range         1.000    Minimum       3.000
Maximum       4.000    Sum          71.000
Valid Cases      18    Missing Cases     0
```

15 VIEASY

```
                                                 Valid     Cum
  Value Label            Value  Frequency  Percent  Percent  Percent

4                            1          1      5.6      5.6      5.6
3                            2          3     16.7     16.7     22.2
2                            3          6     33.3     33.3     55.6
1                            4          8     44.4     44.4    100.0
                                  -------  -------  -------
                         TOTAL         18    100.0    100.0

Mean          3.167    Std Err        .218    Median        3.000
Mode          4.000    Std Dev        .924    Variance       .853
Kurtosis       .012    S E Kurt      1.038    Skewness      -.868
S E Skew       .536    Range         3.000    Minimum       1.000
Maximum       4.000    Sum          57.000
Valid Cases      18    Missing Cases     0
```

16 VIINTRS

```
                                                 Valid     Cum
  Value Label            Value  Frequency  Percent  Percent  Percent

2                            3          6     33.3     33.3     33.3
1                            4         12     66.7     66.7    100.0
                                  -------  -------  -------
                         TOTAL         18    100.0    100.0

Mean          3.667    Std Err        .114    Median        4.000
Mode          4.000    Std Dev        .485    Variance       .235
Kurtosis     -1.594    S E Kurt      1.038    Skewness      -.773
S E Skew       .536    Range         1.000    Minimum       3.000
Maximum       4.000    Sum          66.000
Valid Cases      18    Missing Cases     0
```

17 VIMOTIV

```
                                                 Valid     Cum
  Value Label            Value  Frequency  Percent  Percent  Percent

4                            1          1      5.6      5.6      5.6
3                            2          2     11.1     11.1     16.7
2                            3          4     22.2     22.2     38.9
1                            4         11     61.1     61.1    100.0
                                  -------  -------  -------
                         TOTAL         18    100.0    100.0

Mean          3.389    Std Err        .216    Median        4.000
Mode          4.000    Std Dev        .916    Variance       .840
Kurtosis      1.335    S E Kurt      1.038    Skewness     -1.437
S E Skew       .536    Range         3.000    Minimum       1.000
Maximum       4.000    Sum          61.000
Valid Cases      18    Missing Cases     0
```

18 VITMSAV

```
                                                      Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

3                               2          7     38.9     38.9     38.9
2                               3          8     44.4     44.4     83.3
1                               4          3     16.7     16.7    100.0
                                     -------  -------  -------
                            TOTAL         18    100.0    100.0

Mean            2.778    Std Err        .173    Median          3.000
Mode            3.000    Std Dev        .732    Variance         .536
Kurtosis        -.906    S E Kurt      1.038    Skewness         .383
S E Skew         .536    Range         2.000    Minimum         2.000
Maximum         4.000    Sum          50.000
Valid Cases        18    Missing Cases     0
```

19 VIVALU

```
                                                      Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

4                               1          2     11.1     11.1     11.1
3                               2          9     50.0     50.0     61.1
2                               3          5     27.8     27.8     88.9
1                               4          2     11.1     11.1    100.0
                                     -------  -------  -------
                            TOTAL         18    100.0    100.0

Mean            2.389    Std Err        .200    Median          2.000
Mode            2.000    Std Dev        .850    Variance         .722
Kurtosis        -.106    S E Kurt      1.038    Skewness         .390
S E Skew         .536    Range         3.000    Minimum         1.000
Maximum         4.000    Sum          43.000
Valid Cases        18    Missing Cases     0
```

20 VIPOTEN

```
                                                      Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

3                               2          1      5.6      5.6      5.6
2                               3          6     33.3     33.3     38.9
1                               4         11     61.1     61.1    100.0
                                     -------  -------  -------
                            TOTAL         18    100.0    100.0

Mean            3.556    Std Err        .145    Median          4.000
Mode            4.000    Std Dev        .616    Variance         .379
Kurtosis         .387    S E Kurt      1.038    Skewness       -1.085
S E Skew         .536    Range         2.000    Minimum         2.000
Maximum         4.000    Sum          64.000
Valid Cases        18    Missing Cases     0
```

21 COMUSF

```
                                                      Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

4                               1          1      5.6      5.9      5.9
3                               2          1      5.6      5.9     11.8
2                               3          6     33.3     35.3     47.1
1                               4          9     50.0     52.9    100.0
                                .          1      5.6  MISSING
                                     -------  -------  -------
                            TOTAL         18    100.0    100.0

Mean            3.353    Std Err        .209    Median          4.000
Mode            4.000    Std Dev        .862    Variance         .743
Kurtosis        2.233    S E Kurt      1.063    Skewness       -1.475
S E Skew         .550    Range         3.000    Minimum         1.000
Maximum         4.000    Sum          57.000
Valid Cases        17    Missing Cases     1
```

22 COMEASY

```
                                                       Valid     Cum
 Value Label                 Value  Frequency  Percent  Percent  Percent

4                                1          2     11.1     11.8     11.8
3                                2         13     72.2     76.5     88.2
2                                3          2     11.1     11.8    100.0
                                 .          1      5.6  MISSING
                                     -------  -------  -------
                             TOTAL         18    100.0    100.0

Mean            2.000     Std Err        .121      Median        2.000
Mode            2.000     Std Dev        .500      Variance       .250
Kurtosis        2.171     S E Kurt      1.063      Skewness       .000
S E Skew         .550     Range         2.000      Minimum       1.000
Maximum         3.000     Sum          34.000
Valid Cases        17     Missing Cases     1
```

23 COMINTRS

```
                                                       Valid     Cum
 Value Label                 Value  Frequency  Percent  Percent  Percent

4                                1          1      5.6      5.9      5.9
3                                2          2     11.1     11.8     17.6
2                                3         10     55.6     58.8     76.5
1                                4          4     22.2     23.5    100.0
                                 .          1      5.6  MISSING
                                     -------  -------  -------
                             TOTAL         18    100.0    100.0

Mean            3.000     Std Err        .192      Median        3.000
Mode            3.000     Std Dev        .791      Variance       .625
Kurtosis        1.472     S E Kurt      1.063      Skewness      -.860
S E Skew         .550     Range         3.000      Minimum       1.000
Maximum         4.000     Sum          51.000
Valid Cases        17     Missing Cases     1
```

24 COMMOTIV

```
                                                       Valid     Cum
 Value Label                 Value  Frequency  Percent  Percent  Percent

3                                2          2     11.1     11.8     11.8
2                                3         10     55.6     58.8     70.6
1                                4          5     27.8     29.4    100.0
                                 .          1      5.6  MISSING
                                     -------  -------  -------
                             TOTAL         18    100.0    100.0

Mean            3.176     Std Err        .154      Median        3.000
Mode            3.000     Std Dev        .636      Variance       .404
Kurtosis        -.238     S E Kurt      1.063      Skewness      -.143
S E Skew         .550     Range         2.000      Minimum       2.000
Maximum         4.000     Sum          54.000
Valid Cases        17     Missing Cases     1
```

25 COMTMSAV

```
                                                       Valid     Cum
 Value Label                 Value  Frequency  Percent  Percent  Percent

4                                1          1      5.6      5.9      5.9
3                                2          7     38.9     41.2     47.1
2                                3          6     33.3     35.3     82.4
1                                4          3     16.7     17.6    100.0
                                 .          1      5.6  MISSING
                                     -------  -------  -------
                             TOTAL         18    100.0    100.0

Mean            2.647     Std Err        .209      Median        3.000
Mode            2.000     Std Dev        .862      Variance       .743
Kurtosis        -.564     S E Kurt      1.063      Skewness       .147
S E Skew         .550     Range         3.000      Minimum       1.000
```

```
Maximum        4.000     Sum           45.000
Valid Cases       17     Missing Cases      1
```

26 COMVALU

```
                                                          Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

4                                  1         2      11.1     11.8     11.8
3                                  2         7      38.9     41.2     52.9
2                                  3         8      44.4     47.1    100.0
                                   .         1       5.6  MISSING
                                       -------  -------  -------
                               TOTAL        18     100.0    100.0

Mean           2.353     Std Err         .170     Median          2.000
Mode           3.000     Std Dev         .702     Variance         .493
Kurtosis       -.576     S E Kurt       1.063     Skewness        -.634
S E Skew        .550     Range          2.000     Minimum         1.000
Maximum        3.000     Sum           40.000
Valid Cases       17     Missing Cases      1
```

27 COMPOTEN

```
                                                          Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

3                                  2         3      16.7     17.6     17.6
2                                  3         8      44.4     47.1     64.7
1                                  4         6      33.3     35.3    100.0
                                   .         1       5.6  MISSING
                                       -------  -------  -------
                               TOTAL        18     100.0    100.0

Mean           3.176     Std Err         .176     Median          3.000
Mode           3.000     Std Dev         .728     Variance         .529
Kurtosis       -.890     S E Kurt       1.063     Skewness        -.290
S E Skew        .550     Range          2.000     Minimum         2.000
Maximum        4.000     Sum           54.000
Valid Cases       17     Missing Cases      1
```

28 IVUSF

```
                                                          Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

2                                  3         3      16.7     21.4     21.4
1                                  4        11      61.1     78.6    100.0
                                   .         4      22.2  MISSING
                                       -------  -------  -------
                               TOTAL        18     100.0    100.0

Mean           3.786     Std Err         .114     Median          4.000
Mode           4.000     Std Dev         .426     Variance         .181
Kurtosis        .501     S E Kurt       1.154     Skewness       -1.566
S E Skew        .597     Range          1.000     Minimum         3.000
Maximum        4.000     Sum           53.000
Valid Cases       14     Missing Cases      4
```

29 IVEASY

```
                                                          Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

4                                  1         7      38.9     50.0     50.0
3                                  2         6      33.3     42.9     92.9
2                                  3         1       5.6      7.1    100.0
                                   .         4      22.2  MISSING
                                       -------  -------  -------
                               TOTAL        18     100.0    100.0

Mean           1.571     Std Err         .173     Median          1.500
Mode           1.000     Std Dev         .646     Variance         .418
```

```
Kurtosis        -.252     S E Kurt       1.154     Skewness        .692
S E Skew         .597     Range          2.000     Minimum        1.000
Maximum         3.000     Sum           22.000
Valid Cases        14     Missing Cases      4
```

30 IVINTRS

```
                                                        Valid      Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

2                                3          4     22.2     28.6     28.6
1                                4         10     55.6     71.4    100.0
                                 .          4     22.2  MISSING
                                      -------  -------  -------
                             TOTAL         18    100.0    100.0

Mean            3.714     Std Err         .125     Median         4.000
Mode            4.000     Std Dev         .469     Variance        .220
Kurtosis       -1.034     S E Kurt       1.154     Skewness      -1.067
S E Skew         .597     Range          1.000     Minimum        3.000
Maximum         4.000     Sum           52.000
Valid Cases        14     Missing Cases      4
```

31 IVMOTIV

```
                                                        Valid      Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

4                                1          2     11.1     14.3     14.3
2                                3          3     16.7     21.4     35.7
1                                4          9     50.0     64.3    100.0
                                 .          4     22.2  MISSING
                                      -------  -------  -------
                             TOTAL         18    100.0    100.0

Mean            3.357     Std Err         .289     Median         4.000
Mode            4.000     Std Dev        1.082     Variance       1.170
Kurtosis        1.817     S E Kurt       1.154     Skewness      -1.697
S E Skew         .597     Range          3.000     Minimum        1.000
Maximum         4.000     Sum           47.000
Valid Cases        14     Missing Cases      4
```

32 IVTMSAV

```
                                                        Valid      Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

3                                2          2     11.1     14.3     14.3
2                                3          5     27.8     35.7     50.0
1                                4          7     38.9     50.0    100.0
                                 .          4     22.2  MISSING
                                      -------  -------  -------
                             TOTAL         18    100.0    100.0

Mean            3.357     Std Err         .199     Median         3.500
Mode            4.000     Std Dev         .745     Variance        .555
Kurtosis        -.637     S E Kurt       1.154     Skewness       -.731
S E Skew         .597     Range          2.000     Minimum        2.000
Maximum         4.000     Sum           47.000
Valid Cases        14     Missing Cases      4
```

33 IVVALU

```
                                                        Valid      Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

4                                1          2     11.1     14.3     14.3
3                                2          6     33.3     42.9     57.1
2                                3          4     22.2     28.6     85.7
1                                4          2     11.1     14.3    100.0
                                 .          4     22.2  MISSING
                                      -------  -------  -------
                             TOTAL         18    100.0    100.0
```

```
Mean           2.429     Std Err          .251     Median       2.000
Mode           2.000     Std Dev          .938     Variance      .879
Kurtosis       -.491     S E Kurt        1.154     Skewness      .240
S E Skew        .597     Range           3.000     Minimum      1.000
Maximum        4.000     Sum            34.000
Valid Cases       14     Missing Cases       4
```

34 IVPOTEN

```
                                                         Valid     Cum
  Value Label                    Value  Frequency  Percent  Percent  Percent

2                                    3          3     16.7     21.4     21.4
1                                    4         11     61.1     78.6    100.0
                                     .          4     22.2  MISSING
                                          -------  -------  -------
                                 TOTAL         18    100.0    100.0

Mean           3.786     Std Err          .114     Median       4.000
Mode           4.000     Std Dev          .426     Variance      .181
Kurtosis        .501     S E Kurt        1.154     Skewness    -1.566
S E Skew        .597     Range           1.000     Minimum      3.000
Maximum        4.000     Sum            53.000
Valid Cases       14     Missing Cases       4
```

35 CDUSF

```
                                                         Valid     Cum
  Value Label                    Value  Frequency  Percent  Percent  Percent

3                                    2          3     16.7     25.0     25.0
2                                    3          2     11.1     16.7     41.7
1                                    4          7     38.9     58.3    100.0
                                     .          6     33.3  MISSING
                                          -------  -------  -------
                                 TOTAL         18    100.0    100.0

Mean           3.333     Std Err          .256     Median       4.000
Mode           4.000     Std Dev          .888     Variance      .788
Kurtosis      -1.269     S E Kurt        1.232     Skewness     -.797
S E Skew        .637     Range           2.000     Minimum      2.000
Maximum        4.000     Sum            40.000
Valid Cases       12     Missing Cases       6
```

36 CDEASY

```
                                                         Valid     Cum
  Value Label                    Value  Frequency  Percent  Percent  Percent

4                                    1          3     16.7     25.0     25.0
3                                    2          8     44.4     66.7     91.7
2                                    3          1      5.6      8.3    100.0
                                     .          6     33.3  MISSING
                                          -------  -------  -------
                                 TOTAL         18    100.0    100.0
Mean           1.833     Std Err          .167     Median       2.000
Mode           2.000     Std Dev          .577     Variance      .333
Kurtosis        .655     S E Kurt        1.232     Skewness     -.063
S E Skew        .637     Range           2.000     Minimum      1.000
Maximum        3.000     Sum            22.000
Valid Cases       12     Missing Cases       6
```

37 CDINTRS

```
                                                         Valid     Cum
  Value Label                    Value  Frequency  Percent  Percent  Percent

4                                    1          1      5.6      8.3      8.3
3                                    2          1      5.6      8.3     16.7
2                                    3          7     38.9     58.3     75.0
1                                    4          3     16.7     25.0    100.0
```

```
                                          .        6     33.3   MISSING
                                               -------  -------  -------
                                      TOTAL        18    100.0    100.0

Mean             3.000        Std Err          .246       Median         3.000
Mode             3.000        Std Dev          .853       Variance        .727
Kurtosis         1.925        S E Kurt        1.232       Skewness      -1.055
S E Skew          .637        Range           3.000       Minimum        1.000
Maximum          4.000        Sum            36.000
Valid Cases         12        Missing Cases       6
```

38 CDMOTIV

```
                                                                  Valid     Cum
  Value Label                         Value  Frequency  Percent  Percent  Percent

3                                         2        3     16.7     25.0     25.0
2                                         3        5     27.8     41.7     66.7
1                                         4        4     22.2     33.3    100.0
                                          .        6     33.3   MISSING
                                               -------  -------  -------
                                      TOTAL        18    100.0    100.0

Mean             3.083        Std Err          .229       Median         3.000
Mode             3.000        Std Dev          .793       Variance        .629
Kurtosis        -1.261        S E Kurt        1.232       Skewness       -.161
S E Skew          .637        Range           2.000       Minimum        2.000
Maximum          4.000        Sum            37.000
Valid Cases         12        Missing Cases       6
```

39 CDTMSAV

```
                                                                  Valid     Cum
  Value Label                         Value  Frequency  Percent  Percent  Percent

3                                         2        2     11.1     16.7     16.7
2                                         3        7     38.9     58.3     75.0
1                                         4        3     16.7     25.0    100.0
                                          .        6     33.3   MISSING
                                               -------  -------  -------
                                      TOTAL        18    100.0    100.0

Mean             3.083        Std Err          .193       Median         3.000
Mode             3.000        Std Dev          .669       Variance        .447
Kurtosis         -.190        S E Kurt        1.232       Skewness       -.086
S E Skew          .637        Range           2.000       Minimum        2.000
Maximum          4.000        Sum            37.000
Valid Cases         12        Missing Cases       6
```

40 CDVALU

```
                                                                  Valid     Cum
  Value Label                         Value  Frequency  Percent  Percent  Percent

3                                         2        3     16.7     25.0     25.0
2                                         3        8     44.4     66.7     91.7
1                                         4        1      5.6      8.3    100.0
                                          .        6     33.3   MISSING
                                               -------  -------  -------
                                      TOTAL        18    100.0    100.0

Mean             2.833        Std Err          .167       Median         3.000
Mode             3.000        Std Dev          .577       Variance        .333
Kurtosis          .655        S E Kurt        1.232       Skewness       -.063
S E Skew          .637        Range           2.000       Minimum        2.000
Maximum          4.000        Sum            34.000
Valid Cases         12        Missing Cases       6
```

41 CDPOTEN

```
                                                      Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

3                                  2          3     16.7     25.0     25.0
2                                  3          4     22.2     33.3     58.3
1                                  4          5     27.8     41.7    100.0
                                   .          6     33.3  MISSING
                                        -------  -------  -------
                               TOTAL         18    100.0    100.0

Mean           3.167     Std Err        .241     Median         3.000
Mode           4.000     Std Dev        .835     Variance        .697
Kurtosis      -1.447     S E Kurt      1.232     Skewness       -.354
S E Skew        .637     Range         2.000     Minimum        2.000
Maximum        4.000     Sum          38.000
Valid Cases       12     Missing Cases     6
```

42 RFOR4LS

```
                                                      Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

Strongly agree                     1          8     44.4     44.4     44.4
Agree                              2         10     55.6     55.6    100.0
                                        -------  -------  -------
                               TOTAL         18    100.0    100.0

Median         2.000
Valid Cases       18     Missing Cases     0
```

43 MORINFO

```
                                                      Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

Strongly agree                     1         11     61.1     61.1     61.1
Agree                              2          6     33.3     33.3     94.4
Disagree                           3          1      5.6      5.6    100.0
                                        -------  -------  -------
                               TOTAL         18    100.0    100.0

Median         1.000
Valid Cases       18     Missing Cases     0
```

44 AUTHSPL

```
                                                      Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

Strongly agree                     1         11     61.1     61.1     61.1
Agree                              2          7     38.9     38.9    100.0
                                        -------  -------  -------
                               TOTAL         18    100.0    100.0

Median         1.000
Valid Cases       18     Missing Cases     0
```

45 REALSIT

```
                                                      Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

Strongly agree                     1          5     27.8     27.8     27.8
Agree                              2         10     55.6     55.6     83.3
Disagree                           3          3     16.7     16.7    100.0
                                        -------  -------  -------
                               TOTAL         18    100.0    100.0

Median         2.000
Valid Cases       18     Missing Cases     0
```

46 PRACTIC

```
                                                      Valid     Cum
  Value Label                 Value  Frequency  Percent  Percent  Percent

Strongly agree                    1         10     55.6     55.6     55.6
Agree                             2          7     38.9     38.9     94.4
Disagree                          3          1      5.6      5.6    100.0
                                       -------  -------  -------
                              TOTAL         18    100.0    100.0

Median          1.000
Valid Cases        18      Missing Cases      0
```

47 STNEED

```
                                                      Valid     Cum
  Value Label                 Value  Frequency  Percent  Percent  Percent

Strongly agree                    1          2     11.1     11.1     11.1
Agree                             2         14     77.8     77.8     88.9
Disagree                          3          2     11.1     11.1    100.0
                                       -------  -------  -------
                              TOTAL         18    100.0    100.0

Median          2.000
Valid Cases        18      Missing Cases      0
```

48 STINTRS

```
                                                      Valid     Cum
  Value Label                 Value  Frequency  Percent  Percent  Percent

Strongly agree                    1          7     38.9     38.9     38.9
Agree                             2          9     50.0     50.0     88.9
Disagree                          3          2     11.1     11.1    100.0
                                       -------  -------  -------
                              TOTAL         18    100.0    100.0

Median          2.000
Valid Cases        18      Missing Cases      0
```

49 EASYLT

```
                                                      Valid     Cum
  Value Label                 Value  Frequency  Percent  Percent  Percent

Strongly agree                    1          4     22.2     22.2     22.2
Agree                             2         10     55.6     55.6     77.8
Disagree                          3          4     22.2     22.2    100.0
                                       -------  -------  -------
                              TOTAL         18    100.0    100.0

Median          2.000
Valid Cases        18      Missing Cases      0
```

50 BYUAUTH

```
                                                      Valid     Cum
  Value Label                 Value  Frequency  Percent  Percent  Percent

Strongly agree                    1          1      5.6      5.6      5.6
Agree                             2          6     33.3     33.3     38.9
Disagree                          3         11     61.1     61.1    100.0
                                       -------  -------  -------
                              TOTAL         18    100.0    100.0

Median          3.000
Valid Cases        18      Missing Cases      0
```

51 BYSTUD

```
                                                          Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

Strongly agree                     1          3     16.7     16.7     16.7
Agree                              2          8     44.4     44.4     61.1
Disagree                           3          6     33.3     33.3     94.4

Strongly disgaree                  4          1      5.6      5.6    100.0
                                          -------  -------  -------
                               TOTAL         18    100.0    100.0

Median         2.000
Valid Cases       18      Missing Cases       0
```

52 UAUTHELP

```
                                                          Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

Strongly agree                     1          3     16.7     16.7     16.7
Agree                              2         10     55.6     55.6     72.2
Disagree                           3          5     27.8     27.8    100.0
                                          -------  -------  -------
                               TOTAL         18    100.0    100.0

Median         2.000
Valid Cases       18      Missing Cases       0
```

53 ENJOY

```
                                                          Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

Strongly agree                     1          3     16.7     16.7     16.7
Agree                              2         14     77.8     77.8     94.4
Disagree                           3          1      5.6      5.6    100.0
                                          -------  -------  -------
                               TOTAL         18    100.0    100.0

Median         2.000
Valid Cases       18      Missing Cases       0
```

54 COMMIT

```
                                                          Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

Strongly agree                     1          4     22.2     22.2     22.2
Agree                              2          8     44.4     44.4     66.7
Disagree                           3          5     27.8     27.8     94.4
Strongly disgaree                  4          1      5.6      5.6    100.0
                                          -------  -------  -------
                               TOTAL         18    100.0    100.0

Median         2.000
Valid Cases       18      Missing Cases       0
```

55 STFYTEAH

```
                                                          Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

                                   0         13     72.2     72.2     72.2
                                   1          5     27.8     27.8    100.0
                                          -------  -------  -------
                               TOTAL         18    100.0    100.0

Mode            .000
Valid Cases       18      Missing Cases       0
```

D.4 Frequency tables of students for sections, 5.2.1, 5.2.2, and 5.2.3

1 HWINTRMT

```
                                                        Valid     Cum
 Value Label                  Value  Frequency  Percent  Percent  Percent

Very interested                 1        59      14.8     14.8     14.8
Fairly interested               2       195      48.8     48.8     63.5
Not particularly int            3       128      32.0     32.0     95.5
Not interested all a            4        18       4.5      4.5    100.0
                                      -------  -------  -------
                              TOTAL      400    100.0    100.0

Median         2.000
Valid Cases      400       Missing Cases      0
```

2 EXPEMTLL

```
                                                        Valid     Cum
 Value Label                  Value  Frequency  Percent  Percent  Percent

No                              0        89      22.3     22.3     22.3
Yes                             1       311      77.8     77.8    100.0
                                      -------  -------  -------
                              TOTAL      400    100.0    100.0

Mode           1.000       Std Dev          .416      Variance        .173
Valid Cases      400       Missing Cases      0
```

3 WHEREUSE

```
                                                        Valid     Cum
 Value Label                  Value  Frequency  Percent  Percent  Percent

Whole class                     1       128      32.0     41.2     41.2
Remedial                        2        43      10.8     13.8     55.0
Tutorial                        3         9       2.3      2.9     57.9
SELF                            4       131      32.8     42.1    100.0
                                .        89      22.3   MISSING
                                      -------  -------  -------
                              TOTAL      400    100.0    100.0

Mode           4.000
Valid Cases      311       Missing Cases     89
```

4 WHMEDIA

```
                                                        Valid     Cum
 Value Label                  Value  Frequency  Percent  Percent  Percent

AUDIO                           1       169      42.3     54.3     54.3
TV                              2        59      14.8     19.0     73.3
VIDEO                           3        70      17.5     22.5     95.8
COMPUTER                        4        13       3.3      4.2    100.0
                                .        89      22.3   MISSING
                                      -------  -------  -------
                              TOTAL      400    100.0    100.0

Mode           1.000
Valid Cases      311       Missing Cases     89
```

5 SATTMUSE

```
                                                        Valid     Cum
 Value Label                  Value  Frequency  Percent  Percent  Percent

No                              0       229      57.3     57.3     57.3
Yes                             1       171      42.8     42.8    100.0
                                      -------  -------  -------
                              TOTAL      400    100.0    100.0
```

```
Mode           .000
Valid Cases     400       Missing Cases      0
```

6 SATTMNOT

```
                                                          Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

No                                 0        280     70.0     70.0     70.0
Yes                                1        120     30.0     30.0    100.0
                                        -------  -------  -------
                               TOTAL        400    100.0    100.0

Mode           .000
Valid Cases     400       Missing Cases      0
```

7 IMPFAC1

```
                                                          Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

1                                  1        110     27.5     30.2     30.2
2                                  2         94     23.5     25.8     56.0
3                                  3         20      5.0      5.5     61.5
4                                  4         14      3.5      3.8     65.4
5                                  5         92     23.0     25.3     90.7
6                                  6         34      8.5      9.3    100.0
                                   .         36      9.0  MISSING
                                        -------  -------  -------
                               TOTAL        400    100.0    100.0

Mode          1.000
Valid Cases     364       Missing Cases     36
```

8 IMPFAC2

```
                                                          Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

1                                  1         92     23.0     25.3     25.3
2                                  2        101     25.3     27.7     53.0
3                                  3         15      3.8      4.1     57.1
4                                  4         26      6.5      7.1     64.3
5                                  5         81     20.3     22.3     86.5
6                                  6         49     12.3     13.5    100.0
                                   .         36      9.0  MISSING
                                        -------  -------  -------
                               TOTAL        400    100.0    100.0

Mode          2.000
Valid Cases     364       Missing Cases     36
```

9 IMPFAC3

```
                                                          Valid     Cum
  Value Label                  Value  Frequency  Percent  Percent  Percent

1                                  1         77     19.3     21.2     21.2
2                                  2         74     18.5     20.3     41.5
3                                  3         44     11.0     12.1     53.6
4                                  4         38      9.5     10.4     64.0
5                                  5         80     20.0     22.0     86.0
6                                  6         51     12.8     14.0    100.0
                                   .         36      9.0  MISSING
                                        -------  -------  -------
                               TOTAL        400    100.0    100.0
Mode          5.000
Valid Cases     364       Missing Cases     36
```

10 IMPFAC4

```
                                                      Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

1                                1         47     11.8     12.9     12.9
2                                2         57     14.3     15.7     28.6
3                                3         52     13.0     14.3     42.9
4                                4         78     19.5     21.4     64.3
5                                5         43     10.8     11.8     76.1
6                                6         87     21.8     23.9    100.0
                                 .         36      9.0  MISSING
                                     -------  -------  -------
                             TOTAL        400    100.0    100.0

Mode             6.000
Valid Cases        364      Missing Cases     36
```

11 IMPFAC5

```
                                                      Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

1                                1         20      5.0      5.5      5.5
2                                2         30      7.5      8.2     13.7
3                                3        103     25.8     28.3     42.0
4                                4        106     26.5     29.1     71.2
5                                5         40     10.0     11.0     82.1
6                                6         65     16.3     17.9    100.0
                                 .         36      9.0  MISSING
                                     -------  -------  -------
                             TOTAL        400    100.0    100.0

Mode             4.000
Valid Cases        364      Missing Cases     36
```

12 IMPFAC6

```
                                                      Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

1                                1         18      4.5      4.9      4.9
2                                2          8      2.0      2.2      7.1
3                                3        130     32.5     35.7     42.9
4                                4        102     25.5     28.0     70.9
5                                5         28      7.0      7.7     78.6
6                                6         78     19.5     21.4    100.0
                                 .         36      9.0  MISSING
                                     -------  -------  -------
                             TOTAL        400    100.0    100.0

Mode             3.000
Valid Cases        364      Missing Cases     36
```

13 HOFTNMTS

```
                                                      Valid     Cum
  Value Label                Value  Frequency  Percent  Percent  Percent

Always                           1         50     12.5     12.5     12.5
Almost always                    2        112     28.0     28.0     40.5
Sometimes                        3        149     37.3     37.3     77.8
Never                            4         89     22.3     22.3    100.0
                                     -------  -------  -------
                             TOTAL        400    100.0    100.0

Median           3.000
Valid Cases        400      Missing Cases      0
```

14 IFMORAUI

```
                                                        Valid     Cum
 Value Label                Value  Frequency  Percent  Percent  Percent

                                0         10      2.5      2.5      2.5
                               30        145     36.3     36.3     38.8
                               60        179     44.8     44.8     83.5
                               90         66     16.5     16.5    100.0
                                     -------  -------  -------
                            TOTAL        400    100.0    100.0

Mean           52.575    Std Err       1.130     Median       60.000
Mode           60.000    Std Dev      22.603     Variance    510.897
Kurtosis        -.643    S E Kurt       .243     Skewness       .090
S E Skew         .122    Range        90.000     Minimum        .000
Maximum        90.000    Sum       21030.000
Valid Cases       400    Missing Cases     0
```

15 IFMORVII

```
                                                        Valid     Cum
 Value Label                Value  Frequency  Percent  Percent  Percent

                                0          8      2.0      2.0      2.0
                               30         73     18.3     18.3     20.3
                               60        201     50.3     50.3     70.5
                               90        118     29.5     29.5    100.0
                                     -------  -------  -------
                            TOTAL        400    100.0    100.0

Mean           62.175    Std Err       1.116     Median       60.000
Mode           60.000    Std Dev      22.322     Variance    498.265
Kurtosis        -.271    S E Kurt       .243     Skewness      -.411
S E Skew         .122    Range        90.000     Minimum        .000
Maximum        90.000    Sum       24870.000
Valid Cases       400    Missing Cases     0
```

16 IFMORCOI

```
                                                        Valid     Cum
 Value Label                Value  Frequency  Percent  Percent  Percent

                                0         31      7.8      7.8      7.8
                               30        124     31.0     31.0     38.8
                               60        151     37.8     37.8     76.5
                               90         94     23.5     23.5    100.0
                                     -------  -------  -------
                            TOTAL        400    100.0    100.0

Mean           53.100    Std Err       1.345     Median       60.000
Mode           60.000    Std Dev      26.902     Variance    723.699
Kurtosis        -.806    S E Kurt       .243     Skewness      -.181
S E Skew         .122    Range        90.000     Minimum        .000
Maximum        90.000    Sum       21240.000
Valid Cases       400    Missing Cases     0
```

D.5 Frequency tables of teachers for section 6.3.2.2

1 INTRSTLT

```
                                                         Valid     Cum
 Value Label                Value  Frequency  Percent  Percent  Percent

Very interested                1        18      69.2     69.2     69.2
Fairly interested              2         8      30.8     30.8    100.0
                                   -------  -------  -------
                           TOTAL        26     100.0    100.0

Median         1.000
Valid Cases       26      Missing Cases      0
```

2 USEFLL

```
                                                         Valid     Cum
 Value Label                Value  Frequency  Percent  Percent  Percent

Very useful                    1        17      65.4     65.4     65.4
Fairly useful                  2         9      34.6     34.6    100.0
                                   -------  -------  -------
                           TOTAL        26     100.0    100.0

Median         1.000
Valid Cases       26      Missing Cases      0
```

3 USEFTEAC

```
                                                         Valid     Cum
 Value Label                Value  Frequency  Percent  Percent  Percent

Very useful                    1        16      61.5     61.5     61.5
Fairly useful                  2        10      38.5     38.5    100.0
                                   -------  -------  -------
                           TOTAL        26     100.0    100.0

Median         1.000
Valid Cases       26      Missing Cases      0
```

4 HOFTNYU

```
                                                         Valid     Cum
 Value Label                Value  Frequency  Percent  Percent  Percent

Always                         1         5      19.2     19.2     19.2
Almost always                  2        10      38.5     38.5     57.7
Sometimes                      3         9      34.6     34.6     92.3
Never                          4         2       7.7      7.7    100.0
                                   -------  -------  -------
                           TOTAL        26     100.0    100.0

Median         2.000
Valid Cases       26      Missing Cases      0
```

5 HOFTNCLS

```
                                                         Valid     Cum
 Value Label                Value  Frequency  Percent  Percent  Percent

Always                         1         4      15.4     15.4     15.4
Almost always                  2         7      26.9     26.9     42.3
Somtimes                       3        12      46.2     46.2     88.5
Never                          4         3      11.5     11.5    100.0
                                   -------  -------  -------
                           TOTAL        26     100.0    100.0

Median         3.000
Valid Cases       26      Missing Cases      0
```

6 AVAHARD

```
                                                       Valid     Cum
  Value Label                 Value  Frequency  Percent  Percent  Percent

Easily available                  1          4     15.4     15.4     15.4
Fairly easily availa              2         14     53.8     53.8     69.2
Availability difficu              3          7     26.9     26.9     96.2
Not available at all              4          1      3.8      3.8    100.0
                                        -------  -------  -------
                              TOTAL         26    100.0    100.0

Median         2.000
Valid Cases       26      Missing Cases      0
```

7 AVASOFT

```
                                                       Valid     Cum
  Value Label                 Value  Frequency  Percent  Percent  Percent

Easily available                  1          1      3.8      3.8      3.8
Fairly easily availa              2          8     30.8     30.8     34.6
Availability difficu              3         11     42.3     42.3     76.9
Not available at all              4          6     23.1     23.1    100.0
                                        -------  -------  -------
                              TOTAL         26    100.0    100.0

Median         3.000
Valid Cases       26      Missing Cases      0
```

8 IMPFAC1

```
                                                       Valid     Cum
  Value Label                 Value  Frequency  Percent  Percent  Percent

1                                 1          5     19.2     19.2     19.2
2                                 2          9     34.6     34.6     53.8
4                                 4          1      3.8      3.8     57.7
5                                 5          8     30.8     30.8     88.5
6                                 6          3     11.5     11.5    100.0
                                        -------  -------  -------
                              TOTAL         26    100.0    100.0

Mode           2.000
Valid Cases       26      Missing Cases      0
```

9 IMPFAC2

```
                                                       Valid     Cum
  Value Label                 Value  Frequency  Percent  Percent  Percent

1                                 1          4     15.4     15.4     15.4
2                                 2          7     26.9     26.9     42.3
3                                 3          1      3.8      3.8     46.2
4                                 4          1      3.8      3.8     50.0
5                                 5          8     30.8     30.8     80.8
6                                 6          5     19.2     19.2    100.0
                                        -------  -------  -------
                              TOTAL         26    100.0    100.0

Mode           5.000
Valid Cases       26      Missing Cases      0
```

10 IMPFAC3

```
                                                       Valid     Cum
  Value Label                 Value  Frequency  Percent  Percent  Percent

1                                 1          9     34.6     34.6     34.6
2                                 2          3     11.5     11.5     46.2
3                                 3          1      3.8      3.8     50.0
4                                 4          2      7.7      7.7     57.7
5                                 5          6     23.1     23.1     80.8
6                                 6          5     19.2     19.2    100.0
                                        -------  -------  -------
                              TOTAL         26    100.0    100.0

Mode           1.000
Valid Cases       26      Missing Cases      0
```

11 IMPFAC4

```
                                                        Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

1                               1         5     19.2     19.2     19.2
2                               2         4     15.4     15.4     34.6
3                               3         5     19.2     19.2     53.8
4                               4         2      7.7      7.7     61.5
5                               5         2      7.7      7.7     69.2
6                               6         8     30.8     30.8    100.0
                                     -------  -------  -------
                            TOTAL        26    100.0    100.0

Mode          6.000
Valid Cases      26      Missing Cases     0
```

12 IMPFAC5

```
                                                        Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

1                               1         2      7.7      7.7      7.7
2                               2         2      7.7      7.7     15.4
3                               3         7     26.9     26.9     42.3
4                               4        13     50.0     50.0     92.3
5                               5         1      3.8      3.8     96.2
6                               6         1      3.8      3.8    100.0
                                     -------  -------  -------
                            TOTAL        26    100.0    100.0

Mode          4.000
Valid Cases      26      Missing Cases     0
```

13 IMPFAC6

```
                                                        Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

1                               1         1      3.8      3.8      3.8
2                               2         1      3.8      3.8      7.7
3                               3        12     46.2     46.2     53.8
4                               4         7     26.9     26.9     80.8
5                               5         1      3.8      3.8     84.6
6                               6         4     15.4     15.4    100.0
                                     -------  -------  -------
                            TOTAL        26    100.0    100.0

Mode          3.000
Valid Cases      26      Missing Cases     0
```

14 ENJOYWS

```
                                                        Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

Very much                       1        17     65.4     65.4     65.4
A little                        2         7     26.9     26.9     92.3
Not very much                   3         2      7.7      7.7    100.0
                                     -------  -------  -------
                            TOTAL        26    100.0    100.0

Median        1.000
Valid Cases      26      Missing Cases     0
```

15 WSUSEFUL

```
                                                        Valid     Cum
  Value Label               Value  Frequency  Percent  Percent  Percent

Very useful                     1        19     73.1     73.1     73.1
Fairly useful                   2         6     23.1     23.1     96.2
Not very useful                 3         1      3.8      3.8    100.0
                                     -------  -------  -------
                            TOTAL        26    100.0    100.0

Median        1.000
Valid Cases      26      Missing Cases     0
```

16 LEARNTWS

```
                                                      Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

Very much                      1        12      46.2     46.2     46.2
A ittle                        2         9      34.6     34.6     80.8
Not very much                  3         5      19.2     19.2    100.0
                                   -------  -------  -------
                           TOTAL        26     100.0    100.0

Median         2.000
Valid Cases       26       Missing Cases      0
```

17 ATTENDWS

```
                                                      Valid     Cum
  Value Label              Value  Frequency  Percent  Percent  Percent

Very much                      1        24      92.3     92.3     92.3
A ittle                        2         2       7.7      7.7    100.0
                                   -------  -------  -------
                           TOTAL        26     100.0    100.0

Median         1.000
Valid Cases       26       Missing Cases      0
```

Appendix E Crosstabulations and Tests of association

E.1 Crosstabulations and tests of association for section 5.2.1

1 Crosstabulation: RELTAUD By GENDER

```
             Count |
           Row Pct |Male     |Female  |
GENDER->   Col Pct |         |        | Row
           Tot Pct |       1 |      2 | Total
RELTAUD    --------+---------+--------+
                 0 |     8   |    4   |   12
  NA               |  66.7   |  33.3  |  25.0
                   |  25.0   |  25.0  |
                   |  16.7   |   8.3  |
                   +---------+--------+
                 1 |     1   |    2   |    3
  In education     |  33.3   |  66.7  |   6.3
                   |   3.1   |  12.5  |
                   |   2.1   |   4.2  |
                   +---------+--------+
                 2 |    11   |    4   |   15
  In language teac |  73.3   |  26.7  |  31.3
                   |  34.4   |  25.0  |
                   |  22.9   |   8.3  |
                   +---------+--------+
                 3 |    12   |    6   |   18
  Both             |  66.7   |  33.3  |  37.5
                   |  37.5   |  37.5  |
                   |  25.0   |  12.5  |
                   +---------+--------+
            Column      32       16        48
             Total    66.7     33.3     100.0

 Chi-Square    D.F.       Significance       Min E.F.     Cells with E.F.< 5
 ----------    ----       ------------       --------     ------------------
   1.80000       3            .6149            1.000      3 OF     8 ( 37.5%)

Number of Missing Observations =        0
```

2 Crosstabulation: RELTAUD By YRTEACIN

```
             Count |
           Row Pct |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN-> Col Pct |         |         |         |         |         |         | Row
           Tot Pct |       1 |       2 |       3 |       4 |       5 |       6 | Total
RELTAUD    --------+---------+---------+---------+---------+---------+---------+
                 0 |     5   |     2   |     5   |         |         |         |   12
  NA               |  41.7   |  16.7   |  41.7   |         |         |         |  25.0
                   |  33.3   |  20.0   |  62.5   |         |         |         |
                   |  10.4   |   4.2   |  10.4   |         |         |         |
                   +---------+---------+---------+---------+---------+---------+
                 1 |     1   |         |         |         |     2   |         |    3
  In education     |  33.3   |         |         |         |  66.7   |         |   6.3
                   |   6.7   |         |         |         |  18.2   |         |
                   |   2.1   |         |         |         |   4.2   |         |
                   +---------+---------+---------+---------+---------+---------+
                 2 |     4   |     1   |         |     1   |     7   |     2   |   15
  In language teac |  26.7   |   6.7   |         |   6.7   |  46.7   |  13.3   |  31.3
                   |  26.7   |  10.0   |         |  50.0   |  63.6   | 100.0   |
                   |   8.3   |   2.1   |         |   2.1   |  14.6   |   4.2   |
                   +---------+---------+---------+---------+---------+---------+
                 3 |     5   |     7   |     3   |     1   |     2   |         |   18
  Both             |  27.8   |  38.9   |  16.7   |   5.6   |  11.1   |         |  37.5
                   |  33.3   |  70.0   |  37.5   |  50.0   |  18.2   |         |
                   |  10.4   |  14.6   |   6.3   |   2.1   |   4.2   |         |
                   +---------+---------+---------+---------+---------+---------+
            Column      15        10         8         2        11         2       48
             Total    31.3      20.8      16.7       4.2      22.9       4.2    100.0

 Chi-Square    D.F.       Significance       Min E.F.     Cells with E.F.< 5
 ----------    ----       ------------       --------     ------------------
  28.45354      15            .0189              .125     23 OF    24 ( 95.8%)

Number of Missing Observations =        0
```

3 Crosstabulation: RELTTV By GENDER

```
             Count |
           Row Pct |Male     |Female  |
GENDER->   Col Pct |         |        | Row
           Tot Pct |       1 |      2 | Total
```

```
RELTTV          --------+--------+--------+
                0 |    16  |     7  |    23
  NA              |  69.6  |  30.4  |  47.9
                  |  50.0  |  43.8  |
                  |  33.3  |  14.6  |
                  +--------+--------+
                1 |     5  |     2  |     7
  In education    |  71.4  |  28.6  |  14.6
                  |  15.6  |  12.5  |
                  |  10.4  |   4.2  |
                  +--------+--------+
                2 |     6  |     3  |     9
  In language teac|  66.7  |  33.3  |  18.8
                  |  18.8  |  18.8  |
                  |  12.5  |   6.3  |
                  +--------+--------+
                3 |     5  |     4  |     9
  Both            |  55.6  |  44.4  |  18.8
                  |  15.6  |  25.0  |
                  |  10.4  |   8.3  |
                  +--------+--------+
           Column      32       16       48
            Total    66.7     33.3    100.0

 Chi-Square    D.F.      Significance      Min E.F.      Cells with E.F.< 5
 ----------    ----      ------------      --------      ------------------
    .65839       3           .8829            2.333      4 OF     8 ( 50.0%)

Number of Missing Observations =       0
```

4 Crosstabulation: RELTTV By YRTEACIN

```
             Count |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct |        |        |        |        |        |        |  Row
           Tot Pct |     1  |     2  |     3  |     4  |     5  |     6  | Total
RELTTV      --------+--------+--------+--------+--------+--------+--------+
                0 |     8  |     5  |     5  |        |     4  |     1  |    23
  NA              |  34.8  |  21.7  |  21.7  |        |  17.4  |   4.3  |  47.9
                  |  53.3  |  50.0  |  62.5  |        |  36.4  |  50.0  |
                  |  16.7  |  10.4  |  10.4  |        |   8.3  |   2.1  |
                  +--------+--------+--------+--------+--------+--------+
                1 |        |     3  |     2  |        |     2  |        |     7
  In education    |        |  42.9  |  28.6  |        |  28.6  |        |  14.6
                  |        |  30.0  |  25.0  |        |  18.2  |        |
                  |        |   6.3  |   4.2  |        |   4.2  |        |
                  +--------+--------+--------+--------+--------+--------+
                2 |     2  |        |        |     1  |     5  |     1  |     9
  In language teac|  22.2  |        |        |  11.1  |  55.6  |  11.1  |  18.8
                  |  13.3  |        |        |  50.0  |  45.5  |  50.0  |
                  |   4.2  |        |        |   2.1  |  10.4  |   2.1  |
                  +--------+--------+--------+--------+--------+--------+
                3 |     5  |     2  |     1  |     1  |        |        |     9
  Both            |  55.6  |  22.2  |  11.1  |  11.1  |        |        |  18.8
                  |  33.3  |  20.0  |  12.5  |  50.0  |        |        |
                  |  10.4  |   4.2  |   2.1  |   2.1  |        |        |
                  +--------+--------+--------+--------+--------+--------+
           Column      15       10        8        2       11        2       48
            Total    31.3     20.8     16.7      4.2     22.9      4.2    100.0

 Chi-Square    D.F.      Significance      Min E.F.      Cells with E.F.< 5
 ----------    ----      ------------      --------      ------------------
  22.04836      15           .1065             .292      22 OF    24 ( 91.7%)

Number of Missing Observations =       0
```

5 Crosstabulation: RELTVID By GENDER

```
             Count |
           Row Pct |Male    |Female  |
GENDER->   Col Pct |        |        |  Row
           Tot Pct |     1  |     2  | Total
RELTVID     --------+--------+--------+
                0 |     9  |     4  |    13
  NA              |  69.2  |  30.8  |  27.1
                  |  28.1  |  25.0  |
                  |  18.8  |   8.3  |
                  +--------+--------+
                1 |     1  |     1  |     2
  In education    |  50.0  |  50.0  |   4.2
                  |   3.1  |   6.3  |
                  |   2.1  |   2.1  |
                  +--------+--------+
                2 |    11  |     3  |    14
  In language teac|  78.6  |  21.4  |  29.2
                  |  34.4  |  18.8  |
                  |  22.9  |   6.3  |
                  +--------+--------+
```

```
                   3  |    11  |     8  |    19
  Both                |  57.9  |  42.1  |  39.6
                      |  34.4  |  50.0  |
                      |  22.9  |  16.7  |
                      +--------+--------+
              Column      32       16        48
               Total    66.7     33.3     100.0

 Chi-Square     D.F.      Significance        Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------        --------      ------------------
    1.83921        3          .6064              .667       4 OF     8 ( 50.0%)

Number of Missing Observations =        0
```

6 Crosstabulation: RELTVID By YRTEACIN

```
               Count  |
             Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->   Col Pct  |        |        |        |        |        |        | Row
             Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
RELTVID      --------+--------+--------+--------+--------+--------+--------+
                   0  |     4  |     1  |     6  |        |     2  |        |    13
  NA                  |  30.8  |   7.7  |  46.2  |        |  15.4  |        |  27.1
                      |  26.7  |  10.0  |  75.0  |        |  18.2  |        |
                      |   8.3  |   2.1  |  12.5  |        |   4.2  |        |
                      +--------+--------+--------+--------+--------+--------+
                   1  |     1  |        |        |        |     1  |        |     2
  In education        |  50.0  |        |        |        |  50.0  |        |   4.2
                      |   6.7  |        |        |        |   9.1  |        |
                      |   2.1  |        |        |        |   2.1  |        |
                      +--------+--------+--------+--------+--------+--------+
                   2  |     4  |     1  |        |     1  |     6  |     2  |    14
  In language teac    |  28.6  |   7.1  |        |   7.1  |  42.9  |  14.3  |  29.2
                      |  26.7  |  10.0  |        |  50.0  |  54.5  | 100.0  |
                      |   8.3  |   2.1  |        |   2.1  |  12.5  |   4.2  |
                      +--------+--------+--------+--------+--------+--------+
                   3  |     6  |     8  |     2  |     1  |     2  |        |    19
  Both                |  31.6  |  42.1  |  10.5  |   5.3  |  10.5  |        |  39.6
                      |  40.0  |  80.0  |  25.0  |  50.0  |  18.2  |        |
                      |  12.5  |  16.7  |   4.2  |   2.1  |   4.2  |        |
                      +--------+--------+--------+--------+--------+--------+
              Column      15       10        8        2       11        2        48
               Total    31.3     20.8     16.7      4.2     22.9      4.2     100.0

 Chi-Square     D.F.      Significance        Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------        --------      ------------------
   27.51632       15          .0248              .083      23 OF    24 ( 95.8%)

Number of Missing Observations =        0
```

7 Crosstabulation: RELTCOMP By GENDER

```
               Count  |
             Row Pct  |Male    |Female  |
GENDER->     Col Pct  |        |        | Row
             Tot Pct  |      1 |      2 | Total
RELTCOMP     --------+--------+--------+
                   0  |    17  |     6  |    23
  NA                  |  73.9  |  26.1  |  47.9
                      |  53.1  |  37.5  |
                      |  35.4  |  12.5  |
                      +--------+--------+
                   1  |     8  |     3  |    11
  In education        |  72.7  |  27.3  |  22.9
                      |  25.0  |  18.8  |
                      |  16.7  |   6.3  |
                      +--------+--------+
                   2  |     5  |        |     5
  In language teac    | 100.0  |        |  10.4
                      |  15.6  |        |
                      |  10.4  |        |
                      +--------+--------+
                   3  |     2  |     7  |     9
  Both                |  22.2  |  77.8  |  18.8
                      |   6.3  |  43.8  |
                      |   4.2  |  14.6  |
                      +--------+--------+
              Column      32       16        48
               Total    66.7     33.3     100.0

 Chi-Square     D.F.      Significance        Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------        --------      ------------------
   11.22530        3          .0106             1.667       4 OF     8 ( 50.0%)

Number of Missing Observations =        0
```

8 Crosstabulation: RELTCOMP By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
RELTCOMP    ---------+--------+--------+--------+--------+--------+--------+
                  0  |    8   |    4   |    5   |        |    5   |    1   |    23
  NA                 | 34.8   | 17.4   | 21.7   |        | 21.7   |  4.3   |  47.9
                     | 53.3   | 40.0   | 62.5   |        | 45.5   | 50.0   |
                     | 16.7   |  8.3   | 10.4   |        | 10.4   |  2.1   |
                     +--------+--------+--------+--------+--------+--------+
                  1  |    4   |    3   |    2   |    1   |    1   |        |    11
  In education       | 36.4   | 27.3   | 18.2   |  9.1   |  9.1   |        |  22.9
                     | 26.7   | 30.0   | 25.0   | 50.0   |  9.1   |        |
                     |  8.3   |  6.3   |  4.2   |  2.1   |  2.1   |        |
                     +--------+--------+--------+--------+--------+--------+
                  2  |        |        |        |    1   |    4   |        |     5
  In language teac   |        |        |        | 20.0   | 80.0   |        |  10.4
                     |        |        |        | 50.0   | 36.4   |        |
                     |        |        |        |  2.1   |  8.3   |        |
                     +--------+--------+--------+--------+--------+--------+
                  3  |    3   |    3   |    1   |        |    1   |    1   |     9
  Both               | 33.3   | 33.3   | 11.1   |        | 11.1   | 11.1   |  18.8
                     | 20.0   | 30.0   | 12.5   |        |  9.1   | 50.0   |
                     |  6.3   |  6.3   |  2.1   |        |  2.1   |  2.1   |
                     +--------+--------+--------+--------+--------+--------+
             Column      15       10        8        2       11        2       48
              Total    31.3     20.8     16.7      4.2     22.9      4.2    100.0

 Chi-Square      D.F.       Significance      Min E.F.     Cells with E.F.< 5
 ----------      ----       ------------      --------     ------------------
   20.47574       15            .1544            .208      22 OF    24 ( 91.7%)

Number of Missing Observations =       0
```

9 Crosstabulation: RELTIV By GENDER

```
              Count  |
            Row Pct  |Male    |Female  |
GENDER->    Col Pct  |        |        |  Row
            Tot Pct  |      1 |      2 | Total
RELTIV      ---------+--------+--------+
                  0  |   30   |   13   |    43
  NA                 | 69.8   | 30.2   |  89.6
                     | 93.8   | 81.3   |
                     | 62.5   | 27.1   |
                     +--------+--------+
                  1  |    1   |    1   |     2
  In education       | 50.0   | 50.0   |   4.2
                     |  3.1   |  6.3   |
                     |  2.1   |  2.1   |
                     +--------+--------+
                  2  |        |    2   |     2
  In language teac   |        | 100.0  |   4.2
                     |        | 12.5   |
                     |        |  4.2   |
                     +--------+--------+
                  3  |    1   |        |     1
  Both               | 100.0  |        |   2.1
                     |  3.1   |        |
                     |  2.1   |        |
                     +--------+--------+
             Column      32       16       48
              Total    66.7     33.3    100.0

 Chi-Square      D.F.       Significance      Min E.F.     Cells with E.F.< 5
 ----------      ----       ------------      --------     ------------------
    4.93605        3            .1765            .333      6 OF     8 ( 75.0%)

Number of Missing Observations =       0
```

10 Crosstabulation: RELTIV By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
RELTIV      ---------+--------+--------+--------+--------+--------+--------+
                  0  |   14   |    8   |    7   |    2   |   11   |    1   |    43
  NA                 | 32.6   | 18.6   | 16.3   |  4.7   | 25.6   |  2.3   |  89.6
                     | 93.3   | 80.0   | 87.5   | 100.0  | 100.0  | 50.0   |
                     | 29.2   | 16.7   | 14.6   |  4.2   | 22.9   |  2.1   |
                     +--------+--------+--------+--------+--------+--------+
                  1  |        |    2   |        |        |        |        |     2
  In education       |        | 100.0  |        |        |        |        |   4.2
                     |        | 20.0   |        |        |        |        |
```

```
                    |        |  4.2   |        |        |        |        |
                    +--------+--------+--------+--------+--------+--------+
                  2 |      1 |        |      1 |        |        |        |     2
  In language teac  |  50.0  |        |  50.0  |        |        |        |   4.2
                    |   6.7  |        |  12.5  |        |        |        |
                    |   2.1  |        |   2.1  |        |        |        |
                    +--------+--------+--------+--------+--------+--------+
                  3 |        |        |        |        |        |      1 |     1
  Both              |        |        |        |        |        | 100.0  |   2.1
                    |        |        |        |        |        |  50.0  |
                    |        |        |        |        |        |   2.1  |
                    +--------+--------+--------+--------+--------+--------+
             Column      15       10        8        2       11        2       48
              Total    31.3     20.8     16.7      4.2     22.9      4.2    100.0

  Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
  ----------     ----       ------------       --------      ------------------
   33.83721       15           .0036             .042        20 OF    24 ( 83.3%)

Number of Missing Observations =        0
```

11 Crosstabulation: RELTCD By GENDER

```
                Count   |
                Row Pct |Male    |Female  |
GENDER->        Col Pct |        |        | Row
                Tot Pct |       1|       2| Total
RELTCD          --------+--------+--------+
                      0 |    29  |    14  |    43
  NA                    |  67.4  |  32.6  |  89.6
                        |  90.6  |  87.5  |
                        |  60.4  |  29.2  |
                        +--------+--------+
                      1 |     3  |     1  |     4
  In education          |  75.0  |  25.0  |   8.3
                        |   9.4  |   6.3  |
                        |   6.3  |   2.1  |
                        +--------+--------+
                      3 |        |     1  |     1
  Both                  |        | 100.0  |   2.1
                        |        |   6.3  |
                        |        |   2.1  |
                        +--------+--------+
                 Column      32       16       48
                  Total    66.7     33.3    100.0

 Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----       ------------       --------      ------------------
  2.13663         2           .3436             .333        4 OF      6 ( 66.7%)

Number of Missing Observations =        0
```

12 Crosstabulation: RELTCD By YRTEACIN

```
                Count   |
                Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->      Col Pct |        |        |        |        |        |        | Row
                Tot Pct |       1|       2|       3|       4|       5|       6| Total
RELTCD          --------+--------+--------+--------+--------+--------+--------+
                      0 |    15  |     6  |     8  |     2  |    10  |     2  |    43
  NA                    |  34.9  |  14.0  |  18.6  |   4.7  |  23.3  |   4.7  |  89.6
                        | 100.0  |  60.0  | 100.0  | 100.0  |  90.9  | 100.0  |
                        |  31.3  |  12.5  |  16.7  |   4.2  |  20.8  |   4.2  |
                        +--------+--------+--------+--------+--------+--------+
                      1 |        |     3  |        |        |     1  |        |     4
  In education          |        |  75.0  |        |        |  25.0  |        |   8.3
                        |        |  30.0  |        |        |   9.1  |        |
                        |        |   6.3  |        |        |   2.1  |        |
                        +--------+--------+--------+--------+--------+--------+
                      3 |        |     1  |        |        |        |        |     1
  Both                  |        | 100.0  |        |        |        |        |   2.1
                        |        |  10.0  |        |        |        |        |
                        |        |   2.1  |        |        |        |        |
                        +--------+--------+--------+--------+--------+--------+
                 Column      15       10        8        2       11        2       48
                  Total    31.3     20.8     16.7      4.2     22.9      4.2    100.0

 Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----       ------------       --------      ------------------
  12.99704       10           .2238             .042        14 OF    18 ( 77.8%)

Number of Missing Observations =        0
```

13 Crosstabulation: RELTVIR By GENDER

```
               Count  |
             Row Pct  |Male     |Female   |
GENDER->     Col Pct  |         |         | Row
             Tot Pct  |       1 |       2 | Total
RELTVIR      --------+---------+---------+
                   0  |    32   |    13   |    45
  NA                  |  71.1   |  28.9   |  93.8
                      | 100.0   |  81.3   |
                      |  66.7   |  27.1   |
                      +---------+---------+
                   1  |         |     2   |     2
  In education        |         | 100.0   |   4.2
                      |         |  12.5   |
                      |         |   4.2   |
                      +---------+---------+
                   3  |         |     1   |     1
  Both                |         | 100.0   |   2.1
                      |         |   6.3   |
                      |         |   2.1   |
                      +---------+---------+
              Column       32        16       48
               Total     66.7      33.3    100.0

 Chi-Square      D.F.        Significance        Min E.F.      Cells with E.F.< 5
 ----------      ----        ------------        --------      ------------------
   6.40000         2            .0408              .333        4 OF     6 ( 66.7%)

Number of Missing Observations =        0
```

14 Crosstabulation: RELTVIR By YRTEACIN

```
               Count  |
             Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN->   Col Pct  |         |         |         |         |         |         | Row
             Tot Pct  |       1 |       2 |       3 |       4 |       5 |       6 | Total
RELTVIR      --------+---------+---------+---------+---------+---------+---------+
                   0  |    14   |     8   |     8   |     2   |    11   |     2   |    45
  NA                  |  31.1   |  17.8   |  17.8   |   4.4   |  24.4   |   4.4   |  93.8
                      |  93.3   |  80.0   | 100.0   | 100.0   | 100.0   | 100.0   |
                      |  29.2   |  16.7   |  16.7   |   4.2   |  22.9   |   4.2   |
                      +---------+---------+---------+---------+---------+---------+
                   1  |         |     2   |         |         |         |         |     2
  In education        |         | 100.0   |         |         |         |         |   4.2
                      |         |  20.0   |         |         |         |         |
                      |         |   4.2   |         |         |         |         |
                      +---------+---------+---------+---------+---------+---------+
                   3  |     1   |         |         |         |         |         |     1
  Both                | 100.0   |         |         |         |         |         |   2.1
                      |   6.7   |         |         |         |         |         |
                      |   2.1   |         |         |         |         |         |
                      +---------+---------+---------+---------+---------+---------+
              Column       15        10         8         2        11         2       48
               Total     31.3      20.8      16.7       4.2      22.9       4.2    100.0

 Chi-Square      D.F.        Significance        Min E.F.      Cells with E.F.< 5
 ----------      ----        ------------        --------      ------------------
  10.09778        10            .4320              .042       14 OF    18 ( 77.8%)

Number of Missing Observations =        0
```

15 Crosstabulation: INTRSTLT By GENDER

```
               Count  |
             Row Pct  |Male     |Female   |
GENDER->     Col Pct  |         |         | Row
             Tot Pct  |       1 |       2 | Total
INTRSTLT     --------+---------+---------+
                   1  |    13   |     9   |    22
  Very interested     |  59.1   |  40.9   |  45.8
                      |  40.6   |  56.3   |
                      |  27.1   |  18.8   |
                      +---------+---------+
                   2  |    16   |     6   |    22
  Fairly intereste    |  72.7   |  27.3   |  45.8
                      |  50.0   |  37.5   |
                      |  33.3   |  12.5   |
                      +---------+---------+
                   3  |     3   |     1   |     4
  Not particularly    |  75.0   |  25.0   |   8.3
                      |   9.4   |   6.3   |
                      |   6.3   |   2.1   |
                      +---------+---------+
              Column       32        16       48
               Total     66.7      33.3    100.0
```

```
 Chi-Square    D.F.      Significance       Min E.F.      Cells with E.F.< 5
 ----------    ----      ------------       --------      ------------------
   1.05682      2           .5895             1.333       2 OF     6 ( 33.3%)

Number of Missing Observations =       0
```

16 Crosstabulation: INTRSTLT By YRTEACIN

```
               Count  |
              Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->    Col Pct |        |        |        |        |        |        | Row
              Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
INTRSTLT      --------+--------+--------+--------+--------+--------+--------+
                   1  |    9   |    4   |    2   |    2   |    4   |    1   |    22
  Very interested     |  40.9  |  18.2  |   9.1  |   9.1  |  18.2  |   4.5  |  45.8
                      |  60.0  |  40.0  |  25.0  | 100.0  |  36.4  |  50.0  |
                      |  18.8  |   8.3  |   4.2  |   4.2  |   8.3  |   2.1  |
                      +--------+--------+--------+--------+--------+--------+
                   2  |    5   |    5   |    4   |        |    7   |    1   |    22
  Fairly intereste    |  22.7  |  22.7  |  18.2  |        |  31.8  |   4.5  |  45.8
                      |  33.3  |  50.0  |  50.0  |        |  63.6  |  50.0  |
                      |  10.4  |  10.4  |   8.3  |        |  14.6  |   2.1  |
                      +--------+--------+--------+--------+--------+--------+
                   3  |    1   |    1   |    2   |        |        |        |     4
  Not particularly    |  25.0  |  25.0  |  50.0  |        |        |        |   8.3
                      |   6.7  |  10.0  |  25.0  |        |        |        |
                      |   2.1  |   2.1  |   4.2  |        |        |        |
                      +--------+--------+--------+--------+--------+--------+
               Column      15       10        8        2       11        2       48
                Total    31.3     20.8     16.7      4.2     22.9      4.2    100.0

        Statistic                  Value            Significance
        ---------                  -----            ------------
Kendall's Tau B                    .09248              .2339

Number of Missing Observations =       0
```

17 Crosstabulation: USEMTLT By GENDER

```
               Count  |
              Row Pct |Male    |Female  |
GENDER->      Col Pct |        |        | Row
              Tot Pct |      1 |      2 | Total
USEMTLT       --------+--------+--------+
                   0  |   12   |    3   |    15
  No                  |  80.0  |  20.0  |  31.3
                      |  37.5  |  18.8  |
                      |  25.0  |   6.3  |
                      +--------+--------+
                   1  |   20   |   13   |    33
  Yes                 |  60.6  |  39.4  |  68.8
                      |  62.5  |  81.3  |
                      |  41.7  |  27.1  |
                      +--------+--------+
               Column      32       16       48
                Total    66.7     33.3    100.0

 Chi-Square    D.F.      Significance       Min E.F.      Cells with E.F.< 5
 ----------    ----      ------------       --------      ------------------
    .98182      1           .3218             5.000       None
   1.74545      1           .1864           ( Before Yates Correction )

Number of Missing Observations =       0
```

18 Crosstabulation: USEMTLT By YRTEACIN

```
               Count  |
              Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->    Col Pct |        |        |        |        |        |        | Row
              Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
USEMTLT       --------+--------+--------+--------+--------+--------+--------+
                   0  |    4   |    2   |    4   |        |    5   |        |    15
  No                  |  26.7  |  13.3  |  26.7  |        |  33.3  |        |  31.3
                      |  26.7  |  20.0  |  50.0  |        |  45.5  |        |
                      |   8.3  |   4.2  |   8.3  |        |  10.4  |        |
                      +--------+--------+--------+--------+--------+--------+
                   1  |   11   |    8   |    4   |    2   |    6   |    2   |    33
  Yes                 |  33.3  |  24.2  |  12.1  |   6.1  |  18.2  |   6.1  |  68.8
                      |  73.3  |  80.0  |  50.0  | 100.0  |  54.5  | 100.0  |
                      |  22.9  |  16.7  |   8.3  |   4.2  |  12.5  |   4.2  |
                      +--------+--------+--------+--------+--------+--------+
               Column      15       10        8        2       11        2       48
                Total    31.3     20.8     16.7      4.2     22.9      4.2    100.0
```

```
 Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----       ------------       --------      ------------------
   4.89609        5           .4287             .625        8 OF    12 ( 66.7%)

Number of Missing Observations =        0
```

19 Crosstabulation: HOFTNYU By GENDER

```
               Count |
             Row Pct |Male    |Female  |
GENDER->     Col Pct |        |        |  Row
             Tot Pct |      1 |      2 | Total
HOFTNYU      --------+--------+--------+
                   1 |      2 |      1 |     3
  Always             |   66.7 |   33.3 |   6.3
                     |    6.3 |    6.3 |
                     |    4.2 |    2.1 |
                     +--------+--------+
                   2 |      6 |      7 |    13
  Almost always      |   46.2 |   53.8 |  27.1
                     |   18.8 |   43.8 |
                     |   12.5 |   14.6 |
                     +--------+--------+
                   3 |     24 |      8 |    32
  Sometimes          |   75.0 |   25.0 |  66.7
                     |   75.0 |   50.0 |
                     |   50.0 |   16.7 |
                     +--------+--------+
              Column       32       16      48
               Total     66.7     33.3   100.0

 Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----       ------------       --------      ------------------
   3.46154        2           .1771            1.000        3 OF     6 ( 50.0%)

Number of Missing Observations =        0
```

20 Crosstabulation: HOFTNYU By YRTEACIN

```
               Count |
             Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->   Col Pct |        |        |        |        |        |        |  Row
             Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
HOFTNYU      --------+--------+--------+--------+--------+--------+--------+
                   1 |      3 |        |        |        |        |        |     3
  Always             |  100.0 |   .    |        |        |        |        |   6.3
                     |   20.0 |        |        |        |        |        |
                     |    6.3 |        |        |        |        |        |
                     +--------+--------+--------+--------+--------+--------+
                   2 |      4 |      4 |      2 |      1 |      2 |        |    13
  Almost always      |   30.8 |   30.8 |   15.4 |    7.7 |   15.4 |        |  27.1
                     |   26.7 |   40.0 |   25.0 |   50.0 |   18.2 |        |
                     |    8.3 |    8.3 |    4.2 |    2.1 |    4.2 |        |
                     +--------+--------+--------+--------+--------+--------+
                   3 |      8 |      6 |      6 |      1 |      9 |      2 |    32
  Sometimes          |   25.0 |   18.8 |   18.8 |    3.1 |   28.1 |    6.3 |  66.7
                     |   53.3 |   60.0 |   75.0 |   50.0 |   81.8 |  100.0 |
                     |   16.7 |   12.5 |   12.5 |    2.1 |   18.8 |    4.2 |
                     +--------+--------+--------+--------+--------+--------+
              Column       15       10        8        2       11        2      48
               Total     31.3     20.8     16.7      4.2     22.9      4.2   100.0

         Statistic                  Value          Significance
         ---------                  -----          ------------
Kendall's Tau B                     .26231             .0204

Number of Missing Observations =        0
```

21 Crosstabulation: HOFTNCLS By GENDER

```
               Count |
             Row Pct |Male    |Female  |
GENDER->     Col Pct |        |        |  Row
             Tot Pct |      1 |      2 | Total
HOFTNCLS     --------+--------+--------+
                   1 |      3 |      4 |     7
  Always             |   42.9 |   57.1 |  14.6
                     |    9.4 |   25.0 |
                     |    6.3 |    8.3 |
                     +--------+--------+
                   2 |      7 |      4 |    11
  Almost always      |   63.6 |   36.4 |  22.9
                     |   21.9 |   25.0 |
                     |   14.6 |    8.3 |
                     +--------+--------+
```

```
                  3  |   10   |    5   |   15
Somtimes             |  66.7  |  33.3  |  31.3
                     |  31.3  |  31.3  |
                     |  20.8  |  10.4  |
                     +--------+--------+
                  4  |   12   |    3   |   15
Never                |  80.0  |  20.0  |  31.3
                     |  37.5  |  18.8  |
                     |  25.0  |   6.3  |
                     +--------+--------+
             Column      32       16       48
              Total    66.7     33.3    100.0

Chi-Square    D.F.     Significance     Min E.F.     Cells with E.F.< 5
----------    ----     ------------     --------     ------------------
  3.03117       3         .3868           2.333      3 OF     8 ( 37.5%)

Number of Missing Observations =       0
```

22 Crosstabulation: HOFTNCLS By YRTEACIN

```
               Count |
             Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->   Col Pct |        |        |        |        |        |        | Row
             Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
HOFTNCLS     --------+--------+--------+--------+--------+--------+--------+
                  1  |    6   |        |        |        |    1   |        |    7
 Always              |  85.7  |        |        |        |  14.3  |        |  14.6
                     |  40.0  |        |        |        |   9.1  |        |
                     |  12.5  |        |        |        |   2.1  |        |
                     +--------+--------+--------+--------+--------+--------+
                  2  |    4   |    4   |    2   |    1   |        |        |   11
 Almost always       |  36.4  |  36.4  |  18.2  |   9.1  |        |        |  22.9
                     |  26.7  |  40.0  |  25.0  |  50.0  |        |        |
                     |   8.3  |   8.3  |   4.2  |   2.1  |        |        |
                     +--------+--------+--------+--------+--------+--------+
                  3  |    1   |    4   |    2   |    1   |    5   |    2   |   15
 Somtimes            |   6.7  |  26.7  |  13.3  |   6.7  |  33.3  |  13.3  |  31.3
                     |   6.7  |  40.0  |  25.0  |  50.0  |  45.5  | 100.0  |
                     |   2.1  |   8.3  |   4.2  |   2.1  |  10.4  |   4.2  |
                     +--------+--------+--------+--------+--------+--------+
                  4  |    4   |    2   |    4   |        |    5   |        |   15
 Never               |  26.7  |  13.3  |  26.7  |        |  33.3  |        |  31.3
                     |  26.7  |  20.0  |  50.0  |        |  45.5  |        |
                     |   8.3  |   4.2  |   8.3  |        |  10.4  |        |
                     +--------+--------+--------+--------+--------+--------+
             Column      15       10        8        2       11        2      48
              Total    31.3     20.8     16.7      4.2     22.9      4.2   100.0

        Statistic                    Value         Significance
        ---------                    -----         ------------
Kendall's Tau B                     .30445             .0058

Number of Missing Observations =       0
```

23 Crosstabulation: USEWHE By GENDER

```
               Count |
             Row Pct |Male    |Female  |
GENDER->     Col Pct |        |        | Row
             Tot Pct |      1 |      2 | Total
USEWHE       --------+--------+--------+
                  0  |   12   |    3   |   15
 NA                  |  80.0  |  20.0  |  31.3
                     |  37.5  |  18.8  |
                     |  25.0  |   6.3  |
                     +--------+--------+
                  1  |   20   |   13   |   33
 Whole class         |  60.6  |  39.4  |  68.8
                     |  62.5  |  81.3  |
                     |  41.7  |  27.1  |
                     +--------+--------+
             Column      32       16       48
              Total    66.7     33.3    100.0

Chi-Square    D.F.     Significance     Min E.F.     Cells with E.F.< 5
----------    ----     ------------     --------     ------------------
    .98182      1         .3218          5.000          None
   1.74545      1         .1864       ( Before Yates Correction )

Number of Missing Observations =       0
```

24 Crosstabulation: USEWHE By YRTEACIN

```
                Count  |
                Row Pct |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN->      Col Pct |         |         |         |         |         |         |  Row
                Tot Pct |       1 |       2 |       3 |       4 |       5 |       6 |  Total
USEWHE          --------+---------+---------+---------+---------+---------+---------+
                   0    |    4    |    2    |    4    |         |    5    |         |    15
  NA                    |  26.7   |  13.3   |  26.7   |         |  33.3   |         |   31.3
                        |  26.7   |  20.0   |  50.0   |         |  45.5   |         |
                        |   8.3   |   4.2   |   8.3   |         |  10.4   |         |
                        +---------+---------+---------+---------+---------+---------+
                   1    |   11    |    8    |    4    |    2    |    6    |    2    |    33
  Whole class           |  33.3   |  24.2   |  12.1   |   6.1   |  18.2   |   6.1   |   68.8
                        |  73.3   |  80.0   |  50.0   | 100.0   |  54.5   | 100.0   |
                        |  22.9   |  16.7   |   8.3   |   4.2   |  12.5   |   4.2   |
                        +---------+---------+---------+---------+---------+---------+
                Column       15        10         8         2        11         2       48
                 Total     31.3      20.8      16.7       4.2      22.9       4.2    100.0

  Chi-Square        D.F.       Significance       Min E.F.       Cells with E.F.< 5
  ----------        ----       ------------       --------       ------------------
    4.89609           5           .4287              .625        8 OF    12 ( 66.7%)

Number of Missing Observations =         0
```

25 Crosstabulation: USEAUD By GENDER

```
                Count  |
                Row Pct |Male     |Female   |
GENDER->        Col Pct |         |         |  Row
                Tot Pct |       1 |       2 |  Total
USEAUD          --------+---------+---------+
                   0    |   14    |    3    |    17
  No                    |  82.4   |  17.6   |   35.4
                        |  43.8   |  18.8   |
                        |  29.2   |   6.3   |
                        +---------+---------+
                   1    |   18    |   13    |    31
  Yes                   |  58.1   |  41.9   |   64.6
                        |  56.3   |  81.3   |
                        |  37.5   |  27.1   |
                        +---------+---------+
                Column       32        16        48
                 Total     66.7      33.3     100.0

  Chi-Square        D.F.       Significance       Min E.F.       Cells with E.F.< 5
  ----------        ----       ------------       --------       ------------------
    1.92410           1           .1654            5.667         None
    2.91461           1           .0878          ( Before Yates Correction )

Number of Missing Observations =         0
```

26 Crosstabulation: USEAUD By YRTEACIN

```
                Count  |
                Row Pct |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN->      Col Pct |         |         |         |         |         |         |  Row
                Tot Pct |       1 |       2 |       3 |       4 |       5 |       6 |  Total
USEAUD          --------+---------+---------+---------+---------+---------+---------+
                   0    |    4    |    2    |    5    |         |    6    |         |    17
  No                    |  23.5   |  11.8   |  29.4   |         |  35.3   |         |   35.4
                        |  26.7   |  20.0   |  62.5   |         |  54.5   |         |
                        |   8.3   |   4.2   |  10.4   |         |  12.5   |         |
                        +---------+---------+---------+---------+---------+---------+
                   1    |   11    |    8    |    3    |    2    |    5    |    2    |    31
  Yes                   |  35.5   |  25.8   |   9.7   |   6.5   |  16.1   |   6.5   |   64.6
                        |  73.3   |  80.0   |  37.5   | 100.0   |  45.5   | 100.0   |
                        |  22.9   |  16.7   |   6.3   |   4.2   |  10.4   |   4.2   |
                        +---------+---------+---------+---------+---------+---------+
                Column       15        10         8         2        11         2       48
                 Total     31.3      20.8      16.7       4.2      22.9       4.2    100.0

  Chi-Square        D.F.       Significance       Min E.F.       Cells with E.F.< 5
  ----------        ----       ------------       --------       ------------------
    8.05989           5           .1530              .708        7 OF    12 ( 58.3%)

Number of Missing Observations =         0
```

27 Crosstabulation: USETV By GENDER

```
                Count  |
                Row Pct |Male     |Female   |
GENDER->        Col Pct |         |         |  Row
                Tot Pct |       1 |       2 |  Total
USETV           --------+---------+---------+
```

```
               0  |   27   |   12   |   39
No                |  69.2  |  30.8  |  81.3
                  |  84.4  |  75.0  |
                  |  56.3  |  25.0  |
                  +--------+--------+
               1  |    5   |    4   |    9
Yes               |  55.6  |  44.4  |  18.8
                  |  15.6  |  25.0  |
                  |  10.4  |   8.3  |
                  +--------+--------+
          Column      32       16       48
           Total     66.7     33.3    100.0
Chi-Square     D.F.        Significance        Min E.F.      Cells with E.F.< 5
----------     ----        ------------        --------      ------------------
    .15385       1            .6949              3.000      1 of      4 ( 25.0%)
    .61538       1            .4328            ( Before Yates Correction )

Number of Missing Observations =         0
```

28 Crosstabulation: USETV By YRTEACIN

```
             Count  |
           Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN-> Col Pct  |         |         |         |         |         |         | Row
           Tot Pct  |       1 |       2 |       3 |       4 |       5 |       6 | Total
USETV      ---------+---------+---------+---------+---------+---------+---------+
                 0  |   12    |    6    |    8    |    2    |   10    |    1    |   39
 No                 |  30.8   |  15.4   |  20.5   |   5.1   |  25.6   |   2.6   |  81.3
                    |  80.0   |  60.0   | 100.0   | 100.0   |  90.9   |  50.0   |
                    |  25.0   |  12.5   |  16.7   |   4.2   |  20.8   |   2.1   |
                    +---------+---------+---------+---------+---------+---------+
                 1  |    3    |    4    |         |         |    1    |    1    |    9
 Yes                |  33.3   |  44.4   |         |         |  11.1   |  11.1   |  18.8
                    |  20.0   |  40.0   |         |         |   9.1   |  50.0   |
                    |   6.3   |   8.3   |         |         |   2.1   |   2.1   |
                    +---------+---------+---------+---------+---------+---------+
            Column      15        10         8         2        11         2       48
             Total     31.3      20.8      16.7       4.2      22.9       4.2    100.0

Chi-Square     D.F.        Significance        Min E.F.      Cells with E.F.< 5
----------     ----        ------------        --------      ------------------
   7.24289       5            .2032               .375       8 OF     12 ( 66.7%)

Number of Missing Observations =         0
```

29 Crosstabulation: USEVID. By GENDER

```
             Count  |
           Row Pct  |Male     |Female   |
GENDER->   Col Pct  |         |         | Row
           Tot Pct  |       1 |       2 | Total
USEVID     ---------+---------+---------+
                 0  |   18    |    9    |   27
 No                 |  66.7   |  33.3   |  56.3
                    |  56.3   |  56.3   |
                    |  37.5   |  18.8   |
                    +---------+---------+
                 1  |   14    |    7    |   21
 Yes                |  66.7   |  33.3   |  43.8
                    |  43.8   |  43.8   |
                    |  29.2   |  14.6   |
                    +---------+---------+
            Column      32        16        48
             Total     66.7      33.3     100.0

Chi-Square     D.F.        Significance        Min E.F.      Cells with E.F.< 5
----------     ----        ------------        --------      ------------------
    .00000       1           1.0000              7.000       None
    .00000       1           1.0000            ( Before Yates Correction )

Number of Missing Observations =         0
```

30 Crosstabulation: USEVID By YRTEACIN

```
             Count  |
           Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN-> Col Pct  |         |         |         |         |         |         | Row
           Tot Pct  |       1 |       2 |       3 |       4 |       5 |       6 | Total
USEVID     ---------+---------+---------+---------+---------+---------+---------+
                 0  |    5    |    5    |    7    |    1    |    8    |    1    |   27
 No                 |  18.5   |  18.5   |  25.9   |   3.7   |  29.6   |   3.7   |  56.3
                    |  33.3   |  50.0   |  87.5   |  50.0   |  72.7   |  50.0   |
                    |  10.4   |  10.4   |  14.6   |   2.1   |  16.7   |   2.1   |
                    +---------+---------+---------+---------+---------+---------+
                 1  |   10    |    5    |    1    |    1    |    3    |    1    |   21
 Yes                |  47.6   |  23.8   |   4.8   |   4.8   |  14.3   |   4.8   |  43.8
```

```
              |   66.7 |   50.0 |   12.5 |   50.0 |   27.3 |   50.0 |
              |   20.8 |   10.4 |    2.1 |    2.1 |    6.3 |    2.1 |
              +--------+--------+--------+--------+--------+--------+
       Column       15       10        8        2       11        2       48
        Total     31.3     20.8     16.7      4.2     22.9      4.2    100.0

 Chi-Square      D.F.        Significance        Min E.F.     Cells with E.F.< 5
 ----------      ----        ------------        --------     ------------------
    7.81145         5           .1669                .875     8 OF    12 ( 66.7%)

Number of Missing Observations =        0
```

31 Crosstabulation: USEIV By GENDER

```
             Count  |
            Row Pct |Male    |Female  |
GENDER->    Col Pct |        |        | Row
            Tot Pct |      1 |      2 | Total
USEIV       --------+--------+--------+
                  0 |    31  |    16  |    47
  No                |  66.0  |  34.0  |  97.9
                    |  96.9  | 100.0  |
                    |  64.6  |  33.3  |
                    +--------+--------+
                  1 |     1  |        |     1
  Yes               | 100.0  |        |   2.1
                    |   3.1  |        |
                    |   2.1  |        |
                    +--------+--------+
             Column      32       16      48
              Total    66.7     33.3   100.0

 Chi-Square      D.F.        Significance        Min E.F.     Cells with E.F.< 5
 ----------      ----        ------------        --------     ------------------
     .00000         1          1.0000                .333     2 of     4 ( 50.0%)
     .51064         1           .4749          ( Before Yates Correction )

Number of Missing Observations =        0
```

32 Crosstabulation: USEIV By YRTEACIN

```
              Count  |
             Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->   Col Pct |        |        |        |        |        |        | Row
             Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
USEIV        --------+--------+--------+--------+--------+--------+--------+
                   0 |    15  |     9  |     8  |     2  |    11  |     2  |    47
  No                 |  31.9  |  19.1  |  17.0  |   4.3  |  23.4  |   4.3  |  97.9
                     | 100.0  |  90.0  | 100.0  | 100.0  | 100.0  | 100.0  |
                     |  31.3  |  18.8  |  16.7  |   4.2  |  22.9  |   4.2  |
                     +--------+--------+--------+--------+--------+--------+
                   1 |        |     1  |        |        |        |        |     1
  Yes                |        | 100.0  |        |        |        |        |   2.1
                     |        |  10.0  |        |        |        |        |
                     |        |   2.1  |        |        |        |        |
                     +--------+--------+--------+--------+--------+--------+
              Column      15       10        8        2       11        2      48
               Total    31.3     20.8     16.7      4.2     22.9      4.2   100.0

 Chi-Square      D.F.        Significance        Min E.F.     Cells with E.F.< 5
 ----------      ----        ------------        --------     ------------------
    3.88085         5           .5667                .042     8 OF    12 ( 66.7%)

Number of Missing Observations =        0
```

33 Crosstabulation: USECOMP By GENDER

```
             Count  |
            Row Pct |Male    |Female  |
GENDER->    Col Pct |        |        | Row
            Tot Pct |      1 |      2 | Total
USECOMP     --------+--------+--------+
                  0 |    31  |    12  |    43
  No                |  72.1  |  27.9  |  89.6
                    |  96.9  |  75.0  |
                    |  64.6  |  25.0  |
                    +--------+--------+
                  1 |     1  |     4  |     5
  Yes               |  20.0  |  80.0  |  10.4
                    |   3.1  |  25.0  |
                    |   2.1  |   8.3  |
                    +--------+--------+
             Column      32       16      48
              Total    66.7     33.3   100.0
```

```
 Chi-Square    D.F.      Significance       Min E.F.     Cells with E.F.< 5
 ----------    ----      ------------       --------     ------------------
   3.37674       1           .0661            1.667      2 of     4 ( 50.0%)
   5.46977       1           .0193          ( Before Yates Correction )

Number of Missing Observations =       0
```

34 Crosstabulation: USECOMP By YRTEACIN

```
             Count  |
            Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct |        |        |        |        |        |        | Row
            Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
USECOMP     --------+--------+--------+--------+--------+--------+--------+
                  0 |   15   |    8   |    6   |    2   |   10   |    2   |   43
  No                |  34.9  |  18.6  |  14.0  |   4.7  |  23.3  |   4.7  |  89.6
                    | 100.0  |  80.0  |  75.0  | 100.0  |  90.9  | 100.0  |
                    |  31.3  |  16.7  |  12.5  |   4.2  |  20.8  |   4.2  |
                    +--------+--------+--------+--------+--------+--------+
                  1 |        |    2   |    2   |        |    1   |        |    5
  Yes               |        |  40.0  |  40.0  |        |  20.0  |        |  10.4
                    |        |  20.0  |  25.0  |        |   9.1  |        |
                    |        |   4.2  |   4.2  |        |   2.1  |        |
                    +--------+--------+--------+--------+--------+--------+
             Column     15       10        8        2       11        2       48
              Total   31.3     20.8     16.7      4.2     22.9      4.2    100.0

 Chi-Square    D.F.      Significance       Min E.F.     Cells with E.F.< 5
 ----------    ----      ------------       --------     ------------------
   5.03746       5           .4113              .208     8 OF    12 ( 66.7%)

Number of Missing Observations =       0
```

35 Crosstabulation: USEVIRT By GENDER

```
             Count  |
            Row Pct |Male    |Female  |
GENDER->    Col Pct |        |        | Row
            Tot Pct |      1 |      2 | Total
USEVIRT     --------+--------+--------+
                  0 |   32   |   16   |   48
  No                |  66.7  |  33.3  | 100.0
                    | 100.0  | 100.0  |
                    |  66.7  |  33.3  |
                    +--------+--------+
             Column     32       16       48
              Total   66.7     33.3    100.0

*** Statistics cannot be computed when # of non-empty Rows or Columns is 1 ***

Number of Missing Observations =       0
```

36 Crosstabulation: USEVIRT By YRTEACIN

```
             Count  |
            Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct |        |        |        |        |        |        | Row
            Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
USEVIRT     --------+--------+--------+--------+--------+--------+--------+
                  0 |   15   |   10   |    8   |    2   |   11   |    2   |   48
  No                |  31.3  |  20.8  |  16.7  |   4.2  |  22.9  |   4.2  | 100.0
                    | 100.0  | 100.0  | 100.0  | 100.0  | 100.0  | 100.0  |
                    |  31.3  |  20.8  |  16.7  |   4.2  |  22.9  |   4.2  |
                    +--------+--------+--------+--------+--------+--------+
             Column     15       10        8        2       11        2       48
              Total   31.3     20.8     16.7      4.2     22.9      4.2    100.0

*** Statistics cannot be computed when # of non-empty Rows or Columns is 1 ***

Number of Missing Observations =       0
```

37 Crosstabulation: USECD By GENDER

```
             Count  |
            Row Pct |Male    |Female  |
GENDER->    Col Pct |        |        | Row
            Tot Pct |      1 |      2 | Total
USECD       --------+--------+--------+
                  0 |   32   |   15   |   47
  No                |  68.1  |  31.9  |  97.9
                    | 100.0  |  93.8  |
                    |  66.7  |  31.3  |
                    +--------+--------+
                  1 |        |    1   |    1
  Yes               |        | 100.0  |   2.1
```

```
                   |        |  6.3   |
                   |        |  2.1   |
                   +--------+--------+
           Column      32       16       48
            Total    66.7     33.3    100.0

 Chi-Square     D.F.      Significance        Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------        --------      ------------------
     .12766       1          .7209              .333        2 of     4 ( 50.0%)
    2.04255       1          .1530           ( Before Yates Correction )

Number of Missing Observations =      0
```

38 Crosstabulation: USECD By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
USECD       ---------+--------+--------+--------+--------+--------+--------+
                  0  |   15   |    9   |    8   |    2   |   11   |    2   |   47
  No                 |  31.9  |  19.1  |  17.0  |   4.3  |  23.4  |   4.3  |  97.9
                     | 100.0  |  90.0  | 100.0  | 100.0  | 100.0  | 100.0  |
                     |  31.3  |  18.8  |  16.7  |   4.2  |  22.9  |   4.2  |
                     +--------+--------+--------+--------+--------+--------+
                  1  |        |    1   |        |        |        |        |    1
  Yes                |        | 100.0  |        |        |        |        |   2.1
                     |        |  10.0  |        |        |        |        |
                     |        |   2.1  |        |        |        |        |
                     +--------+--------+--------+--------+--------+--------+
             Column      15       10        8        2       11        2       48
              Total    31.3     20.8     16.7      4.2     22.9      4.2    100.0

 Chi-Square     D.F.      Significance        Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------        --------      ------------------
    3.88085       5          .5667              .042        8 OF    12 ( 66.7%)

Number of Missing Observations =      0
```

39 Crosstabulation: USEOTHER By GENDER

```
              Count  |
            Row Pct  |Male    |Female  |
GENDER->    Col Pct  |        |        |  Row
            Tot Pct  |      1 |      2 | Total
USEOTHER    ---------+--------+--------+
                  0  |   21   |    6   |   27
  No                 |  77.8  |  22.2  |  56.3
                     |  65.6  |  37.5  |
                     |  43.8  |  12.5  |
                     +--------+--------+
                  1  |   11   |   10   |   21
  Yes                |  52.4  |  47.6  |  43.8
                     |  34.4  |  62.5  |
                     |  22.9  |  20.8  |
                     +--------+--------+
             Column      32       16       48
              Total    66.7     33.3    100.0

 Chi-Square     D.F.      Significance        Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------        --------      ------------------
    2.38095       1          .1228             7.000        None
    3.42857       1          .0641          ( Before Yates Correction )

Number of Missing Observations =      0
```

40 Crosstabulation: USEOTHER By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
USEOTHER    ---------+--------+--------+--------+--------+--------+--------+
                  0  |   12   |    4   |    4   |    2   |    4   |    1   |   27
  No                 |  44.4  |  14.8  |  14.8  |   7.4  |  14.8  |   3.7  |  56.3
                     |  80.0  |  40.0  |  50.0  | 100.0  |  36.4  |  50.0  |
                     |  25.0  |   8.3  |   8.3  |   4.2  |   8.3  |   2.1  |
                     +--------+--------+--------+--------+--------+--------+
                  1  |    3   |    6   |    4   |        |    7   |    1   |   21
  Yes                |  14.3  |  28.6  |  19.0  |        |  33.3  |   4.8  |  43.8
                     |  20.0  |  60.0  |  50.0  |        |  63.6  |  50.0  |
                     |   6.3  |  12.5  |   8.3  |        |  14.6  |   2.1  |
                     +--------+--------+--------+--------+--------+--------+
             Column      15       10        8        2       11        2       48
              Total    31.3     20.8     16.7      4.2     22.9      4.2    100.0
```

```
 Chi-Square     D.F.      Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------       --------      ------------------
   7.99307       5           .1566              .875       8 OF    12 ( 66.7%)

Number of Missing Observations =        0
```

42 Crosstabulation: USEWHA By GENDER

```
              Count  |
            Row Pct  |Male     |Female   |
GENDER->    Col Pct  |         |         |  Row
            Tot Pct  |       1 |       2 | Total
USEWHA              -+---------+---------+
                  0  |      21 |       6 |    27
 NA                  |    77.8 |    22.2 |  56.3
                     |    65.6 |    37.5 |
                     |    43.8 |    12.5 |
                     +---------+---------+
                  1  |       6 |       2 |     8
 OHP                 |    75.0 |    25.0 |  16.7
                     |    18.8 |    12.5 |
                     |    12.5 |     4.2 |
                     +---------+---------+
                  2  |       1 |       2 |     3
 Slides              |    33.3 |    66.7 |   6.3
                     |     3.1 |    12.5 |
                     |     2.1 |     4.2 |
                     +---------+---------+
                  3  |       4 |       5 |     9
 Blackboard          |    44.4 |    55.6 |  18.8
                     |    12.5 |    31.3 |
                     |     8.3 |    10.4 |
                     +---------+---------+
                  4  |         |       1 |     1
 etc                 |         |   100.0 |   2.1
                     |         |     6.3 |
                     |         |     2.1 |
                     +---------+---------+
             Column         32        16      48
              Total       66.7      33.3   100.0

 Chi-Square     D.F.      Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------       --------      ------------------
   7.25000       4           .1233              .333       6 OF    10 ( 60.0%)

Number of Missing Observations =        0
```

42 Crosstabulation: USEWHA By YRTEACIN

```
              Count  |
            Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN->  Col Pct  |         |         |         |         |         |         |  Row
            Tot Pct  |       1 |       2 |       3 |       4 |       5 |       6 | Total
USEWHA              -+---------+---------+---------+---------+---------+---------+
                  0  |      12 |       4 |       4 |       2 |       4 |       1 |    27
 NA                  |    44.4 |    14.8 |    14.8 |     7.4 |    14.8 |     3.7 |  56.3
                     |    80.0 |    40.0 |    50.0 |   100.0 |    36.4 |    50.0 |
                     |    25.0 |     8.3 |     8.3 |     4.2 |     8.3 |     2.1 |
                     +---------+---------+---------+---------+---------+---------+
                  1  |         |       3 |       2 |         |       3 |         |     8
 OHP                 |         |    37.5 |    25.0 |         |    37.5 |         |  16.7
                     |         |    30.0 |    25.0 |         |    27.3 |         |
                     |         |     6.3 |     4.2 |         |     6.3 |         |
                     +---------+---------+---------+---------+---------+---------+
                  2  |         |       1 |       1 |         |       1 |         |     3
 Slides              |         |    33.3 |    33.3 |         |    33.3 |         |   6.3
                     |         |    10.0 |    12.5 |         |     9.1 |         |
                     |         |     2.1 |     2.1 |         |     2.1 |         |
                     +---------+---------+---------+---------+---------+---------+
                  3  |       2 |       2 |       1 |         |       3 |       1 |     9
 Blackboard          |    22.2 |    22.2 |    11.1 |         |    33.3 |    11.1 |  18.8
                     |    13.3 |    20.0 |    12.5 |         |    27.3 |    50.0 |
                     |     4.2 |     4.2 |     2.1 |         |     6.3 |     2.1 |
                     +---------+---------+---------+---------+---------+---------+
                  4  |       1 |         |         |         |         |         |     1
 etc                 |   100.0 |         |         |         |         |         |   2.1
                     |     6.7 |         |         |         |         |         |
                     |     2.1 |         |         |         |         |         |
                     +---------+---------+---------+---------+---------+---------+
             Column         15        10         8         2        11         2      48
              Total       31.3      20.8      16.7       4.2      22.9       4.2   100.0

 Chi-Square     D.F.      Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------       --------      ------------------
  15.31313      20           .7582              .042      27 OF    30 ( 90.0%)

Number of Missing Observations =        0
```

43 Crosstabulation: AVAHARD By GENDER

```
             Count  |
           Row Pct  |Male     |Female   |
GENDER->   Col Pct  |         |         | Row
           Tot Pct  |       1 |       2 | Total
AVAHARD    ---------+---------+---------+
                1   |    7    |         |     7
  Easily available  | 100.0   |         |  14.6
                    |  21.9   |         |
                    |  14.6   |         |
                    +---------+---------+
                2   |   15    |     9   |    24
  Fairly easily av  |  62.5   |  37.5   |  50.0
                    |  46.9   |  56.3   |
                    |  31.3   |  18.8   |
                    +---------+---------+
                3   |   10    |     7   |    17
  Availability dif  |  58.8   |  41.2   |  35.4
                    |  31.3   |  43.8   |
                    |  20.8   |  14.6   |
                    +---------+---------+
            Column      32        16        48
             Total     66.7      33.3     100.0

 Chi-Square      D.F.       Significance        Min E.F.      Cells with E.F.< 5
 ----------      ----       ------------        --------      ------------------
   4.15809         2           .1250              2.333       2 OF     6 ( 33.3%)

Number of Missing Observations =       0
```

44 Crosstabulation: AVAHARD By YRTEACIN

```
              Count  |
            Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN->  Col Pct  |         |         |         |         |         |         | Row
            Tot Pct  |       1 |       2 |       3 |       4 |       5 |       6 | Total
AVAHARD     ---------+---------+---------+---------+---------+---------+---------+
                 1   |     3   |         |     1   |     1   |     2   |         |     7
   Easily available  |  42.9   |         |  14.3   |  14.3   |  28.6   |         |  14.6
                     |  20.0   |         |  12.5   |  50.0   |  18.2   |         |
                     |   6.3   |         |   2.1   |   2.1   |   4.2   |         |
                     +---------+---------+---------+---------+---------+---------+
                 2   |     5   |     8   |     4   |     1   |     4   |     2   |    24
   Fairly easily av  |  20.8   |  33.3   |  16.7   |   4.2   |  16.7   |   8.3   |  50.0
                     |  33.3   |  80.0   |  50.0   |  50.0   |  36.4   | 100.0   |
                     |  10.4   |  16.7   |   8.3   |   2.1   |   8.3   |   4.2   |
                     +---------+---------+---------+---------+---------+---------+
                 3   |     7   |     2   |     3   |         |     5   |         |    17
   Availability dif  |  41.2   |  11.8   |  17.6   |         |  29.4   |         |  35.4
                     |  46.7   |  20.0   |  37.5   |         |  45.5   |         |
                     |  14.6   |   4.2   |   6.3   |         |  10.4   |         |
                     +---------+---------+---------+---------+---------+---------+
             Column      15        10         8         2        11         2        48
              Total     31.3      20.8      16.7       4.2      22.9       4.2     100.0

      Statistic                    Value            Significance
      ---------                    -----            ------------
Kendall's Tau B                   -.05585              .3284

Number of Missing Observations =       0
```

45 Crosstabulation: AVASOFT By GENDER

```
             Count  |
           Row Pct  |Male     |Female   |
GENDER->   Col Pct  |         |         | Row
           Tot Pct  |       1 |       2 | Total
AVASOFT    ---------+---------+---------+
                1   |     3   |         |     3
  Easily available  | 100.0   |         |   6.3
                    |   9.4   |         |
                    |   6.3   |         |
                    +---------+---------+
                2   |     8   |     3   |    11
  Fairly easily av  |  72.7   |  27.3   |  22.9
                    |  25.0   |  18.8   |
                    |  16.7   |   6.3   |
                    +---------+---------+
                3   |    21   |     8   |    29
  Availability dif  |  72.4   |  27.6   |  60.4
                    |  65.6   |  50.0   |
                    |  43.8   |  16.7   |
                    +---------+---------+
                4   |         |     5   |     5
  Not available at  |         | 100.0   |  10.4
                    |         |  31.3   |
```

```
                    |        | 10.4   |
                    +--------+--------+
           Column      32       16       48
            Total     66.7     33.3    100.0

 Chi-Square     D.F.      Significance      Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------      --------      ------------------
   12.11285       3           .0070            1.000       5 OF     8 ( 62.5%)

Number of Missing Observations =      0
```

46 Crosstabulation: AVASOFT By YRTEACIN

```
              Count |
            Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct |        |        |        |        |        |        | Row
            Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
AVASOFT     --------+--------+--------+--------+--------+--------+--------+
                  1 |        |        |      1 |      1 |      1 |        |     3
   Easily available |        |        |   33.3 |   33.3 |   33.3 |        |   6.3
                    |        |        |   12.5 |   50.0 |    9.1 |        |
                    |        |        |    2.1 |    2.1 |    2.1 |        |
                    +--------+--------+--------+--------+--------+--------+
                  2 |      5 |      2 |      2 |      1 |      1 |        |    11
   Fairly easily av |   45.5 |   18.2 |   18.2 |    9.1 |    9.1 |        |  22.9
                    |   33.3 |   20.0 |   25.0 |   50.0 |    9.1 |        |
                    |   10.4 |    4.2 |    4.2 |    2.1 |    2.1 |        |
                    +--------+--------+--------+--------+--------+--------+
                  3 |      7 |      7 |      5 |        |      8 |      2 |    29
  Availability dif  |   24.1 |   24.1 |   17.2 |        |   27.6 |    6.9 |  60.4
                    |   46.7 |   70.0 |   62.5 |        |   72.7 |  100.0 |
                    |   14.6 |   14.6 |   10.4 |        |   16.7 |    4.2 |
                    +--------+--------+--------+--------+--------+--------+
                  4 |      3 |      1 |        |        |      1 |        |     5
  Not available at  |   60.0 |   20.0 |        |        |   20.0 |        |  10.4
                    |   20.0 |   10.0 |        |        |    9.1 |        |
                    |    6.3 |    2.1 |        |        |    2.1 |        |
                    +--------+--------+--------+--------+--------+--------+
             Column       15       10        8        2       11        2      48
              Total     31.3     20.8     16.7      4.2     22.9      4.2   100.0

     Statistic                  Value          Significance
     ---------                  -----          ------------
Kendall's Tau B               -.04580              .3567

Number of Missing Observations =      0
```

47 Crosstabulation: IFMORVII By GENDER

```
              Count |
            Row Pct |Male    |Female  |
GENDER->    Col Pct |        |        | Row
            Tot Pct |      1 |      2 | Total
IFMORVII    --------+--------+--------+
                 30 |      1 |      1 |     2
                    |   50.0 |   50.0 |   4.2
                    |    3.1 |    6.3 |
                    |    2.1 |    2.1 |
                    +--------+--------+
                 60 |     15 |      5 |    20
                    |   75.0 |   25.0 |  41.7
                    |   46.9 |   31.3 |
                    |   31.3 |   10.4 |
                    +--------+--------+
                 90 |     16 |     10 |    26
                    |   61.5 |   38.5 |  54.2
                    |   50.0 |   62.5 |
                    |   33.3 |   20.8 |
                    +--------+--------+
             Column       32       16      48
              Total     66.7     33.3   100.0

 Chi-Square     D.F.      Significance      Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------      --------      ------------------
    1.18269       2           .5536             .667       2 OF     6 ( 33.3%)

Number of Missing Observations =      0
```

48 Crosstabulation: IFMORVII By YRTEACIN

```
              Count |
            Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct |        |        |        |        |        |        | Row
            Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
IFMORVII    --------+--------+--------+--------+--------+--------+--------+
                 30 |      1 |        |      1 |        |        |        |     2
```

```
                    |  50.0  |        |  50.0  |        |        |        |   4.2
                    |   6.7  |        |  12.5  |        |        |        |
                    |   2.1  |        |   2.1  |        |        |        |
                    +--------+--------+--------+--------+--------+--------+
                60  |     7  |     3  |     5  |        |     4  |     1  |    20
                    |  35.0  |  15.0  |  25.0  |        |  20.0  |   5.0  |  41.7
                    |  46.7  |  30.0  |  62.5  |        |  36.4  |  50.0  |
                    |  14.6  |   6.3  |  10.4  |        |   8.3  |   2.1  |
                    +--------+--------+--------+--------+--------+--------+
                90  |     7  |     7  |     2  |     2  |     7  |     1  |    26
                    |  26.9  |  26.9  |   7.7  |   7.7  |  26.9  |   3.8  |  54.2
                    |  46.7  |  70.0  |  25.0  | 100.0  |  63.6  |  50.0  |
                    |  14.6  |  14.6  |   4.2  |   4.2  |  14.6  |   2.1  |
                    +--------+--------+--------+--------+--------+--------+
            Column       15       10        8        2       11        2       48
             Total     31.3     20.8     16.7      4.2     22.9      4.2    100.0

        Statistic                 Value          Significance
        ---------                 -----          ------------
Pearson's R                       .10883             .2308

Number of Missing Observations =       0
```

49 Crosstabulation: IFMORCOI By GENDER

```
            Count   |
           Row Pct  |Male    |Female  |
GENDER->   Col Pct  |        |        |  Row
           Tot Pct  |      1 |      2 | Total
IFMORCOI   ---------+--------+--------+
                30  |     6  |     2  |     8
                    |  75.0  |  25.0  |  16.7
                    |  18.8  |  12.5  |
                    |  12.5  |   4.2  |
                    +--------+--------+
                60  |    18  |     7  |    25
                    |  72.0  |  28.0  |  52.1
                    |  56.3  |  43.8  |
                    |  37.5  |  14.6  |
                    +--------+--------+
                90  |     8  |     7  |    15
                    |  53.3  |  46.7  |  31.3
                    |  25.0  |  43.8  |
                    |  16.7  |  14.6  |
                    +--------+--------+
            Column       32       16      48
             Total     66.7     33.3   100.0

 Chi-Square    D.F.     Significance       Min E.F.     Cells with E.F.< 5
 ----------    ----     ------------       --------     ------------------
    1.77000       2         .4127            2.667      1 OF      6 ( 16.7%)

Number of Missing Observations =       0
```

50 Crosstabulation: IFMORCOI By YRTEACIN

```
            Count   |
           Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct  |        |        |        |        |        |        |  Row
           Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
IFMORCOI   ---------+--------+--------+--------+--------+--------+--------+
                30  |     2  |     1  |     4  |        |     1  |        |     8
                    |  25.0  |  12.5  |  50.0  |        |  12.5  |        |  16.7
                    |  13.3  |  10.0  |  50.0  |        |   9.1  |        |
                    |   4.2  |   2.1  |   8.3  |        |   2.1  |        |
                    +--------+--------+--------+--------+--------+--------+
                60  |    10  |     5  |     1  |     1  |     6  |     2  |    25
                    |  40.0  |  20.0  |   4.0  |   4.0  |  24.0  |   8.0  |  52.1
                    |  66.7  |  50.0  |  12.5  |  50.0  |  54.5  | 100.0  |
                    |  20.8  |  10.4  |   2.1  |   2.1  |  12.5  |   4.2  |
                    +--------+--------+--------+--------+--------+--------+
                90  |     3  |     4  |     3  |     1  |     4  |        |    15
                    |  20.0  |  26.7  |  20.0  |   6.7  |  26.7  |        |  31.3
                    |  20.0  |  40.0  |  37.5  |  50.0  |  36.4  |        |
                    |   6.3  |   8.3  |   6.3  |   2.1  |   8.3  |        |
                    +--------+--------+--------+--------+--------+--------+
            Column       15       10        8        2       11        2       48
             Total     31.3     20.8     16.7      4.2     22.9      4.2    100.0

        Statistic                 Value          Significance
        ---------                 -----          ------------
Pearson's R                       .06423             .3323

Number of Missing Observations =       0
```

51 Crosstabulation: IFMORIVI By GENDER

```
             Count  |
             Row Pct |Male     |Female   |
GENDER->     Col Pct |         |         | Row
             Tot Pct |        1|        2| Total
IFMORIVI     --------+---------+---------+
                   0 |     2   |         |     2
                     |  100.0  |         |   4.2
                     |    6.3  |         |
                     |    4.2  |         |
                     +---------+---------+
                  30 |     8   |     3   |    11
                     |   72.7  |   27.3  |  22.9
                     |   25.0  |   18.8  |
                     |   16.7  |    6.3  |
                     +---------+---------+
                  60 |    11   |     6   |    17
                     |   64.7  |   35.3  |  35.4
                     |   34.4  |   37.5  |
                     |   22.9  |   12.5  |
                     +---------+---------+
                  90 |    11   |     7   |    18
                     |   61.1  |   38.9  |  37.5
                     |   34.4  |   43.8  |
                     |   22.9  |   14.6  |
                     +---------+---------+
              Column      32        16        48
               Total    66.7      33.3     100.0

 Chi-Square     D.F.      Significance       Min E.F.    Cells with E.F.< 5
 ----------     ----      ------------       --------    ------------------
    1.46123        3          .6912              .667    3 OF     8 ( 37.5%)

Number of Missing Observations =        0
```

52 Crosstabulation: IFMORIVI By YRTEACIN

```
             Count  |
             Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->   Col Pct |        |        |        |        |        |        | Row
             Tot Pct |       1|       2|       3|       4|       5|       6| Total
IFMORIVI     --------+--------+--------+--------+--------+--------+--------+
                   0 |     1  |        |        |        |     1  |        |     2
                     |  50.0  |        |        |        |  50.0  |        |   4.2
                     |   6.7  |        |        |        |   9.1  |        |
                     |   2.1  |        |        |        |   2.1  |        |
                     +--------+--------+--------+--------+--------+--------+
                  30 |     4  |     1  |     3  |     1  |     1  |     1  |    11
                     |  36.4  |   9.1  |  27.3  |   9.1  |   9.1  |   9.1  |  22.9
                     |  26.7  |  10.0  |  37.5  |  50.0  |   9.1  |  50.0  |
                     |   8.3  |   2.1  |   6.3  |   2.1  |   2.1  |   2.1  |
                     +--------+--------+--------+--------+--------+--------+
                  60 |     5  |     4  |     3  |        |     4  |     1  |    17
                     |  29.4  |  23.5  |  17.6  |        |  23.5  |   5.9  |  35.4
                     |  33.3  |  40.0  |  37.5  |        |  36.4  |  50.0  |
                     |  10.4  |   8.3  |   6.3  |        |   8.3  |   2.1  |
                     +--------+--------+--------+--------+--------+--------+
                  90 |     5  |     5  |     2  |     1  |     5  |        |    18
                     |  27.8  |  27.8  |  11.1  |   5.6  |  27.8  |        |  37.5
                     |  33.3  |  50.0  |  25.0  |  50.0  |  45.5  |        |
                     |  10.4  |  10.4  |   4.2  |   2.1  |  10.4  |        |
                     +--------+--------+--------+--------+--------+--------+
              Column      15       10        8        2       11        2      48
               Total    31.3     20.8     16.7      4.2     22.9      4.2   100.0

         Statistic                  Value             Significance
         ---------                  -----             ------------
Pearson's R                       -.00538                 .4855

Number of Missing Observations =        0
```

53 Crosstabulation: IFMORCDI By GENDER

```
             Count  |
             Row Pct |Male     |Female   |
GENDER->     Col Pct |         |         | Row
             Tot Pct |        1|        2| Total
IFMORCDI     --------+---------+---------+
                   0 |     4   |     1   |     5
                     |   80.0  |   20.0  |  10.4
                     |   12.5  |    6.3  |
                     |    8.3  |    2.1  |
                     +---------+---------+
                  30 |    10   |     4   |    14
                     |   71.4  |   28.6  |  29.2
                     |   31.3  |   25.0  |
```

```
               |  20.8  |   8.3  |
               +--------+--------+
           60  |    17  |     7  |    24
               |  70.8  |  29.2  |  50.0
               |  53.1  |  43.8  |
               |  35.4  |  14.6  |
               +--------+--------+
           90  |     1  |     4  |     5
               |  20.0  |  80.0  |  10.4
               |   3.1  |  25.0  |
               |   2.1  |   8.3  |
               +--------+--------+
        Column     32       16        48
         Total   66.7     33.3     100.0
Chi-Square   D.F.     Significance       Min E.F.      Cells with E.F.< 5
----------   ----     ------------       --------      ------------------
  5.63036      3          .1310            1.667       5 OF     8 ( 62.5%)

Number of Missing Observations =       0
```

54 Crosstabulation: IFMORCDI By YRTEACIN

```
           Count  |
         Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct|        |        |        |        |        |        | Row
         Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
IFMORCDI  --------+--------+--------+--------+--------+--------+--------+
              0   |    3   |        |        |     1  |     1  |        |     5
                  |  60.0  |        |        |  20.0  |  20.0  |        |  10.4
                  |  20.0  |        |        |  50.0  |   9.1  |        |
                  |   6.3  |        |        |   2.1  |   2.1  |        |
                  +--------+--------+--------+--------+--------+--------+
             30   |    5   |     2  |     5  |        |     1  |     1  |    14
                  |  35.7  |  14.3  |  35.7  |        |   7.1  |   7.1  |  29.2
                  |  33.3  |  20.0  |  62.5  |        |   9.1  |  50.0  |
                  |  10.4  |   4.2  |  10.4  |        |   2.1  |   2.1  |
                  +--------+--------+--------+--------+--------+--------+
             60   |    7   |     7  |     2  |     1  |     6  |     1  |    24
                  |  29.2  |  29.2  |   8.3  |   4.2  |  25.0  |   4.2  |  50.0
                  |  46.7  |  70.0  |  25.0  |  50.0  |  54.5  |  50.0  |
                  |  14.6  |  14.6  |   4.2  |   2.1  |  12.5  |   2.1  |
                  +--------+--------+--------+--------+--------+--------+
             90   |        |     1  |     1  |        |     3  |        |     5
                  |        |  20.0  |  20.0  |        |  60.0  |        |  10.4
                  |        |  10.0  |  12.5  |        |  27.3  |        |
                  |        |   2.1  |   2.1  |        |   6.3  |        |
                  +--------+--------+--------+--------+--------+--------+
          Column      15       10        8        2       11        2       48
           Total    31.3     20.8     16.7      4.2     22.9      4.2    100.0

        Statistic                     Value           Significance
        ---------                     -----           ------------
Pearson's R                          .21790               .0684

Number of Missing Observations =       0
```

55 Crosstabulation: IFMORAUI By GENDER

```
           Count  |
         Row Pct  |Male    |Female  |
GENDER->   Col Pct|        |        | Row
         Tot Pct  |      1 |      2 | Total
IFMORAUI  --------+--------+--------+
             30   |     5  |     4  |     9
                  |  55.6  |  44.4  |  18.8
                  |  15.6  |  25.0  |
                  |  10.4  |   8.3  |
                  +--------+--------+
             60   |    12  |     6  |    18
                  |  66.7  |  33.3  |  37.5
                  |  37.5  |  37.5  |
                  |  25.0  |  12.5  |
                  +--------+--------+
             90   |    15  |     6  |    21
                  |  71.4  |  28.6  |  43.8
                  |  46.9  |  37.5  |
                  |  31.3  |  12.5  |
                  +--------+--------+
          Column      32       16        48
           Total    66.7     33.3     100.0

Chi-Square   D.F.     Significance       Min E.F.      Cells with E.F.< 5
----------   ----     ------------       --------      ------------------
   .71429      2          .6997            3.000       1 OF     6 ( 16.7%)

Number of Missing Observations =       0
```

56 Crosstabulation: IFMORAUI By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
IFMORAUI    --------+--------+--------+--------+--------+--------+--------+
               30   |     1  |     4  |     2  |        |     2  |        |     9
                    |  11.1  |  44.4  |  22.2  |        |  22.2  |        |  18.8
                    |   6.7  |  40.0  |  25.0  |        |  18.2  |        |
                    |   2.1  |   8.3  |   4.2  |        |   4.2  |        |
                    +--------+--------+--------+--------+--------+--------+
               60   |     4  |     3  |     3  |     1  |     6  |     1  |    18
                    |  22.2  |  16.7  |  16.7  |   5.6  |  33.3  |   5.6  |  37.5
                    |  26.7  |  30.0  |  37.5  |  50.0  |  54.5  |  50.0  |
                    |   8.3  |   6.3  |   6.3  |   2.1  |  12.5  |   2.1  |
                    +--------+--------+--------+--------+--------+--------+
               90   |    10  |     3  |     3  |     1  |     3  |     1  |    21
                    |  47.6  |  14.3  |  14.3  |   4.8  |  14.3  |   4.8  |  43.8
                    |  66.7  |  30.0  |  37.5  |  50.0  |  27.3  |  50.0  |
                    |  20.8  |   6.3  |   6.3  |   2.1  |   6.3  |   2.1  |
                    +--------+--------+--------+--------+--------+--------+
            Column       15       10        8        2       11        2      48
             Total     31.3     20.8     16.7      4.2     22.9      4.2   100.0

         Statistic                  Value              Significance
         ---------                  -----              ------------
Pearson's R                        -.14243                .1671

Number of Missing Observations =        0
```

57 Crosstabulation: IMPFAC1 By GENDER

```
              Count  |
            Row Pct  |Male    |Female  |
GENDER->    Col Pct  |        |        |  Row
            Tot Pct  |      1 |      2 | Total
IMPFAC1     --------+--------+--------+
                1   |     9  |     5  |    14
  1                 |  64.3  |  35.7  |  29.2
                    |  28.1  |  31.3  |
                    |  18.8  |  10.4  |
                    +--------+--------+
                2   |     2  |     1  |     3
  2                 |  66.7  |  33.3  |   6.3
                    |   6.3  |   6.3  |
                    |   4.2  |   2.1  |
                    +--------+--------+
                3   |        |     2  |     2
  3                 |        | 100.0  |   4.2
                    |        |  12.5  |
                    |        |   4.2  |
                    +--------+--------+
                4   |     1  |        |     1
  4                 | 100.0  |        |   2.1
                    |   3.1  |        |
                    |   2.1  |        |
                    +--------+--------+
                5   |     7  |     5  |    12
  5                 |  58.3  |  41.7  |  25.0
                    |  21.9  |  31.3  |
                    |  14.6  |  10.4  |
                    +--------+--------+
                6   |    13  |     3  |    16
  6                 |  81.3  |  18.8  |  33.3
                    |  40.6  |  18.8  |
                    |  27.1  |   6.3  |
                    +--------+--------+
             Column      32       16      48
              Total    66.7     33.3   100.0

         Statistic                  Value              Significance
         ---------                  -----              ------------
Kendall's Tau B                    -.14426                .1397

Number of Missing Observations =        0
```

58 Crosstabulation: IMPFAC1 By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
IMPFAC1     --------+--------+--------+--------+--------+--------+--------+
                1   |     4  |     2  |     1  |        |     7  |        |    14
  1                 |  28.6  |  14.3  |   7.1  |        |  50.0  |        |  29.2
                    |  26.7  |  20.0  |  12.5  |        |  63.6  |        |
```

```
              |   8.3  |   4.2  |   2.1  |        |  14.6  |        |
              +--------+--------+--------+--------+--------+--------+
          2   |     2  |        |        |        |     1  |        |      3
  2           |  66.7  |        |        |        |  33.3  |        |    6.3
              |  13.3  |        |        |        |   9.1  |        |
              |   4.2  |        |        |        |   2.1  |        |
              +--------+--------+--------+--------+--------+--------+
          3   |     1  |     1  |        |        |        |        |      2
  3           |  50.0  |  50.0  |        |        |        |        |    4.2
              |   6.7  |  10.0  |        |        |        |        |
              |   2.1  |   2.1  |        |        |        |        |
              +--------+--------+--------+--------+--------+--------+
          4   |        |        |        |     1  |        |        |      1
  4           |        |        |        | 100.0  |        |        |    2.1
              |        |        |        |  50.0  |        |        |
              |        |        |        |   2.1  |        |        |
              +--------+--------+--------+--------+--------+--------+
          5   |     3  |     2  |     4  |     1  |     2  |        |     12
  5           |  25.0  |  16.7  |  33.3  |   8.3  |  16.7  |        |   25.0
              |  20.0  |  20.0  |  50.0  |  50.0  |  18.2  |        |
              |   6.3  |   4.2  |   8.3  |   2.1  |   4.2  |        |
              +--------+--------+--------+--------+--------+--------+
          6   |     5  |     5  |     3  |        |     1  |     2  |     16
  6           |  31.3  |  31.3  |  18.8  |        |   6.3  |  12.5  |   33.3
              |  33.3  |  50.0  |  37.5  |        |   9.1  | 100.0  |
              |  10.4  |  10.4  |   6.3  |        |   2.1  |   4.2  |
              +--------+--------+--------+--------+--------+--------+
       Column     15       10        8        2       11        2       48
        Total   31.3     20.8     16.7      4.2     22.9      4.2    100.0

        Statistic                 Value          Significance
        ---------                 -----          ------------
Kendall's Tau B                 -.10118              .2001

Number of Missing Observations =        0
```

59 Crosstabulation: IMPFAC2 By GENDER

```
              Count  |
            Row Pct  |Male    |Female  |
GENDER->    Col Pct  |        |        | Row
            Tot Pct  |      1 |      2 | Total
IMPFAC2     ---------+--------+--------+
               1     |     7  |     5  |    12
  1                  |  58.3  |  41.7  |  25.0
                     |  21.9  |  31.3  |
                     |  14.6  |  10.4  |
                     +--------+--------+
               2     |     8  |     1  |     9
  2                  |  88.9  |  11.1  |  18.8
                     |  25.0  |   6.3  |
                     |  16.7  |   2.1  |
                     +--------+--------+
               3     |     3  |     3  |     6
  3                  |  50.0  |  50.0  |  12.5
                     |   9.4  |  18.8  |
                     |   6.3  |   6.3  |
                     +--------+--------+
               4     |     1  |     1  |     2
  4                  |  50.0  |  50.0  |   4.2
                     |   3.1  |   6.3  |
                     |   2.1  |   2.1  |
                     +--------+--------+
               5     |     5  |     5  |    10
  5                  |  50.0  |  50.0  |  20.8
                     |  15.6  |  31.3  |
                     |  10.4  |  10.4  |
                     +--------+--------+
               6     |     8  |     1  |     9
  6                  |  88.9  |  11.1  |  18.8
                     |  25.0  |   6.3  |
                     |  16.7  |   2.1  |
                     +--------+--------+
             Column      32       16        48
              Total    66.7     33.3     100.0

        Statistic                 Value          Significance
        ---------                 -----          ------------
Kendall's Tau B                 -.06960              .2961

Number of Missing Observations =        0
```

60 Crosstabulation: IMPFAC2 By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        | Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
```

```
IMPFAC2      --------+--------+--------+--------+--------+--------+--------+
                 1   |      4 |      3 |      2 |      1 |      1 |      1 |     12
  1                  |   33.3 |   25.0 |   16.7 |    8.3 |    8.3 |    8.3 |   25.0
                     |   26.7 |   30.0 |   25.0 |   50.0 |    9.1 |   50.0 |
                     |    8.3 |    6.3 |    4.2 |    2.1 |    2.1 |    2.1 |
                     +--------+--------+--------+--------+--------+--------+
                 2   |      2 |      1 |      2 |      1 |      3 |        |      9
  2                  |   22.2 |   11.1 |   22.2 |   11.1 |   33.3 |        |   18.8
                     |   13.3 |   10.0 |   25.0 |   50.0 |   27.3 |        |
                     |    4.2 |    2.1 |    4.2 |    2.1 |    6.3 |        |
                     +--------+--------+--------+--------+--------+--------+
                 3   |      3 |        |      2 |        |      1 |        |      6
  3                  |   50.0 |        |   33.3 |        |   16.7 |        |   12.5
                     |   20.0 |        |   25.0 |        |    9.1 |        |
                     |    6.3 |        |    4.2 |        |    2.1 |        |
                     +--------+--------+--------+--------+--------+--------+
                 4   |      1 |        |        |        |      1 |        |      2
  4                  |   50.0 |        |        |        |   50.0 |        |    4.2
                     |    6.7 |        |        |        |    9.1 |        |
                     |    2.1 |        |        |        |    2.1 |        |
                     +--------+--------+--------+--------+--------+--------+
                 5   |      4 |      3 |        |        |      2 |      1 |     10
  5                  |   40.0 |   30.0 |        |        |   20.0 |   10.0 |   20.8
                     |   26.7 |   30.0 |        |        |   18.2 |   50.0 |
                     |    8.3 |    6.3 |        |        |    4.2 |    2.1 |
                     +--------+--------+--------+--------+--------+--------+
                 6   |      1 |      3 |      2 |        |      3 |        |      9
  6                  |   11.1 |   33.3 |   22.2 |        |   33.3 |        |   18.8
                     |    6.7 |   30.0 |   25.0 |        |   27.3 |        |
                     |    2.1 |    6.3 |    4.2 |        |    6.3 |        |
                     +--------+--------+--------+--------+--------+--------+
              Column       15       10        8        2       11        2       48
               Total     31.3     20.8     16.7      4.2     22.9      4.2    100.0

         Statistic                  Value            Significance
         ---------                  -----            ------------
Kendall's Tau B                    .04831                .3401

Number of Missing Observations =        0
```

61 Crosstabulation: IMPFAC3 By GENDER

```
              Count |
            Row Pct |Male    |Female  |
GENDER->    Col Pct |        |        |  Row
            Tot Pct |      1 |      2 | Total
IMPFAC3     --------+--------+--------+
                 1  |      5 |      2 |     7
  1                 |   71.4 |   28.6 |  14.6
                    |   15.6 |   12.5 |
                    |   10.4 |    4.2 |
                    +--------+--------+
                 2  |      7 |      2 |     9
  2                 |   77.8 |   22.2 |  18.8
                    |   21.9 |   12.5 |
                    |   14.6 |    4.2 |
                    +--------+--------+
                 3  |      1 |      1 |     2
  3                 |   50.0 |   50.0 |   4.2
                    |    3.1 |    6.3 |
                    |    2.1 |    2.1 |
                    +--------+--------+
                 4  |      5 |      2 |     7
  4                 |   71.4 |   28.6 |  14.6
                    |   15.6 |   12.5 |
                    |   10.4 |    4.2 |
                    +--------+--------+
                 5  |     10 |      4 |    14
  5                 |   71.4 |   28.6 |  29.2
                    |   31.3 |   25.0 |
                    |   20.8 |    8.3 |
                    +--------+--------+
                 6  |      4 |      5 |     9
  6                 |   44.4 |   55.6 |  18.8
                    |   12.5 |   31.3 |
                    |    8.3 |   10.4 |
                    +--------+--------+
             Column       32       16      48
              Total     66.7     33.3   100.0

         Statistic                  Value            Significance
         ---------                  -----            ------------
Kendall's Tau B                    .14991                .1247

Number of Missing Observations =        0
```

62 Crosstabulation: IMPFAC3 By YRTEACIN

```
            Count  |
            Row Pct |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN->  Col Pct |         |         |         |         |         |         | Row
            Tot Pct |       1 |       2 |       3 |       4 |       5 |       6 | Total
IMPFAC3     --------+---------+---------+---------+---------+---------+---------+
                1   |         |      4  |      2  |      1  |         |         |    7
  1                 |         |   57.1  |   28.6  |   14.3  |         |         |  14.6
                    |         |   40.0  |   25.0  |   50.0  |         |         |
                    |         |    8.3  |    4.2  |    2.1  |         |         |
                    +---------+---------+---------+---------+---------+---------+
                2   |      3  |         |      2  |      1  |      2  |      1  |    9
  2                 |   33.3  |         |   22.2  |   11.1  |   22.2  |   11.1  |  18.8
                    |   20.0  |         |   25.0  |   50.0  |   18.2  |   50.0  |
                    |    6.3  |         |    4.2  |    2.1  |    4.2  |    2.1  |
                    +---------+---------+---------+---------+---------+---------+
                3   |      2  |         |         |         |         |         |    2
  3                 |  100.0  |         |         |         |         |         |   4.2
                    |   13.3  |         |         |         |         |         |
                    |    4.2  |         |         |         |         |         |
                    +---------+---------+---------+---------+---------+---------+
                4   |      3  |      1  |      2  |         |      1  |         |    7
  4                 |   42.9  |   14.3  |   28.6  |         |   14.3  |         |  14.6
                    |   20.0  |   10.0  |   25.0  |         |    9.1  |         |
                    |    6.3  |    2.1  |    4.2  |         |    2.1  |         |
                    +---------+---------+---------+---------+---------+---------+
                5   |      5  |      4  |      1  |         |      3  |      1  |   14
  5                 |   35.7  |   28.6  |    7.1  |         |   21.4  |    7.1  |  29.2
                    |   33.3  |   40.0  |   12.5  |         |   27.3  |   50.0  |
                    |   10.4  |    8.3  |    2.1  |         |    6.3  |    2.1  |
                    +---------+---------+---------+---------+---------+---------+
                6   |      2  |      1  |      1  |         |      5  |         |    9
  6                 |   22.2  |   11.1  |   11.1  |         |   55.6  |         |  18.8
                    |   13.3  |   10.0  |   12.5  |         |   45.5  |         |
                    |    4.2  |    2.1  |    2.1  |         |   10.4  |         |
                    +---------+---------+---------+---------+---------+---------+
             Column      15        10         8         2        11         2      48
             Total     31.3      20.8      16.7       4.2      22.9       4.2   100.0

         Statistic                   Value            Significance
         ---------                   -----            ------------
Kendall's Tau B                     .06172               .2995

Number of Missing Observations =        0
```

63 Crosstabulation: IMPFAC4 By GENDER

```
           Count  |
           Row Pct |Male     |Female   |
GENDER->   Col Pct |         |         | Row
           Tot Pct |       1 |       2 | Total
IMPFAC4    --------+---------+---------+
               1   |      6  |      2  |    8
  1                |   75.0  |   25.0  |  16.7
                   |   18.8  |   12.5  |
                   |   12.5  |    4.2  |
                   +---------+---------+
               2   |     13  |      7  |   20
  2                |   65.0  |   35.0  |  41.7
                   |   40.6  |   43.8  |
                   |   27.1  |   14.6  |
                   +---------+---------+
               3   |      4  |      1  |    5
  3                |   80.0  |   20.0  |  10.4
                   |   12.5  |    6.3  |
                   |    8.3  |    2.1  |
                   +---------+---------+
               4   |      4  |      3  |    7
  4                |   57.1  |   42.9  |  14.6
                   |   12.5  |   18.8  |
                   |    8.3  |    6.3  |
                   +---------+---------+
               5   |      5  |      1  |    6
  5                |   83.3  |   16.7  |  12.5
                   |   15.6  |    6.3  |
                   |   10.4  |    2.1  |
                   +---------+---------+
               6   |         |      2  |    2
  6                |         |  100.0  |   4.2
                   |         |   12.5  |
                   |         |    4.2  |
                   +---------+---------+
           Column       32        16       48
           Total      66.7      33.3    100.0
```

```
           Statistic                    Value           Significance
           ---------                    -----           ------------
Kendall's Tau B                        .08124              .2688

Number of Missing Observations =          0
```

64 Crosstabulation: IMPFAC4 By YRTEACIN

```
              Count |
            Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct |        |        |        |        |        |        | Row
            Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
IMPFAC4     --------+--------+--------+--------+--------+--------+--------+
                  1 |     5  |        |        |        |     2  |     1  |     8
  1                 |  62.5  |        |        |        |  25.0  |  12.5  |  16.7
                    |  33.3  |        |        |        |  18.2  |  50.0  |
                    |  10.4  |        |        |        |   4.2  |   2.1  |
                    +--------+--------+--------+--------+--------+--------+
                  2 |     4  |     7  |     4  |        |     4  |     1  |    20
  2                 |  20.0  |  35.0  |  20.0  |        |  20.0  |   5.0  |  41.7
                    |  26.7  |  70.0  |  50.0  |        |  36.4  |  50.0  |
                    |   8.3  |  14.6  |   8.3  |        |   8.3  |   2.1  |
                    +--------+--------+--------+--------+--------+--------+
                  3 |     1  |        |     2  |     2  |        |        |     5
  3                 |  20.0  |        |  40.0  |  40.0  |        |        |  10.4
                    |   6.7  |        |  25.0  | 100.0  |        |        |
                    |   2.1  |        |   4.2  |   4.2  |        |        |
                    +--------+--------+--------+--------+--------+--------+
                  4 |     3  |     1  |        |        |     3  |        |     7
  4                 |  42.9  |  14.3  |        |        |  42.9  |        |  14.6
                    |  20.0  |  10.0  |        |        |  27.3  |        |
                    |   6.3  |   2.1  |        |        |   6.3  |        |
                    +--------+--------+--------+--------+--------+--------+
                  5 |     2  |     1  |     1  |        |     2  |        |     6
  5                 |  33.3  |  16.7  |  16.7  |        |  33.3  |        |  12.5
                    |  13.3  |  10.0  |  12.5  |        |  18.2  |        |
                    |   4.2  |   2.1  |   2.1  |        |   4.2  |        |
                    +--------+--------+--------+--------+--------+--------+
                  6 |        |     1  |     1  |        |        |        |     2
  6                 |        |  50.0  |  50.0  |        |        |        |   4.2
                    |        |  10.0  |  12.5  |        |        |        |
                    |        |   2.1  |   2.1  |        |        |        |
                    +--------+--------+--------+--------+--------+--------+
             Column      15       10        8        2       11        2       48
              Total    31.3     20.8     16.7      4.2     22.9      4.2    100.0

           Statistic                    Value           Significance
           ---------                    -----           ------------
Kendall's Tau B                        .05923              .3091

Number of Missing Observations =          0
```

65 Crosstabulation: IMPFAC5 By GENDER

```
              Count |
            Row Pct |Male    |Female  |
GENDER->    Col Pct |        |        | Row
            Tot Pct |      1 |      2 | Total
IMPFAC5     --------+--------+--------+
                  1 |     4  |        |     4
  1                 | 100.0  |        |   8.3
                    |  12.5  |        |
                    |   8.3  |        |
                    +--------+--------+
                  2 |     2  |     4  |     6
  2                 |  33.3  |  66.7  |  12.5
                    |   6.3  |  25.0  |
                    |   4.2  |   8.3  |
                    +--------+--------+
                  3 |    11  |     4  |    15
  3                 |  73.3  |  26.7  |  31.3
                    |  34.4  |  25.0  |
                    |  22.9  |   8.3  |
                    +--------+--------+
                  4 |    12  |     6  |    18
  4                 |  66.7  |  33.3  |  37.5
                    |  37.5  |  37.5  |
                    |  25.0  |  12.5  |
                    +--------+--------+
                  5 |     3  |     1  |     4
  5                 |  75.0  |  25.0  |   8.3
                    |   9.4  |   6.3  |
                    |   6.3  |   2.1  |
                    +--------+--------+
                  6 |        |     1  |     1
  6                 |        | 100.0  |   2.1
                    |        |   6.3  |
                    |        |   2.1  |
```

```
                   +--------+--------+
          Column       32       16        48
          Total      66.7     33.3     100.0

        Statistic              Value          Significance
        ---------              -----          ------------
Kendall's Tau B               .03196              .4051

Number of Missing Observations =      0
```

66 Crosstabulation: IMPFAC5 By YRTEACIN

```
            Count |
          Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct |        |        |        |        |        |        |  Row
          Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 |  Total
IMPFAC5   --------+--------+--------+--------+--------+--------+--------+
                1 |     1  |     1  |     1  |        |     1  |        |     4
  1               |  25.0  |  25.0  |  25.0  |        |  25.0  |        |   8.3
                  |   6.7  |  10.0  |  12.5  |        |   9.1  |        |
                  |   2.1  |   2.1  |   2.1  |        |   2.1  |        |
                  +--------+--------+--------+--------+--------+--------+
                2 |     4  |     2  |        |        |        |        |     6
  2               |  66.7  |  33.3  |        |        |        |        |  12.5
                  |  26.7  |  20.0  |        |        |        |        |
                  |   8.3  |   4.2  |        |        |        |        |
                  +--------+--------+--------+--------+--------+--------+
                3 |     5  |     2  |     2  |        |     5  |     1  |    15
  3               |  33.3  |  13.3  |  13.3  |        |  33.3  |   6.7  |  31.3
                  |  33.3  |  20.0  |  25.0  |        |  45.5  |  50.0  |
                  |  10.4  |   4.2  |   4.2  |        |  10.4  |   2.1  |
                  +--------+--------+--------+--------+--------+--------+
                4 |     4  |     5  |     4  |     1  |     3  |     1  |    18
  4               |  22.2  |  27.8  |  22.2  |   5.6  |  16.7  |   5.6  |  37.5
                  |  26.7  |  50.0  |  50.0  |  50.0  |  27.3  |  50.0  |
                  |   8.3  |  10.4  |   8.3  |   2.1  |   6.3  |   2.1  |
                  +--------+--------+--------+--------+--------+--------+
                5 |     1  |        |     1  |     1  |     1  |        |     4
  5               |  25.0  |        |  25.0  |  25.0  |  25.0  |        |   8.3
                  |   6.7  |        |  12.5  |  50.0  |   9.1  |        |
                  |   2.1  |        |   2.1  |   2.1  |   2.1  |        |
                  +--------+--------+--------+--------+--------+--------+
                6 |        |        |        |        |     1  |        |     1
  6               |        |        |        |        | 100.0  |        |   2.1
                  |        |        |        |        |   9.1  |        |
                  |        |        |        |        |   2.1  |        |
                  +--------+--------+--------+--------+--------+--------+
           Column      15       10        8        2       11        2      48
           Total     31.3     20.8     16.7      4.2     22.9      4.2   100.0

        Statistic              Value          Significance
        ---------              -----          ------------
Kendall's Tau B               .18441              .0622

Number of Missing Observations =      0
```

67 Crosstabulation: IMPFAC6 By GENDER

```
            Count |
          Row Pct |Male    |Female  |
GENDER->  Col Pct |        |        |  Row
          Tot Pct |      1 |      2 |  Total
IMPFAC6   --------+--------+--------+
                1 |     1  |     2  |     3
  1               |  33.3  |  66.7  |   6.3
                  |   3.1  |  12.5  |
                  |   2.1  |   4.2  |
                  +--------+--------+
                2 |        |     1  |     1
  2               |        | 100.0  |   2.1
                  |        |   6.3  |
                  |        |   2.1  |
                  +--------+--------+
                3 |    13  |     5  |    18
  3               |  72.2  |  27.8  |  37.5
                  |  40.6  |  31.3  |
                  |  27.1  |  10.4  |
                  +--------+--------+
                4 |     9  |     4  |    13
  4               |  69.2  |  30.8  |  27.1
                  |  28.1  |  25.0  |
                  |  18.8  |   8.3  |
                  +--------+--------+
                5 |     2  |        |     2
  5               | 100.0  |        |   4.2
                  |   6.3  |        |
                  |   4.2  |        |
                  +--------+--------+
```

```
               6  |    7  |    4  |    11
    6             |  63.6 |  36.4 |   22.9
                  |  21.9 |  25.0 |
                  |  14.6 |   8.3 |
                  +-------+-------+
           Column     32      16       48
            Total   66.7    33.3    100.0

        Statistic              Value          Significance
        ---------              -----          ------------
Kendall's Tau B               -.08702            .2574

Number of Missing Observations =      0
```

68 Crosstabulation: IMPFAC6 By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        |   Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 |  Total
IMPFAC6     ---------+--------+--------+--------+--------+--------+--------+
                  1  |    1   |        |    2   |        |        |        |     3
  1                  |  33.3  |        |  66.7  |        |        |        |   6.3
                     |   6.7  |        |  25.0  |        |        |        |
                     |   2.1  |        |   4.2  |        |        |        |
                     +--------+--------+--------+--------+--------+--------+
                  2  |        |        |        |        |    1   |        |     1
  2                  |        |        |        |        | 100.0  |        |   2.1
                     |        |        |        |        |   9.1  |        |
                     |        |        |        |        |   2.1  |        |
                     +--------+--------+--------+--------+--------+--------+
                  3  |    3   |    7   |    2   |        |    5   |    1   |    18
  3                  |  16.7  |  38.9  |  11.1  |        |  27.8  |   5.6  |  37.5
                     |  20.0  |  70.0  |  25.0  |        |  45.5  |  50.0  |
                     |   6.3  |  14.6  |   4.2  |        |  10.4  |   2.1  |
                     +--------+--------+--------+--------+--------+--------+
                  4  |    4   |    3   |    2   |        |    3   |    1   |    13
  4                  |  30.8  |  23.1  |  15.4  |        |  23.1  |   7.7  |  27.1
                     |  26.7  |  30.0  |  25.0  |        |  27.3  |  50.0  |
                     |   8.3  |   6.3  |   4.2  |        |   6.3  |   2.1  |
                     +--------+--------+--------+--------+--------+--------+
                  5  |        |        |    1   |        |    1   |        |     2
  5                  |        |        |  50.0  |        |  50.0  |        |   4.2
                     |        |        |  12.5  |        |   9.1  |        |
                     |        |        |   2.1  |        |   2.1  |        |
                     +--------+--------+--------+--------+--------+--------+
                  6  |    7   |        |    1   |    2   |    1   |        |    11
  6                  |  63.6  |        |   9.1  |  18.2  |   9.1  |        |  22.9
                     |  46.7  |        |  12.5  | 100.0  |   9.1  |        |
                     |  14.6  |        |   2.1  |   4.2  |   2.1  |        |
                     +--------+--------+--------+--------+--------+--------+
             Column      15       10        8        2       11        2      48
              Total    31.3     20.8     16.7      4.2     22.9      4.2   100.0

        Statistic              Value          Significance
        ---------              -----          ------------
Kendall's Tau B               -.16415            .0865

Number of Missing Observations =      0
```

E.2 Crosstabulations and tests of association for section 5.2.2

1 Crosstabulation: INTRSTLT By GENDER

```
            Count  |
          Row Pct  |Male     |Female   |
GENDER->  Col Pct  |         |         |  Row
          Tot Pct  |       1 |       2 | Total
INTRSTLT  ---------+---------+---------+
               1   |     6   |     2   |     8
  Very interested  |   75.0  |   25.0  |   26.7
                   |   27.3  |   25.0  |
                   |   20.0  |    6.7  |
                   +---------+---------+
               2   |    13   |     5   |    18
  Fairly intereste |   72.2  |   27.8  |   60.0
                   |   59.1  |   62.5  |
                   |   43.3  |   16.7  |
                   +---------+---------+
               3   |     3   |     1   |     4
  Not particularly |   75.0  |   25.0  |   13.3
                   |   13.6  |   12.5  |
                   |   10.0  |    3.3  |
                   +---------+---------+
           Column       22         8        30
            Total     73.3      26.7     100.0

 Chi-Square     D.F.      Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------       --------      ------------------
     .02841        2           .9859            1.067      4 OF     6 ( 66.7%)

Number of Missing Observations =      0
```

2 Crosstabulation: INTRSTLT By YRTEACIN

```
            Count  |
          Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN->Col Pct  |         |         |         |         |         |         |  Row
          Tot Pct  |       1 |       2 |       3 |       4 |       5 |       6 | Total
INTRSTLT  ---------+---------+---------+---------+---------+---------+---------+
               1   |     2   |         |     1   |     1   |     3   |     1   |     8
  Very interested  |   25.0  |         |   12.5  |   12.5  |   37.5  |   12.5  |   26.7
                   |   40.0  |         |   16.7  |  100.0  |   30.0  |   50.0  |
                   |    6.7  |         |    3.3  |    3.3  |   10.0  |    3.3  |
                   +---------+---------+---------+---------+---------+---------+
               2   |     2   |     5   |     3   |         |     7   |     1   |    18
  Fairly intereste |   11.1  |   27.8  |   16.7  |         |   38.9  |    5.6  |   60.0
                   |   40.0  |   83.3  |   50.0  |         |   70.0  |   50.0  |
                   |    6.7  |   16.7  |   10.0  |         |   23.3  |    3.3  |
                   +---------+---------+---------+---------+---------+---------+
               3   |     1   |     1   |     2   |         |         |         |     4
  Not particularly |   25.0  |   25.0  |   50.0  |         |         |         |   13.3
                   |   20.0  |   16.7  |   33.3  |         |         |         |
                   |    3.3  |    3.3  |    6.7  |         |         |         |
                   +---------+---------+---------+---------+---------+---------+
           Column        5         6         6         1        10         2        30
            Total     16.7      20.0      20.0       3.3      33.3       6.7     100.0

         Statistic                   Value          Significance
         ---------                   -----          ------------
Kendall's Tau B                     -.19035              .1180

Number of Missing Observations =      0
```

3 Crosstabulation: USEFLL By GENDER

```
            Count  |
          Row Pct  |Male     |Female   |
GENDER->  Col Pct  |         |         |  Row
          Tot Pct  |       1 |       2 | Total
USEFLL    ---------+---------+---------+
               1   |    11   |     4   |    15
  Very useful      |   73.3  |   26.7  |   50.0
                   |   50.0  |   50.0  |
                   |   36.7  |   13.3  |
                   +---------+---------+
               2   |     9   |     4   |    13
  Fairly useful    |   69.2  |   30.8  |   43.3
                   |   40.9  |   50.0  |
                   |   30.0  |   13.3  |
                   +---------+---------+
               3   |     2   |         |     2
  Not very useful  |  100.0  |         |    6.7
                   |    9.1  |         |
                   |    6.7  |         |
                   +---------+---------+
           Column       22         8        30
            Total     73.3      26.7     100.0
```

```
Chi-Square    D.F.       Significance       Min E.F.      Cells with E.F.< 5
----------    ----       ------------       --------      ------------------
   .83916       2           .6573             .533        4 OF     6 ( 66.7%)

Number of Missing Observations =        0
```

4 Crosstabulation: USEFLL By YRTEACIN

```
               Count |
             Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->   Col Pct |        |        |        |        |        |        |   Row
             Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
USEFLL       --------+--------+--------+--------+--------+--------+--------+
                   1 |     3  |     2  |     2  |     1  |     6  |     1  |    15
  Very useful        |  20.0  |  13.3  |  13.3  |   6.7  |  40.0  |   6.7  |  50.0
                     |  60.0  |  33.3  |  33.3  | 100.0  |  60.0  |  50.0  |
                     |  10.0  |   6.7  |   6.7  |   3.3  |  20.0  |   3.3  |
                     +--------+--------+--------+--------+--------+--------+
                   2 |     1  |     4  |     4  |        |     3  |     1  |    13
  Fairly useful      |   7.7  |  30.8  |  30.8  |        |  23.1  |   7.7  |  43.3
                     |  20.0  |  66.7  |  66.7  |        |  30.0  |  50.0  |
                     |   3.3  |  13.3  |  13.3  |        |  10.0  |   3.3  |
                     +--------+--------+--------+--------+--------+--------+
                   3 |     1  |        |        |        |     1  |        |     2
  Not very useful    |  50.0  |        |        |        |  50.0  |        |   6.7
                     |  20.0  |        |        |        |  10.0  |        |
                     |   3.3  |        |        |        |   3.3  |        |
                     +--------+--------+--------+--------+--------+--------+
              Column       5        6        6        1       10        2       30
               Total    16.7     20.0     20.0      3.3     33.3      6.7    100.0

         Statistic                  Value            Significance
         ---------                  -----            ------------
Kendall's Tau B                   -.08785               .2947

Number of Missing Observations =        0
```

5 Crosstabulation: USEFTEAC By GENDER

```
               Count |
             Row Pct |Male    |Female  |
GENDER->     Col Pct |        |        |   Row
             Tot Pct |      1 |      2 | Total
USEFTEAC     --------+--------+--------+
                   1 |     5  |     3  |     8
  Very useful        |  62.5  |  37.5  |  26.7
                     |  22.7  |  37.5  |
                     |  16.7  |  10.0  |
                     +--------+--------+
                   2 |    13  |     5  |    18
  Fairly useful      |  72.2  |  27.8  |  60.0
                     |  59.1  |  62.5  |
                     |  43.3  |  16.7  |
                     +--------+--------+
                   3 |     4  |        |     4
  Not very useful    | 100.0  |        |  13.3
                     |  18.2  |        |
                     |  13.3  |        |
                     +--------+--------+
              Column      22        8       30
               Total    73.3     26.7    100.0

Chi-Square    D.F.       Significance       Min E.F.      Cells with E.F.< 5
----------    ----       ------------       --------      ------------------
  1.94602       2           .3779            1.067        4 OF     6 ( 66.7%)

Number of Missing Observations =        0
```

6 Crosstabulation: USEFTEAC By YRTEACIN

```
               Count |
             Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->   Col Pct |        |        |        |        |        |        |   Row
             Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
USEFTEAC     --------+--------+--------+--------+--------+--------+--------+
                   1 |     2  |        |     2  |     1  |     2  |     1  |     8
  Very useful        |  25.0  |        |  25.0  |  12.5  |  25.0  |  12.5  |  26.7
                     |  40.0  |        |  33.3  | 100.0  |  20.0  |  50.0  |
                     |   6.7  |        |   6.7  |   3.3  |   6.7  |   3.3  |
                     +--------+--------+--------+--------+--------+--------+
                   2 |     2  |     6  |     3  |        |     6  |     1  |    18
  Fairly useful      |  11.1  |  33.3  |  16.7  |        |  33.3  |   5.6  |  60.0
                     |  40.0  | 100.0  |  50.0  |        |  60.0  |  50.0  |
                     |   6.7  |  20.0  |  10.0  |        |  20.0  |   3.3  |
                     +--------+--------+--------+--------+--------+--------+
                   3 |     1  |        |     1  |        |     2  |        |     4
  Not very useful    |  25.0  |        |  25.0  |        |  50.0  |        |  13.3
                     |  20.0  |        |  16.7  |        |  20.0  |        |
                     |   3.3  |        |   3.3  |        |   6.7  |        |
                     +--------+--------+--------+--------+--------+--------+
```

```
                Column       5         6         6         1        10         2        30
                 Total    16.7      20.0      20.0       3.3      33.3       6.7     100.0

           Statistic                Value          Significance
           ---------                -----          ------------
Kendall's Tau B                   -.02039              .4495

Number of Missing Observations =        0
```

7 Crosstabulation: AUUSF By GENDER

```
                Count  |
               Row Pct |Male     |Female   |
GENDER->       Col Pct |         |         | Row
               Tot Pct |       1 |       2 | Total
AUUSF          --------+---------+---------+
                     2 |     7   |     1   |     8
  3                    |  87.5   |  12.5   |  26.7
                       |  31.8   |  12.5   |
                       |  23.3   |   3.3   |
                       +---------+---------+
                     3 |     6   |     3   |     9
  2                    |  66.7   |  33.3   |  30.0
                       |  27.3   |  37.5   |
                       |  20.0   |  10.0   |
                       +---------+---------+
                     4 |     9   |     4   |    13
  1                    |  69.2   |  30.8   |  43.3
                       |  40.9   |  50.0   |
                       |  30.0   |  13.3   |
                       +---------+---------+
                Column      22         8        30
                 Total    73.3      26.7     100.0

 Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----       ------------       --------      ------------------
    1.13746       2            .5662             2.133      3 OF     6 ( 50.0%)

Number of Missing Observations =        0
```

8 Crosstabulation: AUUSF By YRTEACIN

```
               Count  |
              Row Pct |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN->    Col Pct |         |         |         |         |         |         | Row
              Tot Pct |       1 |       2 |       3 |       4 |       5 |       6 | Total
AUUSF         --------+---------+---------+---------+---------+---------+---------+
                    2 |     2   |     1   |     3   |         |     2   |         |     8
  3                   |  25.0   |  12.5   |  37.5   |         |  25.0   |         |  26.7
                      |  40.0   |  16.7   |  50.0   |         |  20.0   |         |
                      |   6.7   |   3.3   |  10.0   |         |   6.7   |         |
                      +---------+---------+---------+---------+---------+---------+
                    3 |     1   |     2   |     2   |         |     3   |     1   |     9
  2                   |  11.1   |  22.2   |  22.2   |         |  33.3   |  11.1   |  30.0
                      |  20.0   |  33.3   |  33.3   |         |  30.0   |  50.0   |
                      |   3.3   |   6.7   |   6.7   |         |  10.0   |   3.3   |
                      +---------+---------+---------+---------+---------+---------+
                    4 |     2   |     3   |     1   |     1   |     5   |     1   |    13
  1                   |  15.4   |  23.1   |   7.7   |   7.7   |  38.5   |   7.7   |  43.3
                      |  40.0   |  50.0   |  16.7   | 100.0   |  50.0   |  50.0   |
                      |   6.7   |  10.0   |   3.3   |   3.3   |  16.7   |   3.3   |
                      +---------+---------+---------+---------+---------+---------+
               Column       5         6         6         1        10         2        30
                Total    16.7      20.0      20.0       3.3      33.3       6.7     100.0

          Statistic                Value          Significance
          ---------                -----          ------------
Pearson's R                       .15261              .2104

Number of Missing Observations =        0
```

9 Crosstabulation: AUEASY By GENDER

```
               Count  |
              Row Pct |Male     |Female   |
GENDER->      Col Pct |         |         | Row
              Tot Pct |       1 |       2 | Total
AUEASY        --------+---------+---------+
                    2 |     1   |     1   |     2
  3                   |  50.0   |  50.0   |   6.7
                      |   4.5   |  12.5   |
                      |   3.3   |   3.3   |
                      +---------+---------+
                    3 |     7   |     3   |    10
  2                   |  70.0   |  30.0   |  33.3
                      |  31.8   |  37.5   |
                      |  23.3   |  10.0   |
                      +---------+---------+
                    4 |    14   |     4   |    18
  1                   |  77.8   |  22.2   |  60.0
                      |  63.6   |  50.0   |
```

```
                   |   46.7 |   13.3 |
                   +--------+--------+
            Column       22        8       30
             Total     73.3     26.7    100.0

  Chi-Square      D.F.          Significance        Min E.F.      Cells with E.F.< 5
  ----------      ----          ------------        --------      ------------------
      .79545         2                 .6718            .533      4 OF      6 ( 66.7%)

Number of Missing Observations =        0
```

10 Crosstabulation: AUEASY By YRTEACIN

```
             Count |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct |        |        |        |        |        |        | Row
           Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
AUEASY     --------+--------+--------+--------+--------+--------+--------+
                 2 |        |        |      2 |        |        |        |     2
  3                |        |        |  100.0 |        |        |        |   6.7
                   |        |        |   33.3 |        |        |        |
                   |        |        |    6.7 |        |        |        |
                   +--------+--------+--------+--------+--------+--------+
                 3 |      2 |      1 |      4 |        |      2 |      1 |    10
  2                |   20.0 |   10.0 |   40.0 |        |   20.0 |   10.0 |  33.3
                   |   40.0 |   16.7 |   66.7 |        |   20.0 |   50.0 |
                   |    6.7 |    3.3 |   13.3 |        |    6.7 |    3.3 |
                   +--------+--------+--------+--------+--------+--------+
                 4 |      3 |      5 |        |      1 |      8 |      1 |    18
  1                |   16.7 |   27.8 |        |    5.6 |   44.4 |    5.6 |  60.0
                   |   60.0 |   83.3 |        |  100.0 |   80.0 |   50.0 |
                   |   10.0 |   16.7 |        |    3.3 |   26.7 |    3.3 |
                   +--------+--------+--------+--------+--------+--------+
            Column        5        6        6        1       10        2      30
             Total     16.7     20.0     20.0      3.3     33.3      6.7   100.0

          Statistic                      Value            Significance
          ---------                      -----            ------------
Pearson's R                             .10283                .2943

Number of Missing Observations =        0
```

11 Crosstabulation: AUINTRS By GENDER

```
             Count |
           Row Pct |Male    |Female  |
GENDER->   Col Pct |        |        | Row
           Tot Pct |      1 |      2 | Total
AUINTRS    --------+--------+--------+
                 1 |      6 |        |     6
  4                |  100.0 |        |  20.0
                   |   27.3 |        |
                   |   20.0 |        |
                   +--------+--------+
                 2 |     10 |      4 |    14
  3                |   71.4 |   28.6 |  46.7
                   |   45.5 |   50.0 |
                   |   33.3 |   13.3 |
                   +--------+--------+
                 3 |      4 |      4 |     8
  2                |   50.0 |   50.0 |  26.7
                   |   18.2 |   50.0 |
                   |   13.3 |   13.3 |
                   +--------+--------+
                 4 |      2 |        |     2
  1                |  100.0 |        |   6.7
                   |    9.1 |        |
                   |    6.7 |        |
                   +--------+--------+
            Column       22        8       30
             Total     73.3     26.7    100.0

  Chi-Square      D.F.          Significance        Min E.F.      Cells with E.F.< 5
  ----------      ----          ------------        --------      ------------------
     5.16234         3                 .1603            .533      6 OF      8 ( 75.0%)

Number of Missing Observations =        0
```

12 Crosstabulation: AUINTRS By YRTEACIN

```
             Count |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct |        |        |        |        |        |        | Row
           Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
AUINTRS    --------+--------+--------+--------+--------+--------+--------+
                 1 |      1 |      1 |      1 |        |      2 |      1 |     6
  4                |   16.7 |   16.7 |   16.7 |        |   33.3 |   16.7 |  20.0
                   |   20.0 |   16.7 |   16.7 |        |   20.0 |   50.0 |
                   |    3.3 |    3.3 |    3.3 |        |    6.7 |    3.3 |
                   +--------+--------+--------+--------+--------+--------+
```

```
              2 |     2  |     4  |     2  |        |     5  |     1  |    14
 3              |  14.3  |  28.6  |  14.3  |        |  35.7  |   7.1  |  46.7
                |  40.0  |  66.7  |  33.3  |        |  50.0  |  50.0  |
                |   6.7  |  13.3  |   6.7  |        |  16.7  |   3.3  |
                +--------+--------+--------+--------+--------+--------+
              3 |     2  |     1  |     3  |     1  |     1  |        |     8
 2              |  25.0  |  12.5  |  37.5  |  12.5  |  12.5  |        |  26.7
                |  40.0  |  16.7  |  50.0  | 100.0  |  10.0  |        |
                |   6.7  |   3.3  |  10.0  |   3.3  |   3.3  |        |
                +--------+--------+--------+--------+--------+--------+
              4 |        |        |        |        |     2  |        |     2
 1              |        |        |        |        | 100.0  |        |   6.7
                |        |        |        |        |  20.0  |        |
                |        |        |        |        |   6.7  |        |
                +--------+--------+--------+--------+--------+--------+
         Column       5        6        6        1       10        2      30
          Total    16.7     20.0     20.0      3.3     33.3      6.7   100.0

        Statistic                Value            Significance
        ---------                -----            ------------
Pearson's R                     -.00487               .4898

Number of Missing Observations =        0
```

13 Crosstabulation: AUMOTIV By GENDER

```
            Count  |
          Row Pct  |Male    |Female  |
GENDER->  Col Pct  |        |        |  Row
          Tot Pct  |      1 |      2 |  Total
AUMOTIV   ---------+--------+--------+
                1  |     1  |        |     1
  4                | 100.0  |        |   3.3
                   |   4.5  |        |
                   |   3.3  |        |
                   +--------+--------+
                2  |     7  |     1  |     8
  3                |  87.5  |  12.5  |  26.7
                   |  31.8  |  12.5  |
                   |  23.3  |   3.3  |
                   +--------+--------+
                3  |    11  |     6  |    17
  2                |  64.7  |  35.3  |  56.7
                   |  50.0  |  75.0  |
                   |  36.7  |  20.0  |
                   +--------+--------+
                4  |     3  |     1  |     4
  1                |  75.0  |  25.0  |  13.3
                   |  13.6  |  12.5  |
                   |  10.0  |   3.3  |
                   +--------+--------+
           Column      22        8       30
            Total    73.3     26.7    100.0

Chi-Square    D.F.      Significance       Min E.F.      Cells with E.F.< 5
----------    ----      ------------       --------      ------------------
   1.83740       3          .6068              .267      6 OF     8 ( 75.0%)

Number of Missing Observations =        0
```

14 Crosstabulation: AUMOTIV By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 |  Total
AUMOTIV     ---------+--------+--------+--------+--------+--------+--------+
                  1  |     1  |        |        |        |        |        |     1
 4                   | 100.0  |        |        |        |        |        |   3.3
                     |  20.0  |        |        |        |        |        |
                     |   3.3  |        |        |        |        |        |
                     +--------+--------+--------+--------+--------+--------+
                  2  |     1  |     1  |     2  |        |     3  |     1  |     8
 3                   |  12.5  |  12.5  |  25.0  |        |  37.5  |  12.5  |  26.7
                     |  20.0  |  16.7  |  33.3  |        |  30.0  |  50.0  |
                     |   3.3  |   3.3  |   6.7  |        |  10.0  |   3.3  |
                     +--------+--------+--------+--------+--------+--------+
                  3  |     3  |     5  |     4  |     1  |     3  |     1  |    17
 2                   |  17.6  |  29.4  |  23.5  |   5.9  |  17.6  |   5.9  |  56.7
                     |  60.0  |  83.3  |  66.7  | 100.0  |  30.0  |  50.0  |
                     |  10.0  |  16.7  |  13.3  |   3.3  |  10.0  |   3.3  |
                     +--------+--------+--------+--------+--------+--------+
                  4  |        |        |        |        |     4  |        |     4
 1                   |        |        |        |        | 100.0  |        |  13.3
                     |        |        |        |        |  40.0  |        |
                     |        |        |        |        |  13.3  |        |
                     +--------+--------+--------+--------+--------+--------+
             Column       5        6        6        1       10        2      30
              Total    16.7     20.0     20.0      3.3     33.3      6.7   100.0
```

```
          Statistic                    Value          Significance
          ---------                    -----          ------------
Pearson's R                           .23688             .1038

Number of Missing Observations =        0
```

15 Crosstabulation: AUTMSAV By GENDER

```
             Count  |
           Row Pct  |Male     |Female  |
GENDER->   Col Pct  |         |        | Row
           Tot Pct  |      1  |     2  | Total
AUTMSAV     --------+---------+--------+
                 1  |      1  |        |    1
  4                 |  100.0  |        |  3.3
                    |    4.5  |        |
                    |    3.3  |        |
                    +---------+--------+
                 2  |     10  |     3  |   13
  3                 |   76.9  |  23.1  | 43.3
                    |   45.5  |  37.5  |
                    |   33.3  |  10.0  |
                    +---------+--------+
                 3  |      9  |     3  |   12
  2                 |   75.0  |  25.0  | 40.0
                    |   40.9  |  37.5  |
                    |   30.0  |  10.0  |
                    +---------+--------+
                 4  |      2  |     2  |    4
  1                 |   50.0  |  50.0  | 13.3
                    |    9.1  |  25.0  |
                    |    6.7  |   6.7  |
                    +---------+--------+
            Column       22         8      30
             Total     73.3      26.7   100.0

Chi-Square     D.F.        Significance        Min E.F.      Cells with E.F.< 5
----------     ----        ------------        --------      ------------------
   1.57998       3             .6639              .267       6 OF     8 ( 75.0%)

Number of Missing Observations =         0
```

16 Crosstabulation: AUTMSAV By YRTEACIN

```
              Count  |
            Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN->  Col Pct  |         |         |         |         |         |         | Row
            Tot Pct  |      1  |      2  |      3  |      4  |      5  |      6  | Total
AUTMSAV     ---------+---------+---------+---------+---------+---------+---------+
                  1  |         |         |      1  |         |         |         |     1
  4                  |         |         |  100.0  |         |         |         |   3.3
                     |         |         |   16.7  |         |         |         |
                     |         |         |    3.3  |         |         |         |
                     +---------+---------+---------+---------+---------+---------+
                  2  |      4  |      2  |      1  |      1  |      4  |      1  |    13
  3                  |   30.8  |   15.4  |    7.7  |    7.7  |   30.8  |    7.7  |  43.3
                     |   80.0  |   33.3  |   16.7  |  100.0  |   40.0  |   50.0  |
                     |   13.3  |    6.7  |    3.3  |    3.3  |   13.3  |    3.3  |
                     +---------+---------+---------+---------+---------+---------+
                  3  |      1  |      2  |      3  |         |      5  |      1  |    12
  2                  |    8.3  |   16.7  |   25.0  |         |   41.7  |    8.3  |  40.0
                     |   20.0  |   33.3  |   50.0  |         |   50.0  |   50.0  |
                     |    3.3  |    6.7  |   10.0  |         |   16.7  |    3.3  |
                     +---------+---------+---------+---------+---------+---------+
                  4  |         |      2  |      1  |         |      1  |         |     4
  1                  |         |   50.0  |   25.0  |         |   25.0  |         |  13.3
                     |         |   33.3  |   16.7  |         |   10.0  |         |
                     |         |    6.7  |    3.3  |         |    3.3  |         |
                     +---------+---------+---------+---------+---------+---------+
             Column         5         6         6         1        10         2      30
              Total      16.7      20.0      20.0       3.3      33.3       6.7   100.0

          Statistic                    Value          Significance
          ---------                    -----          ------------
Pearson's R                           .05486             .3867

Number of Missing Observations =        0
```

17 Crosstabulation: AUVALU By GENDER

```
             Count  |
           Row Pct  |Male     |Female  |
GENDER->   Col Pct  |         |        | Row
           Tot Pct  |      1  |     2  | Total
AUVALU      --------+---------+--------+
                 1  |      3  |        |    3
  4                 |  100.0  |        | 10.0
                    |   13.6  |        |
                    |   10.0  |        |
                    +---------+--------+
```

```
               2  |   11   |    5   |   16
   3              |  68.8  |  31.3  |  53.3
                  |  50.0  |  62.5  |
                  |  36.7  |  16.7  |
                  +--------+--------+
               3  |    8   |    3   |   11
   2              |  72.7  |  27.3  |  36.7
                  |  36.4  |  37.5  |
                  |  26.7  |  10.0  |
                  +--------+--------+
           Column     22        8       30
            Total   73.3     26.7    100.0

 Chi-Square     D.F.      Significance       Min E.F.     Cells with E.F.< 5
 ----------     ----      ------------       --------     ------------------
    1.26485       2           .5313              .800     4 OF     6 ( 66.7%)

Number of Missing Observations =       0
```

18 Crosstabulation: AUVALU By YRTEACIN

```
             Count |
           Row Pct |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN-> Col Pct |         |         |         |         |         |         |  Row
           Tot Pct |       1 |       2 |       3 |       4 |       5 |       6 | Total
AUVALU     --------+---------+---------+---------+---------+---------+---------+
                 1 |     1   |         |         |         |     2   |         |     3
  4                |  33.3   |         |         |         |  66.7   |         |  10.0
                   |  20.0   |         |         |         |  20.0   |         |
                   |   3.3   |         |         |         |   6.7   |         |
                   +---------+---------+---------+---------+---------+---------+
                 2 |     2   |     3   |     4   |         |     7   |         |    16
  3                |  12.5   |  18.8   |  25.0   |         |  43.8   |         |  53.3
                   |  40.0   |  50.0   |  66.7   |         |  70.0   |         |
                   |   6.7   |  10.0   |  13.3   |         |  23.3   |         |
                   +---------+---------+---------+---------+---------+---------+
                 3 |     2   |     3   |     2   |     1   |     1   |     2   |    11
  2                |  18.2   |  27.3   |  18.2   |   9.1   |   9.1   |  18.2   |  36.7
                   |  40.0   |  50.0   |  33.3   | 100.0   |  10.0   | 100.0   |
                   |   6.7   |  10.0   |   6.7   |   3.3   |   3.3   |   6.7   |
                   +---------+---------+---------+---------+---------+---------+
            Column       5         6         6         1        10         2        30
             Total    16.7      20.0      20.0       3.3      33.3       6.7     100.0

          Statistic                    Value           Significance
          ---------                    -----           ------------
Pearson's R                           -.09463               .3094

Number of Missing Observations =       0
```

19 Crosstabulation: AUPOTEN By GENDER

```
             Count |
           Row Pct |Male     |Female   |
GENDER->   Col Pct |         |         |  Row
           Tot Pct |       1 |       2 | Total
AUPOTEN    --------+---------+---------+
                 2 |    11   |     2   |    13
  3                |  84.6   |  15.4   |  43.3
                   |  50.0   |  25.0   |
                   |  36.7   |   6.7   |
                   +---------+---------+
                 3 |    10   |     6   |    16
  2                |  62.5   |  37.5   |  53.3
                   |  45.5   |  75.0   |
                   |  33.3   |  20.0   |
                   +---------+---------+
                 4 |     1   |         |     1
  1                | 100.0   |         |   3.3
                   |   4.5   |         |
                   |   3.3   |         |
                   +---------+---------+
            Column      22         8        30
             Total    73.3      26.7     100.0

 Chi-Square     D.F.      Significance       Min E.F.     Cells with E.F.< 5
 ----------     ----      ------------       --------     ------------------
    2.17002       2           .3379              .267     4 OF     6 ( 66.7%)

Number of Missing Observations =       0
```

20 Crosstabulation: AUPOTEN By YRTEACIN

```
             Count |
           Row Pct |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN-> Col Pct |         |         |         |         |         |         |  Row
           Tot Pct |       1 |       2 |       3 |       4 |       5 |       6 | Total
AUPOTEN    --------+---------+---------+---------+---------+---------+---------+
                 2 |     2   |     4   |     3   |         |     4   |         |    13
  3                |  15.4   |  30.8   |  23.1   |         |  30.8   |         |  43.3
```

```
                      |  40.0  |  66.7  |  50.0  |        |  40.0  |        |
                      |   6.7  |  13.3  |  10.0  |        |  13.3  |        |
                      +--------+--------+--------+--------+--------+--------+
                    3 |     3  |     2  |     3  |     1  |     5  |     2  |    16
  2                   |  18.8  |  12.5  |  18.8  |   6.3  |  31.3  |  12.5  |  53.3
                      |  60.0  |  33.3  |  50.0  | 100.0  |  50.0  | 100.0  |
                      |  10.0  |   6.7  |  10.0  |   3.3  |  16.7  |   6.7  |
                      +--------+--------+--------+--------+--------+--------+
                    4 |        |        |        |        |     1  |        |     1
  1                   |        |        |        |        | 100.0  |        |   3.3
                      |        |        |        |        |  10.0  |        |
                      |        |        |        |        |   3.3  |        |
                      +--------+--------+--------+--------+--------+--------+
               Column        5        6        6        1       10        2      30
                Total     16.7     20.0     20.0      3.3     33.3      6.7   100.0

          Statistic                  Value          Significance
          ---------                  -----          ------------
Pearson's R                          .23449             .1061

Number of Missing Observations =          0
```

21 Crosstabulation: VIUSF By GENDER

```
             Count |
           Row Pct |Male    |Female  |
GENDER->   Col Pct |        |        | Row
           Tot Pct |     1  |     2  | Total
VIUSF      --------+--------+--------+
                 3 |     7  |     4  |    11
  2                |  63.6  |  36.4  |  36.7
                   |  31.8  |  50.0  |
                   |  23.3  |  13.3  |
                   +--------+--------+
                 4 |    15  |     4  |    19
  1                |  78.9  |  21.1  |  63.3
                   |  68.2  |  50.0  |
                   |  50.0  |  13.3  |
                   +--------+--------+
            Column       22        8      30
             Total     73.3     26.7   100.0

 Chi-Square     D.F.      Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------       --------      ------------------
     .23570        1          .6273            2.933       1 of     4 ( 25.0%)
     .83515        1          .3608          ( Before Yates Correction )

Number of Missing Observations =          0
```

22 Crosstabulation: VIUSF By YRTEACIN

```
             Count |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct |        |        |        |        |        |        | Row
           Tot Pct |     1  |     2  |     3  |     4  |     5  |     6  | Total
VIUSF      --------+--------+--------+--------+--------+--------+--------+
                 3 |     2  |     2  |     4  |        |     3  |        |    11
  2                |  18.2  |  18.2  |  36.4  |        |  27.3  |        |  36.7
                   |  40.0  |  33.3  |  66.7  |        |  30.0  |        |
                   |   6.7  |   6.7  |  13.3  |        |  10.0  |        |
                   +--------+--------+--------+--------+--------+--------+
                 4 |     3  |     4  |     2  |     1  |     7  |     2  |    19
  1                |  15.8  |  21.1  |  10.5  |   5.3  |  36.8  |  10.5  |  63.3
                   |  60.0  |  66.7  |  33.3  | 100.0  |  70.0  | 100.0  |
                   |  10.0  |  13.3  |   6.7  |   3.3  |  23.3  |   6.7  |
                   +--------+--------+--------+--------+--------+--------+
            Column        5        6        6        1       10        2      30
             Total     16.7     20.0     20.0      3.3     33.3      6.7   100.0

         Statistic                  Value          Significance
         ---------                  -----          ------------
Pearson's R                         .16982             .1848

Number of Missing Observations =          0
```

23 Crosstabulation: VIEASY By GENDER

```
             Count |
           Row Pct |Male    |Female  |
GENDER->   Col Pct |        |        | Row
           Tot Pct |     1  |     2  | Total
VIEASY     --------+--------+--------+
                 2 |     3  |        |     3
  3                | 100.0  |        |  10.0
                   |  13.6  |        |
                   |  10.0  |        |
                   +--------+--------+
                 3 |    11  |     3  |    14
  2                |  78.6  |  21.4  |  46.7
                   |  50.0  |  37.5  |
```

```
                    |  36.7  |  10.0  |
                    +--------+--------+
                 4  |      8 |      5 |     13
  1                 |  61.5  |  38.5  |   43.3
                    |  36.4  |  62.5  |
                    |  26.7  |  16.7  |
                    +--------+--------+
            Column      22        8        30
             Total    73.3     26.7     100.0

Chi-Square     D.F.       Significance        Min E.F.      Cells with E.F.< 5
----------     ----       ------------        --------      ------------------
   2.21216        2           .3309              .800       4 OF    6 ( 66.7%)

Number of Missing Observations =        0
```

24 Crosstabulation: VIEASY By YRTEACIN

```
             Count  |
           Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct  |        |        |        |        |        |        |  Row
           Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 |  Total
VIEASY     ---------+--------+--------+--------+--------+--------+--------+
                2   |        |      1 |      1 |        |        |      1 |      3
  3                 |        |  33.3  |  33.3  |        |        |  33.3  |   10.0
                    |        |  16.7  |  16.7  |        |        |  50.0  |
                    |        |   3.3  |   3.3  |        |        |   3.3  |
                    +--------+--------+--------+--------+--------+--------+
                3   |      2 |      4 |      2 |        |      6 |        |     14
  2                 |  14.3  |  28.6  |  14.3  |        |  42.9  |        |   46.7
                    |  40.0  |  66.7  |  33.3  |        |  60.0  |        |
                    |   6.7  |  13.3  |   6.7  |        |  20.0  |        |
                    +--------+--------+--------+--------+--------+--------+
                4   |      3 |      1 |      3 |      1 |      4 |      1 |     13
  1                 |  23.1  |   7.7  |  23.1  |   7.7  |  30.8  |   7.7  |   43.3
                    |  60.0  |  16.7  |  50.0  | 100.0  |  40.0  |  50.0  |
                    |  10.0  |   3.3  |  10.0  |   3.3  |  13.3  |   3.3  |
                    +--------+--------+--------+--------+--------+--------+
            Column       5        6        6        1       10        2       30
             Total    16.7     20.0     20.0      3.3     33.3      6.7    100.0

        Statistic                 Value           Significance
        ---------                 -----           ------------
Pearson's R                     -.02082               .4565

Number of Missing Observations =        0
```

25 Crosstabulation: VIINTRS By GENDER

```
             Count  |
           Row Pct  |Male    |Female  |
GENDER->   Col Pct  |        |        |  Row
           Tot Pct  |      1 |      2 |  Total
VIINTRS    ---------+--------+--------+
                1   |      2 |        |      2
  4                 | 100.0  |        |    6.7
                    |   9.1  |        |
                    |   6.7  |        |
                    +--------+--------+
                2   |      1 |      1 |      2
  3                 |  50.0  |  50.0  |    6.7
                    |   4.5  |  12.5  |
                    |   3.3  |   3.3  |
                    +--------+--------+
                3   |      9 |      5 |     14
  2                 |  64.3  |  35.7  |   46.7
                    |  40.9  |  62.5  |
                    |  30.0  |  16.7  |
                    +--------+--------+
                4   |     10 |      2 |     12
  1                 |  83.3  |  16.7  |   40.0
                    |  45.5  |  25.0  |
                    |  33.3  |   6.7  |
                    +--------+--------+
            Column      22        8        30
             Total    73.3     26.7     100.0

Chi-Square     D.F.       Significance        Min E.F.      Cells with E.F.< 5
----------     ----       ------------        --------      ------------------
   2.48377        3           .4782              .533       6 OF    8 ( 75.0%)

Number of Missing Observations =        0
```

26 Crosstabulation: VIINTRS By YRTEACIN

```
             Count  |
           Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct  |        |        |        |        |        |        |  Row
           Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 |  Total
VIINTRS    ---------+--------+--------+--------+--------+--------+--------+
```

```
             1 |        |        |     1  |        |     1  |        |     2
    4          |        |        |  50.0  |        |  50.0  |        |   6.7
               |        |        |  16.7  |        |  10.0  |        |
               |        |        |   3.3  |        |   3.3  |        |
               +--------+--------+--------+--------+--------+--------+
             2 |        |        |     2  |        |        |        |     2
    3          |        |        | 100.0  |        |        |        |   6.7
               |        |        |  33.3  |        |        |        |
               |        |        |   6.7  |        |        |        |
               +--------+--------+--------+--------+--------+--------+
             3 |     2  |     4  |     2  |        |     5  |     1  |    14
    2          |  14.3  |  28.6  |  14.3  |        |  35.7  |   7.1  |  46.7
               |  40.0  |  66.7  |  33.3  |        |  50.0  |  50.0  |
               |   6.7  |  13.3  |   6.7  |        |  16.7  |   3.3  |
               +--------+--------+--------+--------+--------+--------+
             4 |     3  |     2  |     1  |     1  |     4  |     1  |    12
    1          |  25.0  |  16.7  |   8.3  |   8.3  |  33.3  |   8.3  |  40.0
               |  60.0  |  33.3  |  16.7  | 100.0  |  40.0  |  50.0  |
               |  10.0  |   6.7  |   3.3  |   3.3  |  13.3  |   3.3  |
               +--------+--------+--------+--------+--------+--------+
        Column      5        6        6        1       10        2        30
         Total   16.7     20.0     20.0      3.3     33.3      6.7     100.0

        Statistic                Value          Significance
        ---------                -----          ------------
Pearson's R                     -.05361             .3892

Number of Missing Observations =        0
```

27 Crosstabulation: VIMOTIV By GENDER

```
             Count  |
           Row Pct  |Male     |Female   |
GENDER->   Col Pct  |         |         |  Row
           Tot Pct  |       1 |       2 | Total
VIMOTIV    ---------+---------+---------+
                 3  |    10   |     6   |   16
  2                 |  62.5   |  37.5   |  53.3
                    |  45.5   |  75.0   |
                    |  33.3   |  20.0   |
                    +---------+---------+
                 4  |    12   |     2   |   14
  1                 |  85.7   |  14.3   |  46.7
                    |  54.5   |  25.0   |
                    |  40.0   |   6.7   |
                    +---------+---------+
            Column       22         8       30
             Total     73.3      26.7    100.0

Chi-Square    D.F.      Significance      Min E.F.     Cells with E.F.< 5
----------    ----      ------------      --------     ------------------
   1.04175       1          .3074           3.733       2 of     4 ( 50.0%)
   2.05763       1          .1514         ( Before Yates Correction )

Number of Missing Observations =        0
```

28 Crosstabulation: VIMOTIV By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
VIMOTIV     ---------+--------+--------+--------+--------+--------+--------+
                  3  |     2  |     5  |     4  |        |     5  |        |    16
  2                  |  12.5  |  31.3  |  25.0  |        |  31.3  |        |  53.3
                     |  40.0  |  83.3  |  66.7  |        |  50.0  |        |
                     |   6.7  |  16.7  |  13.3  |        |  16.7  |        |
                     +--------+--------+--------+--------+--------+--------+
                  4  |     3  |     1  |     2  |     1  |     5  |     2  |    14
  1                  |  21.4  |   7.1  |  14.3  |   7.1  |  35.7  |  14.3  |  46.7
                     |  60.0  |  16.7  |  33.3  | 100.0  |  50.0  | 100.0  |
                     |  10.0  |   3.3  |   6.7  |   3.3  |  16.7  |   6.7  |
                     +--------+--------+--------+--------+--------+--------+
             Column       5        6        6        1       10        2        30
              Total    16.7     20.0     20.0      3.3     33.3      6.7     100.0

         Statistic                Value          Significance
         ---------                -----          ------------
Pearson's R                      .19793              .1472

Number of Missing Observations =        0
```

29 Crosstabulation: VITMSAV By GENDER

```
             Count  |
           Row Pct  |Male     |Female   |
GENDER->   Col Pct  |         |         |  Row
           Tot Pct  |       1 |       2 | Total
VITMSAV    ---------+---------+---------+
                 1  |     2   |         |    2
```

```
4                 | 100.0  |        |   6.7
                  |   9.1  |        |
                  |   6.7  |        |
                  +--------+--------+
                2 |     7  |     1  |     8
3                 |  87.5  |  12.5  |  26.7
                  |  31.8  |  12.5  |
                  |  23.3  |   3.3  |
                  +--------+--------+
                3 |    10  |     3  |    13
2                 |  76.9  |  23.1  |  43.3
                  |  45.5  |  37.5  |
                  |  33.3  |  10.0  |
                  +--------+--------+
                4 |     3  |     4  |     7
1                 |  42.9  |  57.1  |  23.3
                  |  13.6  |  50.0  |
                  |  10.0  |  13.3  |
                  +--------+--------+
           Column     22        8       30
            Total   73.3     26.7    100.0

Chi-Square     D.F.        Significance       Min E.F.      Cells with E.F.< 5
----------     ----        ------------       --------      ------------------
   4.95863       3              .1749            .533       5 OF     8 ( 62.5%)

Number of Missing Observations =        0
```

30 Crosstabulation: VITMSAV By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        |   Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
VITMSAV     ---------+--------+--------+--------+--------+--------+--------+
                  1  |    1   |        |        |        |    1   |        |     2
4                    |  50.0  |        |        |        |  50.0  |        |   6.7
                     |  20.0  |        |        |        |  10.0  |        |
                     |   3.3  |        |        |        |   3.3  |        |
                     +--------+--------+--------+--------+--------+--------+
                  2  |        |    4   |    3   |        |        |    1   |     8
3                    |        |  50.0  |  37.5  |        |        |  12.5  |  26.7
                     |        |  66.7  |  50.0  |        |        |  50.0  |
                     |        |  13.3  |  10.0  |        |        |   3.3  |
                     +--------+--------+--------+--------+--------+--------+
                  3  |    2   |    2   |    2   |    1   |    5   |    1   |    13
2                    |  15.4  |  15.4  |  15.4  |   7.7  |  38.5  |   7.7  |  43.3
                     |  40.0  |  33.3  |  33.3  | 100.0  |  50.0  |  50.0  |
                     |   6.7  |   6.7  |   6.7  |   3.3  |  16.7  |   3.3  |
                     +--------+--------+--------+--------+--------+--------+
                  4  |    2   |        |    1   |        |    4   |        |     7
1                    |  28.6  |        |  14.3  |        |  57.1  |        |  23.3
                     |  40.0  |        |  16.7  |        |  40.0  |        |
                     |   6.7  |        |   3.3  |        |  13.3  |        |
                     +--------+--------+--------+--------+--------+--------+
             Column      5        6        6        1       10        2        30
              Total   16.7     20.0     20.0      3.3     33.3      6.7     100.0

         Statistic                     Value            Significance
         ---------                     -----            ------------
Pearson's R                           .16130                .1972

Number of Missing Observations =        0
```

31 Crosstabulation: VIVALU By GENDER

```
              Count  |
            Row Pct  |Male    |Female  |
GENDER->    Col Pct  |        |        |  Row
            Tot Pct  |      1 |      2 | Total
VIVALU      ---------+--------+--------+
                  1  |     4  |     1  |     5
4                    |  80.0  |  20.0  |  16.7
                     |  18.2  |  12.5  |
                     |  13.3  |   3.3  |
                     +--------+--------+
                  2  |     9  |     4  |    13
3                    |  69.2  |  30.8  |  43.3
                     |  40.9  |  50.0  |
                     |  30.0  |  13.3  |
                     +--------+--------+
                  3  |     9  |     3  |    12
2                    |  75.0  |  25.0  |  40.0
                     |  40.9  |  37.5  |
                     |  30.0  |  10.0  |
                     +--------+--------+
             Column      22        8       30
              Total    73.3     26.7    100.0

Chi-Square     D.F.        Significance       Min E.F.      Cells with E.F.< 5
----------     ----        ------------       --------      ------------------
    .24257       2              .8858           1.333       4 OF     6 ( 66.7%)
```

```
Number of Missing Observations =      0
```

32 Crosstabulation: VIVALU By YRTEACIN

```
             Count |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct |        |        |        |        |        |        | Row
           Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
VIVALU     --------+--------+--------+--------+--------+--------+--------+
                 1 |    1   |        |    1   |    1   |    1   |    1   |     5
  4                |  20.0  |        |  20.0  |  20.0  |  20.0  |  20.0  |  16.7
                   |  20.0  |        |  16.7  | 100.0  |  10.0  |  50.0  |
                   |   3.3  |        |   3.3  |   3.3  |   3.3  |   3.3  |
                   +--------+--------+--------+--------+--------+--------+
                 2 |    3   |    2   |    4   |        |    4   |        |    13
  3                |  23.1  |  15.4  |  30.8  |        |  30.8  |        |  43.3
                   |  60.0  |  33.3  |  66.7  |        |  40.0  |        |
                   |  10.0  |   6.7  |  13.3  |        |  13.3  |        |
                   +--------+--------+--------+--------+--------+--------+
                 3 |    1   |    4   |    1   |        |    5   |    1   |    12
  2                |   8.3  |  33.3  |   8.3  |        |  41.7  |   8.3  |  40.0
                   |  20.0  |  66.7  |  16.7  |        |  50.0  |  50.0  |
                   |   3.3  |  13.3  |   3.3  |        |  16.7  |   3.3  |
                   +--------+--------+--------+--------+--------+--------+
            Column      5        6        6        1       10        2       30
             Total   16.7     20.0     20.0      3.3     33.3      6.7    100.0

        Statistic                Value           Significance
        ---------                -----           ------------
Pearson's R                     .01229               .4743

Number of Missing Observations =      0
```

33 Crosstabulation: VIPOTEN By GENDER

```
             Count |
           Row Pct |Male    |Female  |
GENDER->   Col Pct |        |        | Row
           Tot Pct |      1 |      2 | Total
VIPOTEN    --------+--------+--------+
                 2 |    1   |    1   |    2
  3                |  50.0  |  50.0  |   6.7
                   |   4.5  |  12.5  |
                   |   3.3  |   3.3  |
                   +--------+--------+
                 3 |   11   |    3   |   14
  2                |  78.6  |  21.4  |  46.7
                   |  50.0  |  37.5  |
                   |  36.7  |  10.0  |
                   +--------+--------+
                 4 |   10   |    4   |   14
  1                |  71.4  |  28.6  |  46.7
                   |  45.5  |  50.0  |
                   |  33.3  |  13.3  |
                   +--------+--------+
            Column     22        8       30
             Total   73.3     26.7    100.0

Chi-Square    D.F.      Significance      Min E.F.      Cells with E.F.< 5
----------    ----      ------------      --------      ------------------
   .77922       2          .6773              .533       4 OF     6 ( 66.7%)

Number of Missing Observations =      0
```

34 Crosstabulation: VIPOTEN By YRTEACIN

```
             Count |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct |        |        |        |        |        |        | Row
           Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
VIPOTEN    --------+--------+--------+--------+--------+--------+--------+
                 2 |        |    1   |    1   |        |        |        |     2
  3                |        |  50.0  |  50.0  |        |        |        |   6.7
                   |        |  16.7  |  16.7  |        |        |        |
                   |        |   3.3  |   3.3  |        |        |        |
                   +--------+--------+--------+--------+--------+--------+
                 3 |    5   |    2   |    3   |        |    4   |        |    14
  2                |  35.7  |  14.3  |  21.4  |        |  28.6  |        |  46.7
                   | 100.0  |  33.3  |  50.0  |        |  40.0  |        |
                   |  16.7  |   6.7  |  10.0  |        |  13.3  |        |
                   +--------+--------+--------+--------+--------+--------+
                 4 |        |    3   |    2   |    1   |    6   |    2   |    14
  1                |        |  21.4  |  14.3  |   7.1  |  42.9  |  14.3  |  46.7
                   |        |  50.0  |  33.3  | 100.0  |  60.0  | 100.0  |
                   |        |  10.0  |   6.7  |   3.3  |  20.0  |   6.7  |
                   +--------+--------+--------+--------+--------+--------+
            Column      5        6        6        1       10        2       30
             Total   16.7     20.0     20.0      3.3     33.3      6.7    100.0
```

```
        Statistic                    Value          Significance
        ---------                    -----          ------------
Pearson's R                         .41842              .0107

Number of Missing Observations =       0
```

35 Crosstabulation: COMUSF By GENDER

```
            Count  |
          Row Pct  |Male    |Female  |
GENDER->  Col Pct  |        |        |  Row
          Tot Pct  |      1 |      2 | Total
COMUSF    ---------+--------+--------+
               2   |     3  |        |     3
   3               | 100.0  |        |  10.7
                   |  14.3  |        |
                   |  10.7  |        |
                   +--------+--------+
               3   |     9  |     5  |    14
   2               |  64.3  |  35.7  |  50.0
                   |  42.9  |  71.4  |
                   |  32.1  |  17.9  |
                   +--------+--------+
               4   |     9  |     2  |    11
   1               |  81.8  |  18.2  |  39.3
                   |  42.9  |  28.6  |
                   |  32.1  |   7.1  |
                   +--------+--------+
            Column      21        7       28
             Total    75.0     25.0    100.0

 Chi-Square    D.F.      Significance      Min E.F.      Cells with E.F.< 5
 ----------    ----      ------------      --------      ------------------
   2.12987       2           .3448             .750      4 OF     6 ( 66.7%)

Number of Missing Observations =       2
```

36 Crosstabulation: COMUSF By YRTEACIN

```
            Count  |
          Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct |        |        |        |        |        |        |  Row
          Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
COMUSF    ---------+--------+--------+--------+--------+--------+--------+
               2   |        |     1  |     2  |        |        |        |     3
   3               |        |  33.3  |  66.7  |        |        |        |  10.7
                   |        |. 16.7  |  33.3  |        |        |        |
                   |        |   3.6  |   7.1  |        |        |        |
                   +--------+--------+--------+--------+--------+--------+
               3   |     2  |     5  |     3  |        |     4  |        |    14
   2               |  14.3  |  35.7  |  21.4  |        |  28.6  |        |  50.0
                   |  40.0  |  83.3  |  50.0  |        |  50.0  |        |
                   |   7.1  |  17.9  |  10.7  |        |  14.3  |        |
                   +--------+--------+--------+--------+--------+--------+
               4   |     3  |        |     1  |     1  |     4  |     2  |    11
   1               |  27.3  |        |   9.1  |   9.1  |  36.4  |  18.2  |  39.3
                   |  60.0  |        |  16.7  | 100.0  |  50.0  | 100.0  |
                   |  10.7  |        |   3.6  |   3.6  |  14.3  |   7.1  |
                   +--------+--------+--------+--------+--------+--------+
            Column       5        6        6        1        8        2       28
             Total    17.9     21.4     21.4      3.6     28.6      7.1    100.0

        Statistic                    Value          Significance
        ---------                    -----          ------------
Pearson's R                         .26945              .0828

Number of Missing Observations =       2
```

37 Crosstabulation: COMEASY By GENDER

```
            Count  |
          Row Pct  |Male    |Female  |
GENDER->  Col Pct  |        |        |  Row
          Tot Pct  |      1 |      2 | Total
COMEASY   ---------+--------+--------+
               1   |     4  |     1  |     5
   4               |  80.0  |  20.0  |  17.9
                   |  19.0  |  14.3  |
                   |  14.3  |   3.6  |
                   +--------+--------+
               2   |     9  |     6  |    15
   3               |  60.0  |  40.0  |  53.6
                   |  42.9  |  85.7  |
                   |  32.1  |  21.4  |
                   +--------+--------+
               3   |     6  |        |     6
   2               | 100.0  |        |  21.4
                   |  28.6  |        |
                   |  21.4  |        |
                   +--------+--------+
```

```
                    4  I    2   I        I     2
   1                   I 100.0  I        I    7.1
                       I   9.5  I        I
                       I   7.1  I        I
                       +--------+--------+
               Column      21        7       28
                Total     75.0     25.0    100.0

Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
----------     ----       ------------       --------      ------------------
   4.53333       3            .2093             .500       7 OF     8 ( 87.5%)

Number of Missing Observations =        2
```

38 Crosstabulation: COMEASY By YRTEACIN

```
               Count  I
             Row Pct  I1-5     I6-10    I11-15   I16-20   I21-25   I26-30   I
YRTEACIN->   Col Pct  I        I        I        I        I        I        I  Row
             Tot Pct  I      1 I      2 I      3 I      4 I      5 I      6 I  Total
COMEASY      --------+--------+--------+--------+--------+--------+--------+
                   1  I        I    2   I    2   I        I        I    1   I     5
   4                  I        I  40.0  I  40.0  I        I        I  20.0  I   17.9
                      I        I  33.3  I  33.3  I        I        I  50.0  I
                      I        I   7.1  I   7.1  I        I        I   3.6  I
                      +--------+--------+--------+--------+--------+--------+
                   2  I    3   I    4   I    3   I        I    5   I        I    15
   3                  I  20.0  I  26.7  I  20.0  I        I  33.3  I        I   53.6
                      I  60.0  I  66.7  I  50.0  I        I  62.5  I        I
                      I  10.7  I  14.3  I  10.7  I        I  17.9  I        I
                      +--------+--------+--------+--------+--------+--------+
                   3  I    2   I        I    1   I    1   I    1   I    1   I     6
   2                  I  33.3  I        I  16.7  I  16.7  I  16.7  I  16.7  I   21.4
                      I  40.0  I        I  16.7  I 100.0  I  12.5  I  50.0  I
                      I   7.1  I        I   3.6  I   3.6  I   3.6  I   3.6  I
                      +--------+--------+--------+--------+--------+--------+
                   4  I        I        I        I        I    2   I        I     2
   1                  I        I        I        I        I 100.0  I        I    7.1
                      I        I        I        I        I  25.0  I        I
                      I        I        I        I        I   7.1  I        I
                      +--------+--------+--------+--------+--------+--------+
              Column       5        6        6        1        8        2       28
               Total     17.9     21.4     21.4      3.6     28.6      7.1    100.0

          Statistic                   Value          Significance
          ---------                   -----          ------------
Pearson's R                          .20995              .1418

Number of Missing Observations =        2
```

39 Crosstabulation: COMINTRS By GENDER

```
               Count  I
             Row Pct  IMale    IFemale  I
GENDER->     Col Pct  I        I        I  Row
             Tot Pct  I      1 I      2 I  Total
COMINTRS     --------+--------+--------+
                   1  I    3   I    1   I     4
   4                  I  75.0  I  25.0  I   14.3
                      I  14.3  I  14.3  I
                      I  10.7  I   3.6  I
                      +--------+--------+
                   2  I    3   I    2   I     5
   3                  I  60.0  I  40.0  I   17.9
                      I  14.3  I  28.6  I
                      I  10.7  I   7.1  I
                      +--------+--------+
                   3  I   13   I    4   I    17
   2                  I  76.5  I  23.5  I   60.7
                      I  61.9  I  57.1  I
                      I  46.4  I  14.3  I
                      +--------+--------+
                   4  I    2   I        I     2
   1                  I 100.0  I        I    7.1
                      I   9.5  I        I
                      I   7.1  I        I
                      +--------+--------+
              Column      21        7       28
               Total     75.0     25.0    100.0

Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
----------     ----       ------------       --------      ------------------
   1.28627       3            .7324             .500       7 OF     8 ( 87.5%)

Number of Missing Observations =        2
```

40 Crosstabulation: COMINTRS By YRTEACIN

```
                   Count |
                 Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->       Col Pct |        |        |        |        |        |        |  Row
                 Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
COMINTRS         --------+--------+--------+--------+--------+--------+--------+
                       1 |      1 |      2 |        |        |        |      1 |     4
  4                      |   25.0 |   50.0 |        |        |        |   25.0 |  14.3
                         |   20.0 |   33.3 |        |        |        |   50.0 |
                         |    3.6 |    7.1 |        |        |        |    3.6 |
                         +--------+--------+--------+--------+--------+--------+
                       2 |        |      1 |      2 |        |      1 |      1 |     5
  3                      |        |   20.0 |   40.0 |        |   20.0 |   20.0 |  17.9
                         |        |   16.7 |   33.3 |        |   12.5 |   50.0 |
                         |        |    3.6 |    7.1 |        |    3.6 |    3.6 |
                         +--------+--------+--------+--------+--------+--------+
                       3 |      4 |      2 |      4 |      1 |      6 |        |    17
  2                      |   23.5 |   11.8 |   23.5 |    5.9 |   35.3 |        |  60.7
                         |   80.0 |   33.3 |   66.7 |  100.0 |   75.0 |        |
                         |   14.3 |    7.1 |   14.3 |    3.6 |   21.4 |        |
                         +--------+--------+--------+--------+--------+--------+
                       4 |        |      1 |        |        |      1 |        |     2
  1                      |        |   50.0 |        |        |   50.0 |        |   7.1
                         |        |   16.7 |        |        |   12.5 |        |
                         |        |    3.6 |        |        |    3.6 |        |
                         +--------+--------+--------+--------+--------+--------+
                  Column        5        6        6        1        8        2      28
                   Total     17.9     21.4     21.4      3.6     28.6      7.1   100.0

           Statistic                  Value           Significance
           ---------                  -----           ------------
Pearson's R                          .04668              .4068

Number of Missing Observations =        2
```

41 Crosstabulation: COMMOTIV By GENDER

```
                   Count |
                 Row Pct |Male    |Female  |
GENDER->         Col Pct |        |        |  Row
                 Tot Pct |      1 |      2 | Total
COMMOTIV         --------+--------+--------+
                       2 |      1 |      3 |     4
  3                      |   25.0 |   75.0 |  14.3
                         |    4.8 |   42.9 |
                         |    3.6 |   10.7 |
                         +--------+--------+
                       3 |     14 |      3 |    17
  2                      |   82.4 |   17.6 |  60.7
                         |   66.7 |   42.9 |
                         |   50.0 |   10.7 |
                         +--------+--------+
                       4 |      6 |      1 |     7
  1                      |   85.7 |   14.3 |  25.0
                         |   28.6 |   14.3 |
                         |   21.4 |    3.6 |
                         +--------+--------+
                  Column       21        7      28
                   Total     75.0     25.0   100.0

 Chi-Square     D.F.       Significance       Min E.F.     Cells with E.F.< 5
 ----------     ----       ------------       --------     ------------------
    6.25210       2            .0439             1.000     4 OF     6 ( 66.7%)

Number of Missing Observations =        2
```

42 Crosstabulation: COMMOTIV By YRTEACIN

```
                   Count |
                 Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->       Col Pct |        |        |        |        |        |        |  Row
                 Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
COMMOTIV         --------+--------+--------+--------+--------+--------+--------+
                       2 |        |      1 |      2 |        |      1 |        |     4
  3                      |        |   25.0 |   50.0 |        |   25.0 |        |  14.3
                         |        |   16.7 |   33.3 |        |   12.5 |        |
                         |        |    3.6 |    7.1 |        |    3.6 |        |
                         +--------+--------+--------+--------+--------+--------+
                       3 |      3 |      4 |      4 |        |      4 |      2 |    17
  2                      |   17.6 |   23.5 |   23.5 |        |   23.5 |   11.8 |  60.7
                         |   60.0 |   66.7 |   66.7 |        |   50.0 |  100.0 |
                         |   10.7 |   14.3 |   14.3 |        |   14.3 |    7.1 |
                         +--------+--------+--------+--------+--------+--------+
                       4 |      2 |      1 |        |      1 |      3 |        |     7
  1                      |   28.6 |   14.3 |        |   14.3 |   42.9 |        |  25.0
                         |   40.0 |   16.7 |        |  100.0 |   37.5 |        |
                         |    7.1 |    3.6 |        |    3.6 |   10.7 |        |
                         +--------+--------+--------+--------+--------+--------+
                  Column        5        6        6        1        8        2      28
                   Total     17.9     21.4     21.4      3.6     28.6      7.1   100.0
```

```
            Statistic                    Value           Significance
            ---------                    -----           ------------
Pearson's R                             .00882               .4822

Number of Missing Observations =           2
```

43 Crosstabulation: COMTMSAV By GENDER

```
               Count  |
             Row Pct  |Male      |Female   |
GENDER->     Col Pct  |          |         |  Row
             Tot Pct  |        1 |       2 | Total
COMTMSAV     ---------+----------+---------+
                    1 |        2 |       1 |     3
   4                  |     66.7 |    33.3 |  10.7
                      |      9.5 |    14.3 |
                      |      7.1 |     3.6 |
                      +----------+---------+
                    2 |        9 |       1 |    10
   3                  |     90.0 |    10.0 |  35.7
                      |     42.9 |    14.3 |
                      |     32.1 |     3.6 |
                      +----------+---------+
                    3 |        9 |       3 |    12
   2                  |     75.0 |    25.0 |  42.9
                      |     42.9 |    42.9 |
                      |     32.1 |    10.7 |
                      +----------+---------+
                    4 |        1 |       2 |     3
   1                  |     33.3 |    66.7 |  10.7
                      |      4.8 |    28.6 |
                      |      3.6 |     7.1 |
                      +----------+---------+
               Column         21          7      28
                Total       75.0       25.0   100.0

Chi-Square      D.F.        Significance        Min E.F.     Cells with E.F.< 5
----------      ----        ------------        --------     ------------------
   4.08889        3            .2520               .750       6 OF     8 ( 75.0%)

Number of Missing Observations =           2
```

44 Crosstabulation: COMTMSAV By YRTEACIN

```
               Count  |
             Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->   Col Pct  |        |        |        |        |        |        |  Row
             Tot Pct  |       1| '     2|       3|       4|       5|       6| Total
COMTMSAV     ---------+--------+--------+--------+--------+--------+--------+
                    1 |        |      2 |        |        |      1 |        |     3
   4                  |        |   66.7 |        |        |   33.3 |        |  10.7
                      |        |   33.3 |        |        |   12.5 |        |
                      |        |    7.1 |        |        |    3.6 |        |
                      +--------+--------+--------+--------+--------+--------+
                    2 |      1 |      4 |      3 |        |      2 |        |    10
   3                  |   10.0 |   40.0 |   30.0 |        |   20.0 |        |  35.7
                      |   20.0 |   66.7 |   50.0 |        |   25.0 |        |
                      |    3.6 |   14.3 |   10.7 |        |    7.1 |        |
                      +--------+--------+--------+--------+--------+--------+
                    3 |      4 |        |      2 |      1 |      4 |      1 |    12
   2                  |   33.3 |        |   16.7 |    8.3 |   33.3 |    8.3 |  42.9
                      |   80.0 |        |   33.3 |  100.0 |   50.0 |   50.0 |
                      |   14.3 |        |    7.1 |    3.6 |   14.3 |    3.6 |
                      +--------+--------+--------+--------+--------+--------+
                    4 |        |        |      1 |        |      1 |      1 |     3
   1                  |        |        |   33.3 |        |   33.3 |   33.3 |  10.7
                      |        |        |   16.7 |        |   12.5 |   50.0 |
                      |        |        |    3.6 |        |    3.6 |    3.6 |
                      +--------+--------+--------+--------+--------+--------+
               Column        5        6        6        1        8        2      28
                Total     17.9     21.4     21.4      3.6     28.6      7.1   100.0

            Statistic                    Value           Significance
            ---------                    -----           ------------
Pearson's R                             .27133               .0813

Number of Missing Observations =           2
```

45 Crosstabulation: COMVALU By GENDER

```
               Count  |
             Row Pct  |Male      |Female   |
GENDER->     Col Pct  |          |         |  Row
             Tot Pct  |        1 |       2 | Total
COMVALU      ---------+----------+---------+
                    1 |          |       2 |     2
   4                  |          |   100.0 |   7.1
                      |          |    28.6 |
                      |          |     7.1 |
                      +----------+---------+
```

```
                 2  I    12  I     1  I    13
  3                 I  92.3  I   7.7  I  46.4
                    I  57.1  I  14.3  I
                    I  42.9  I   3.6  I
                    +--------+--------+
                 3  I     7  I     3  I    10
  2                 I  70.0  I  30.0  I  35.7
                    I  33.3  I  42.9  I
                    I  25.0  I  10.7  I
                    +--------+--------+
                 4  I     2  I     1  I     3
  1                 I  66.7  I  33.3  I  10.7
                    I   9.5  I  14.3  I
                    I   7.1  I   3.6  I
                    +--------+--------+
             Column     21         7      28
              Total   75.0      25.0   100.0

Chi-Square     D.F.      Significance      Min E.F.      Cells with E.F.< 5
----------     ----      ------------      --------      ------------------
   8.32137       3           .0398            .500       6 OF     8 ( 75.0%)

Number of Missing Observations =        2
```

46 Crosstabulation: COMVALU By YRTEACIN

```
                 Count  I
               Row Pct  I1-5     I6-10    I11-15   I16-20   I21-25   I26-30   I
YRTEACIN->     Col Pct  I        I        I        I        I        I        I  Row
               Tot Pct  I      1 I      2 I      3 I      4 I      5 I      6 I  Total
COMVALU        ---------+--------+--------+--------+--------+--------+--------+
                     1  I        I        I     1  I        I     1  I        I      2
  4                     I        I        I  50.0  I        I  50.0  I        I    7.1
                        I        I        I  16.7  I        I  12.5  I        I
                        I        I        I   3.6  I        I   3.6  I        I
                        +--------+--------+--------+--------+--------+--------+
                     2  I     2  I     3  I     3  I     1  I     3  I     1  I     13
  3                     I  15.4  I  23.1  I  23.1  I   7.7  I  23.1  I   7.7  I   46.4
                        I  40.0  I  50.0  I  50.0  I 100.0  I  37.5  I  50.0  I
                        I   7.1  I  10.7  I  10.7  I   3.6  I  10.7  I   3.6  I
                        +--------+--------+--------+--------+--------+--------+
                     3  I     3  I     2  I     2  I        I     3  I        I     10
  2                     I  30.0  I  20.0  I  20.0  I        I  30.0  I        I   35.7
                        I  60.0  I  33.3  I  33.3  I        I  37.5  I        I
                        I  10.7  I   7.1  I   7.1  I        I  10.7  I        I
                        +--------+--------+--------+--------+--------+--------+
                     4  I        I     1  I        I        I     1  I     1  I      3
  1                     I        I  33.3  I        I        I  33.3  I  33.3  I   10.7
                        I        I  16.7  I        I        I  12.5  I  50.0  I
                        I        I   3.6  I        I        I   3.6  I   3.6  I
                        +--------+--------+--------+--------+--------+--------+
                 Column        5        6        6        1        8        2       28
                  Total     17.9     21.4     21.4      3.6     28.6      7.1    100.0

           Statistic                   Value           Significance
           ---------                   -----           ------------
Pearson's R                           .01398               .4719

Number of Missing Observations =        2
```

47 Crosstabulation: COMPOTEN By GENDER

```
                 Count  I
               Row Pct  IMale    IFemale  I
GENDER->       Col Pct  I        I        I  Row
               Tot Pct  I      1 I      2 I  Total
COMPOTEN       ---------+--------+--------+
                     2  I     4  I        I     4
  3                     I 100.0  I        I  14.3
                        I  19.0  I        I
                        I  14.3  I        I
                        +--------+--------+
                     3  I    13  I     3  I    16
  2                     I  81.3  I  18.8  I  57.1
                        I  61.9  I  42.9  I
                        I  46.4  I  10.7  I
                        +--------+--------+
                     4  I     4  I     4  I     8
  1                     I  50.0  I  50.0  I  28.6
                        I  19.0  I  57.1  I
                        I  14.3  I  14.3  I
                        +--------+--------+
                 Column      21        7      28
                  Total    75.0     25.0   100.0

Chi-Square     D.F.      Significance      Min E.F.      Cells with E.F.< 5
----------     ----      ------------      --------      ------------------
   4.33333       2           .1146           1.000       4 OF     6 ( 66.7%)

Number of Missing Observations =        2
```

48 Crosstabulation: COMPOTEN By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        | Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
COMPOTEN     --------+--------+--------+--------+--------+--------+--------+
                  2  |   1    |        |   2    |        |   1    |        |    4
  3                  | 25.0   |        | 50.0   |        | 25.0   |        |  14.3
                     | 20.0   |        | 33.3   |        | 12.5   |        |
                     |  3.6   |        |  7.1   |        |  3.6   |        |
                     +--------+--------+--------+--------+--------+--------+
                  3  |   3    |   4    |   4    |   1    |   2    |   2    |   16
  2                  | 18.8   | 25.0   | 25.0   |  6.3   | 12.5   | 12.5   |  57.1
                     | 60.0   | 66.7   | 66.7   | 100.0  | 25.0   | 100.0  |
                     | 10.7   | 14.3   | 14.3   |  3.6   |  7.1   |  7.1   |
                     +--------+--------+--------+--------+--------+--------+
                  4  |   1    |   2    |        |        |   5    |        |    8
  1                  | 12.5   | 25.0   |        |        | 62.5   |        |  28.6
                     | 20.0   | 33.3   |        |        | 62.5   |        |
                     |  3.6   |  7.1   |        |        | 17.9   |        |
                     +--------+--------+--------+--------+--------+--------+
             Column       5        6        6        1        8        2       28
              Total    17.9     21.4     21.4      3.6     28.6      7.1    100.0

          Statistic             Value          Significance
          ---------             -----          ------------
Pearson's R                    .17050              .1929

Number of Missing Observations =       2
```

49 Crosstabulation: IVUSF By GENDER

```
              Count  |
            Row Pct  |Male    |Female  |
GENDER->    Col Pct  |        |        | Row
            Tot Pct  |      1 |      2 | Total
IVUSF        --------+--------+--------+
                  1  |    1   |        |   1
  4                  | 100.0  |        |  4.2
                     |   5.6  |        |
                     |   4.2  |        |
                     +--------+--------+
                  2  |    1   |        |   1
  3                  | 100.0  |        |  4.2
                     |   5.6  |        |
                     |   4.2  |        |
                     +--------+--------+
                  3  |    6   |    2   |   8
  2                  |  75.0  |  25.0  |  33.3
                     |  33.3  |  33.3  |
                     |  25.0  |   8.3  |
                     +--------+--------+
                  4  |   10   |    4   |   14
  1                  |  71.4  |  28.6  |  58.3
                     |  55.6  |  66.7  |
                     |  41.7  |  16.7  |
                     +--------+--------+
             Column      18        6      24
              Total    75.0     25.0   100.0

Chi-Square     D.F.       Significance        Min E.F.      Cells with E.F.< 5
----------     ----       ------------        --------      ------------------
   .76190        3           .8586                .250      6 OF     8 ( 75.0%)

Number of Missing Observations =       6
```

50 Crosstabulation: IVUSF By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        | Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
IVUSF        --------+--------+--------+--------+--------+--------+--------+
                  1  |        |        |        |        |    1   |        |    1
  4                  |        |        |        |        | 100.0  |        |  4.2
                     |        |        |        |        |  14.3  |        |
                     |        |        |        |        |   4.2  |        |
                     +--------+--------+--------+--------+--------+--------+
                  2  |        |        |    1   |        |        |        |    1
  3                  |        |        | 100.0  |        |        |        |  4.2
                     |        |        |  20.0  |        |        |        |
                     |        |        |   4.2  |        |        |        |
                     +--------+--------+--------+--------+--------+--------+
                  3  |   2    |   2    |   3    |        |        |   1    |    8
  2                  | 25.0   | 25.0   | 37.5   |        |        | 12.5   |  33.3
                     | 40.0   | 50.0   | 60.0   |        |        | 50.0   |
                     |  8.3   |  8.3   | 12.5   |        |        |  4.2   |
                     +--------+--------+--------+--------+--------+--------+
                  4  |   3    |   2    |   1    |   1    |   6    |   1    |   14
  1                  | 21.4   | 14.3   |  7.1   |  7.1   | 42.9   |  7.1   |  58.3
```

```
                 |  60.0  |  50.0  |  20.0  | 100.0  |  85.7  |  50.0  |
                 |  12.5  |   8.3  |   4.2  |   4.2  |  25.0  |   4.2  |
                 +--------+--------+--------+--------+--------+--------+
          Column      5        4        5        1        7        2       24
           Total    20.8     16.7     20.8      4.2     29.2      8.3    100.0

        Statistic              Value          Significance
        ---------              -----          ------------
Pearson's R                   .02552              .4529

Number of Missing Observations =      6
```

51 Crosstabulation: IVEASY By GENDER

```
             Count  |
            Row Pct |Male     |Female  |
GENDER->    Col Pct |         |        | Row
            Tot Pct |       1 |      2 | Total
IVEASY      --------+--------+--------+
                  1 |     6  |     1  |     7
  4                 |  85.7  |  14.3  |  29.2
                    |  33.3  |  16.7  |
                    |  25.0  |   4.2  |
                    +--------+--------+
                  2 |     5  |     3  |     8
  3                 |  62.5  |  37.5  |  33.3
                    |  27.8  |  50.0  |
                    |  20.8  |  12.5  |
                    +--------+--------+
                  3 |     6  |     1  |     7
  2                 |  85.7  |  14.3  |  29.2
                    |  33.3  |  16.7  |
                    |  25.0  |   4.2  |
                    +--------+--------+
                  4 |     1  |     1  |     2
  1                 |  50.0  |  50.0  |   8.3
                    |   5.6  |  16.7  |
                    |   4.2  |   4.2  |
                    +--------+--------+
             Column     18        6      24
              Total   75.0     25.0   100.0

Chi-Square    D.F.      Significance        Min E.F.     Cells with E.F.< 5
----------    ----      ------------        --------     ------------------
   2.19048       3          .5338              .500       5 OF     8 ( 62.5%)

Number of Missing Observations =      6
```

52 Crosstabulation: IVEASY By YRTEACIN

```
             Count  |
            Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct |        |        |        |        |        |        | Row
            Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
IVEASY      --------+--------+--------+--------+--------+--------+--------+
                  1 |     1  |     2  |        |        |     3  |     1  |     7
  4                 |  14.3  |  28.6  |        |        |  42.9  |  14.3  |  29.2
                    |  20.0  |  50.0  |        |        |  42.9  |  50.0  |
                    |   4.2  |   8.3  |        |        |  12.5  |   4.2  |
                    +--------+--------+--------+--------+--------+--------+
                  2 |     2  |     1  |     3  |        |     2  |        |     8
  3                 |  25.0  |  12.5  |  37.5  |        |  25.0  |        |  33.3
                    |  40.0  |  25.0  |  60.0  |        |  28.6  |        |
                    |   8.3  |   4.2  |  12.5  |        |   8.3  |        |
                    +--------+--------+--------+--------+--------+--------+
                  3 |     2  |     1  |     2  |     1  |        |     1  |     7
  2                 |  28.6  |  14.3  |  28.6  |  14.3  |        |  14.3  |  29.2
                    |  40.0  |  25.0  |  40.0  | 100.0  |        |  50.0  |
                    |   8.3  |   4.2  |   8.3  |   4.2  |        |   4.2  |
                    +--------+--------+--------+--------+--------+--------+
                  4 |        |        |        |        |     2  |        |     2
  1                 |        |        |        |        | 100.0  |        |   8.3
                    |        |        |        |        |  28.6  |        |
                    |        |        |        |        |   8.3  |        |
                    +--------+--------+--------+--------+--------+--------+
             Column      5        4        5        1        7        2       24
              Total    20.8     16.7     20.8      4.2     29.2      8.3    100.0

        Statistic              Value          Significance
        ---------              -----          ------------
Pearson's R                   .02173              .4599

Number of Missing Observations =      6
```

53 Crosstabulation: IVINTRS By GENDER

```
             Count  |
            Row Pct |Male     |Female  |
GENDER->    Col Pct |         |        | Row
            Tot Pct |       1 |      2 | Total
```

```
IVINTRS          --------+--------+--------+
                1 |     1  |        |       1
  4               | 100.0  |        |     4.2
                  |   5.6  |        |
                  |   4.2  |        |
                  +--------+--------+
                2 |     2  |        |       2
  3               | 100.0  |        |     8.3
                  |  11.1  |        |
                  |   8.3  |        |
                  +--------+--------+
                3 |     8  |     2  |      10
  2               |  80.0  |  20.0  |    41.7
                  |  44.4  |  33.3  |
                  |  33.3  |   8.3  |
                  +--------+--------+
                4 |     7  |     4  |      11
  1               |  63.6  |  36.4  |    45.8
                  |  38.9  |  66.7  |
                  |  29.2  |  16.7  |
                  +--------+--------+
           Column     18        6         24
            Total   75.0     25.0      100.0

 Chi-Square      D.F.        Significance       Min E.F.       Cells with E.F.< 5
 ----------      ----        ------------       --------       ------------------
   1.89091         3            .5954              .250         6 OF      8 ( 75.0%)

Number of Missing Observations =        6
```

54 Crosstabulation: IVINTRS By YRTEACIN

```
             Count  |
           Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct  |        |        |        |        |        |        |  Row
           Tot Pct  |     1  |     2  |     3  |     4  |     5  |     6  | Total
IVINTRS    ---------+--------+--------+--------+--------+--------+--------+
                1   |     1  |        |        |        |        |        |     1
  4                 | 100.0  |        |        |        |        |        |   4.2
                    |  20.0  |        |        |        |        |        |
                    |   4.2  |        |        |        |        |        |
                    +--------+--------+--------+--------+--------+--------+
                2   |        |        |     1  |        |     1  |        |     2
  3                 |        |        |  50.0  |        |  50.0  |        |   8.3
                    |        |        |  20.0  |        |  14.3  |        |
                    |        |        |   4.2  |        |   4.2  |        |
                    +--------+--------+--------+--------+--------+--------+
                3   |     2  |     2  |     3  |        |     1  |     2  |    10
  2                 |  20.0  |  20.0  |  30.0  |        |  10.0  |  20.0  |  41.7
                    |  40.0  |  50.0  |  60.0  |        |  14.3  | 100.0  |
                    |   8.3  |   8.3  |  12.5  |        |   4.2  |   8.3  |
                    +--------+--------+--------+--------+--------+--------+
                4   |     2  |     2  |     1  |     1  |     5  |        |    11
  1                 |  18.2  |  18.2  |   9.1  |   9.1  |  45.5  |        |  45.8
                    |  40.0  |  50.0  |  20.0  | 100.0  |  71.4  |        |
                    |   8.3  |   8.3  |   4.2  |   4.2  |  20.8  |        |
                    +--------+--------+--------+--------+--------+--------+
            Column       5        4        5        1        7        2       24
             Total    20.8     16.7     20.8      4.2     29.2      8.3    100.0

        Statistic                   Value             Significance
        ---------                   -----             ------------
Pearson's R                        .15438                .2357

Number of Missing Observations =        6
```

55 Crosstabulation: IVMOTIV By GENDER

```
            Count  |
          Row Pct  |Male    |Female  |
GENDER->  Col Pct  |        |        |  Row
          Tot Pct  |     1  |     2  | Total
IVMOTIV   ---------+--------+--------+
               3   |     6  |     2  |     8
  2                |  75.0  |  25.0  |  33.3
                   |  33.3  |  33.3  |
                   |  25.0  |   8.3  |
                   +--------+--------+
               4   |    12  |     4  |    16
  1                |  75.0  |  25.0  |  66.7
                   |  66.7  |  66.7  |
                   |  50.0  |  16.7  |
                   +--------+--------+
           Column      18        6        24
            Total    75.0     25.0     100.0

Chi-Square      D.F.        Significance       Min E.F.       Cells with E.F.< 5
----------      ----        ------------       --------       ------------------
   .00000         1            1.0000            2.000         2 of      4 ( 50.0%)
   .00000         1            1.0000           ( Before Yates Correction )
```

```
Number of Missing Observations =      6
```

56 Crosstabulation: IVMOTIV By YRTEACIN

```
               Count |
             Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->   Col Pct |        |        |        |        |        |        | Row
             Tot Pct |       1|       2|       3|       4|       5|       6| Total
IVMOTIV      --------+--------+--------+--------+--------+--------+--------+
                 3   |     1  |     2  |     3  |        |     2  |        |     8
   2                 |  12.5  |  25.0  |  37.5  |        |  25.0  |        |  33.3
                     |  20.0  |  50.0  |  60.0  |        |  28.6  |        |
                     |   4.2  |   8.3  |  12.5  |        |   8.3  |        |
                     +--------+--------+--------+--------+--------+--------+
                 4   |     4  |     2  |     2  |     1  |     5  |     2  |    16
   1                 |  25.0  |  12.5  |  12.5  |   6.3  |  31.3  |  12.5  |  66.7
                     |  80.0  |  50.0  |  40.0  | 100.0  |  71.4  | 100.0  |
                     |  16.7  |   8.3  |   8.3  |   4.2  |  20.8  |   8.3  |
                     +--------+--------+--------+--------+--------+--------+
              Column       5        4        5        1        7        2      24
               Total    20.8     16.7     20.8      4.2     29.2      8.3   100.0

        Statistic                Value          Significance
        ---------                -----          ------------
Pearson's R                      .12167             .2856

Number of Missing Observations =      6
```

57 Crosstabulation: IVTMSAV By GENDER

```
               Count |
             Row Pct |Male    |Female  |
GENDER->     Col Pct |        |        | Row
             Tot Pct |       1|       2| Total
IVTMSAV      --------+--------+--------+
                 1   |     1  |        |     1
   4                 | 100.0  |        |   4.2
                     |   5.6  |        |
                     |   4.2  |        |
                     +--------+--------+
                 2   |    12  |        |    12
   3                 | 100.0  |        |  50.0
                     |  66.7  |        |
                     |  50.0  |        |
                     +--------+--------+
                 3   |     3  |     3  |     6
   2                 |  50.0  |  50.0  |  25.0
                     |  16.7  |  50.0  |
                     |  12.5  |  12.5  |
                     +--------+--------+
                 4   |     2  |     3  |     5
   1                 |  40.0  |  60.0  |  20.8
                     |  11.1  |  50.0  |
                     |   8.3  |  12.5  |
                     +--------+--------+
              Column      18        6      24
               Total    75.0     25.0   100.0

Chi-Square     D.F.      Significance       Min E.F.       Cells with E.F.< 5
----------     ----      ------------       --------       ------------------
   9.60000       3           .0223              .250       7 OF     8 ( 87.5%)

Number of Missing Observations =      6
```

58 Crosstabulation: IVTMSAV By YRTEACIN

```
               Count |
             Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->   Col Pct |        |        |        |        |        |        | Row
             Tot Pct |       1|       2|       3|       4|       5|       6| Total
IVTMSAV      --------+--------+--------+--------+--------+--------+--------+
                 1   |        |        |        |        |     1  |        |     1
   4                 |        |        |        |        | 100.0  |        |   4.2
                     |        |        |        |        |  14.3  |        |
                     |        |        |        |        |   4.2  |        |
                     +--------+--------+--------+--------+--------+--------+
                 2   |     2  |     3  |     3  |     1  |     3  |        |    12
   3                 |  16.7  |  25.0  |  25.0  |   8.3  |  25.0  |        |  50.0
                     |  40.0  |  75.0  |  60.0  | 100.0  |  42.9  |        |
                     |   8.3  |  12.5  |  12.5  |   4.2  |  12.5  |        |
                     +--------+--------+--------+--------+--------+--------+
                 3   |        |     1  |     1  |        |     2  |     2  |     6
   2                 |        |  16.7  |  16.7  |        |  33.3  |  33.3  |  25.0
                     |        |  25.0  |  20.0  |        |  28.6  | 100.0  |
                     |        |   4.2  |   4.2  |        |   8.3  |   8.3  |
                     +--------+--------+--------+--------+--------+--------+
                 4   |     3  |        |     1  |        |     1  |        |     5
   1                 |  60.0  |        |  20.0  |        |  20.0  |        |  20.8
                     |  60.0  |        |  20.0  |        |  14.3  |        |
                     |  12.5  |        |   4.2  |        |   4.2  |        |
```

```
               +--------+--------+--------+--------+--------+--------+
        Column       5        4        5        1        7        2       24
         Total    20.8     16.7     20.8      4.2     29.2      8.3    100.0

        Statistic                Value           Significance
        ---------                -----           ------------
Pearson's R                    -.15418               .2360

Number of Missing Observations =       6
```

59 Crosstabulation: IVVALU By GENDER

```
             Count  |
           Row Pct  |Male    |Female  |
GENDER->   Col Pct  |        |        | Row
           Tot Pct  |      1 |      2 | Total
IVVALU     --------+--------+--------+
                1   |     1  |     1  |     2
 4                  |  50.0  |  50.0  |   8.3
                    |   5.6  |  16.7  |
                    |   4.2  |   4.2  |
                    +--------+--------+
                2   |     6  |     1  |     7
 3                  |  85.7  |  14.3  |  29.2
                    |  33.3  |  16.7  |
                    |  25.0  |   4.2  |
                    +--------+--------+
                3   |    11  |     2  |    13
 2                  |  84.6  |  15.4  |  54.2
                    |  61.1  |  33.3  |
                    |  45.8  |   8.3  |
                    +--------+--------+
                4   |        |     2  |     2
 1                  |        | 100.0  |   8.3
                    |        |  33.3  |
                    |        |   8.3  |
                    +--------+--------+
            Column      18        6       24
             Total    75.0     25.0    100.0

 Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----       ------------       --------      ------------------
    7.73626       3            .0518              .500      6 OF     8 ( 75.0%)

Number of Missing Observations =       6
```

60 Crosstabulation: IVVALU By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        | Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
IVVALU      --------+--------+--------+--------+--------+--------+--------+
                1    |        |        |        |     1  |     1  |        |     2
 4                   |        |        |        |  50.0  |  50.0  |        |   8.3
                     |        |        |        | 100.0  |  14.3  |        |
                     |        |        |        |   4.2  |   4.2  |        |
                     +--------+--------+--------+--------+--------+--------+
                2    |     2  |     1  |     2  |        |     2  |        |     7
 3                   |  28.6  |  14.3  |  28.6  |        |  28.6  |        |  29.2
                     |  40.0  |  25.0  |  40.0  |        |  28.6  |        |
                     |   8.3  |   4.2  |   8.3  |        |   8.3  |        |
                     +--------+--------+--------+--------+--------+--------+
                3    |     3  |     3  |     2  |        |     3  |     2  |    13
 2                   |  23.1  |  23.1  |  15.4  |        |  23.1  |  15.4  |  54.2
                     |  60.0  |  75.0  |  40.0  |        |  42.9  | 100.0  |
                     |  12.5  |  12.5  |   8.3  |        |  12.5  |   8.3  |
                     +--------+--------+--------+--------+--------+--------+
                4    |        |        |     1  |        |     1  |        |     2
 1                   |        |        |  50.0  |        |  50.0  |        |   8.3
                     |        |        |  20.0  |        |  14.3  |        |
                     |        |        |   4.2  |        |   4.2  |        |
                     +--------+--------+--------+--------+--------+--------+
            Column        5        4        5        1        7        2       24
             Total     20.8     16.7     20.8      4.2     29.2      8.3    100.0

        Statistic                Value           Significance
        ---------                -----           ------------
Pearson's R                    -.01223               .4774

Number of Missing Observations =       6
```

61 Crosstabulation: IVPOTEN By GENDER

```
             Count  |
           Row Pct  |Male    |Female  |
GENDER->   Col Pct  |        |        | Row
           Tot Pct  |      1 |      2 | Total
IVPOTEN    --------+--------+--------+
                2   |     3  |        |     3
```

```
 3                  | 100.0  |        |  12.5
                    |  16.7  |        |
                    |  12.5  |        |
                    +--------+--------+
                 3  |     7  |     2  |     9
 2                  |  77.8  |  22.2  |  37.5
                    |  38.9  |  33.3  |
                    |  29.2  |   8.3  |
                    +--------+--------+
                 4  |     8  |     4  |    12
 1                  |  66.7  |  33.3  |  50.0
                    |  44.4  |  66.7  |
                    |  33.3  |  16.7  |
                    +--------+--------+
             Column      18        6      24
              Total    75.0     25.0   100.0

Chi-Square     D.F.      Significance      Min E.F.     Cells with E.F.< 5
----------     ----      ------------      --------     ------------------
   1.48148       2           .4768             .750      4 OF     6 ( 66.7%)

Number of Missing Observations =        6
```

62 Crosstabulation: IVPOTEN By YRTEACIN

```
            Count  |
          Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN-> Col Pct |         |         |         |         |         |         | Row
          Tot Pct  |       1 |       2 |       3 |       4 |       5 |       6 | Total
IVPOTEN   ---------+---------+---------+---------+---------+---------+---------+
                2  |     2   |         |         |         |     1   |         |     3
  3                |  66.7   |         |         |         |  33.3   |         |  12.5
                   |  40.0   |         |         |         |  14.3   |         |
                   |   8.3   |         |         |         |   4.2   |         |
                   +---------+---------+---------+---------+---------+---------+
                3  |     1   |     2   |     3   |     1   |     1   |     1   |     9
  2                |  11.1   |  22.2   |  33.3   |  11.1   |  11.1   |  11.1   |  37.5
                   |  20.0   |  50.0   |  60.0   | 100.0   |  14.3   |  50.0   |
                   |   4.2   |   8.3   |  12.5   |   4.2   |   4.2   |   4.2   |
                   +---------+---------+---------+---------+---------+---------+
                4  |     2   |     2   |     2   |         |     5   |     1   |    12
  1                |  16.7   |  16.7   |  16.7   |         |  41.7   |   8.3   |  50.0
                   |  40.0   |  50.0   |  40.0   |         |  71.4   |  50.0   |
                   |   8.3   |   8.3   |   8.3   |         |  20.8   |   4.2   |
                   +---------+---------+---------+---------+---------+---------+
            Column       5         4         5         1         7         2       24
             Total    20.8      16.7      20.8       4.2      29.2       8.3    100.0

           Statistic                     Value           Significance
           ---------                     -----           ------------
Pearson's R                             .22516               .1451

Number of Missing Observations =        6
```

63 Crosstabulation: CDUSF By GENDER

```
            Count  |
          Row Pct  |Male    |Female  |
GENDER->  Col Pct  |        |        | Row
          Tot Pct  |      1 |      2 | Total
CDUSF     ---------+--------+--------+
                1  |     2  |        |     2
  4                | 100.0  |        |  11.1
                   |  12.5  |        |
                   |  11.1  |        |
                   +--------+--------+
                2  |     1  |     1  |     2
  3                |  50.0  |  50.0  |  11.1
                   |   6.3  |  50.0  |
                   |   5.6  |   5.6  |
                   +--------+--------+
                3  |     8  |     1  |     9
  2                |  88.9  |  11.1  |  50.0
                   |  50.0  |  50.0  |
                   |  44.4  |   5.6  |
                   +--------+--------+
                4  |     5  |        |     5
  1                | 100.0  |        |  27.8
                   |  31.3  |        |
                   |  27.8  |        |
                   +--------+--------+
            Column      16        2      18
             Total    88.9     11.1   100.0

Chi-Square     D.F.      Significance      Min E.F.     Cells with E.F.< 5
----------     ----      ------------      --------     ------------------
   3.93750       3           .2683             .222      7 OF     8 ( 87.5%)

Number of Missing Observations =       12
```

64 Crosstabulation: CDUSF By YRTEACIN

```
             Count |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct |        |        |        |        |        |        |   Row
           Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
CDUSF      --------+--------+--------+--------+--------+--------+--------+
                 1 |        |        |        |        |      2 |        |      2
  4                |        |        |        |        |  100.0 |        |   11.1
                   |        |        |        |        |   40.0 |        |
                   |        |        |        |        |   11.1 |        |
                   +--------+--------+--------+--------+--------+--------+
                 2 |        |      1 |      1 |        |        |        |      2
  3                |        |   50.0 |   50.0 |        |        |        |   11.1
                   |        |   25.0 |   25.0 |        |        |        |
                   |        |    5.6 |    5.6 |        |        |        |
                   +--------+--------+--------+--------+--------+--------+
                 3 |      1 |      2 |      3 |        |      2 |      1 |      9
  2                |   11.1 |   22.2 |   33.3 |        |   22.2 |   11.1 |   50.0
                   |   50.0 |   50.0 |   75.0 |        |   40.0 |   50.0 |
                   |    5.6 |   11.1 |   16.7 |        |   11.1 |    5.6 |
                   +--------+--------+--------+--------+--------+--------+
                 4 |      1 |      1 |        |      1 |      1 |      1 |      5
  1                |   20.0 |   20.0 |        |   20.0 |   20.0 |   20.0 |   27.8
                   |   50.0 |   25.0 |        |  100.0 |   20.0 |   50.0 |
                   |    5.6 |    5.6 |        |    5.6 |    5.6 |    5.6 |
                   +--------+--------+--------+--------+--------+--------+
             Column       2        4        4        1        5        2       18
              Total    11.1     22.2     22.2      5.6     27.8     11.1    100.0

          Statistic                 Value          Significance
          ---------                 -----          ------------
Pearson's R                       -.13277             .2997

Number of Missing Observations =      12
```

65 Crosstabulation: CDEASY By GENDER

```
             Count |
           Row Pct |Male    |Female  |
GENDER->   Col Pct |        |        |   Row
           Tot Pct |      1 |      2 | Total
CDEASY     --------+--------+--------+
                 1 |      3 |        |      3
  4                |  100.0 |        |   17.6
                   |   20.0 |        |
                   |   17.6 |        |
                   +--------+--------+
                 2 |      5 |      2 |      7
  3                |   71.4 |   28.6 |   41.2
                   |   33.3 |  100.0 |
                   |   29.4 |   11.8 |
                   +--------+--------+
                 3 |      6 |        |      6
  2                |  100.0 |        |   35.3
                   |   40.0 |        |
                   |   35.3 |        |
                   +--------+--------+
                 4 |      1 |        |      1
  1                |  100.0 |        |    5.9
                   |    6.7 |        |
                   |    5.9 |        |
                   +--------+--------+
             Column      15        2       17
              Total    88.2     11.8    100.0

Chi-Square      D.F.        Significance        Min E.F.      Cells with E.F.< 5
----------      ----        ------------        --------      ------------------
   3.23810         3           .3564              .118        6 OF     8 ( 75.0%)

Number of Missing Observations =       13
```

66 Crosstabulation: CDEASY By YRTEACIN

```
             Count |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct |        |        |        |        |        |        |   Row
           Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
CDEASY     --------+--------+--------+--------+--------+--------+--------+
                 1 |        |      1 |        |        |      2 |        |      3
  4                |        |   33.3 |        |        |   66.7 |        |   17.6
                   |        |   25.0 |        |        |   40.0 |        |
                   |        |    5.9 |        |        |   11.8 |        |
                   +--------+--------+--------+--------+--------+--------+
                 2 |        |      2 |      4 |        |      1 |        |      7
  3                |        |   28.6 |   57.1 |        |   14.3 |        |   41.2
                   |        |   50.0 |  100.0 |        |   20.0 |        |
                   |        |   11.8 |   23.5 |        |    5.9 |        |
                   +--------+--------+--------+--------+--------+--------+
                 3 |      1 |      1 |        |      1 |      1 |      2 |      6
  2                |   16.7 |   16.7 |        |   16.7 |   16.7 |   33.3 |   35.3
```

```
                | 100.0  |  25.0  |        | 100.0  |  20.0  | 100.0  |
                |   5.9  |   5.9  |        |   5.9  |   5.9  |  11.8  |
                +--------+--------+--------+--------+--------+--------+
              4 |        |        |        |        |      1 |        |      1
 1              |        |        |        |        | 100.0  |        |    5.9
                |        |        |        |        |  20.0  |        |
                |        |        |        |        |   5.9  |        |
                +--------+--------+--------+--------+--------+--------+
         Column        1        4        4        1        5        2       17
          Total      5.9     23.5     23.5      5.9     29.4     11.8    100.0

        Statistic                 Value          Significance
        ---------                 -----          ------------
Pearson's R                      .17556              .2502

Number of Missing Observations =      13
```

67 Crosstabulation: CDINTRS By GENDER

```
             Count  |
            Row Pct |Male    |Female  |
GENDER->    Col Pct |        |        | Row
            Tot Pct |      1 |      2 | Total
CDINTRS     --------+--------+--------+
                  1 |      1 |        |      1
 4                  | 100.0  |        |    5.9
                    |   6.7  |        |
                    |   5.9  |        |
                    +--------+--------+
                  2 |      2 |      1 |      3
 3                  |  66.7  |  33.3  |   17.6
                    |  13.3  |  50.0  |
                    |  11.8  |   5.9  |
                    +--------+--------+
                  3 |      9 |      1 |     10
 2                  |  90.0  |  10.0  |   58.8
                    |  60.0  |  50.0  |
                    |  52.9  |   5.9  |
                    +--------+--------+
                  4 |      3 |        |      3
 1                  | 100.0  |        |   17.6
                    |  20.0  |        |
                    |  17.6  |        |
                    +--------+--------+
             Column       15        2       17
              Total     88.2     11.8    100.0

Chi-Square      D.F.       Significance       Min E.F.      Cells with E.F.< 5
----------      ----       ------------       --------      ------------------
   1.90778         3           .5918             .118        7 OF     8 ( 87.5%)

Number of Missing Observations =      13
```

68 Crosstabulation: CDINTRS By YRTEACIN

```
             Count  |
            Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct |        |        |        |        |        |        | Row
            Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
CDINTRS     --------+--------+--------+--------+--------+--------+--------+
                  1 |        |        |        |        |      1 |        |      1
 4                  |        |        |        |        | 100.0  |        |    5.9
                    |        |        |        |        |  20.0  |        |
                    |        |        |        |        |   5.9  |        |
                    +--------+--------+--------+--------+--------+--------+
                  2 |        |      1 |        |        |      1 |      1 |      3
 3                  |        |  33.3  |        |        |  33.3  |  33.3  |   17.6
                    |        |  25.0  |        |        |  20.0  |  50.0  |
                    |        |   5.9  |        |        |   5.9  |   5.9  |
                    +--------+--------+--------+--------+--------+--------+
                  3 |      1 |      2 |      4 |        |      2 |      1 |     10
 2                  |  10.0  |  20.0  |  40.0  |        |  20.0  |  10.0  |   58.8
                    | 100.0  |  50.0  | 100.0  |        |  40.0  |  50.0  |
                    |   5.9  |  11.8  |  23.5  |        |  11.8  |   5.9  |
                    +--------+--------+--------+--------+--------+--------+
                  4 |        |      1 |        |      1 |      1 |        |      3
 1                  |        |  33.3  |        |  33.3  |  33.3  |        |   17.6
                    |        |  25.0  |        | 100.0  |  20.0  |        |
                    |        |   5.9  |        |   5.9  |   5.9  |        |
                    +--------+--------+--------+--------+--------+--------+
             Column        1        4        4        1        5        2       17
              Total      5.9     23.5     23.5      5.9     29.4     11.8    100.0

        Statistic                 Value          Significance
        ---------                 -----          ------------
Pearson's R                     -.23846              .1783

Number of Missing Observations =      13
```

69 Crosstabulation: CDMOTIV By GENDER

```
              Count  |
              Row Pct |Male     |Female  |
GENDER->      Col Pct |         |        |  Row
              Tot Pct |       1 |      2 | Total
CDMOTIV       --------+---------+--------+
                   2  |     2   |     1  |     3
  3                   |  66.7   |  33.3  |  17.6
                      |  13.3   |  50.0  |
                      |  11.8   |   5.9  |
                      +---------+--------+
                   3  |     7   |     1  |     8
  2                   |  87.5   |  12.5  |  47.1
                      |  46.7   |  50.0  |
                      |  41.2   |   5.9  |
                      +---------+--------+
                   4  |     6   |        |     6
  1                   | 100.0   |        |  35.3
                      |  40.0   |        |
                      |  35.3   |        |
                      +---------+--------+
              Column       15        2       17
               Total     88.2     11.8    100.0

 Chi-Square     D.F.         Significance        Min E.F.       Cells with E.F.< 5
 ----------     ----         ------------        --------       ------------------
    2.14861       2             .3415               .353        4 OF     6 ( 66.7%)

Number of Missing Observations =        13
```

70 Crosstabulation: CDMOTIV By YRTEACIN

```
              Count  |
              Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->    Col Pct |        |        |        |        |        |        |  Row
              Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
CDMOTIV       --------+--------+--------+--------+--------+--------+--------+
                   2  |        |        |     2  |        |     1  |        |     3
  3                   |        |        |  66.7  |        |  33.3  |        |  17.6
                      |        |        |  50.0  |        |  20.0  |        |
                      |        |        |  11.8  |        |   5.9  |        |
                      +--------+--------+--------+--------+--------+--------+
                   3  |        |     3  |     2  |        |     2  |     1  |     8
  2                   |        |  37.5  |  25.0  |        |  25.0  |  12.5  |  47.1
                      |        |  75.0  |  50.0  |        |  40.0  |  50.0  |
                      |        |  17.6  |  11.8  |        |  11.8  |   5.9  |
                      +--------+--------+--------+--------+--------+--------+
                   4  |     1  |     1  |        |     1  |     2  |     1  |     6
  1                   |  16.7  |  16.7  |        |  16.7  |  33.3  |  16.7  |  35.3
                      | 100.0  |  25.0  |        | 100.0  |  40.0  |  50.0  |
                      |   5.9  |   5.9  |        |   5.9  |  11.8  |   5.9  |
                      +--------+--------+--------+--------+--------+--------+
              Column       1        4        4        1        5        2       17
               Total     5.9     23.5     23.5      5.9     29.4     11.8    100.0

           Statistic                  Value             Significance
           ---------                  -----             ------------
Pearson's R                          .05761                 .4131

Number of Missing Observations =        13
```

71 Crosstabulation: CDTMSAV By GENDER

```
              Count  |
              Row Pct |Male     |Female  |
GENDER->      Col Pct |         |        |  Row
              Tot Pct |       1 |      2 | Total
CDTMSAV       --------+---------+--------+
                   2  |     7   |     1  |     8
  3                   |  87.5   |  12.5  |  47.1
                      |  46.7   |  50.0  |
                      |  41.2   |   5.9  |
                      +---------+--------+
                   3  |     6   |     1  |     7
  2                   |  85.7   |  14.3  |  41.2
                      |  40.0   |  50.0  |
                      |  35.3   |   5.9  |
                      +---------+--------+
                   4  |     2   |        |     2
  1                   | 100.0   |        |  11.8
                      |  13.3   |        |
                      |  11.8   |        |
                      +---------+--------+
              Column       15        2       17
               Total     88.2     11.8    100.0

 Chi-Square     D.F.         Significance        Min E.F.       Cells with E.F.< 5
 ----------     ----         ------------        --------       ------------------
     .31369       2             .8548               .235        4 OF     6 ( 66.7%)
```

```
Number of Missing Observations =       13
```

72 Crosstabulation: CDTMSAV By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
CDTMSAV     ---------+--------+--------+--------+--------+--------+--------+
                   2 |     1  |     2  |     3  |     1  |     1  |        |     8
  3                  |  12.5  |  25.0  |  37.5  |  12.5  |  12.5  |        |  47.1
                     | 100.0  |  50.0  |  75.0  | 100.0  |  20.0  |        |
                     |   5.9  |  11.8  |  17.6  |   5.9  |   5.9  |        |
                     +--------+--------+--------+--------+--------+--------+
                   3 |        |     2  |     1  |        |     3  |     1  |     7
  2                  |        |  28.6  |  14.3  |        |  42.9  |  14.3  |  41.2
                     |        |  50.0  |  25.0  |        |  60.0  |  50.0  |
                     |        |  11.8  |   5.9  |        |  17.6  |   5.9  |
                     +--------+--------+--------+--------+--------+--------+
                   4 |        |        |        |        |     1  |     1  |     2
  1                  |        |        |        |        |  50.0  |  50.0  |  11.8
                     |        |        |        |        |  20.0  |  50.0  |
                     |        |        |        |        |   5.9  |   5.9  |
                     +--------+--------+--------+--------+--------+--------+
              Column       1        4        4        1        5        2      17
               Total     5.9     23.5     23.5      5.9     29.4     11.8   100.0

        Statistic                      Value           Significance
        ---------                      -----           ------------
Pearson's R                           .55737              .0100

Number of Missing Observations =       13
```

73 Crosstabulation: CDVALU By GENDER

```
              Count  |
            Row Pct  |Male    |Female  |
GENDER->    Col Pct  |        |        |  Row
            Tot Pct  |      1 |      2 | Total
CDVALU      ---------+--------+--------+
                   2 |     7  |     1  |     8
  3                  |  87.5  |  12.5  |  47.1
                     |  46.7  |  50.0  |
                     |  41.2  |   5.9  |
                     +--------+--------+
                   3 |     6  |     1  |     7
  2                  |  85.7  |  14.3  |  41.2
                     |  40.0  |  50.0  |
                     |  35.3  |   5.9  |
                     +--------+--------+
                   4 |     2  |        |     2
  1                  | 100.0  |        |  11.8
                     |  13.3  |        |
                     |  11.8  |        |
                     +--------+--------+
              Column      15        2      17
               Total    88.2     11.8   100.0

Chi-Square     D.F.        Significance        Min E.F.     Cells with E.F.< 5
----------     ----        ------------        --------     ------------------
    .31369        2            .8548              .235       4 OF     6 ( 66.7%)

Number of Missing Observations =       13
```

74 Crosstabulation: CDVALU By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
CDVALU      ---------+--------+--------+--------+--------+--------+--------+
                   2 |     1  |     2  |     3  |     1  |     1  |        |     8
  3                  |  12.5  |  25.0  |  37.5  |  12.5  |  12.5  |        |  47.1
                     | 100.0  |  50.0  |  75.0  | 100.0  |  20.0  |        |
                     |   5.9  |  11.8  |  17.6  |   5.9  |   5.9  |        |
                     +--------+--------+--------+--------+--------+--------+
                   3 |        |     1  |     1  |        |     4  |     1  |     7
  2                  |        |  14.3  |  14.3  |        |  57.1  |  14.3  |  41.2
                     |        |  25.0  |  25.0  |        |  80.0  |  50.0  |
                     |        |   5.9  |   5.9  |        |  23.5  |   5.9  |
                     +--------+--------+--------+--------+--------+--------+
                   4 |        |     1  |        |        |        |     1  |     2
  1                  |        |  50.0  |        |        |        |  50.0  |  11.8
                     |        |  25.0  |        |        |        |  50.0  |
                     |        |   5.9  |        |        |        |   5.9  |
                     +--------+--------+--------+--------+--------+--------+
              Column       1        4        4        1        5        2      17
               Total     5.9     23.5     23.5      5.9     29.4     11.8   100.0
```

```
         Statistic                        Value            Significance
         ---------                        -----            ------------
Pearson's R                              .38817                .0618

Number of Missing Observations =          13
```

75 Crosstabulation: CDPOTEN By GENDER

```
                Count  |
              Row Pct  |Male     |Female  |
GENDER->      Col Pct  |         |        |  Row
              Tot Pct  |       1 |      2 | Total
CDPOTEN       ---------+---------+--------+
                    2  |     3   |    1   |     4
   3                   |  75.0   |  25.0  |  23.5
                       |  20.0   |  50.0  |
                       |  17.6   |   5.9  |
                       +---------+--------+
                    3  |     6   |    1   |     7
   2                   |  85.7   |  14.3  |  41.2
                       |  40.0   |  50.0  |
                       |  35.3   |   5.9  |
                       +---------+--------+
                    4  |     6   |        |     6
   1                   | 100.0   |        |  35.3
                       |  40.0   |        |
                       |  35.3   |        |
                       +---------+--------+
               Column       15         2      17
                Total     88.2      11.8   100.0

Chi-Square      D.F.      Significance       Min E.F.       Cells with E.F.< 5
----------      ----      ------------       --------       ------------------
   1.51786        2           .4682             .471        4 OF      6 ( 66.7%)

Number of Missing Observations =          13
```

76 Crosstabulation: CDPOTEN By YRTEACIN

```
                Count  |
              Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->    Col Pct  |        |        |        |        |        |        |  Row
              Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
CDPOTEN       ---------+--------+--------+--------+--------+--------+--------+
                    2  |    1   |        |    2   |        |    1   |        |     4
   3                   |  25.0  |        |  50.0  |        |  25.0  |        |  23.5
                       | 100.0  |        |  50.0  |        |  20.0  |        |
                       |   5.9  |        |  11.8  |        |   5.9  |        |
                       +--------+--------+--------+--------+--------+--------+
                    3  |        |    2   |    2   |    1   |    1   |    1   |     7
   2                   |        |  28.6  |  28.6  |  14.3  |  14.3  |  14.3  |  41.2
                       |        |  50.0  |  50.0  | 100.0  |  20.0  |  50.0  |
                       |        |  11.8  |  11.8  |   5.9  |   5.9  |   5.9  |
                       +--------+--------+--------+--------+--------+--------+
                    4  |        |    2   |        |        |    3   |    1   |     6
   1                   |        |  33.3  |        |        |  50.0  |  16.7  |  35.3
                       |        |  50.0  |        |        |  60.0  |  50.0  |
                       |        |  11.8  |        |        |  17.6  |   5.9  |
                       +--------+--------+--------+--------+--------+--------+
               Column       1        4        4        1        5        2      17
                Total     5.9     23.5     23.5      5.9     29.4     11.8   100.0

         Statistic                        Value            Significance
         ---------                        -----            ------------
Pearson's R                              .28914                .1302

Number of Missing Observations =          13
```

77 Crosstabulation: HOFTNYU By GENDER

```
                Count  |
              Row Pct  |Male     |Female  |
GENDER->      Col Pct  |         |        |  Row
              Tot Pct  |       1 |      2 | Total
HOFTNYU       ---------+---------+--------+
                    2  |     2   |    1   |     3
  Almost always        |  66.7   |  33.3  |  10.0
                       |   9.1   |  12.5  |
                       |   6.7   |   3.3  |
                       +---------+--------+
                    3  |    20   |    7   |    27
  Sometimes            |  74.1   |  25.9  |  90.0
                       |  90.9   |  87.5  |
                       |  66.7   |  23.3  |
                       +---------+--------+
               Column       22         8      30
                Total     73.3      26.7   100.0
```

```
Chi-Square    D.F.        Significance        Min E.F.      Cells with E.F.< 5
----------    ----        ------------        --------      ------------------
   .00000       1            1.0000              .800       2 of     4 ( 50.0%)
   .07576       1             .7831          ( Before Yates Correction )

Number of Missing Observations =        0
```

78 Crosstabulation: HOFTNYU By YRTEACIN

```
                Count  |
               Row Pct |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN->     Col Pct |         |         |         |         |         |         |  Row
               Tot Pct |        1|        2|        3|        4|        5|        6| Total
HOFTNYU        --------+---------+---------+---------+---------+---------+---------+
                     2 |         |         |       1 |         |       2 |         |     3
  Almost always        |         |         |    33.3 |         |    66.7 |         |  10.0
                       |         |         |    16.7 |         |    20.0 |         |
                       |         |         |     3.3 |         |     6.7 |         |
                       +---------+---------+---------+---------+---------+---------+
                     3 |       5 |       6 |       5 |       1 |       8 |       2 |    27
  Sometimes            |    18.5 |    22.2 |    18.5 |     3.7 |    29.6 |     7.4 |  90.0
                       |   100.0 |   100.0 |    83.3 |   100.0 |    80.0 |   100.0 |
                       |    16.7 |    20.0 |    16.7 |     3.3 |    26.7 |     6.7 |
                       +---------+---------+---------+---------+---------+---------+
                Column         5         6         6         1        10         2      30
                 Total      16.7      20.0      20.0       3.3      33.3       6.7   100.0

          Statistic                    Value          Significance
          ---------                    -----          ------------
Kendall's Tau B                       -.17843             .1428

Number of Missing Observations =        0
```

79 Crosstabulation: SUSPMT By GENDER

```
                Count  |
               Row Pct |Male     |Female   |
GENDER->       Col Pct |         |         |  Row
               Tot Pct |        1|        2| Total
SUSPMT         --------+---------+---------+
                     2 |       8 |         |     8
  Agree                |   100.0 |         |  26.7
                       |    36.4 |         |
                       |    26.7 |         |
                       +---------+---------+
                     3 |      12 |       7 |    19
  Disagree             |    63.2 |    36.8 |  63.3
                       |    54.5 |    87.5 |
                       |    40.0 |    23.3 |
                       +---------+---------+
                     4 |       2 |       1 |     3
  Strongly disgare     |    66.7 |    33.3 |  10.0
                       |     9.1 |    12.5 |
                       |     6.7 |     3.3 |
                       +---------+---------+
                Column        22         8      30
                 Total      73.3      26.7   100.0

Chi-Square    D.F.        Significance        Min E.F.      Cells with E.F.< 5
----------    ----        ------------        --------      ------------------
   3.98325      2             .1365              .800       3 OF     6 ( 50.0%)

Number of Missing Observations =        0
```

80 Crosstabulation: SUSPMT By YRTEACIN

```
                Count  |
               Row Pct |1-5      |6-10     |11-15    |16-20    |21-25    |26-30    |
YRTEACIN->     Col Pct |         |         |         |         |         |         |  Row
               Tot Pct |        1|        2|        3|        4|        5|        6| Total
SUSPMT         --------+---------+---------+---------+---------+---------+---------+
                     2 |         |       3 |       2 |         |       2 |       1 |     8
  Agree                |         |    37.5 |    25.0 |         |    25.0 |    12.5 |  26.7
                       |         |    50.0 |    33.3 |         |    20.0 |    50.0 |
                       |         |    10.0 |     6.7 |         |     6.7 |     3.3 |
                       +---------+---------+---------+---------+---------+---------+
                     3 |       5 |       3 |       4 |       1 |       5 |       1 |    19
  Disagree             |    26.3 |    15.8 |    21.1 |     5.3 |    26.3 |     5.3 |  63.3
                       |   100.0 |    50.0 |    66.7 |   100.0 |    50.0 |    50.0 |
                       |    16.7 |    10.0 |    13.3 |     3.3 |    16.7 |     3.3 |
                       +---------+---------+---------+---------+---------+---------+
                     4 |         |         |         |         |       3 |         |     3
  Strongly disgare     |         |         |         |         |   100.0 |         |  10.0
                       |         |         |         |         |    30.0 |         |
                       |         |         |         |         |    10.0 |         |
                       +---------+---------+---------+---------+---------+---------+
                Column         5         6         6         1        10         2      30
                 Total      16.7      20.0      20.0       3.3      33.3       6.7   100.0
```

```
          Statistic                   Value             Significance
          ---------                   -----             ------------
Kendall's Tau B                      .07715                 .3166

Number of Missing Observations =        0
```

81 Crosstabulation: DISLIKE By GENDER

```
                Count  |
              Row Pct  |Male     |Female  |
GENDER->      Col Pct  |         |        |  Row
              Tot Pct  |       1 |      2 | Total
DISLIKE       ---------+---------+--------+
                  1    |     1   |        |    1
   Strongly agree      | 100.0   |        |   3.3
                       |   4.5   |        |
                       |   3.3   |        |
                       +---------+--------+
                  2    |    11   |     1  |   12
   Agree               |  91.7   |   8.3  |  40.0
                       |  50.0   |  12.5  |
                       |  36.7   |   3.3  |
                       +---------+--------+
                  3    |     9   |     6  |   15
   Disagree            |  60.0   |  40.0  |  50.0
                       |  40.9   |  75.0  |
                       |  30.0   |  20.0  |
                       +---------+--------+
                  4    |     1   |     1  |    2
   Strongly disgare    |  50.0   |  50.0  |   6.7
                       |   4.5   |  12.5  |
                       |   3.3   |   3.3  |
                       +---------+--------+
                Column      22         8       30
                 Total    73.3      26.7    100.0

Chi-Square    D.F.       Significance       Min E.F.     Cells with E.F.< 5
----------    ----       ------------       --------     ------------------
   4.34659      3            .2264              .267     6 OF     8 ( 75.0%)

Number of Missing Observations =        0
```

82 Crosstabulation: DISLIKE By YRTEACIN

```
               Count  |
             Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->   Col Pct  |        |        |        |        |        |        |  Row
             Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
DISLIKE      ---------+--------+--------+--------+--------+--------+--------+
                 1    |        |        |        |        |        |     1  |    1
   Strongly agree     |        |        |        |        |        | 100.0  |   3.3
                      |        |        |        |        |        |  50.0  |
                      |        |        |        |        |        |   3.3  |
                      +--------+--------+--------+--------+--------+--------+
                 2    |     1  |     4  |     2  |     1  |     4  |        |   12
   Agree              |   8.3  |  33.3  |  16.7  |   8.3  |  33.3  |        |  40.0
                      |  20.0  |  66.7  |  33.3  | 100.0  |  40.0  |        |
                      |   3.3  |  13.3  |   6.7  |   3.3  |  13.3  |        |
                      +--------+--------+--------+--------+--------+--------+
                 3    |     3  |     2  |     4  |        |     5  |     1  |   15
   Disagree           |  20.0  |  13.3  |  26.7  |        |  33.3  |   6.7  |  50.0
                      |  60.0  |  33.3  |  66.7  |        |  50.0  |  50.0  |
                      |  10.0  |   6.7  |  13.3  |        |  16.7  |   3.3  |
                      +--------+--------+--------+--------+--------+--------+
                 4    |     1  |        |        |        |     1  |        |    2
   Strongly disgare   |  50.0  |        |        |        |  50.0  |        |   6.7
                      |  20.0  |        |        |        |  10.0  |        |
                      |   3.3  |        |        |        |   3.3  |        |
                      +--------+--------+--------+--------+--------+--------+
               Column       5        6        6        1       10        2       30
                Total    16.7     20.0     20.0      3.3     33.3      6.7    100.0

          Statistic                   Value             Significance
          ---------                   -----             ------------
Kendall's Tau B                     -.09242                 .2827

Number of Missing Observations =        0
```

83 Crosstabulation: DEHUMAN By GENDER

```
                Count  |
              Row Pct  |Male     |Female  |
GENDER->      Col Pct  |         |        |  Row
              Tot Pct  |       1 |      2 | Total
DEHUMAN       ---------+---------+--------+
                  1    |     1   |        |    1
   Strongly agree      | 100.0   |        |   3.3
                       |   4.5   |        |
                       |   3.3   |        |
                       +---------+--------+
```

```
               2  |   15   |    2   |   17
  Agree           |  88.2  |  11.8  |  56.7
                  |  68.2  |  25.0  |
                  |  50.0  |   6.7  |
                  +--------+--------+
               3  |    6   |    6   |   12
  Disagree        |  50.0  |  50.0  |  40.0
                  |  27.3  |  75.0  |
                  |  20.0  |  20.0  |
                  +--------+--------+
          Column      22        8       30
           Total    73.3     26.7    100.0

Chi-Square    D.F.      Significance     Min E.F.    Cells with E.F.< 5
----------    ----      ------------     --------    ------------------
   5.63503      2           .0598           .267     4 OF     6 ( 66.7%)

Number of Missing Observations =       0
```

84 Crosstabulation: DEHUMAN By YRTEACIN

```
             Count  |
           Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct  |        |        |        |        |        |        | Row
           Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
DEHUMAN   ----------+--------+--------+--------+--------+--------+--------+
                 1  |        |        |        |        |        |    1   |    1
  Strongly agree    |        |        |        |        |        |  100.0 |  3.3
                    |        |        |        |        |        |   50.0 |
                    |        |        |        |        |        |    3.3 |
                    +--------+--------+--------+--------+--------+--------+
                 2  |    1   |    5   |    3   |    1   |    6   |    1   |   17
  Agree             |   5.9  |  29.4  |  17.6  |   5.9  |  35.3  |   5.9  |  56.7
                    |  20.0  |  83.3  |  50.0  | 100.0  |  60.0  |  50.0  |
                    |   3.3  |  16.7  |  10.0  |   3.3  |  20.0  |   3.3  |
                    +--------+--------+--------+--------+--------+--------+
                 3  |    4   |    1   |    3   |        |    4   |        |   12
  Disagree          |  33.3  |   8.3  |  25.0  |        |  33.3  |        |  40.0
                    |  80.0  |  16.7  |  50.0  |        |  40.0  |        |
                    |  13.3  |   3.3  |  10.0  |        |  13.3  |        |
                    +--------+--------+--------+--------+--------+--------+
            Column       5        6        6        1       10        2       30
             Total    16.7     20.0     20.0      3.3     33.3      6.7    100.0

        Statistic                Value         Significance
        ---------                -----         ------------
Kendall's Tau B                 -.25249            .0626

Number of Missing Observations =       0
```

85 Crosstabulation: NONCOMM By GENDER

```
            Count  |
          Row Pct  |Male    |Female  |
GENDER->  Col Pct  |        |        | Row
          Tot Pct  |      1 |      2 | Total
NONCOMM   ---------+--------+--------+
                1  |    1   |        |    1
  Strongly agree   | 100.0  |        |  3.3
                   |   4.5  |        |
                   |   3.3  |        |
                   +--------+--------+
                2  |    6   |        |    6
  Agree            | 100.0  |        |  20.0
                   |  27.3  |        |
                   |  20.0  |        |
                   +--------+--------+
                3  |   12   |    7   |   19
  Disagree         |  63.2  |  36.8  |  63.3
                   |  54.5  |  87.5  |
                   |  40.0  |  23.3  |
                   +--------+--------+
                4  |    3   |    1   |    4
  Strongly disgare |  75.0  |  25.0  |  13.3
                   |  13.6  |  12.5  |
                   |  10.0  |   3.3  |
                   +--------+--------+
           Column      22        8       30
            Total    73.3     26.7    100.0

Chi-Square    D.F.      Significance     Min E.F.    Cells with E.F.< 5
----------    ----      ------------     --------    ------------------
   3.55712      3           .3134           .267     6 OF     8 ( 75.0%)

Number of Missing Observations =       0
```

86 Crosstabulation: NONCOMM By YRTEACIN

```
                  Count |
                Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->      Col Pct |        |        |        |        |        |        |    Row
                Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 |  Total
NONCOMM         --------+--------+--------+--------+--------+--------+--------+
                      1 |        |        |        |        |        |      1 |      1
  Strongly agree        |        |        |        |        |        |  100.0 |    3.3
                        |        |        |        |        |        |   50.0 |
                        |        |        |        |        |        |    3.3 |
                        +--------+--------+--------+--------+--------+--------+
                      2 |        |        |      4 |        |      2 |        |      6
  Agree                 |        |        |   66.7 |        |   33.3 |        |   20.0
                        |        |        |   66.7 |        |   20.0 |        |
                        |        |        |   13.3 |        |    6.7 |        |
                        +--------+--------+--------+--------+--------+--------+
                      3 |      4 |      5 |      2 |      1 |      6 |      1 |     19
  Disagree              |   21.1 |   26.3 |   10.5 |    5.3 |   31.6 |    5.3 |   63.3
                        |   80.0 |   83.3 |   33.3 |  100.0 |   60.0 |   50.0 |
                        |   13.3 |   16.7 |    6.7 |    3.3 |   20.0 |    3.3 |
                        +--------+--------+--------+--------+--------+--------+
                      4 |      1 |      1 |        |        |      2 |        |      4
  Strongly disgare      |   25.0 |   25.0 |        |        |   50.0 |        |   13.3
                        |   20.0 |   16.7 |        |        |   20.0 |        |
                        |    3.3 |    3.3 |        |        |    6.7 |        |
                        +--------+--------+--------+--------+--------+--------+
                 Column        5        6        6        1       10        2       30
                  Total     16.7     20.0     20.0      3.3     33.3      6.7    100.0

           Statistic                  Value            Significance
           ---------                  -----            ------------
Kendall's Tau B                     -.19573               .1097

Number of Missing Observations =        0
```

87 Crosstabulation: DONNOHW By GENDER

```
                  Count |
                Row Pct |Male    |Female  |
GENDER->        Col Pct |        |        |    Row
                Tot Pct |      1 |      2 |  Total
DONNOHW         --------+--------+--------+
                      1 |      1 |      2 |      3
  Strongly agree        |   33.3 |   66.7 |   10.0
                        |    4.5 |   25.0 |
                        |    3.3 |    6.7 |
                        +--------+--------+
                      2 |     16 |      5 |     21
  Agree                 |   76.2 |   23.8 |   70.0
                        |   72.7 |   62.5 |
                        |   53.3 |   16.7 |
                        +--------+--------+
                      3 |      5 |      1 |      6
  Disagree              |   83.3 |   16.7 |   20.0
                        |   22.7 |   12.5 |
                        |   16.7 |    3.3 |
                        +--------+--------+
                 Column       22        8       30
                  Total     73.3     26.7    100.0

Chi-Square     D.F.       Significance        Min E.F.      Cells with E.F.< 5
----------     ----       ------------        --------      ------------------
   2.84903        2          .2406               .800        4 OF     6 ( 66.7%)

Number of Missing Observations =        0
```

88 Crosstabulation: DONNOHW By YRTEACIN

```
                  Count |
                Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->      Col Pct |        |        |        |        |        |        |    Row
                Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 |  Total
DONNOHW         --------+--------+--------+--------+--------+--------+--------+
                      1 |      1 |        |      1 |        |      1 |        |      3
  Strongly agree        |   33.3 |        |   33.3 |        |   33.3 |        |   10.0
                        |   20.0 |        |   16.7 |        |   10.0 |        |
                        |    3.3 |        |    3.3 |        |    3.3 |        |
                        +--------+--------+--------+--------+--------+--------+
                      2 |      4 |      4 |      5 |      1 |      6 |      1 |     21
  Agree                 |   19.0 |   19.0 |   23.8 |    4.8 |   28.6 |    4.8 |   70.0
                        |   80.0 |   66.7 |   83.3 |  100.0 |   60.0 |   50.0 |
                        |   13.3 |   13.3 |   16.7 |    3.3 |   20.0 |    3.3 |
                        +--------+--------+--------+--------+--------+--------+
                      3 |        |      2 |        |        |      3 |      1 |      6
  Disagree              |        |   33.3 |        |        |   50.0 |   16.7 |   20.0
                        |        |   33.3 |        |        |   30.0 |   50.0 |
                        |        |    6.7 |        |        |   10.0 |    3.3 |
                        +--------+--------+--------+--------+--------+--------+
                 Column        5        6        6        1       10        2       30
                  Total     16.7     20.0     20.0      3.3     33.3      6.7    100.0
```

```
           Statistic                 Value           Significance
           ---------                 -----           ------------
Kendall's Tau B                     .19347               .1162

Number of Missing Observations =        0
```

89 Crosstabulation: NOTTRAIN By GENDER

```
                Count  |
              Row Pct  |Male    |Female  |
GENDER->      Col Pct  |        |        |  Row
              Tot Pct  |      1 |      2 | Total
NOTTRAIN      --------+--------+--------+
                    1  |     5  |     2  |     7
  Strongly agree       |  71.4  |  28.6  |  23.3
                       |  22.7  |  25.0  |
                       |  16.7  |   6.7  |
                       +--------+--------+
                    2  |    17  |     5  |    22
  Agree                |  77.3  |  22.7  |  73.3
                       |  77.3  |  62.5  |
                       |  56.7  |  16.7  |
                       +--------+--------+
                    3  |        |     1  |     1
  Disagree             |        | 100.0  |   3.3
                       |        |  12.5  |
                       |        |   3.3  |
                       +--------+--------+
               Column       22        8       30
                Total     73.3     26.7    100.0

Chi-Square     D.F.       Significance        Min E.F.       Cells with E.F.< 5
----------     ----       ------------        --------       ------------------
   2.93757        2           .2302               .267       3 OF     6 ( 50.0%)

Number of Missing Observations =        0
```

90 Crosstabulation: NOTTRAIN By YRTEACIN

```
                Count  |
              Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->    Col Pct  |        |        |        |        |        |        |  Row
              Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
NOTTRAIN      --------+--------+--------+--------+--------+--------+--------+
                    1  |     1  |        |     3  |        |     3  |        |     7
  Strongly agree       |  14.3  |        |  42.9  |        |  42.9  |        |  23.3
                       |  20.0  |        |  50.0  |        |  30.0  |        |
                       |   3.3  |        |  10.0  |        |  10.0  |        |
                       +--------+--------+--------+--------+--------+--------+
                    2  |     4  |     6  |     3  |     1  |     6  |     2  |    22
  Agree                |  18.2  |  27.3  |  13.6  |   4.5  |  27.3  |   9.1  |  73.3
                       |  80.0  | 100.0  |  50.0  | 100.0  |  60.0  | 100.0  |
                       |  13.3  |  20.0  |  10.0  |   3.3  |  20.0  |   6.7  |
                       +--------+--------+--------+--------+--------+--------+
                    3  |        |        |        |        |     1  |        |     1
  Disagree             |        |        |        |        | 100.0  |        |   3.3
                       |        |        |        |        |  10.0  |        |
                       |        |        |        |        |   3.3  |        |
                       +--------+--------+--------+--------+--------+--------+
               Column        5        6        6        1       10        2       30
                Total     16.7     20.0     20.0      3.3     33.3      6.7    100.0

           Statistic                 Value           Significance
           ---------                 -----           ------------
Kendall's Tau B                    -.01978               .4522

Number of Missing Observations =        0
```

91 Crosstabulation: NOCHOICE By GENDER

```
                Count  |
              Row Pct  |Male    |Female  |
GENDER->      Col Pct  |        |        |  Row
              Tot Pct  |      1 |      2 | Total
NOCHOICE      --------+--------+--------+
                    1  |    10  |     5  |    15
  Strongly agree       |  66.7  |  33.3  |  50.0
                       |  45.5  |  62.5  |
                       |  33.3  |  16.7  |
                       +--------+--------+
                    2  |    11  |     2  |    13
  Agree                |  84.6  |  15.4  |  43.3
                       |  50.0  |  25.0  |
                       |  36.7  |   6.7  |
                       +--------+--------+
                    3  |        |     1  |     1
  Disagree             |        | 100.0  |   3.3
                       |        |  12.5  |
                       |        |   3.3  |
                       +--------+--------+
```

```
             4  |     1  |        |     1
Strongly disgare | 100.0  |        |    3.3
                 |   4.5  |        |
                 |   3.3  |        |
                 +--------+--------+
          Column      22        8       30
           Total    73.3     26.7    100.0

Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
----------     ----       ------------       --------      ------------------
  4.30070        3            .2308              .267       6 OF     8 ( 75.0%)

Number of Missing Observations =        0
```

92 Crosstabulation: NOCHOICE By YRTEACIN

```
                Count  |
              Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->    Col Pct  |        |        |        |        |        |        |  Row
              Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
NOCHOICE      ---------+--------+--------+--------+--------+--------+--------+
                    1  |     1  |     2  |     4  |        |     6  |     2  |    15
  Strongly agree       |   6.7  |  13.3  |  26.7  |        |  40.0  |  13.3  |  50.0
                       |  20.0  |  33.3  |  66.7  |        |  60.0  | 100.0  |
                       |   3.3  |   6.7  |  13.3  |        |  20.0  |   6.7  |
                       +--------+--------+--------+--------+--------+--------+
                    2  |     4  |     3  |     2  |     1  |     3  |        |    13
  Agree                |  30.8  |  23.1  |  15.4  |   7.7  |  23.1  |        |  43.3
                       |  80.0  |  50.0  |  33.3  | 100.0  |  30.0  |        |
                       |  13.3  |  10.0  |   6.7  |   3.3  |  10.0  |        |
                       +--------+--------+--------+--------+--------+--------+
                    3  |        |     1  |        |        |        |        |     1
  Disagree             |        | 100.0  |        |        |        |        |   3.3
                       |        |  16.7  |        |        |        |        |
                       |        |   3.3  |        |        |        |        |
                       +--------+--------+--------+--------+--------+--------+
                    4  |        |        |        |        |     1  |        |     1
  Strongly disgare     |        |        |        |        | 100.0  |        |   3.3
                       |        |        |        |        |  10.0  |        |
                       |        |        |        |        |   3.3  |        |
                       +--------+--------+--------+--------+--------+--------+
               Column       5        6        6        1       10        2      30
                Total    16.7     20.0     20.0      3.3     33.3      6.7   100.0

        Statistic                  Value            Significance
        ---------                  -----            ------------
Kendall's Tau B                  -.27650               .0444

Number of Missing Observations =        0
```

93 Crosstabulation: INEFFECT By GENDER

```
             Count  |
           Row Pct  |Male    |Female  |
GENDER->   Col Pct  |        |        |  Row
           Tot Pct  |      1 |      2 | Total
INEFFECT   ---------+--------+--------+
                 1  |     3  |     4  |     7
  Strongly agree    |  42.9  |  57.1  |  23.3
                    |  13.6  |  50.0  |
                    |  10.0  |  13.3  |
                    +--------+--------+
                 2  |    11  |     2  |    13
  Agree             |  84.6  |  15.4  |  43.3
                    |  50.0  |  25.0  |
                    |  36.7  |   6.7  |
                    +--------+--------+
                 3  |     7  |     2  |     9
  Disagree          |  77.8  |  22.2  |  30.0
                    |  31.8  |  25.0  |
                    |  23.3  |   6.7  |
                    +--------+--------+
                 4  |     1  |        |     1
  Strongly disgare  | 100.0  |        |   3.3
                    |   4.5  |        |
                    |   3.3  |        |
                    +--------+--------+
            Column      22        8       30
             Total    73.3     26.7    100.0

Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
----------     ----       ------------       --------      ------------------
  4.62537        3            .2014              .267       5 OF     8 ( 62.5%)

Number of Missing Observations =        0
```

94 Crosstabulation: INEFFECT By YRTEACIN

```
             Count  |
           Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
```

```
YRTEACIN-> Col Pct |        |        |        |        |        |        | Row
           Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
INEFFECT   --------+--------+--------+--------+--------+--------+--------+
                 1 |      1 |      1 |      1 |        |      3 |      1 |     7
  Strongly agree   |   14.3 |   14.3 |   14.3 |        |   42.9 |   14.3 |  23.3
                   |   20.0 |   16.7 |   16.7 |        |   30.0 |   50.0 |
                   |    3.3 |    3.3 |    3.3 |        |   10.0 |    3.3 |
                   +--------+--------+--------+--------+--------+--------+
                 2 |      1 |      3 |      3 |        |      5 |      1 |    13
  Agree            |    7.7 |   23.1 |   23.1 |        |   38.5 |    7.7 |  43.3
                   |   20.0 |   50.0 |   50.0 |        |   50.0 |   50.0 |
                   |    3.3 |   10.0 |   10.0 |        |   16.7 |    3.3 |
                   +--------+--------+--------+--------+--------+--------+
                 3 |      3 |      2 |      2 |      1 |      1 |        |     9
  Disagree         |   33.3 |   22.2 |   22.2 |   11.1 |   11.1 |        |  30.0
                   |   60.0 |   33.3 |   33.3 |  100.0 |   10.0 |        |
                   |   10.0 |    6.7 |    6.7 |    3.3 |    3.3 |        |
                   +--------+--------+--------+--------+--------+--------+
                 4 |        |        |        |        |      1 |        |     1
  Strongly disgare |        |        |        |        |  100.0 |        |   3.3
                   |        |        |        |        |   10.0 |        |
                   |        |        |        |        |    3.3 |        |
                   +--------+--------+--------+--------+--------+--------+
            Column        5        6        6        1       10        2       30
             Total     16.7     20.0     20.0      3.3     33.3      6.7    100.0

        Statistic                 Value            Significance
        ---------                 -----            ------------
Kendall's Tau B                 -.21633               .0839

Number of Missing Observations =        0
```

95 Crosstabulation: RELUCT By GENDER

```
            Count  |
            Row Pct |Male    |Female  |
GENDER->    Col Pct |        |        | Row
            Tot Pct |      1 |      2 | Total
RELUCT      --------+--------+--------+
                  1 |      1 |        |     1
  Strongly agree    |  100.0 |        |   3.3
                    |    4.5 |        |
                    |    3.3 |        |
                    +--------+--------+
                  2 |      6 |      5 |    11
  Agree             |   54.5 |   45.5 |  36.7
                    |   27.3 |   62.5 |
                    |   20.0 |   16.7 |
                    +--------+--------+
                  3 |     14 |      2 |    16
  Disagree          |   87.5 |   12.5 |  53.3
                    |   63.6 |   25.0 |
                    |   46.7 |    6.7 |
                    +--------+--------+
                  4 |      1 |      1 |     2
  Strongly disgare  |   50.0 |   50.0 |   6.7
                    |    4.5 |   12.5 |
                    |    3.3 |    3.3 |
                    +--------+--------+
             Column       22        8      30
              Total     73.3     26.7   100.0

Chi-Square      D.F.       Significance       Min E.F.     Cells with E.F.< 5
----------      ----       ------------       --------     ------------------
   4.54804         3           .2080              .267       6 OF     8 ( 75.0%)

Number of Missing Observations =        0
```

96 Crosstabulation: RELUCT By YRTEACIN

```
            Count  |
            Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct |        |        |        |        |        |        | Row
            Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
RELUCT      --------+--------+--------+--------+--------+--------+--------+
                  1 |        |        |        |        |        |      1 |     1
  Strongly agree    |        |        |        |        |        |  100.0 |   3.3
                    |        |        |        |        |        |   50.0 |
                    |        |        |        |        |        |    3.3 |
                    +--------+--------+--------+--------+--------+--------+
                  2 |      2 |      2 |      1 |        |      6 |        |    11
  Agree             |   18.2 |   18.2 |    9.1 |        |   54.5 |        |  36.7
                    |   40.0 |   33.3 |   16.7 |        |   60.0 |        |
                    |    6.7 |    6.7 |    3.3 |        |   20.0 |        |
                    +--------+--------+--------+--------+--------+--------+
                  3 |      3 |      4 |      5 |      1 |      2 |      1 |    16
  Disagree          |   18.8 |   25.0 |   31.3 |    6.3 |   12.5 |    6.3 |  53.3
                    |   60.0 |   66.7 |   83.3 |  100.0 |   20.0 |   50.0 |
                    |   10.0 |   13.3 |   16.7 |    3.3 |    6.7 |    3.3 |
                    +--------+--------+--------+--------+--------+--------+
                  4 |        |        |        |        |      2 |        |     2
```

```
Strongly disgare |        |        |        |        | 100.0  |        |   6.7
                 |        |        |        |        |  20.0  |        |
                 |        |        |        |        |   6.7  |        |
                 +--------+--------+--------+--------+--------+--------+
          Column      5        6        6        1       10        2       30
           Total    16.7     20.0     20.0      3.3     33.3      6.7    100.0

        Statistic                Value          Significance
        ---------                -----          ------------
Kendall's Tau B                -.10311              .2607

Number of Missing Observations =       0
```

97 Crosstabulation: WORYNEW By GENDER

```
            Count |
          Row Pct |Male    |Female  |
GENDER->  Col Pct |        |        |  Row
          Tot Pct |      1 |      2 | Total
WORYNEW   --------+--------+--------+
                1 |     2  |        |     2
  Strongly agree  | 100.0  |        |   6.7
                  |   9.1  |        |
                  |   6.7  |        |
                  +--------+--------+
                2 |     7  |     1  |     8
  Agree           |  87.5  |  12.5  |  26.7
                  |  31.8  |  12.5  |
                  |  23.3  |   3.3  |
                  +--------+--------+
                3 |    12  |     7  |    19
  Disagree        |  63.2  |  36.8  |  63.3
                  |  54.5  |  87.5  |
                  |  40.0  |  23.3  |
                  +--------+--------+
                4 |     1  |        |     1
  Strongly disgare| 100.0  |        |   3.3
                  |   4.5  |        |
                  |   3.3  |        |
                  +--------+--------+
           Column     22        8       30
            Total   73.3     26.7    100.0

 Chi-Square    D.F.      Significance        Min E.F.      Cells with E.F.< 5
 ----------    ----      ------------        --------      ------------------
   2.91791       3           .4045               .267      5 OF    8 ( 62.5%)

Number of Missing Observations =       0
```

98 Crosstabulation: WORYNEW By YRTEACIN

```
             Count |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN-> Col Pct |        |        |        |        |        |        |  Row
           Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
WORYNEW    --------+--------+--------+--------+--------+--------+--------+
                 1 |        |        |        |        |     1  |     1  |     2
  Strongly agree   |        |        |        |        |  50.0  |  50.0  |   6.7
                   |        |        |        |        |  10.0  |  50.0  |
                   |        |        |        |        |   3.3  |   3.3  |
                   +--------+--------+--------+--------+--------+--------+
                 2 |     1  |     1  |     3  |     1  |     2  |        |     8
  Agree            |  12.5  |  12.5  |  37.5  |  12.5  |  25.0  |        |  26.7
                   |  20.0  |  16.7  |  50.0  | 100.0  |  20.0  |        |
                   |   3.3  |   3.3  |  10.0  |   3.3  |   6.7  |        |
                   +--------+--------+--------+--------+--------+--------+
                 3 |     4  |     5  |     3  |        |     6  |     1  |    19
  Disagree         |  21.1  |  26.3  |  15.8  |        |  31.6  |   5.3  |  63.3
                   |  80.0  |  83.3  |  50.0  |        |  60.0  |  50.0  |
                   |  13.3  |  16.7  |  10.0  |        |  20.0  |   3.3  |
                   +--------+--------+--------+--------+--------+--------+
                 4 |        |        |        |        |     1  |        |     1
  Strongly disgare |        |        |        |        | 100.0  |        |   3.3
                   |        |        |        |        |  10.0  |        |
                   |        |        |        |        |   3.3  |        |
                   +--------+--------+--------+--------+--------+--------+
            Column      5        6        6        1       10        2       30
             Total    16.7     20.0     20.0      3.3     33.3      6.7    100.0

        Statistic                Value          Significance
        ---------                -----          ------------
Kendall's Tau B                -.13618              .1989

Number of Missing Observations =       0
```

99 Crosstabulation: STNOKEEN By GENDER

```
             Count  |
             Row Pct |Male    |Female  |
GENDER->     Col Pct |        |        | Row
             Tot Pct |      1 |      2 | Total
STNOKEEN     --------+--------+--------+
                 1   |        |      1 |     1
  Strongly agree     |        |  100.0 |   3.3
                     |        |   12.5 |
                     |        |    3.3 |
                     +--------+--------+
                 2   |      6 |        |     6
  Agree              |  100.0 |        |  20.0
                     |   27.3 |        |
                     |   20.0 |        |
                     +--------+--------+
                 3   |     11 |      5 |    16
  Disagree           |   68.8 |   31.3 |  53.3
                     |   50.0 |   62.5 |
                     |   36.7 |   16.7 |
                     +--------+--------+
                 4   |      5 |      2 |     7
  Strongly disgare   |   71.4 |   28.6 |  23.3
                     |   22.7 |   25.0 |
                     |   16.7 |    6.7 |
                     +--------+--------+
             Column       22        8       30
              Total     73.3     26.7    100.0

Chi-Square    D.F.       Significance       Min E.F.     Cells with E.F.< 5
----------    ----       ------------       --------     ------------------
  5.11668       3            .1635             .267       6 OF     8 ( 75.0%)

Number of Missing Observations =      0
```

100 Crosstabulation: STNOKEEN By YRTEACIN

```
               Count  |
               Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->     Col Pct |        |        |        |        |        |        | Row
               Tot Pct |      1 |      2 |      3 |      4 |      5 |      6 | Total
STNOKEEN       --------+--------+--------+--------+--------+--------+--------+
                   1   |        |        |      1 |        |        |        |     1
  Strongly agree       |        |        |  100.0 |        |        |        |   3.3
                       |        |        |   16.7 |        |        |        |
                       |        |        |    3.3 |        |        |        |
                       +--------+--------+--------+--------+--------+--------+
                   2   |      2 |        |      1 |      1 |      1 |      1 |     6
  Agree                |   33.3 |        |   16.7 |   16.7 |   16.7 |   16.7 |  20.0
                       |   40.0 |        |   16.7 |  100.0 |   10.0 |   50.0 |
                       |    6.7 |        |    3.3 |    3.3 |    3.3 |    3.3 |
                       +--------+--------+--------+--------+--------+--------+
                   3   |      3 |      4 |      4 |        |      4 |      1 |    16
  Disagree             |   18.8 |   25.0 |   25.0 |        |   25.0 |    6.3 |  53.3
                       |   60.0 |   66.7 |   66.7 |        |   40.0 |   50.0 |
                       |   10.0 |   13.3 |   13.3 |        |   13.3 |    3.3 |
                       +--------+--------+--------+--------+--------+--------+
                   4   |        |      2 |        |        |      5 |        |     7
  Strongly disgare     |        |   28.6 |        |        |   71.4 |        |  23.3
                       |        |   33.3 |        |        |   50.0 |        |
                       |        |    6.7 |        |        |   16.7 |        |
                       +--------+--------+--------+--------+--------+--------+
               Column       · 5        6        6        1       10        2       30
                Total     16.7     20.0     20.0      3.3     33.3      6.7    100.0

         Statistic                      Value           Significance
         ---------                      -----           ------------
Kendall's Tau B                        .14101              .1858

Number of Missing Observations =      0
```

101 Crosstabulation: GAPCLTMT By GENDER

```
             Count  |
             Row Pct |Male    |Female  |
GENDER->     Col Pct |        |        | Row
             Tot Pct |      1 |      2 | Total
GAPCLTMT     --------+--------+--------+
                 1   |      1 |        |     1
  Strongly agree     |  100.0 |        |   3.3
                     |    4.5 |        |
                     |    3.3 |        |
                     +--------+--------+
                 2   |      8 |      1 |     9
  Agree              |   88.9 |   11.1 |  30.0
                     |   36.4 |   12.5 |
                     |   26.7 |    3.3 |
                     +--------+--------+
                 3   |     13 |      7 |    20
  Disagree           |   65.0 |   35.0 |  66.7
```

```
                     |  59.1  |  87.5  |
                     |  43.3  |  23.3  |
                     +--------+--------+
              Column     22        8       30
               Total    73.3     26.7    100.0

Chi-Square    D.F.       Significance       Min E.F.      Cells with E.F.< 5
----------    ----       ------------       --------      ------------------
   2.18750     2             .3350              .267       3 OF     6 ( 50.0%)

Number of Missing Observations =        0
```

102 Crosstabulation: GAPCLTMT By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
GAPCLTMT    ---------+--------+--------+--------+--------+--------+--------+
                1    |        |        |        |        |        |      1 |     1
  Strongly agree     |        |        |        |        |        | 100.0  |   3.3
                     |        |        |        |        |        |  50.0  |
                     |        |        |        |        |        |   3.3  |
                     +--------+--------+--------+--------+--------+--------+
                2    |     2  |     2  |     2  |     1  |     2  |        |     9
  Agree              |  22.2  |  22.2  |  22.2  |  11.1  |  22.2  |        |  30.0
                     |  40.0  |  33.3  |  33.3  | 100.0  |  20.0  |        |
                     |   6.7  |   6.7  |   6.7  |   3.3  |   6.7  |        |
                     +--------+--------+--------+--------+--------+--------+
                3    |     3  |     4  |     4  |        |     8  |     1  |    20
  Disagree           |  15.0  |  20.0  |  20.0  |        |  40.0  |   5.0  |  66.7
                     |  60.0  |  66.7  |  66.7  |        |  80.0  |  50.0  |
                     |  10.0  |  13.3  |  13.3  |        |  26.7  |   3.3  |
                     +--------+--------+--------+--------+--------+--------+
             Column        5        6        6        1       10        2      30
              Total     16.7     20.0     20.0      3.3     33.3      6.7   100.0

        Statistic                    Value            Significance
        ---------                    -----            ------------
Kendall's Tau B                     .02962                .4286

Number of Missing Observations =        0
```

103 Crosstabulation: EXAMEXCL By GENDER

```
              Count  |
            Row Pct  |Male    |Female  |
GENDER->    Col Pct  |        |        |  Row
            Tot Pct  |      1 |      2 | Total
EXAMEXCL    ---------+--------+--------+
                1    |     9  |     5  |    14
  Strongly agree     |  64.3  |  35.7  |  46.7
                     |  40.9  |  62.5  |
                     |  30.0  |  16.7  |
                     +--------+--------+
                2    |    10  |     2  |    12
  Agree              |  83.3  |  16.7  |  40.0
                     |  45.5  |  25.0  |
                     |  33.3  |   6.7  |
                     +--------+--------+
                3    |     2  |     1  |     3
  Disagree           |  66.7  |  33.3  |  10.0
                     |   9.1  |  12.5  |
                     |   6.7  |   3.3  |
                     +--------+--------+
                4    |     1  |        |     1
  Strongly disgare   | 100.0  |        |   3.3
                     |   4.5  |        |
                     |   3.3  |        |
                     +--------+--------+
             Column       22        8       30
              Total     73.3     26.7    100.0

Chi-Square    D.F.       Significance       Min E.F.      Cells with E.F.< 5
----------    ----       ------------       --------      ------------------
   1.63149     3             .6523              .267       6 OF     8 ( 75.0%)

Number of Missing Observations =        0
```

104 Crosstabulation: EXAMEXCL By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->  Col Pct  |        |        |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 | Total
EXAMEXCL    ---------+--------+--------+--------+--------+--------+--------+
                1    |        |     2  |     3  |        |     7  |     2  |    14
  Strongly agree     |        |  14.3  |  21.4  |        |  50.0  |  14.3  |  46.7
                     |        |  33.3  |  50.0  |        |  70.0  | 100.0  |
                     |        |   6.7  |  10.0  |        |  23.3  |   6.7  |
```

```
                      +--------+--------+--------+--------+--------+--------+
                    2 |    5   |    3   |    1   |    1   |    2   |        |    12
 Agree                |  41.7  |  25.0  |   8.3  |   8.3  |  16.7  |        |  40.0
                      | 100.0  |  50.0  |  16.7  | 100.0  |  20.0  |        |
                      |  16.7  |  10.0  |   3.3  |   3.3  |   6.7  |        |
                      +--------+--------+--------+--------+--------+--------+
                    3 |        |        |    2   |        |    1   |        |     3
 Disagree             |        |        |  66.7  |        |  33.3  |        |  10.0
                      |        |        |  33.3  |        |  10.0  |        |
                      |        |        |   6.7  |        |   3.3  |        |
                      +--------+--------+--------+--------+--------+--------+
                    4 |        |    1   |        |        |        |        |     1
 Strongly disgare     |        | 100.0  |        |        |        |        |   3.3
                      |        |  16.7  |        |        |        |        |
                      |        |   3.3  |        |        |        |        |
                      +--------+--------+--------+--------+--------+--------+
               Column      5        6        6        1       10        2        30
               Total    16.7     20.0     20.0      3.3     33.3      6.7     100.0

          Statistic                Value           Significance
          ---------                -----           ------------
Kendall's Tau B                  -.37444               .0094

Number of Missing Observations =        0
```

105 Crosstabulation: SATFNOMT By GENDER

```
               Count  |
             Row Pct  |Male    |Female  |
GENDER->     Col Pct  |        |        |  Row
             Tot Pct  |      1 |      2 |  Total
SATFNOMT     ---------+--------+--------+
                   0  |   18   |    6   |   24
 No                   |  75.0  |  25.0  |  80.0
                      |  81.8  |  75.0  |
                      |  60.0  |  20.0  |
                      +--------+--------+
                   1  |    4   |    2   |    6
 Yes                  |  66.7  |  33.3  |  20.0
                      |  18.2  |  25.0  |
                      |  13.3  |   6.7  |
                      +--------+--------+
              Column      22        8       30
              Total     73.3     26.7    100.0

Chi-Square    D.F.      Significance      Min E.F.     Cells with E.F.< 5
----------    ----      ------------      --------     ------------------
   .00000       1          1.0000           1.600      2 of     4 ( 50.0%)
   .17045       1           .6797         ( Before Yates Correction )

Number of Missing Observations =        0
```

106 Crosstabulation: SATFNOMT By YRTEACIN

```
               Count  |
             Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |26-30   |
YRTEACIN->   Col Pct  |        |        |        |        |        |        |  Row
             Tot Pct  |      1 |      2 |      3 |      4 |      5 |      6 |  Total
SATFNOMT     ---------+--------+--------+--------+--------+--------+--------+
                   0  |    5   |    4   |    4   |    1   |    9   |    1   |    24
 No                   |  20.8  |  16.7  |  16.7  |   4.2  |  37.5  |   4.2  |  80.0
                      | 100.0  |  66.7  |  66.7  | 100.0  |  90.0  |  50.0  |
                      |  16.7  |  13.3  |  13.3  |   3.3  |  30.0  |   3.3  |
                      +--------+--------+--------+--------+--------+--------+
                   1  |        |    2   |    2   |        |    1   |    1   |     6
 Yes                  |        |  33.3  |  33.3  |        |  16.7  |  16.7  |  20.0
                      |        |  33.3  |  33.3  |        |  10.0  |  50.0  |
                      |        |   6.7  |   6.7  |        |   3.3  |   3.3  |
                      +--------+--------+--------+--------+--------+--------+
              Column       5        6        6        1       10        2        30
              Total     16.7     20.0     20.0      3.3     33.3      6.7     100.0

Chi-Square    D.F.      Significance      Min E.F.     Cells with E.F.< 5
----------    ----      ------------      --------     ------------------
  4.58333       5           .4688            .200      11 OF    12 ( 91.7%)

Number of Missing Observations =        0
```

E.3 Crosstabulations and tests of association for section 5.2.3

1 Crosstabulation: INTRSTLT By GENDER

```
             Count  |
           Row Pct  |Male     |Female   |
GENDER->   Col Pct  |         |         |  Row
           Tot Pct  |       1 |       2 |  Total
INTRSTLT   ---------+---------+---------+
                 1  | (A) 7   | (B) 7   |     14
  Very interested   |  50.0   |  50.0   |   77.8
                    |  70.0   |  87.5   |
                    |  38.9   |  38.9   |
                    +---------+---------+
                 2  | (C) 3   | (D) 1   |      4
  Fairly intereste  |  75.0   |  25.0   |   22.2
                    |  30.0   |  12.5   |
                    |  16.7   |   5.6   |
                    +---------+---------+
            Column       10          8   (N) 18
             Total     55.6       44.4    100.0

       STATISTIC                  One Tail          Two Tail
       ---------                  --------          --------
Fisher's Exact Test                 .38235            .58824

Number of Missing Observations =        0
```

2 Crosstabulation: INTRSTLT By YRTEACIN

```
               Count  |
             Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN->   Col Pct  |         |         |         |         |         |  Row
             Tot Pct  |       1 |       2 |       3 |       4 |       5 |  Total
INTRSTLT     ---------+---------+---------+---------+---------+---------+
                   1  |     7   |     4   |     1   |     1   |     1   |    14
  Very interested     |  50.0   |  28.6   |   7.1   |   7.1   |   7.1   |  77.8
                      |  70.0   | 100.0   |  50.0   | 100.0   | 100.0   |
                      |  38.9   |  22.2   |   5.6   |   5.6   |   5.6   |
                      +---------+---------+---------+---------+---------+
                   2  |     3   |         |     1   |         |         |     4
  Fairly intereste    |  75.0   |         |  25.0   |         |         |  22.2
                      |  30.0   |         |  50.0   |         |         |
                      |  16.7   |         |   5.6   |         |         |
                      +---------+---------+---------+---------+---------+
              Column       10         4         2         1         1      18
               Total     55.6      22.2      11.1       5.6       5.6   100.0

       Statistic                   Value           Significance
       ---------                   -----           ------------
Kendall's Tau B                  -.15956               .2406

Number of Missing Observations =        0
```

3 Crosstabulation: USEFLL By GENDER

```
             Count  |
           Row Pct  |Male     |Female   |
GENDER->   Col Pct  |         |         |  Row
           Tot Pct  |       1 |       2 |  Total
USEFLL     ---------+---------+---------+
                 1  |     8   |     4   |     12
  Very useful       |  66.7   |  33.3   |   66.7
                    |  80.0   |  50.0   |
                    |  44.4   |  22.2   |
                    +---------+---------+
                 2  |     2   |     4   |      6
  Fairly useful     |  33.3   |  66.7   |   33.3
                    |  20.0   |  50.0   |
                    |  11.1   |  22.2   |
                    +---------+---------+
            Column       10          8       18
             Total     55.6       44.4    100.0

       STATISTIC                  One Tail          Two Tail
       ---------                  --------          --------
Fisher's Exact Test                 .20136            .32127

Number of Missing Observations =        0
```

4 Crosstabulation: USEFLL By YRTEACIN

```
               Count  |
             Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->   Col Pct  |        |        |        |        |        |  Row
             Tot Pct  |      1 |      2 |      3 |      4 |      5 | Total
USEFLL        --------+--------+--------+--------+--------+--------+
                   1  |     6  |     3  |     1  |     1  |     1  |    12
  Very useful         |  50.0  |  25.0  |   8.3  |   8.3  |   8.3  |  66.7
                      |  60.0  |  75.0  |  50.0  | 100.0  | 100.0  |
                      |  33.3  |  16.7  |   5.6  |   5.6  |   5.6  |
                      +--------+--------+--------+--------+--------+
                   2  |     4  |     1  |     1  |        |        |     6
  Fairly useful       |  66.7  |  16.7  |  16.7  |        |        |  33.3
                      |  40.0  |  25.0  |  50.0  |        |        |
                      |  22.2  |   5.6  |   5.6  |        |        |
                      +--------+--------+--------+--------+--------+
              Column      10        4        2        1        1       18
               Total    55.6     22.2     11.1      5.6      5.6    100.0

        Statistic               Value            Significance
        ---------               -----            ------------
Kendall's Tau B                -.16417               .2343

Number of Missing Observations =       0
```

5 Crosstabulation: USEFTEAC By GENDER

```
               Count  |
             Row Pct  |Male    |Female  |
GENDER->     Col Pct  |        |        |  Row
             Tot Pct  |      1 |      2 | Total
USEFTEAC      --------+--------+--------+
                   1  |     6  |     3  |     9
  Very useful         |  66.7  |  33.3  |  50.0
                      |  60.0  |  37.5  |
                      |  33.3  |  16.7  |
                      +--------+--------+
                   2  |     4  |     5  |     9
  Fairly useful       |  44.4  |  55.6  |  50.0
                      |  40.0  |  62.5  |
                      |  22.2  |  27.8  |
                      +--------+--------+
              Column      10        8       18
               Total    55.6     44.4    100.0

        STATISTIC                 One Tail         Two Tail
        ---------                 --------         --------
Fisher's Exact Test                .31859           .63719

Number of Missing Observations =       0
```

6 Crosstabulation: USEFTEAC By YRTEACIN

```
               Count  |
             Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->   Col Pct  |        |        |        |        |        |  Row
             Tot Pct  |      1 |      2 |      3 |      4 |      5 | Total
USEFTEAC      --------+--------+--------+--------+--------+--------+
                   1  |     6  |     1  |     1  |     1  |        |     9
  Very useful         |  66.7  |  11.1  |  11.1  |  11.1  |        |  50.0
                      |  60.0  |  25.0  |  50.0  | 100.0  |        |
                      |  33.3  |   5.6  |   5.6  |   5.6  |        |
                      +--------+--------+--------+--------+--------+
                   2  |     4  |     3  |     1  |        |     1  |     9
  Fairly useful       |  44.4  |  33.3  |  11.1  |        |  11.1  |  50.0
                      |  40.0  |  75.0  |  50.0  |        | 100.0  |
                      |  22.2  |  16.7  |   5.6  |        |   5.6  |
                      +--------+--------+--------+--------+--------+
              Column      10        4        2        1        1       18
               Total    55.6     22.2     11.1      5.6      5.6    100.0

        Statistic               Value            Significance
        ---------               -----            ------------
Kendall's Tau B                 .16584               .2321

Number of Missing Observations =       0
```

7 Crosstabulation: AUUSF By GENDER

```
               Count  |
             Row Pct  |Male    |Female  |
GENDER->     Col Pct  |        |        |  Row
             Tot Pct  |      1 |      2 | Total
AUUSF         --------+--------+--------+
                   3  |     4  |     2  |     6
```

```
  2                | 66.7  | 33.3  | 33.3
                   | 40.0  | 25.0  |
                   | 22.2  | 11.1  |
                   +-------+-------+
                 4 |     6 |     6 |   12
  1                | 50.0  | 50.0  | 66.7
                   | 60.0  | 75.0  |
                   | 33.3  | 33.3  |
                   +-------+-------+
            Column     10       8      18
             Total   55.6    44.4   100.0

        STATISTIC                One Tail        Two Tail
        ---------                --------        --------
Fisher's Exact Test                .43665          .63801

Number of Missing Observations =        0
```

8 Crosstabulation: AUUSF By YRTEACIN

```
             Count |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Col Pct |        |        |        |        |        | Row
           Tot Pct |      1 |      2 |      3 |      4 |      5 | Total
AUUSF      --------+--------+--------+--------+--------+--------+
                 3 |     2  |     3  |        |        |     1  |     6
  2                | 33.3   | 50.0   |        |        | 16.7   |  33.3
                   | 20.0   | 75.0   |        |        | 100.0  |
                   | 11.1   | 16.7   |        |        |  5.6   |
                   +--------+--------+--------+--------+--------+
                 4 |     8  |     1  |     2  |     1  |        |    12
  1                | 66.7   |  8.3   | 16.7   |  8.3   |        |  66.7
                   | 80.0   | 25.0   | 100.0  | 100.0  |        |
                   | 44.4   |  5.6   | 11.1   |  5.6   |        |
                   +--------+--------+--------+--------+--------+
            Column      10        4        2        1        1      18
             Total    55.6     22.2     11.1      5.6      5.6   100.0

       Statistic                Value          Significance
       ---------                -----          ------------
Pearson's R                    -.20203             .2107

Number of Missing Observations =        0
```

9 Crosstabulation: AUEASY By GENDER

```
             Count |
           Row Pct |Male    |Female  |
GENDER->   Col Pct |        |        | Row
           Tot Pct |      1 |      2 | Total
AUEASY     --------+--------+--------+
                 2 |     1  |        |     1
  3                | 100.0  |        |   5.6
                   | 10.0   |        |
                   |  5.6   |        |
                   +--------+--------+
                 3 |     1  |     2  |     3
  2                | 33.3   | 66.7   |  16.7
                   | 10.0   | 25.0   |
                   |  5.6   | 11.1   |
                   +--------+--------+
                 4 |     8  |     6  |    14
  1                | 57.1   | 42.9   |  77.8
                   | 80.0   | 75.0   |
                   | 44.4   | 33.3   |
                   +--------+--------+
            Column      10        8      18
             Total    55.6     44.4   100.0

 Chi-Square     D.F.       Significance      Min E.F.     Cells with E.F.< 5
 ----------     ----       ------------      --------     ------------------
    1.41429       2            .4931             .444     4 OF      6 ( 66.7%)

Number of Missing Observations =        0
```

10 Crosstabulation: AUEASY By YRTEACIN

```
             Count |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Col Pct |        |        |        |        |        | Row
           Tot Pct |      1 |      2 |      3 |      4 |      5 | Total
AUEASY     --------+--------+--------+--------+--------+--------+
                 2 |     1  |        |        |        |        |     1
  3                | 100.0  |        |        |        |        |   5.6
                   | 10.0   |        |        |        |        |
                   |  5.6   |        |        |        |        |
                   +--------+--------+--------+--------+--------+
```

```
               3  |   2    |   1    |        |        |        |    3
  2               |  66.7  |  33.3  |        |        |        |  16.7
                  |  20.0  |  25.0  |        |        |        |
                  |  11.1  |   5.6  |        |        |        |
                  +--------+--------+--------+--------+--------+
               4  |   7    |   3    |   2    |   1    |   1    |   14
  1               |  50.0  |  21.4  |  14.3  |   7.1  |   7.1  |  77.8
                  |  70.0  |  75.0  | 100.0  | 100.0  | 100.0  |
                  |  38.9  |  16.7  |  11.1  |   5.6  |   5.6  |
                  +--------+--------+--------+--------+--------+
          Column     10        4        2        1        1       18
           Total    55.6     22.2     11.1      5.6      5.6    100.0

        Statistic                Value          Significance
        ---------                -----          ------------
Pearson's R                     .27008              .1392

Number of Missing Observations =       0
```

11 Crosstabulation: AUINTRS By GENDER

```
           Count  |
         Row Pct  |Male    |Female  |
GENDER-> Col Pct  |        |        |  Row
         Tot Pct  |      1 |      2 | Total
AUINTRS  ---------+--------+--------+
               1  |   2    |   2    |    4
  4               |  50.0  |  50.0  |  22.2
                  |  20.0  |  25.0  |
                  |  11.1  |  11.1  |
                  +--------+--------+
               2  |   3    |   4    |    7
  3               |  42.9  |  57.1  |  38.9
                  |  30.0  |  50.0  |
                  |  16.7  |  22.2  |
                  +--------+--------+
               3  |   3    |   1    |    4
  2               |  75.0  |  25.0  |  22.2
                  |  30.0  |  12.5  |
                  |  16.7  |   5.6  |
                  +--------+--------+
               4  |   2    |   1    |    3
  1               |  66.7  |  33.3  |  16.7
                  |  20.0  |  12.5  |
                  |  11.1  |   5.6  |
                  +--------+--------+
          Column     10        8        18
           Total    55.6     44.4     100.0

 Chi-Square     D.F.      Significance      Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------      --------      ------------------
    1.26964       3          .7364           1.333        8 OF     8 (100.0%)

Number of Missing Observations =       0
```

12 Crosstabulation: AUINTRS By YRTEACIN

```
             Count  |
           Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Col Pct  |        |        |        |        |        |  Row
           Tot Pct  |      1 |      2 |      3 |      4 |      5 | Total
AUINTRS    ---------+--------+--------+--------+--------+--------+
                 1  |   3    |        |        |        |   1    |    4
  4                 |  75.0  |        |        |        |  25.0  |  22.2
                    |  30.0  |        |        |        | 100.0  |
                    |  16.7  |        |        |        |   5.6  |
                    +--------+--------+--------+--------+--------+
                 2  |   5    |   2    |        |        |        |    7
  3                 |  71.4  |  28.6  |        |        |        |  38.9
                    |  50.0  |  50.0  |        |        |        |
                    |  27.8  |  11.1  |        |        |        |
                    +--------+--------+--------+--------+--------+
                 3  |   2    |   1    |   1    |        |        |    4
  2                 |  50.0  |  25.0  |  25.0  |        |        |  22.2
                    |  20.0  |  25.0  |  50.0  |        |        |
                    |  11.1  |   5.6  |   5.6  |        |        |
                    +--------+--------+--------+--------+--------+
                 4  |        |   1    |   1    |   1    |        |    3
  1                 |        |  33.3  |  33.3  |  33.3  |        |  16.7
                    |        |  25.0  |  50.0  | 100.0  |        |
                    |        |   5.6  |   5.6  |   5.6  |        |
                    +--------+--------+--------+--------+--------+
            Column     10        4        2        1        1       18
             Total    55.6     22.2     11.1      5.6      5.6    100.0

        Statistic                Value          Significance
        ---------                -----          ------------
Pearson's R                     .28571              .1252
```

```
Number of Missing Observations =       0
```

13 Crosstabulation: AUMOTIV By GENDER

```
             Count   |
             Row Pct |Male     |Female   |
GENDER->     Col Pct |         |         |  Row
             Tot Pct |       1 |       2 |  Total
AUMOTIV      --------+---------+---------+
                   1 |       1 |         |     1
  4                  |  100.0  |         |   5.6
                     |   10.0  |         |
                     |    5.6  |         |
                     +---------+---------+
                   2 |       2 |       1 |     3
  3                  |   66.7  |   33.3  |  16.7
                     |   20.0  |   12.5  |
                     |   11.1  |    5.6  |
                     +---------+---------+
                   3 |       5 |       5 |    10
  2                  |   50.0  |   50.0  |  55.6
                     |   50.0  |   62.5  |
                     |   27.8  |   27.8  |
                     +---------+---------+
                   4 |       2 |       2 |     4
  1                  |   50.0  |   50.0  |  22.2
                     |   20.0  |   25.0  |
                     |   11.1  |   11.1  |
                     +---------+---------+
              Column       10        8       18
               Total     55.6     44.4    100.0

 Chi-Square    D.F.      Significance      Min E.F.     Cells with E.F.< 5
 ----------    ----      ------------      --------     ------------------
   1.12500       3           .7710            .444      7 OF     8 ( 87.5%)

Number of Missing Observations =       0
```

14 Crosstabulation: AUMOTIV By YRTEACIN

```
             Count   |
             Row Pct |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN->   Col Pct |         |         |         |         |         |  Row
             Tot Pct |       1 |       2 |       3 |       4 |       5 |  Total
AUMOTIV      --------+---------+---------+---------+---------+---------+
                   1 |       1 |         |         |         |         |     1
  4                  |  100.0  |         |         |         |         |   5.6
                     |   10.0  |         |         |         |         |
                     |    5.6  |         |         |         |         |
                     +---------+---------+---------+---------+---------+
                   2 |       1 |       2 |         |         |         |     3
  3                  |   33.3  |   66.7  |         |         |         |  16.7
                     |   10.0  |   50.0  |         |         |         |
                     |    5.6  |   11.1  |         |         |         |
                     +---------+---------+---------+---------+---------+
                   3 |       6 |       1 |       1 |       1 |       1 |    10
  2                  |   60.0  |   10.0  |   10.0  |   10.0  |   10.0  |  55.6
                     |   60.0  |   25.0  |   50.0  |  100.0  |  100.0  |
                     |   33.3  |    5.6  |    5.6  |    5.6  |    5.6  |
                     +---------+---------+---------+---------+---------+
                   4 |       2 |       1 |       1 |         |         |     4
  1                  |   50.0  |   25.0  |   25.0  |         |         |  22.2
                     |   20.0  |   25.0  |   50.0  |         |         |
                     |   11.1  |    5.6  |    5.6  |         |         |
                     +---------+---------+---------+---------+---------+
              Column       10         4         2         1         1      18
               Total     55.6      22.2      11.1       5.6       5.6   100.0

        Statistic                     Value          Significance
        ---------                     -----          ------------
Pearson's R                          .11196              .3291

Number of Missing Observations =       0
```

15 Crosstabulation: AUTMSAV By GENDER

```
             Count   |
             Row Pct |Male     |Female   |
GENDER->     Col Pct |         |         |  Row
             Tot Pct |       1 |       2 |  Total
AUTMSAV      --------+---------+---------+
                   1 |       1 |         |     1
  4                  |  100.0  |         |   5.6
                     |   10.0  |         |
                     |    5.6  |         |
                     +---------+---------+
                   2 |       4 |       3 |     7
```

```
  3              |  57.1  |  42.9  |  38.9
                 |  40.0  |  37.5  |
                 |  22.2  |  16.7  |
                 +--------+--------+
               3 |     4  |     5  |     9
  2              |  44.4  |  55.6  |  50.0
                 |  40.0  |  62.5  |
                 |  22.2  |  27.8  |
                 +--------+--------+
               4 |     1  |        |     1
  1              | 100.0  |        |   5.6
                 |  10.0  |        |
                 |   5.6  |        |
                 +--------+--------+
          Column      10        8      18
           Total    55.6     44.4   100.0

 Chi-Square     D.F.        Significance       Min E.F.    Cells with E.F.< 5
 ----------     ----        ------------       --------    ------------------
   2.05714        3             .5606              .444     7 OF     8 ( 87.5%)

Number of Missing Observations =        0
```

16 Crosstabulation: AUTMSAV By YRTEACIN

```
              Count  |
            Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN->  Col Pct  |         |         |         |         |         |  Row
            Tot Pct  |       1 |       2 |       3 |       4 |       5 | Total
AUTMSAV     ---------+---------+---------+---------+---------+---------+
                   1 |       1 |         |         |         |         |     1
  4                  |  100.0  |         |         |         |         |   5.6
                     |   10.0  |         |         |         |         |
                     |    5.6  |         |         |         |         |
                     +---------+---------+---------+---------+---------+
                   2 |       5 |       2 |         |         |         |     7
  3                  |   71.4  |   28.6  |         |         |         |  38.9
                     |   50.0  |   50.0  |         |         |         |
                     |   27.8  |   11.1  |         |         |         |
                     +---------+---------+---------+---------+---------+
                   3 |       4 |       2 |       2 |         |       1 |     9
  2                  |   44.4  |   22.2  |   22.2  |         |   11.1  |  50.0
                     |   40.0  |   50.0  |  100.0  |         |  100.0  |
                     |   22.2  |   11.1  |   11.1  |         |    5.6  |
                     +---------+---------+---------+---------+---------+
                   4 |         |         |         |       1 |         |     1
  1                  |         |         |         |  100.0  |         |   5.6
                     |         |         |         |  100.0  |         |
                     |         |         |         |    5.6  |         |
                     +---------+---------+---------+---------+---------+
              Column       10         4         2         1         1      18
               Total     55.6      22.2      11.1       5.6       5.6   100.0

          Statistic                    Value              Significance
          ---------                    -----              ------------
Pearson's R                           .53301                  .0114

Number of Missing Observations =        0
```

17 Crosstabulation: AUVALU By GENDER

```
              Count  |
            Row Pct  |Male    |Female  |
GENDER->    Col Pct  |        |        |  Row
            Tot Pct  |      1 |      2 | Total
AUVALU      ---------+--------+--------+
                   2 |     7  |     6  |    13
  3                  |  53.8  |  46.2  |  72.2
                     |  70.0  |  75.0  |
                     |  38.9  |  33.3  |
                     +--------+--------+
                   3 |     2  |     2  |     4
  2                  |  50.0  |  50.0  |  22.2
                     |  20.0  |  25.0  |
                     |  11.1  |  11.1  |
                     +--------+--------+
                   4 |     1  |        |     1
  1                  | 100.0  |        |   5.6
                     |  10.0  |        |
                     |   5.6  |        |
                     +--------+--------+
              Column     10        8      18
               Total   55.6     44.4   100.0

 Chi-Square     D.F.        Significance       Min E.F.    Cells with E.F.< 5
 ----------     ----        ------------       --------    ------------------
    .86538        2             .6488              .444     4 OF     6 ( 66.7%)

Number of Missing Observations =        0
```

18 Crosstabulation: AUVALU By YRTEACIN

```
              Count  |
              Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->    Col Pct |        |        |        |        |        |  Row
              Tot Pct |       1|       2|       3|       4|       5|  Total
AUVALU        --------+--------+--------+--------+--------+--------+
                   2  |     7  |     3  |     1  |     1  |     1  |    13
  3                   |  53.8  |  23.1  |   7.7  |   7.7  |   7.7  |  72.2
                      |  70.0  |  75.0  |  50.0  | 100.0  | 100.0  |
                      |  38.9  |  16.7  |   5.6  |   5.6  |   5.6  |
                      +--------+--------+--------+--------+--------+
                   3  |     2  |     1  |     1  |        |        |     4
  2                   |  50.0  |  25.0  |  25.0  |        |        |  22.2
                      |  20.0  |  25.0  |  50.0  |        |        |
                      |  11.1  |   5.6  |   5.6  |        |        |
                      +--------+--------+--------+--------+--------+
                   4  |     1  |        |        |        |        |     1
  1                   | 100.0  |        |        |        |        |   5.6
                      |  10.0  |        |        |        |        |
                      |   5.6  |        |        |        |        |
                      +--------+--------+--------+--------+--------+
              Column      10        4        2        1        1       18
              Total     55.6     22.2     11.1      5.6      5.6    100.0

      Statistic                 Value           Significance
      ---------                 -----           ------------
Pearson's R                    -.16496              .2565

Number of Missing Observations =       0
```

19 Crosstabulation: AUPOTEN By GENDER

```
             Count  |
             Row Pct |Male    |Female  |
GENDER->     Col Pct |        |        |  Row
             Tot Pct |       1|       2|  Total
AUPOTEN      --------+--------+--------+
                  2  |     4  |     1  |     5
  3                  |  80.0  |  20.0  |  27.8
                     |  40.0  |  12.5  |
                     |  22.2  |   5.6  |
                     +--------+--------+
                  3  |     3  |     6  |     9
  2                  |  33.3  |  66.7  |  50.0
                     |  30.0  |  75.0  |
                     |  16.7  |  33.3  |
                     +--------+--------+
                  4  |     3  |     1  |     4
  1                  |  75.0  |  25.0  |  22.2
                     |  30.0  |  12.5  |
                     |  16.7  |   5.6  |
                     +--------+--------+
             Column      10        8       18
             Total     55.6     44.4    100.0

Chi-Square     D.F.        Significance        Min E.F.      Cells with E.F.< 5
----------     ----        ------------        --------      ------------------
  3.62250        2             .1634             1.778       5 OF     6 ( 83.3%)

Number of Missing Observations =       0
```

20 Crosstabulation: AUPOTEN By YRTEACIN

```
              Count  |
              Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->    Col Pct |        |        |        |        |        |  Row
              Tot Pct |       1|       2|       3|       4|       5|  Total
AUPOTEN       --------+--------+--------+--------+--------+--------+
                   2  |     3  |     2  |        |        |        |     5
  3                   |  60.0  |  40.0  |        |        |        |  27.8
                      |  30.0  |  50.0  |        |        |        |
                      |  16.7  |  11.1  |        |        |        |
                      +--------+--------+--------+--------+--------+
                   3  |     4  |     1  |     2  |     1  |     1  |     9
  2                   |  44.4  |  11.1  |  22.2  |  11.1  |  11.1  |  50.0
                      |  40.0  |  25.0  | 100.0  | 100.0  | 100.0  |
                      |  22.2  |   5.6  |  11.1  |   5.6  |   5.6  |
                      +--------+--------+--------+--------+--------+
                   4  |     3  |     1  |        |        |        |     4
  1                   |  75.0  |  25.0  |        |        |        |  22.2
                      |  30.0  |  25.0  |        |        |        |
                      |  16.7  |   5.6  |        |        |        |
                      +--------+--------+--------+--------+--------+
              Column      10        4        2        1        1       18
              Total     55.6     22.2     11.1      5.6      5.6    100.0
```

```
          Statistic                    Value             Significance
          ---------                    -----             ------------
Pearson's R                          -.01126                .4823

Number of Missing Observations =         0
```

21 Crosstabulation: VIUSF By GENDER

```
             Count  |
           Row Pct  |Male    |Female  |
GENDER->   Col Pct  |        |        |  Row
           Tot Pct  |      1 |      2 | Total
VIUSF      ---------+--------+--------+
                3   |        |     1  |     1
  2                 |        | 100.0  |   5.6
                    |        |  12.5  |
                    |        |   5.6  |
                    +--------+--------+
                4   |   10   |     7  |    17
  1                 |  58.8  |  41.2  |  94.4
                    | 100.0  |  87.5  |
                    |  55.6  |  38.9  |
                    +--------+--------+
            Column      10        8       18
             Total    55.6     44.4    100.0

         STATISTIC                  One Tail           Two Tail
         ---------                  --------           --------
Fisher's Exact Test                  .44444             .44444

Number of Missing Observations =        0
```

22 Crosstabulation: VIUSF By YRTEACIN

```
               Count  |
             Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->   Col Pct  |        |        |        |        |        |  Row
             Tot Pct  |      1 |      2 |      3 |      4 |      5 | Total
VIUSF        ---------+--------+--------+--------+--------+--------+
                  3   |        |        |     1  |        |        |     1
  2                   |        |        | 100.0  |        |        |   5.6
                      |        |        |  50.0  |        |        |
                      |        |        |   5.6  |        |        |
                      +--------+--------+--------+--------+--------+
                  4   |    10  |     4  |     1  |     1  |     1  |    17
  1                   |  58.8  |  23.5  |   5.9  |   5.9  |   5.9  |  94.4
                      | 100.0  | 100.0  |  50.0  | 100.0  | 100.0  |
                      |  55.6  |  22.2  |   5.6  |   5.6  |   5.6  |
                      +--------+--------+--------+--------+--------+
              Column      10        4        2        1        1       18
               Total    55.6     22.2     11.1      5.6      5.6    100.0

          Statistic                    Value             Significance
          ---------                    -----             ------------
Pearson's R                          -.24254                .1661

Number of Missing Observations =        0
```

23 Crosstabulation: VIEASY By GENDER

```
             Count  |
           Row Pct  |Male    |Female  |
GENDER->   Col Pct  |        |        |  Row
           Tot Pct  |      1 |      2 | Total
VIEASY     ---------+--------+--------+
                1   |     1  |        |     1
  4                 | 100.0  |        |   5.6
                    |  10.0  |        |
                    |   5.6  |        |
                    +--------+--------+
                2   |        |     3  |     3
  3                 |        | 100.0  |  16.7
                    |        |  37.5  |
                    |        |  16.7  |
                    +--------+--------+
                3   |     4  |     2  |     6
  2                 |  66.7  |  33.3  |  33.3
                    |  40.0  |  25.0  |
                    |  22.2  |  11.1  |
                    +--------+--------+
                4   |     5  |     3  |     8
  1                 |  62.5  |  37.5  |  44.4
                    |  50.0  |  37.5  |
                    |  27.8  |  16.7  |
                    +--------+--------+
            Column      10        8       18
             Total    55.6     44.4    100.0
```

```
 Chi-Square    D.F.      Significance      Min E.F.     Cells with E.F.< 5
 ----------    ----      ------------      --------     ------------------
   5.00625       3          .1713            .444       8 OF     8 (100.0%)

Number of Missing Observations =       0
```

24 Crosstabulation: VIEASY By YRTEACIN

```
                Count  |
              Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN->    Col Pct  |         |         |         |         |         |  Row
              Tot Pct  |       1 |       2 |       3 |       4 |       5 | Total
VIEASY        ---------+---------+---------+---------+---------+---------+
                     1 |     1   |         |         |         |         |     1
  4                    | 100.0   |         |         |         |         |   5.6
                       |  10.0   |         |         |         |         |
                       |   5.6   |         |         |         |         |
                       +---------+---------+---------+---------+---------+
                     2 |     2   |     1   |         |         |         |     3
  3                    |  66.7   |  33.3   |         |         |         |  16.7
                       |  20.0   |  25.0   |         |         |         |
                       |  11.1   |   5.6   |         |         |         |
                       +---------+---------+---------+---------+---------+
                     3 |     2   |     2   |     1   |     1   |         |     6
  2                    |  33.3   |  33.3   |  16.7   |  16.7   |         |  33.3
                       |  20.0   |  50.0   |  50.0   | 100.0   |         |
                       |  11.1   |  11.1   |   5.6   |   5.6   |         |
                       +---------+---------+---------+---------+---------+
                     4 |     5   |     1   |     1   |         |     1   |     8
  1                    |  62.5   |  12.5   |  12.5   |         |  12.5   |  44.4
                       |  50.0   |  25.0   |  50.0   |         | 100.0   |
                       |  27.8   |   5.6   |   5.6   |         |   5.6   |
                       +---------+---------+---------+---------+---------+
                Column      10         4         2         1         1      18
                 Total    55.6      22.2      11.1       5.6       5.6   100.0

        Statistic                    Value            Significance
        ---------                    -----            ------------
Pearson's R                         .18570               .2303

Number of Missing Observations =       0
```

25 Crosstabulation: VIINTRS By GENDER

```
                Count  |
              Row Pct  |Male   . |Female   |
GENDER->      Col Pct  |         |         |  Row
              Tot Pct  |       1 |       2 | Total
VIINTRS       ---------+---------+---------+
                     3 |     3   |     3   |     6
  2                    |  50.0   |  50.0   |  33.3
                       |  30.0   |  37.5   |
                       |  16.7   |  16.7   |
                       +---------+---------+
                     4 |     7   |     5   |    12
  1                    |  58.3   |  41.7   |  66.7
                       |  70.0   |  62.5   |
                       |  38.9   |  27.8   |
                       +---------+---------+
                Column      10         8      18
                 Total    55.6      44.4   100.0

        STATISTIC                  One Tail          Two Tail
        ---------                  --------          --------
Fisher's Exact Test                 .56335            1.00000

Number of Missing Observations =       0
```

26 Crosstabulation: VIINTRS By YRTEACIN

```
                Count  |
              Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN->    Col Pct  |         |         |         |         |         |  Row
              Tot Pct  |       1 |       2 |       3 |       4 |       5 | Total
VIINTRS       ---------+---------+---------+---------+---------+---------+
                     3 |     3   |     2   |     1   |         |         |     6
  2                    |  50.0   |  33.3   |  16.7   |         |         |  33.3
                       |  30.0   |  50.0   |  50.0   |         |         |
                       |  16.7   |  11.1   |   5.6   |         |         |
                       +---------+---------+---------+---------+---------+
                     4 |     7   |     2   |     1   |     1   |     1   |    12
  1                    |  58.3   |  16.7   |   8.3   |   8.3   |   8.3   |  66.7
                       |  70.0   |  50.0   |  50.0   | 100.0   | 100.0   |
                       |  38.9   |  11.1   |   5.6   |   5.6   |   5.6   |
                       +---------+---------+---------+---------+---------+
                Column      10         4         2         1         1      18
                 Total    55.6      22.2      11.1       5.6       5.6   100.0
```

```
         Statistic                    Value          Significance
         ---------                    -----          ------------
Pearson's R                          .10102              .3450

Number of Missing Observations =       0
```

27 Crosstabulation: VIMOTIV By GENDER

```
            Count  |
          Row Pct  |Male     |Female   |
GENDER->  Col Pct  |         |         |  Row
          Tot Pct  |       1 |       2 |  Total
VIMOTIV   ---------+---------+---------+
                1  |         |     1   |     1
  4                |         |  100.0  |   5.6
                   |         |   12.5  |
                   |         |    5.6  |
                   +---------+---------+
                2  |     1   |     1   |     2
  3                |  50.0   |  50.0   |  11.1
                   |  10.0   |  12.5   |
                   |   5.6   |   5.6   |
                   +---------+---------+
                3  |     2   |     2   |     4
  2                |  50.0   |  50.0   |  22.2
                   |  20.0   |  25.0   |
                   |  11.1   |  11.1   |
                   +---------+---------+
                4  |     7   |     4   |    11
  1                |  63.6   |  36.4   |  61.1
                   |  70.0   |  50.0   |
                   |  38.9   |  22.2   |
                   +---------+---------+
           Column       10         8        18
            Total     55.6      44.4     100.0

 Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----       ------------       --------      ------------------
   1.61591        3            .6558             .444       7 OF     8 ( 87.5%)

Number of Missing Observations =       0
```

28 Crosstabulation: VIMOTIV By YRTEACIN

```
              Count  |
            Row Pct  |1-5     . |6-10     |11-15    |16-20    |21-25    |
YRTEACIN->  Col Pct  |          |         |         |         |         |  Row
            Tot Pct  |        1 |       2 |       3 |       4 |       5 |  Total
VIMOTIV     ---------+----------+---------+---------+---------+---------+
                  1  |     1    |         |         |         |         |     1
  4                  |  100.0   |         |         |         |         |   5.6
                     |   10.0   |         |         |         |         |
                     |    5.6   |         |         |         |         |
                     +----------+---------+---------+---------+---------+
                  2  |     1    |     1   |         |         |         |     2
  3                  |  50.0    |  50.0   |         |         |         |  11.1
                     |  10.0    |  25.0   |         |         |         |
                     |   5.6    |   5.6   |         |         |         |
                     +----------+---------+---------+---------+---------+
                  3  |     3    |         |     1   |         |         |     4
  2                  |  75.0    |         |  25.0   |         |         |  22.2
                     |  30.0    |         |  50.0   |         |         |
                     |  16.7    |         |   5.6   |         |         |
                     +----------+---------+---------+---------+---------+
                  4  |     5    |     3   |     1   |     1   |     1   |    11
  1                  |  45.5    |  27.3   |   9.1   |   9.1   |   9.1   |  61.1
                     |  50.0    |  75.0   |  50.0   | 100.0   | 100.0   |
                     |  27.8    |  16.7   |   5.6   |   5.6   |   5.6   |
                     +----------+---------+---------+---------+---------+
             Column       10          4         2         1         1        18
              Total     55.6       22.2      11.1       5.6       5.6     100.0

         Statistic                    Value          Significance
         ---------                    -----          ------------
Pearson's R                          .27625              .1336

Number of Missing Observations =       0
```

29 Crosstabulation: VITMSAV By GENDER

```
            Count  |
          Row Pct  |Male     |Female   |
GENDER->  Col Pct  |         |         |  Row
          Tot Pct  |       1 |       2 |  Total
VITMSAV   ---------+---------+---------+
                2  |     4   |     3   |     7
  3                |  57.1   |  42.9   |  38.9
```

```
                 |  40.0  |  37.5  |
                 |  22.2  |  16.7  |
                 +--------+--------+
              3  |     4  |     4  |     8
  2              |  50.0  |  50.0  |  44.4
                 |  40.0  |  50.0  |
                 |  22.2  |  22.2  |
                 +--------+--------+
              4  |     2  |     1  |     3
  1              |  66.7  |  33.3  |  16.7
                 |  20.0  |  12.5  |
                 |  11.1  |   5.6  |
                 +--------+--------+
          Column     10        8       18
           Total   55.6     44.4    100.0

 Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----       ------------       --------      ------------------
     .25714      2             .8794            1.333       6 OF     6 (100.0%)

Number of Missing Observations =        0
```

30 Crosstabulation: VITMSAV By YRTEACIN

```
            Count  |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Col Pct |        |        |        |        |        |  Row
           Tot Pct |       1|       2|       3|       4|       5| Total
VITMSAV    --------+--------+--------+--------+--------+--------+
                2  |     6  |     1  |        |        |        |     7
  3                |  85.7  |  14.3  |        |        |        |  38.9
                   |  60.0  |  25.0  |        |        |        |
                   |  33.3  |   5.6  |        |        |        |
                   +--------+--------+--------+--------+--------+
                3  |     4  |     3  |     1  |        |        |     8
  2                |  50.0  |  37.5  |  12.5  |        |        |  44.4
                   |  40.0  |  75.0  |  50.0  |        |        |
                   |  22.2  |  16.7  |   5.6  |        |        |
                   +--------+--------+--------+--------+--------+
                4  |        |        |     1  |     1  |     1  |     3
  1                |        |        |  33.3  |  33.3  |  33.3  |  16.7
                   |        |        |  50.0  | 100.0  | 100.0  |
                   |        |        |   5.6  |   5.6  |   5.6  |
                   +--------+--------+--------+--------+--------+
           Column      10        4        2        1        1       18
            Total    55.6     22.2     11.1      5.6      5.6    100.0

       Statistic                   Value           Significance
       ---------                   -----           ------------
Pearson's R                       .75856               .0001

Number of Missing Observations =        0
```

31 Crosstabulation: VIVALU By GENDER

```
            Count  |
           Row Pct |Male    |Female  |
GENDER->   Col Pct |        |        |  Row
           Tot Pct |       1|       2| Total
VIVALU     --------+--------+--------+
                1  |        |     2  |     2
  4                |        | 100.0  |  11.1
                   |        |  25.0  |
                   |        |  11.1  |
                   +--------+--------+
                2  |     6  |     3  |     9
  3                |  66.7  |  33.3  |  50.0
                   |  60.0  |  37.5  |
                   |  33.3  |  16.7  |
                   +--------+--------+
                3  |     2  |     3  |     5
  2                |  40.0  |  60.0  |  27.8
                   |  20.0  |  37.5  |
                   |  11.1  |  16.7  |
                   +--------+--------+
                4  |     2  |        |     2
  1                | 100.0  |        |  11.1
                   |  20.0  |        |
                   |  11.1  |        |
                   +--------+--------+
           Column      10        8      18
            Total    55.6     44.4   100.0

Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
----------     ----       ------------       --------      ------------------
   5.04000      3             .1689             .889       7 OF     8 ( 87.5%)

Number of Missing Observations =        0
```

32 Crosstabulation: VIVALU By YRTEACIN

```
             Count |
           Row Pct |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN-> Col Pct |         |         |         |         |         | Row
           Tot Pct |       1 |       2 |       3 |       4 |       5 | Total
VIVALU     --------+---------+---------+---------+---------+---------+
                1  |     1   |         |         |         |     1   |     2
   4               |  50.0   |         |         |         |  50.0   |  11.1
                   |  10.0   |         |         |         | 100.0   |
                   |   5.6   |         |         |         |   5.6   |
                   +---------+---------+---------+---------+---------+
                2  |     6   |     1   |     1   |     1   |         |     9
   3               |  66.7   |  11.1   |  11.1   |  11.1   |         |  50.0
                   |  60.0   |  25.0   |  50.0   | 100.0   |         |
                   |  33.3   |   5.6   |   5.6   |   5.6   |         |
                   +---------+---------+---------+---------+---------+
                3  |     1   |     3   |     1   |         |         |     5
   2               |  20.0   |  60.0   |  20.0   |         |         |  27.8
                   |  10.0   |  75.0   |  50.0   |         |         |
                   |   5.6   |  16.7   |   5.6   |         |         |
                   +---------+---------+---------+---------+---------+
                4  |     2   |         |         |         |         |     2
   1               | 100.0   |         |         |         |         |  11.1
                   |  20.0   |         |         |         |         |
                   |  11.1   |         |         |         |         |
                   +---------+---------+---------+---------+---------+
            Column      10         4         2         1         1        18
             Total    55.6      22.2      11.1       5.6       5.6     100.0

        Statistic                 Value            Significance
        ---------                 -----            ------------
Pearson's R                      -.27868               .1314

Number of Missing Observations =       0
```

33 Crosstabulation: VIPOTEN By GENDER

```
             Count |
           Row Pct |Male     |Female   |
GENDER->   Col Pct |         |         | Row
           Tot Pct |       1 |       2 | Total
VIPOTEN    --------+---------+---------+
                2  |     1   |         |     1
   3               | 100.0   |         |   5.6
                   |  10.0   |         |
                   |   5.6   |         |
                   +---------+---------+
                3  |     2   |     4   |     6
   2               |  33.3   |  66.7   |  33.3
                   |  20.0   |  50.0   |
                   |  11.1   |  22.2   |
                   +---------+---------+
                4  |     7   |     4   |    11
   1               |  63.6   |  36.4   |  61.1
                   |  70.0   |  50.0   |
                   |  38.9   |  22.2   |
                   +---------+---------+
            Column      10         8        18
             Total    55.6      44.4     100.0

Chi-Square     D.F.      Significance       Min E.F.      Cells with E.F.< 5
----------     ----      ------------       --------      ------------------
  2.29091        2           .3181             .444       5 OF     6 ( 83.3%)

Number of Missing Observations =       0
```

34 Crosstabulation: VIPOTEN By YRTEACIN

```
             Count |
           Row Pct |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN-> Col Pct |         |         |         |         |         | Row
           Tot Pct |       1 |       2 |       3 |       4 |       5 | Total
VIPOTEN    --------+---------+---------+---------+---------+---------+
                2  |     1   |         |         |         |         |     1
   3               | 100.0   |         |         |         |         |   5.6
                   |  10.0   |         |         |         |         |
                   |   5.6   |         |         |         |         |
                   +---------+---------+---------+---------+---------+
                3  |     4   |         |     2   |         |         |     6
   2               |  66.7   |         |  33.3   |         |         |  33.3
                   |  40.0   |         | 100.0   |         |         |
                   |  22.2   |         |  11.1   |         |         |
                   +---------+---------+---------+---------+---------+
                4  |     5   |     4   |         |     1   |     1   |    11
   1               |  45.5   |  36.4   |         |   9.1   |   9.1   |  61.1
                   |  50.0   | 100.0   |         | 100.0   | 100.0   |
                   |  27.8   |  22.2   |         |   5.6   |   5.6   |
```

```
                 +--------+--------+--------+--------+--------+
         Column      10        4        2        1        1        18
          Total    55.6     22.2     11.1      5.6      5.6     100.0

        Statistic                Value          Significance
        ---------                -----          ------------
Pearson's R                     .21222              .1989

Number of Missing Observations =       0
```

35 Crosstabulation: COMUSF By GENDER

```
            Count  |
          Row Pct  |Male     |Female   |
GENDER->  Col Pct  |         |         |  Row
          Tot Pct  |       1 |       2 | Total
COMUSF    ---------+---------+---------+
                1  |      1  |         |     1
   4               |  100.0  |         |   5.9
                   |   10.0  |         |
                   |    5.9  |         |
                   +---------+---------+
                2  |      1  |         |     1
   3               |  100.0  |         |   5.9
                   |   10.0  |         |
                   |    5.9  |         |
                   +---------+---------+
                3  |      1  |      5  |     6
   2               |   16.7  |   83.3  |  35.3
                   |   10.0  |   71.4  |
                   |    5.9  |   29.4  |
                   +---------+---------+
                4  |      7  |      2  |     9
   1               |   77.8  |   22.2  |  52.9
                   |   70.0  |   28.6  |
                   |   41.2  |   11.8  |
                   +---------+---------+
           Column       10         7      17
            Total     58.8      41.2   100.0

Chi-Square      D.F.        Significance       Min E.F.      Cells with E.F.< 5
----------      ----        ------------       --------      ------------------
   7.13730        3             .0676             .412       7 OF     8 ( 87.5%)

Number of Missing Observations =       1
```

36 Crosstabulation: COMUSF By YRTEACIN

```
             Count  |
           Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN-> Col Pct  |         |         |         |         |         |  Row
           Tot Pct  |       1 |       2 |       3 |       4 |       5 | Total
COMUSF     ---------+---------+---------+---------+---------+---------+
                 1  |      1  |         |         |         |         |     1
   4                |  100.0  |         |         |         |         |   5.9
                    |   11.1  |         |         |         |         |
                    |    5.9  |         |         |         |         |
                    +---------+---------+---------+---------+---------+
                 2  |      1  |         |         |         |         |     1
   3                |  100.0  |         |         |         |         |   5.9
                    |   11.1  |         |         |         |         |
                    |    5.9  |         |         |         |         |
                    +---------+---------+---------+---------+---------+
                 3  |      2  |      2  |      1  |         |      1  |     6
   2                |   33.3  |   33.3  |   16.7  |         |   16.7  |  35.3
                    |   22.2  |   50.0  |   50.0  |         |  100.0  |
                    |   11.8  |   11.8  |    5.9  |         |    5.9  |
                    +---------+---------+---------+---------+---------+
                 4  |      5  |      2  |      1  |      1  |         |     9
   1                |   55.6  |   22.2  |   11.1  |   11.1  |         |  52.9
                    |   55.6  |   50.0  |   50.0  |  100.0  |         |
                    |   29.4  |   11.8  |    5.9  |    5.9  |         |
                    +---------+---------+---------+---------+---------+
            Column        9         4         2         1         1        17
             Total     52.9      23.5      11.8       5.9       5.9     100.0

        Statistic                Value          Significance
        ---------                -----          ------------
Pearson's R                     .10152              .3491

Number of Missing Observations =       1
```

37 Crosstabulation: COMEASY By GENDER

```
            Count  |
          Row Pct  |Male     |Female   |
GENDER->  Col Pct  |         |         |  Row
          Tot Pct  |       1 |       2 | Total
```

```
COMEASY        --------+--------+--------+
             1  |     1  |     1  |      2
  4             |  50.0  |  50.0  |   11.8
                |  10.0  |  14.3  |
                |   5.9  |   5.9  |
                +--------+--------+
             2  |     7  |     6  |     13
  3             |  53.8  |  46.2  |   76.5
                |  70.0  |  85.7  |
                |  41.2  |  35.3  |
                +--------+--------+
             3  |     2  |        |      2
  2             | 100.0  |        |   11.8
                |  20.0  |        |
                |  11.8  |        |
                +--------+--------+
         Column      10        7       17
          Total    58.8     41.2    100.0

 Chi-Square     D.F.        Significance        Min E.F.      Cells with E.F.< 5
 ----------     ----        ------------        --------      ------------------
   1.59725        2             .4499             .824        4 OF     6 ( 66.7%)

Number of Missing Observations =        1
```

38 Crosstabulation: COMEASY By YRTEACIN

```
             Count  |
           Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Col Pct  |        |        |        |        |        |  Row
           Tot Pct  |     1  |     2  |     3  |     4  |     5  | Total
COMEASY    --------+--------+--------+--------+--------+--------+
              1  |     2  |        |        |        |        |      2
 4               | 100.0  |        |        |        |        |   11.8
                 |  22.2  |        |        |        |        |
                 |  11.8  |        |        |        |        |
                 +--------+--------+--------+--------+--------+
              2  |     6  |     4  |     1  |     1  |     1  |     13
 3               |  46.2  |  30.8  |   7.7  |   7.7  |   7.7  |   76.5
                 |  66.7  | 100.0  |  50.0  | 100.0  | 100.0  |
                 |  35.3  |  23.5  |   5.9  |   5.9  |   5.9  |
                 +--------+--------+--------+--------+--------+
              3  |     1  |        |     1  |        |        |      2
 2               |  50.0  |        |  50.0  |        |        |   11.8
                 |  11.1  |        |  50.0  |        |        |
                 |   5.9  |        |   5.9  |        |        |
                 +--------+--------+--------+--------+--------+
          Column       9        4        2        1        1       17
           Total    52.9     23.5     11.8      5.9      5.9    100.0

        Statistic                 Value            Significance
        ---------                 -----            ------------
Pearson's R                      .20513               .2148

Number of Missing Observations =       1
```

39 Crosstabulation: COMINTRS By GENDER

```
             Count  |
           Row Pct  |Male    |Female  |
GENDER->   Col Pct  |        |        |  Row
           Tot Pct  |     1  |     2  | Total
COMINTRS   --------+--------+--------+
              1  |     1  |        |      1
 4               | 100.0  |        |    5.9
                 |  10.0  |        |
                 |   5.9  |        |
                 +--------+--------+
              2  |     2  |        |      2
 3               | 100.0  |        |   11.8
                 |  20.0  |        |
                 |  11.8  |        |
                 +--------+--------+
              3  |     4  |     6  |     10
 2               |  40.0  |  60.0  |   58.8
                 |  40.0  |  85.7  |
                 |  23.5  |  35.3  |
                 +--------+--------+
              4  |     3  |     1  |      4
 1               |  75.0  |  25.0  |   23.5
                 |  30.0  |  14.3  |
                 |  17.6  |   5.9  |
                 +--------+--------+
          Column      10        7       17
           Total    58.8     41.2    100.0

 Chi-Square     D.F.        Significance        Min E.F.      Cells with E.F.< 5
 ----------     ----        ------------        --------      ------------------
   3.99500        3             .2620             .412        7 OF     8 ( 87.5%)
```

```
Number of Missing Observations =       1
```

40 Crosstabulation: COMINTRS By YRTEACIN

```
             Count  |
             Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->   Col Pct |        |        |        |        |        | Row
             Tot Pct |      1 |      2 |      3 |      4 |      5 | Total
COMINTRS     --------+--------+--------+--------+--------+--------+
                  1  |     1  |        |        |        |        |    1
  4                  | 100.0  |        |        |        |        |  5.9
                     |  11.1  |        |        |        |        |
                     |   5.9  |        |        |        |        |
                     +--------+--------+--------+--------+--------+
                  2  |     1  |     1  |        |        |        |    2
  3                  |  50.0  |  50.0  |        |        |        | 11.8
                     |  11.1  |  25.0  |        |        |        |
                     |   5.9  |   5.9  |        |        |        |
                     +--------+--------+--------+--------+--------+
                  3  |     6  |     2  |     1  |        |     1  |   10
  2                  |  60.0  |  20.0  |  10.0  |        |  10.0  | 58.8
                     |  66.7  |  50.0  |  50.0  |        | 100.0  |
                     |  35.3  |  11.8  |   5.9  |        |   5.9  |
                     +--------+--------+--------+--------+--------+
                  4  |     1  |     1  |     1  |     1  |        |    4
  1                  |  25.0  |  25.0  |  25.0  |  25.0  |        | 23.5
                     |  11.1  |  25.0  |  50.0  | 100.0  |        |
                     |   5.9  |   5.9  |   5.9  |   5.9  |        |
                     +--------+--------+--------+--------+--------+
             Column       9        4        2        1        1      17
              Total    52.9     23.5     11.8      5.9      5.9   100.0

         Statistic                  Value           Significance
         ---------                  -----           ------------
Pearson's R                        .32434               .1020

Number of Missing Observations =       1
```

41 Crosstabulation: COMMOTIV By GENDER

```
             Count  |
             Row Pct |Male    |Female  |
GENDER->     Col Pct |        |        | Row
             Tot Pct |      1 |      2 | Total
COMMOTIV     --------+--------+--------+
                  2  |     1  |     1  |    2
  3                  |  50.0  |  50.0  | 11.8
                     |  10.0  |  14.3  |
                     |   5.9  |   5.9  |
                     +--------+--------+
                  3  |     5  |     5  |   10
  2                  |  50.0  |  50.0  | 58.8
                     |  50.0  |  71.4  |
                     |  29.4  |  29.4  |
                     +--------+--------+
                  4  |     4  |     1  |    5
  1                  |  80.0  |  20.0  | 29.4
                     |  40.0  |  14.3  |
                     |  23.5  |   5.9  |
                     +--------+--------+
             Column      10        7      17
              Total    58.8     41.2   100.0

Chi-Square      D.F.      Significance      Min E.F.      Cells with E.F.< 5
----------      ----      ------------      --------      ------------------
   1.31143         2          .5191            .824       5 OF     6 ( 83.3%)

Number of Missing Observations =       1
```

42 Crosstabulation: COMMOTIV By YRTEACIN

```
             Count  |
             Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->   Col Pct |        |        |        |        |        | Row
             Tot Pct |      1 |      2 |      3 |      4 |      5 | Total
COMMOTIV     --------+--------+--------+--------+--------+--------+
                  2  |     1  |        |        |        |     1  |    2
  3                  |  50.0  |        |        |        |  50.0  | 11.8
                     |  11.1  |        |        |        | 100.0  |
                     |   5.9  |        |        |        |   5.9  |
                     +--------+--------+--------+--------+--------+
                  3  |     5  |     4  |     1  |        |        |   10
  2                  |  50.0  |  40.0  |  10.0  |        |        | 58.8
                     |  55.6  | 100.0  |  50.0  |        |        |
                     |  29.4  |  23.5  |   5.9  |        |        |
                     +--------+--------+--------+--------+--------+
```

```
              4  |    3   |        |    1   |    1   |        |     5
   1             |  60.0  |        |  20.0  |  20.0  |        |   29.4
                 |  33.3  |        |  50.0  | 100.0  |        |
                 |  17.6  |        |   5.9  |   5.9  |        |
                 +--------+--------+--------+--------+--------+
          Column      9        4        2        1        1        17
           Total    52.9     23.5     11.8      5.9      5.9     100.0

        Statistic                 Value         Significance
        ---------                 -----         ------------
Pearson's R                      -.13282            .3057

Number of Missing Observations =        1
```

43 Crosstabulation: COMTMSAV By GENDER

```
               Count  |
             Row Pct  |Male    |Female  |
GENDER->     Col Pct  |        |        |  Row
             Tot Pct  |      1 |      2 |  Total
COMTMSAV     ---------+--------+--------+
                  1   |    1   |        |     1
   4                  | 100.0  |        |   5.9
                      |  10.0  |        |
                      |   5.9  |        |
                      +--------+--------+
                  2   |    5   |    2   |     7
   3                  |  71.4  |  28.6  |  41.2
                      |  50.0  |  28.6  |
                      |  29.4  |  11.8  |
                      +--------+--------+
                  3   |    1   |    5   |     6
   2                  |  16.7  |  83.3  |  35.3
                      |  10.0  |  71.4  |
                      |   5.9  |  29.4  |
                      +--------+--------+
                  4   |    3   |        |     3
   1                  | 100.0  |        |  17.6
                      |  30.0  |        |
                      |  17.6  |        |
                      +--------+--------+
             Column       10        7       17
              Total     58.8     41.2    100.0

Chi-Square     D.F.        Significance        Min E.F.       Cells with E.F.< 5
----------     ----        ------------        --------       ------------------
  7.66156        3             . .0535            .412        8 OF     8 (100.0%)

Number of Missing Observations =        1
```

44 Crosstabulation: COMTMSAV By YRTEACIN

```
              Count  |
            Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->  Col Pct  |        |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 |      5 |  Total
COMTMSAV    ---------+--------+--------+--------+--------+--------+
                 1   |    1   |        |        |        |        |     1
   4                 | 100.0  |        |        |        |        |   5.9
                     |  11.1  |        |        |        |        |
                     |   5.9  |        |        |        |        |
                     +--------+--------+--------+--------+--------+
                 2   |    3   |    3   |        |        |    1   |     7
   3                 |  42.9  |  42.9  |        |        |  14.3  |  41.2
                     |  33.3  |  75.0  |        |        | 100.0  |
                     |  17.6  |  17.6  |        |        |   5.9  |
                     +--------+--------+--------+--------+--------+
                 3   |    4   |    1   |    1   |        |        |     6
   2                 |  66.7  |  16.7  |  16.7  |        |        |  35.3
                     |  44.4  |  25.0  |  50.0  |        |        |
                     |  23.5  |   5.9  |   5.9  |        |        |
                     +--------+--------+--------+--------+--------+
                 4   |    1   |        |    1   |    1   |        |     3
   1                 |  33.3  |        |  33.3  |  33.3  |        |  17.6
                     |  11.1  |        |  50.0  | 100.0  |        |
                     |   5.9  |        |   5.9  |   5.9  |        |
                     +--------+--------+--------+--------+--------+
            Column       9        4        2        1        1        17
             Total     52.9     23.5     11.8      5.9      5.9     100.0

        Statistic                 Value         Significance
        ---------                 -----         ------------
Pearson's R                       .19603            .2254

Number of Missing Observations =        1
```

45 Crosstabulation: COMVALU By GENDER

```
             Count  |
           Row Pct  |Male     |Female   |
GENDER->   Col Pct  |         |         |  Row
           Tot Pct  |       1 |       2 |  Total
COMVALU    --------+---------+---------+
                 1  |       1 |       1 |      2
   4                |  50.0   |  50.0   |   11.8
                    |  10.0   |  14.3   |
                    |   5.9   |   5.9   |
                    +---------+---------+
                 2  |       5 |       2 |      7
   3                |  71.4   |  28.6   |   41.2
                    |  50.0   |  28.6   |
                    |  29.4   |  11.8   |
                    +---------+---------+
                 3  |       4 |       4 |      8
   2                |  50.0   |  50.0   |   47.1
                    |  40.0   |  57.1   |
                    |  23.5   |  23.5   |
                    +---------+---------+
            Column        10         7        17
             Total      58.8      41.2     100.0

 Chi-Square     D.F.      Significance        Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------        --------      ------------------
   .78061         2           .6768              .824       6 OF      6 (100.0%)

Number of Missing Observations =        1
```

46 Crosstabulation: COMVALU By YRTEACIN

```
               Count  |
             Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN->   Col Pct  |         |         |         |         |         |  Row
             Tot Pct  |       1 |       2 |       3 |       4 |       5 |  Total
COMVALU      --------+---------+---------+---------+---------+---------+
                   1  |       2 |         |         |         |         |      2
   4                  | 100.0   |         |         |         |         |   11.8
                      |  22.2   |         |         |         |         |
                      |  11.8   |         |         |         |         |
                      +---------+---------+---------+---------+---------+
                   2  |       2 |       3 |       1 |       1 |         |      7
   3                  |  28.6   |  42.9   |  14.3   |  14.3   |         |   41.2
                      |  22.2  .|  75.0   |  50.0   | 100.0   |         |
                      |  11.8   |  17.6   |   5.9   |   5.9   |         |
                      +---------+---------+---------+---------+---------+
                   3  |       5 |       1 |       1 |         |       1 |      8
   2                  |  62.5   |  12.5   |  12.5   |         |  12.5   |   47.1
                      |  55.6   |  25.0   |  50.0   |         | 100.0   |
                      |  29.4   |   5.9   |   5.9   |         |   5.9   |
                      +---------+---------+---------+---------+---------+
              Column          9         4         2         1         1        17
               Total       52.9      23.5      11.8       5.9       5.9     100.0

        Statistic                  Value              Significance
        ---------                  -----              ------------
Pearson's R                       .12464                  .3168

Number of Missing Observations =        1
```

47 Crosstabulation: COMPOTEN By GENDER

```
             Count  |
           Row Pct  |Male     |Female   |
GENDER->   Col Pct  |         |         |  Row
           Tot Pct  |       1 |       2 |  Total
COMPOTEN   --------+---------+---------+
                 2  |       1 |       2 |      3
   3                |  33.3   |  66.7   |   17.6
                    |  10.0   |  28.6   |
                    |   5.9   |  11.8   |
                    +---------+---------+
                 3  |       5 |       3 |      8
   2                |  62.5   |  37.5   |   47.1
                    |  50.0   |  42.9   |
                    |  29.4   |  17.6   |
                    +---------+---------+
                 4  |       4 |       2 |      6
   1                |  66.7   |  33.3   |   35.3
                    |  40.0   |  28.6   |
                    |  23.5   |  11.8   |
                    +---------+---------+
            Column        10         7        17
             Total      58.8      41.2     100.0
```

```
 Chi-Square     D.F.        Significance       Min E.F.     Cells with E.F.< 5
 ----------     ----        ------------       --------     ------------------
   1.00179        2             .6060             1.235     6 OF     6 (100.0%)

Number of Missing Observations =        1
```

48 Crosstabulation: COMPOTEN By YRTEACIN

```
                 Count |
               Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->     Col Pct |        |        |        |        |        | Row
               Tot Pct |      1 |      2 |      3 |      4 |      5 | Total
COMPOTEN       --------+--------+--------+--------+--------+--------+
                   2   |    2   |        |        |        |    1   |    3
  3                    |  66.7  |        |        |        |  33.3  |  17.6
                       |  22.2  |        |        |        | 100.0  |
                       |  11.8  |        |        |        |   5.9  |
                       +--------+--------+--------+--------+--------+
                   3   |    4   |    3   |    1   |        |        |    8
  2                    |  50.0  |  37.5  |  12.5  |        |        |  47.1
                       |  44.4  |  75.0  |  50.0  |        |        |
                       |  23.5  |  17.6  |   5.9  |        |        |
                       +--------+--------+--------+--------+--------+
                   4   |    3   |    1   |    1   |    1   |        |    6
  1                    |  50.0  |  16.7  |  16.7  |  16.7  |        |  35.3
                       |  33.3  |  25.0  |  50.0  | 100.0  |        |
                       |  17.6  |   5.9  |   5.9  |   5.9  |        |
                       +--------+--------+--------+--------+--------+
                Column      9        4        2        1        1       17
                 Total    52.9     23.5     11.8      5.9      5.9    100.0

         Statistic                Value           Significance
         ---------                -----           ------------
Pearson's R                     -.04561               .4310

Number of Missing Observations =        1
```

49 Crosstabulation: IVUSF By GENDER

```
                 Count |
               Row Pct |Male    |Female  |
GENDER->       Col Pct |        |        | Row
               Tot Pct |      1 |      2 | Total
IVUSF          --------+--------+--------+
                   3   |    1   |    2   |    3
  2                    |  33.3  |  66.7  |  21.4
                       |  14.3  |  28.6  |
                       |   7.1  |  14.3  |
                       +--------+--------+
                   4   |    6   |    5   |   11
  1                    |  54.5  |  45.5  |  78.6
                       |  85.7  |  71.4  |
                       |  42.9  |  35.7  |
                       +--------+--------+
                Column      7        7       14
                 Total    50.0     50.0    100.0

         STATISTIC              One Tail           Two Tail
         ---------              --------           --------
Fisher's Exact Test              .50000            1.00000

Number of Missing Observations =        4
```

50 Crosstabulation: IVUSF By YRTEACIN

```
                 Count |
               Row Pct |1-5     |6-10    |11-15   |21-25   |
YRTEACIN->     Col Pct |        |        |        |        | Row
               Tot Pct |      1 |      2 |      3 |      5 | Total
IVUSF          --------+--------+--------+--------+--------+
                   3   |    2   |        |    1   |        |    3
  2                    |  66.7  |        |  33.3  |        |  21.4
                       |  28.6  |        |  50.0  |        |
                       |  14.3  |        |   7.1  |        |
                       +--------+--------+--------+--------+
                   4   |    5   |    4   |    1   |    1   |   11
  1                    |  45.5  |  36.4  |   9.1  |   9.1  |  78.6
                       |  71.4  | 100.0  |  50.0  | 100.0  |
                       |  35.7  |  28.6  |   7.1  |   7.1  |
                       +--------+--------+--------+--------+
                Column      7        4        2        1       14
                 Total    50.0     28.6     14.3      7.1    100.0

         Statistic                Value           Significance
         ---------                -----           ------------
Pearson's R                      .08843               .3819
```

```
Number of Missing Observations =       4
```

51 Crosstabulation: IVEASY By GENDER

```
               Count  |
              Row Pct |Male     |Female  |
GENDER->      Col Pct |         |        | Row
              Tot Pct |       1 |      2 | Total
IVEASY        --------+---------+--------+
                   1  |     3   |    4   |    7
   4                  |  42.9   |  57.1  |  50.0
                      |  42.9   |  57.1  |
                      |  21.4   |  28.6  |
                      +---------+--------+
                   2  |     4   |    2   |    6
   3                  |  66.7   |  33.3  |  42.9
                      |  57.1   |  28.6  |
                      |  28.6   |  14.3  |
                      +---------+--------+
                   3  |         |    1   |    1
   2                  |         | 100.0  |   7.1
                      |         |  14.3  |
                      |         |   7.1  |
                      +---------+--------+
               Column       7        7      14
                Total    50.0     50.0   100.0

 Chi-Square    D.F.      Significance      Min E.F.    Cells with E.F.< 5
 ----------    ----      ------------      --------    ------------------
    1.80952      2           .4046            .500     6 OF     6 (100.0%)

Number of Missing Observations =       4
```

52 Crosstabulation: IVEASY By YRTEACIN

```
               Count  |
              Row Pct |1-5      |6-10     |11-15    |21-25    |
YRTEACIN->    Col Pct |         |         |         |         | Row
              Tot Pct |       1 |       2 |       3 |       5 | Total
IVEASY        --------+---------+---------+---------+---------+
                   1  |     4   |     2   |         |     1   |    7
   4                  |  57.1   |  28.6   |         |  14.3   |  50.0
                      |  57.1   |  50.0   |         | 100.0   |
                      |  28.6   |  14.3   |         |   7.1   |
                      +---------+---------+---------+---------+
                   2  |     2   |.    2   |     2   |         |    6
   3                  |  33.3   |  33.3   |  33.3   |         |  42.9
                      |  28.6   |  50.0   | 100.0   |         |
                      |  14.3   |  14.3   |  14.3   |         |
                      +---------+---------+---------+---------+
                   3  |     1   |         |         |         |    1
   2                  | 100.0   |         |         |         |   7.1
                      |  14.3   |         |         |         |
                      |   7.1   |         |         |         |
                      +---------+---------+---------+---------+
               Column       7         4         2         1      14
                Total    50.0      28.6      14.3       7.1   100.0

        Statistic                    Value            Significance
        ---------                    -----            ------------
Pearson's R                        -.08741                 .3832

Number of Missing Observations =       4
```

53 Crosstabulation: IVINTRS By GENDER

```
               Count  |
              Row Pct |Male     |Female  |
GENDER->      Col Pct |         |        | Row
              Tot Pct |       1 |      2 | Total
IVINTRS       --------+---------+--------+
                   3  |     2   |    2   |    4
   2                  |  50.0   |  50.0  |  28.6
                      |  28.6   |  28.6  |
                      |  14.3   |  14.3  |
                      +---------+--------+
                   4  |     5   |    5   |   10
   1                  |  50.0   |  50.0  |  71.4
                      |  71.4   |  71.4  |
                      |  35.7   |  35.7  |
                      +---------+--------+
               Column       7        7      14
                Total    50.0     50.0   100.0

        STATISTIC                  One Tail        Two Tail
        ---------                  --------        --------
Fisher's Exact Test                 .72028          1.00000
```

```
Number of Missing Observations =       4
```

54 Crosstabulation: IVINTRS By YRTEACIN

```
              Count  |
             Row Pct |1-5      |6-10     |11-15    |21-25    |
YRTEACIN->   Col Pct |         |         |         |         | Row
             Tot Pct |       1 |       2 |       3 |       5 | Total
IVINTRS      --------+---------+---------+---------+---------+
                   3 |     2   |     1   |     1   |         |     4
  2                  |  50.0   |  25.0   |  25.0   |         |  28.6
                     |  28.6   |  25.0   |  50.0   |         |
                     |  14.3   |   7.1   |   7.1   |         |
                     +---------+---------+---------+---------+
                   4 |     5   |     3   |     1   |     1   |    10
  1                  |  50.0   |  30.0   |  10.0   |  10.0   |  71.4
                     |  71.4   |  75.0   |  50.0   | 100.0   |
                     |  35.7   |  21.4   |   7.1   |   7.1   |
                     +---------+---------+---------+---------+
              Column       7         4         2         1        14
               Total    50.0      28.6      14.3       7.1     100.0

          Statistic                  Value             Significance
          ---------                  -----             ------------
Pearson's R                         .06024                 .4190

Number of Missing Observations =       4
```

55 Crosstabulation: IVMOTIV By GENDER

```
             Count  |
            Row Pct |Male     |Female   |
GENDER->    Col Pct |         |         | Row
            Tot Pct |       1 |       2 | Total
IVMOTIV     --------+---------+---------+
                  1 |         |     2   |     2
  4                 |         | 100.0   |  14.3
                    |         |  28.6   |
                    |         |  14.3   |
                    +---------+---------+
                  3 |     2   |     1   |     3
  2                 |  66.7   |  33.3   |  21.4
                    |  28.6   |  14.3   |
                    |  14.3   |   7.1   |
                    +---------+---------+
                  4 |     5   |     4   |     9
  1                 |  55.6   |  44.4   |  64.3
                    |  71.4   |  57.1   |
                    |  35.7   |  28.6   |
                    +---------+---------+
             Column       7         7        14
              Total    50.0      50.0     100.0

Chi-Square     D.F.        Significance        Min E.F.      Cells with E.F.< 5
----------     ----        ------------        --------      ------------------
  2.44444        2            .2946               1.000      6 OF     6 (100.0%)

Number of Missing Observations =       4
```

56 Crosstabulation: IVMOTIV By YRTEACIN

```
              Count  |
             Row Pct |1-5      |6-10     |11-15    |21-25    |
YRTEACIN->   Col Pct |         |         |         |         | Row
             Tot Pct |       1 |       2 |       3 |       5 | Total
IVMOTIV      --------+---------+---------+---------+---------+
                   1 |     1   |     1   |         |         |     2
  4                  |  50.0   |  50.0   |         |         |  14.3
                     |  14.3   |  25.0   |         |         |
                     |   7.1   |   7.1   |         |         |
                     +---------+---------+---------+---------+
                   3 |     2   |     1   |         |         |     3
  2                  |  66.7   |  33.3   |         |         |  21.4
                     |  28.6   |  25.0   |         |         |
                     |  14.3   |   7.1   |         |         |
                     +---------+---------+---------+---------+
                   4 |     4   |     2   |     2   |     1   |     9
  1                  |  44.4   |  22.2   |  22.2   |  11.1   |  64.3
                     |  57.1   |  50.0   | 100.0   | 100.0   |
                     |  28.6   |  14.3   |  14.3   |   7.1   |
                     +---------+---------+---------+---------+
              Column       7         4         2         1        14
               Total    50.0      28.6      14.3       7.1     100.0

          Statistic                  Value             Significance
          ---------                  -----             ------------
Pearson's R                         .22625                 .2183
```

```
Number of Missing Observations =       4
```

57 Crosstabulation: IVTMSAV By GENDER

```
            Count   |
            Row Pct |Male    |Female  |
GENDER->    Col Pct |        |        |  Row
            Tot Pct |       1|       2|  Total
IVTMSAV     --------+--------+--------+
                  2 |     1  |     1  |     2
  3                 |  50.0  |  50.0  |  14.3
                    |  14.3  |  14.3  |
                    |   7.1  |   7.1  |
                    +--------+--------+
                  3 |     2  |     3  |     5
  2                 |  40.0  |  60.0  |  35.7
                    |  28.6  |  42.9  |
                    |  14.3  |  21.4  |
                    +--------+--------+
                  4 |     4  |     3  |     7
  1                 |  57.1  |  42.9  |  50.0
                    |  57.1  |  42.9  |
                    |  28.6  |  21.4  |
                    +--------+--------+
             Column       7        7       14
              Total    50.0     50.0    100.0

 Chi-Square     D.F.        Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----        ------------       --------      ------------------
    .34286        2            .8425             1.000       6 OF     6 (100.0%)

Number of Missing Observations =       4
```

58 Crosstabulation: IVTMSAV By YRTEACIN

```
            Count   |
            Row Pct |1-5     |6-10    |11-15   |21-25   |
YRTEACIN->  Col Pct |        |        |        |        |  Row
            Tot Pct |       1|       2|       3|       5|  Total
IVTMSAV     --------+--------+--------+--------+--------+
                  2 |        |     2  |        |        |     2
  3                 |        | 100.0  |        |        |  14.3
                    |        |  50.0  |        |        |
                    |        |  14.3  |        |        |
                    +--------+--------+--------+--------+
                  3 |     3 .|     2  |        |        |     5
  2                 |  60.0  |  40.0  |        |        |  35.7
                    |  42.9  |  50.0  |        |        |
                    |  21.4  |  14.3  |        |        |
                    +--------+--------+--------+--------+
                  4 |     4  |        |     2  |     1  |     7
  1                 |  57.1  |        |  28.6  |  14.3  |  50.0
                    |  57.1  |        | 100.0  | 100.0  |
                    |  28.6  |        |  14.3  |   7.1  |
                    +--------+--------+--------+--------+
             Column       7        4        2        1      14
              Total    50.0     28.6     14.3      7.1   100.0

         Statistic                  Value            Significance
         ---------                  -----            ------------
Pearson's R                        .15164               .3024

Number of Missing Observations =       4
```

59 Crosstabulation: IVVALU By GENDER

```
            Count   |
            Row Pct |Male    |Female  |
GENDER->    Col Pct |        |        |  Row
            Tot Pct |       1|       2|  Total
IVVALU      --------+--------+--------+
                  1 |        |     2  |     2
  4                 |        | 100.0  |  14.3
                    |        |  28.6  |
                    |        |  14.3  |
                    +--------+--------+
                  2 |     3  |     3  |     6
  3                 |  50.0  |  50.0  |  42.9
                    |  42.9  |  42.9  |
                    |  21.4  |  21.4  |
                    +--------+--------+
                  3 |     2  |     2  |     4
  2                 |  50.0  |  50.0  |  28.6
                    |  28.6  |  28.6  |
                    |  14.3  |  14.3  |
                    +--------+--------+
```

```
                4  |     2   |         |      2
  1                | 100.0   |         |   14.3
                   |  28.6   |         |
                   |  14.3   |         |
                   +---------+---------+
          Column        7         7        14
           Total     50.0      50.0     100.0

 Chi-Square    D.F.      Significance        Min E.F.      Cells with E.F.< 5
 ----------    ----      ------------        --------      ------------------
    4.00000       3           .2615            1.000       8 OF      8 (100.0%)

Number of Missing Observations =        4
```

60 Crosstabulation: IVVALU By YRTEACIN

```
              Count  |
            Row Pct  |1-5      |6-10     |11-15    |21-25    |
YRTEACIN->  Col Pct  |         |         |         |         |  Row
            Tot Pct  |      1  |      2  |      3  |      5  |  Total
IVVALU      ---------+---------+---------+---------+---------+
                1    |     1   |         |         |     1   |      2
  4                  |  50.0   |         |         |  50.0   |   14.3
                     |  14.3   |         |         | 100.0   |
                     |   7.1   |         |         |   7.1   |
                     +---------+---------+---------+---------+
                2    |     3   |     2   |     1   |         |      6
  3                  |  50.0   |  33.3   |  16.7   |         |   42.9
                     |  42.9   |  50.0   |  50.0   |         |
                     |  21.4   |  14.3   |   7.1   |         |
                     +---------+---------+---------+---------+
                3    |     1   |     2   |     1   |         |      4
  2                  |  25.0   |  50.0   |  25.0   |         |   28.6
                     |  14.3   |  50.0   |  50.0   |         |
                     |   7.1   |  14.3   |   7.1   |         |
                     +---------+---------+---------+---------+
                4    |     2   |         |         |         |      2
  1                  | 100.0   |         |         |         |   14.3
                     |  28.6   |         |         |         |
                     |  14.3   |         |         |         |
                     +---------+---------+---------+---------+
             Column        7         4         2         1        14
              Total     50.0      28.6      14.3       7.1     100.0

           Statistic                  Value            Significance
           ---------                  -----            ------------
Pearson's R                         -.36145                .1021

Number of Missing Observations =        4
```

61 Crosstabulation: IVPOTEN By GENDER

```
             Count  |
           Row Pct  |Male     |Female   |
GENDER->   Col Pct  |         |         |  Row
           Tot Pct  |      1  |      2  |  Total
IVPOTEN    ---------+---------+---------+
               3    |     2   |     1   |      3
  2                 |  66.7   |  33.3   |   21.4
                    |  28.6   |  14.3   |
                    |  14.3   |   7.1   |
                    +---------+---------+
               4    |     5   |     6   |     11
  1                 |  45.5   |  54.5   |   78.6
                    |  71.4   |  85.7   |
                    |  35.7   |  42.9   |
                    +---------+---------+
            Column        7         7        14
             Total     50.0      50.0     100.0

        STATISTIC                 One Tail            Two Tail
        ---------                 --------            --------
Fisher's Exact Test                .50000             1.00000

Number of Missing Observations =        4
```

62 Crosstabulation: IVPOTEN By YRTEACIN

```
             Count  |
           Row Pct  |1-5      |6-10     |11-15    |21-25    |
YRTEACIN-> Col Pct  |         |         |         |         |  Row
           Tot Pct  |      1  |      2  |      3  |      5  |  Total
IVPOTEN    ---------+---------+---------+---------+---------+
               3    |     3   |         |         |         |      3
  2                 | 100.0   |         |         |         |   21.4
                    |  42.9   |         |         |         |
                    |  21.4   |         |         |         |
```

```
                  +--------+--------+--------+--------+
               4  |     4  |     4  |     2  |     1  |    11
  1               |  36.4  |  36.4  |  18.2  |   9.1  |  78.6
                  |  57.1  | 100.0  | 100.0  | 100.0  |
                  |  28.6  |  28.6  |  14.3  |   7.1  |
                  +--------+--------+--------+--------+
          Column        7        4        2        1       14
           Total     50.0     28.6     14.3      7.1    100.0

        Statistic                  Value           Significance
        ---------                  -----           ------------
Pearson's R                        .39794              .0794

Number of Missing Observations =       4
```

63 Crosstabulation: CDUSF By GENDER

```
            Count |
          Row Pct |Male    |Female  |
GENDER->  Col Pct |        |        |  Row
          Tot Pct |      1 |      2 | Total
CDUSF     --------+--------+--------+
               2  |     1  |     2  |     3
  3               |  33.3  |  66.7  |  25.0
                  |  20.0  |  28.6  |
                  |   8.3  |  16.7  |
                  +--------+--------+
               3  |     1  |     1  |     2
  2               |  50.0  |  50.0  |  16.7
                  |  20.0  |  14.3  |
                  |   8.3  |   8.3  |
                  +--------+--------+
               4  |     3  |     4  |     7
  1               |  42.9  |  57.1  |  58.3
                  |  60.0  |  57.1  |
                  |  25.0  |  33.3  |
                  +--------+--------+
          Column        5        7       12
           Total     41.7     58.3    100.0

 Chi-Square    D.F.      Significance       Min E.F.     Cells with E.F.< 5
 ----------    ----      ------------       --------     ------------------
     .14694      2           .9292             .833      6 OF     6 (100.0%)

Number of Missing Observations =       6
```

64 Crosstabulation: CDUSF By YRTEACIN

```
            Count |
          Row Pct |1-5     |6-10    |11-15   |21-25   |
YRTEACIN-> Col Pct |        |        |        |        |  Row
          Tot Pct |      1 |      2 |      3 |      5 | Total
CDUSF     --------+--------+--------+--------+--------+
               2  |     3  |        |        |        |     3
  3               | 100.0  |        |        |        |  25.0
                  |  60.0  |        |        |        |
                  |  25.0  |        |        |        |
                  +--------+--------+--------+--------+
               3  |        |     2  |        |        |     2
  2               |        | 100.0  |        |        |  16.7
                  |        |  50.0  |        |        |
                  |        |  16.7  |        |        |
                  +--------+--------+--------+--------+
               4  |     2  |     2  |     2  |     1  |     7
  1               |  28.6  |  28.6  |  28.6  |  14.3  |  58.3
                  |  40.0  |  50.0  | 100.0  | 100.0  |
                  |  16.7  |  16.7  |  16.7  |   8.3  |
                  +--------+--------+--------+--------+
          Column        5        4        2        1       12
           Total     41.7     33.3     16.7      8.3    100.0

        Statistic                  Value           Significance
        ---------                  -----           ------------
Pearson's R                        .50952              .0453

Number of Missing Observations =       6
```

65 Crosstabulation: CDEASY By GENDER

```
            Count |
          Row Pct |Male    |Female  |
GENDER->  Col Pct |        |        |  Row
          Tot Pct |      1 |      2 | Total
CDEASY    --------+--------+--------+
               1  |     1  |     2  |     3
  4               |  33.3  |  66.7  |  25.0
                  |  20.0  |  28.6  |
```

```
                      |   8.3  |  16.7  |
                      +--------+--------+
                    2 |     3  |     5  |     8
 3                    |  37.5  |  62.5  |  66.7
                      |  60.0  |  71.4  |
                      |  25.0  |  41.7  |
                      +--------+--------+
                    3 |     1  |        |     1
 2                    | 100.0  |        |   8.3
                      |  20.0  |        |
                      |   8.3  |        |
                      +--------+--------+
               Column       5        7       12
                Total    41.7     58.3    100.0

Chi-Square     D.F.        Significance       Min E.F.     Cells with E.F.< 5
----------     ----        ------------       --------     ------------------
   1.54286        2              .4624           .417      6 OF     6 (100.0%)

Number of Missing Observations =        6
```

66 Crosstabulation: CDEASY By YRTEACIN

```
                Count |
              Row Pct |1-5     |6-10    |11-15   |21-25   |
YRTEACIN->    Col Pct |        |        |        |        | Row
              Tot Pct |      1 |      2 |      3 |      5 | Total
CDEASY        --------+--------+--------+--------+--------+
                    1 |     2  |     1  |        |        |     3
 4                    |  66.7  |  33.3  |        |        |  25.0
                      |  40.0  |  25.0  |        |        |
                      |  16.7  |   8.3  |        |        |
                      +--------+--------+--------+--------+
                    2 |     3  |     2  |     2  |     1  |     8
 3                    |  37.5  |  25.0  |  25.0  |  12.5  |  66.7
                      |  60.0  |  50.0  | 100.0  | 100.0  |
                      |  25.0  |  16.7  |  16.7  |   8.3  |
                      +--------+--------+--------+--------+
                    3 |        |     1  |        |        |     1
 2                    |        | 100.0  |        |        |   8.3
                      |        |  25.0  |        |        |
                      |        |   8.3  |        |        |
                      +--------+--------+--------+--------+
               Column       5        4        2        1       12
                Total    41.7     33.3     16.7      8.3    100.0

        Statistic                    Value             Significance
        ---------                    -----             ------------
Pearson's R                         .26112                 .2062

Number of Missing Observations =        6
```

67 Crosstabulation: CDINTRS By GENDER

```
                Count |
              Row Pct |Male    |Female  |
GENDER->      Col Pct |        |        | Row
              Tot Pct |      1 |      2 | Total
CDINTRS       --------+--------+--------+
                    1 |     1  |        |     1
 4                    | 100.0  |        |   8.3
                      |  20.0  |        |
                      |   8.3  |        |
                      +--------+--------+
                    2 |        |     1  |     1
 3                    |        | 100.0  |   8.3
                      |        |  14.3  |
                      |        |   8.3  |
                      +--------+--------+
                    3 |     2  |     5  |     7
 2                    |  28.6  |  71.4  |  58.3
                      |  40.0  |  71.4  |
                      |  16.7  |  41.7  |
                      +--------+--------+
                    4 |     2  |     1  |     3
 1                    |  66.7  |  33.3  |  25.0
                      |  40.0  |  14.3  |
                      |  16.7  |   8.3  |
                      +--------+--------+
               Column       5        7       12
                Total    41.7     58.3    100.0

Chi-Square     D.F.        Significance       Min E.F.     Cells with E.F.< 5
----------     ----        ------------       --------     ------------------
   3.37959        3              .3367           .417      8 OF     8 (100.0%)

Number of Missing Observations =        6
```

68 Crosstabulation: CDINTRS By YRTEACIN

```
               Count |
             Row Pct |1-5     |6-10    |11-15   |21-25   |
YRTEACIN->   Col Pct |        |        |        |        | Row
             Tot Pct |      1 |      2 |      3 |      5 | Total
CDINTRS      --------+--------+--------+--------+--------+
                   1 |      1 |        |        |        |     1
  4                  | 100.0  |        |        |        |   8.3
                     |  20.0  |        |        |        |
                     |   8.3  |        |        |        |
                     +--------+--------+--------+--------+
                   2 |      1 |        |        |        |     1
  3                  | 100.0  |        |        |        |   8.3
                     |  20.0  |        |        |        |
                     |   8.3  |        |        |        |
                     +--------+--------+--------+--------+
                   3 |      2 |      3 |      1 |      1 |     7
  2                  |  28.6  |  42.9  |  14.3  |  14.3  |  58.3
                     |  40.0  |  75.0  |  50.0  | 100.0  |
                     |  16.7  |  25.0  |   8.3  |   8.3  |
                     +--------+--------+--------+--------+
                   4 |      1 |      1 |      1 |        |     3
  1                  |  33.3  |  33.3  |  33.3  |        |  25.0
                     |  20.0  |  25.0  |  50.0  |        |
                     |   8.3  |   8.3  |   8.3  |        |
                     +--------+--------+--------+--------+
              Column        5        4        2        1      12
               Total     41.7     33.3     16.7      8.3   100.0

         Statistic                Value         Significance
         ---------                -----         ------------
Pearson's R                      .26517              .2024

Number of Missing Observations =       6
```

69 Crosstabulation: CDMOTIV By GENDER

```
               Count |
             Row Pct |Male    |Female  |
GENDER->     Col Pct |        |        | Row
             Tot Pct |      1 |      2 | Total
CDMOTIV      --------+--------+--------+
                   2 |      1 |      2 |     3
  3                  |  33.3  |  66.7  |  25.0
                     |  20.0  |  28.6  |
                     |   8.3  |  16.7  |
                     +--------+--------+
                   3 |      2 |      3 |     5
  2                  |  40.0  |  60.0  |  41.7
                     |  40.0  |  42.9  |
                     |  16.7  |  25.0  |
                     +--------+--------+
                   4 |      2 |      2 |     4
  1                  |  50.0  |  50.0  |  33.3
                     |  40.0  |  28.6  |
                     |  16.7  |  16.7  |
                     +--------+--------+
              Column        5        7      12
               Total     41.7     58.3   100.0

Chi-Square     D.F.     Significance      Min E.F.     Cells with E.F.< 5
----------     ----     ------------      --------     ------------------
    .20571       2          .9023            1.250     6 OF      6 (100.0%)

Number of Missing Observations =       6
```

70 Crosstabulation: CDMOTIV By YRTEACIN

```
               Count |
             Row Pct |1-5     |6-10    |11-15   |21-25   |
YRTEACIN->   Col Pct |        |        |        |        | Row
             Tot Pct |      1 |      2 |      3 |      5 | Total
CDMOTIV      --------+--------+--------+--------+--------+
                   2 |      2 |      1 |        |        |     3
  3                  |  66.7  |  33.3  |        |        |  25.0
                     |  40.0  |  25.0  |        |        |
                     |  16.7  |   8.3  |        |        |
                     +--------+--------+--------+--------+
                   3 |      1 |      2 |      1 |      1 |     5
  2                  |  20.0  |  40.0  |  20.0  |  20.0  |  41.7
                     |  20.0  |  50.0  |  50.0  | 100.0  |
                     |   8.3  |  16.7  |   8.3  |   8.3  |
                     +--------+--------+--------+--------+
                   4 |      2 |      1 |      1 |        |     4
  1                  |  50.0  |  25.0  |  25.0  |        |  33.3
                     |  40.0  |  25.0  |  50.0  |        |
                     |  16.7  |   8.3  |   8.3  |        |
```

```
                +--------+--------+--------+--------+
         Column        5        4        2        1       12
          Total     41.7     33.3     16.7      8.3    100.0

        Statistic                  Value           Significance
        ---------                  -----           ------------
Pearson's R                       .09506               .3844

Number of Missing Observations =       6
```

71 Crosstabulation: CDTMSAV By GENDER

```
              Count  |
            Row Pct  |Male     |Female   |
GENDER->    Col Pct  |         |         | Row
            Tot Pct  |       1 |       2 | Total
CDTMSAV     ---------+---------+---------+
                  2  |         |      2  |     2
   3                 |         |  100.0  |  16.7
                     |         |   28.6  |
                     |         |   16.7  |
                     +---------+---------+
                  3  |      3  |      4  |     7
   2                 |   42.9  |   57.1  |  58.3
                     |   60.0  |   57.1  |
                     |   25.0  |   33.3  |
                     +---------+---------+
                  4  |      2  |      1  |     3
   1                 |   66.7  |   33.3  |  25.0
                     |   40.0  |   14.3  |
                     |   16.7  |    8.3  |
                     +---------+---------+
             Column         5         7      12
              Total      41.7      58.3   100.0

 Chi-Square      D.F.       Significance       Min E.F.       Cells with E.F.< 5
 ----------      ----       ------------       --------       ------------------
   2.20408         2            .3322             .833        6 OF     6 (100.0%)

Number of Missing Observations =       6
```

72 Crosstabulation: CDTMSAV By YRTEACIN

```
              Count  |
            Row Pct  |1-5      |6-10     |11-15    |21-25    |
YRTEACIN->  Col Pct  |         |         |         |         | Row
            Tot Pct  |       1 |       2 |       3 |       5 | Total
CDTMSAV     ---------+---------+---------+---------+---------+
                  2  |      2  |         |         |         |     2
   3                 |  100.0  |         |         |         |  16.7
                     |   40.0  |         |         |         |
                     |   16.7  |         |         |         |
                     +---------+---------+---------+---------+
                  3  |      2  |      4  |      1  |         |     7
   2                 |   28.6  |   57.1  |   14.3  |         |  58.3
                     |   40.0  |  100.0  |   50.0  |         |
                     |   16.7  |   33.3  |    8.3  |         |
                     +---------+---------+---------+---------+
                  4  |      1  |         |      1  |      1  |     3
   1                 |   33.3  |         |   33.3  |   33.3  |  25.0
                     |   20.0  |         |   50.0  |  100.0  |
                     |    8.3  |         |    8.3  |    8.3  |
                     +---------+---------+---------+---------+
             Column         5         4         2         1      12
              Total      41.7      33.3      16.7       8.3   100.0

        Statistic                  Value           Significance
        ---------                  -----           ------------
Pearson's R                       .56373               .0281

Number of Missing Observations =       6
```

73 Crosstabulation: CDVALU By GENDER

```
              Count  |
            Row Pct  |Male     |Female   |
GENDER->    Col Pct  |         |         | Row
            Tot Pct  |       1 |       2 | Total
CDVALU      ---------+---------+---------+
                  2  |      1  |      2  |     3
   3                 |   33.3  |   66.7  |  25.0
                     |   20.0  |   28.6  |
                     |    8.3  |   16.7  |
                     +---------+---------+
                  3  |      3  |      5  |     8
   2                 |   37.5  |   62.5  |  66.7
                     |   60.0  |   71.4  |
```

```
                 |  25.0  |  41.7  |
                 +--------+--------+
              4  |    1   |        |     1
  1              | 100.0  |        |   8.3
                 |  20.0  |        |
                 |   8.3  |        |
                 +--------+--------+
          Column       5        7       12
           Total    41.7     58.3    100.0

Chi-Square    D.F.        Significance       Min E.F.     Cells with E.F.< 5
----------    ----        ------------       --------     ------------------
   1.54286       2            .4624             .417      6 OF     6 (100.0%)

Number of Missing Observations =       6
```

74 Crosstabulation: CDVALU By YRTEACIN

```
            Count |
          Row Pct |1-5     |6-10    |11-15   |21-25   |
YRTEACIN-> Col Pct |        |        |        |        | Row
          Tot Pct |      1 |      2 |      3 |      5 | Total
CDVALU    --------+--------+--------+--------+--------+
              2   |    1   |        |    1   |    1   |     3
  3               |  33.3  |        |  33.3  |  33.3  |  25.0
                  |  20.0  |        |  50.0  | 100.0  |
                  |   8.3  |        |   8.3  |   8.3  |
                  +--------+--------+--------+--------+
              3   |    3   |    4   |    1   |        |     8
  2               |  37.5  |  50.0  |  12.5  |        |  66.7
                  |  60.0  | 100.0  |  50.0  |        |
                  |  25.0  |  33.3  |   8.3  |        |
                  +--------+--------+--------+--------+
              4   |    1   |        |        |        |     1
  1               | 100.0  |        |        |        |   8.3
                  |  20.0  |        |        |        |
                  |   8.3  |        |        |        |
                  +--------+--------+--------+--------+
           Column      5        4        2        1       12
            Total   41.7     33.3     16.7      8.3    100.0

       Statistic                    Value          Significance
       ---------                    -----          ------------
Pearson's R                       -.52223              .0408

Number of Missing Observations =       6
```

75 Crosstabulation: CDPOTEN By GENDER

```
            Count |
          Row Pct |Male    |Female  |
GENDER->  Col Pct |        |        | Row
          Tot Pct |      1 |      2 | Total
CDPOTEN   --------+--------+--------+
              2   |    1   |    2   |     3
  3               |  33.3  |  66.7  |  25.0
                  |  20.0  |  28.6  |
                  |   8.3  |  16.7  |
                  +--------+--------+
              3   |    2   |    2   |     4
  2               |  50.0  |  50.0  |  33.3
                  |  40.0  |  28.6  |
                  |  16.7  |  16.7  |
                  +--------+--------+
              4   |    2   |    3   |     5
  1               |  40.0  |  60.0  |  41.7
                  |  40.0  |  42.9  |
                  |  16.7  |  25.0  |
                  +--------+--------+
           Column      5        7       12
            Total   41.7     58.3    100.0

Chi-Square    D.F.        Significance       Min E.F.     Cells with E.F.< 5
----------    ----        ------------       --------     ------------------
    .20571       2            .9023            1.250      6 OF     6 (100.0%)

Number of Missing Observations =       6
```

76 Crosstabulation: CDPOTEN By YRTEACIN

```
            Count |
          Row Pct |1-5     |6-10    |11-15   |21-25   |
YRTEACIN-> Col Pct |        |        |        |        | Row
          Tot Pct |      1 |      2 |      3 |      5 | Total
CDPOTEN   --------+--------+--------+--------+--------+
              2   |    3   |        |        |        |     3
  3               | 100.0  |        |        |        |  25.0
```

```
                 |  60.0  |        |        |        |
                 |  25.0  |        |        |        |
                 +--------+--------+--------+--------+
               3 |      1 |      2 |        |      1 |      4
  2              |  25.0  |  50.0  |        |  25.0  |   33.3
                 |  20.0  |  50.0  |        | 100.0  |
                 |   8.3  |  16.7  |        |   8.3  |
                 +--------+--------+--------+--------+
               4 |      1 |      2 |      2 |        |      5
  1              |  20.0  |  40.0  |  40.0  |        |   41.7
                 |  20.0  |  50.0  | 100.0  |        |
                 |   8.3  |  16.7  |  16.7  |        |
                 +--------+--------+--------+--------+
          Column        5        4        2        1       12
           Total     41.7     33.3     16.7      8.3    100.0

        Statistic              Value          Significance
        ---------              -----          ------------
Pearson's R                   .36116              .1244

Number of Missing Observations =        6
```

77 Crosstabulation: HOFTNYU By GENDER

```
              Count |
            Row Pct |Male    |Female  |
GENDER->    Col Pct |        |        |  Row
            Tot Pct |      1 |      2 | Total
HOFTNYU     --------+--------+--------+
                  1 |      2 |      1 |     3
  Always            |  66.7  |  33.3  |  16.7
                    |  20.0  |  12.5  |
                    |  11.1  |   5.6  |
                    +--------+--------+
                  2 |      4 |      6 |    10
  Almost always     |  40.0  |  60.0  |  55.6
                    |  40.0  |  75.0  |
                    |  22.2  |  33.3  |
                    +--------+--------+
                  3 |      4 |      1 |     5
  Sometimes         |  80.0  |  20.0  |  27.8
                    |  40.0  |  12.5  |
                    |  22.2  |   5.6  |
                    +--------+--------+
             Column       10        8      18
              Total     55.6     44.4   100.0

 Chi-Square     D.F.     Significance      Min E.F.     Cells with E.F.< 5
 ----------     ----     ------------      --------     ------------------
   2.34000        2          .3104            1.333     5 OF     6 ( 83.3%)

Number of Missing Observations =        0
```

78 Crosstabulation: HOFTNYU By YRTEACIN

```
              Count |
            Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->  Col Pct |        |        |        |        |        |  Row
            Tot Pct |      1 |      2 |      3 |      4 |      5 | Total
HOFTNYU     --------+--------+--------+--------+--------+--------+
                  1 |      3 |        |        |        |        |     3
  Always            | 100.0  |        |        |        |        |  16.7
                    |  30.0  |        |        |        |        |
                    |  16.7  |        |        |        |        |
                    +--------+--------+--------+--------+--------+
                  2 |      4 |      4 |      1 |      1 |        |    10
  Almost always     |  40.0  |  40.0  |  10.0  |  10.0  |        |  55.6
                    |  40.0  | 100.0  |  50.0  | 100.0  |        |
                    |  22.2  |  22.2  |   5.6  |   5.6  |        |
                    +--------+--------+--------+--------+--------+
                  3 |      3 |        |      1 |        |      1 |     5
  Sometimes         |  60.0  |        |  20.0  |        |  20.0  |  27.8
                    |  30.0  |        |  50.0  |        | 100.0  |
                    |  16.7  |        |   5.6  |        |   5.6  |
                    +--------+--------+--------+--------+--------+
             Column       10        4        2        1        1      18
              Total     55.6     22.2     11.1      5.6      5.6   100.0

        Statistic              Value          Significance
        ---------              -----          ------------
Kendall's Tau B               .23480              .1391

Number of Missing Observations =        0
```

79 Crosstabulation: HOFTNCLS By GENDER

```
             Count |
           Row Pct |Male    |Female  |
GENDER->   Col Pct |        |        |  Row
           Tot Pct |      1 |      2 |  Total
HOFTNCLS   --------+--------+--------+
                 1 |     3  |     4  |     7
  Always           |  42.9  |  57.1  |  38.9
                   |  30.0  |  50.0  |
                   |  16.7  |  22.2  |
                   +--------+--------+
                 2 |     7  |     4  |    11
  Almost always    |  63.6  |  36.4  |  61.1
                   |  70.0  |  50.0  |
                   |  38.9  |  22.2  |
                   +--------+--------+
            Column     10        8       18
             Total   55.6     44.4    100.0

        STATISTIC             One Tail        Two Tail
        ---------             --------        --------
Fisher's Exact Test            .35219          .63047

Number of Missing Observations =       0
```

80 Crosstabulation: HOFTNCLS By YRTEACIN

```
             Count |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Col Pct |        |        |        |        |        |  Row
           Tot Pct |      1 |      2 |      3 |      4 |      5 |  Total
HOFTNCLS   --------+--------+--------+--------+--------+--------+
                 1 |     6  |        |        |        |     1  |     7
  Always           |  85.7  |        |        |        |  14.3  |  38.9
                   |  60.0  |        |        |        | 100.0  |
                   |  33.3  |        |        |        |   5.6  |
                   +--------+--------+--------+--------+--------+
                 2 |     4  |     4  |     2  |     1  |        |    11
  Almost always    |  36.4  |  36.4  |  18.2  |   9.1  |        |  61.1
                   |  40.0  | 100.0  | 100.0  | 100.0  |        |
                   |  22.2  |  22.2  |  11.1  |   5.6  |        |
                   +--------+--------+--------+--------+--------+
            Column     10        4        2        1        1       18
             Total   55.6     22.2     11.1      5.6      5.6    100.0

        Statistic              Value        Significance
        ---------              -----        ------------
Kendall's Tau B               .35152            .0604

Number of Missing Observations =       0
```

81 Crosstabulation: RFOR4LS By GENDER

```
             Count |
           Row Pct |Male    |Female  |
GENDER->   Col Pct |        |        |  Row
           Tot Pct |      1 |      2 |  Total
RFOR4LS    --------+--------+--------+
                 1 |     6  |     2  |     8
                   |  75.0  |  25.0  |  44.4
                   |  60.0  |  25.0  |
                   |  33.3  |  11.1  |
                   +--------+--------+
                 2 |     4  |     6  |    10
                   |  40.0  |  60.0  |  55.6
                   |  40.0  |  75.0  |
                   |  22.2  |  33.3  |
                   +--------+--------+
            Column     10        8       18
             Total   55.6     44.4    100.0

        STATISTIC             One Tail        Two Tail
        ---------             --------        --------
Fisher's Exact Test            .15734          .18799

Number of Missing Observations =       0
```

82 Crosstabulation: RFOR4LS By YRTEACIN

```
             Count |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Col Pct |        |        |        |        |        |  Row
           Tot Pct |      1 |      2 |      3 |      4 |      5 |  Total
RFOR4LS    --------+--------+--------+--------+--------+--------+
                 1 |     4  |     1  |     1  |     1  |     1  |     8
```

```
                | 50.0   | 12.5   | 12.5   | 12.5   | 12.5   |  44.4
                | 40.0   | 25.0   | 50.0   | 100.0  | 100.0  |
                | 22.2   |  5.6   |  5.6   |  5.6   |  5.6   |
                +--------+--------+--------+--------+--------+
             2  |    6   |    3   |    1   |        |        |   10
                | 60.0   | 30.0   | 10.0   |        |        |  55.6
                | 60.0   | 75.0   | 50.0   |        |        |
                | 33.3   | 16.7   |  5.6   |        |        |
                +--------+--------+--------+--------+--------+
        Column      10        4        2        1        1       18
         Total    55.6     22.2     11.1      5.6      5.6    100.0

        Statistic                 Value           Significance
        ---------                 -----           ------------
Kendall's Tau B                 -.20025               .1884

Number of Missing Observations =        0
```

83 Crosstabulation: MORINFO By GENDER

```
               Count  |
              Row Pct |Male    |Female  |
GENDER->      Col Pct |        |        |  Row
              Tot Pct |       1|       2|  Total
MORINFO       --------+--------+--------+
                 1    |    7   |    4   |    11
                      |  63.6  |  36.4  |   61.1
                      |  70.0  |  50.0  |
                      |  38.9  |  22.2  |
                      +--------+--------+
                 2    |    3   |    3   |     6
                      |  50.0  |  50.0  |   33.3
                      |  30.0  |  37.5  |
                      |  16.7  |  16.7  |
                      +--------+--------+
                 3    |        |    1   |     1
                      |        | 100.0  |    5.6
                      |        |  12.5  |
                      |        |   5.6  |
                      +--------+--------+
              Column      10        8       18
               Total     55.6     44.4    100.0

 Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----       ------------       --------      ------------------
   1.61591        2            .4458             .444       5 OF     6 ( 83.3%)

Number of Missing Observations =        0
```

84 Crosstabulation: MORINFO By YRTEACIN

```
               Count  |
              Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->    Col Pct |        |        |        |        |        |  Row
              Tot Pct |       1|       2|       3|       4|       5|  Total
MORINFO       --------+--------+--------+--------+--------+--------+
                 1    |    4   |    4   |    2   |    1   |        |    11
                      |  36.4  |  36.4  |  18.2  |   9.1  |        |   61.1
                      |  40.0  | 100.0  | 100.0  | 100.0  |        |
                      |  22.2  |  22.2  |  11.1  |   5.6  |        |
                      +--------+--------+--------+--------+--------+
                 2    |    6   |        |        |        |        |     6
                      | 100.0  |        |        |        |        |   33.3
                      |  60.0  |        |        |        |        |
                      |  33.3  |        |        |        |        |
                      +--------+--------+--------+--------+--------+
                 3    |        |        |        |        |    1   |     1
                      |        |        |        |        | 100.0  |    5.6
                      |        |        |        |        | 100.0  |
                      |        |        |        |        |   5.6  |
                      +--------+--------+--------+--------+--------+
              Column      10        4        2        1        1       18
               Total     55.6     22.2     11.1      5.6      5.6    100.0

        Statistic                 Value           Significance
        ---------                 -----           ------------
Kendall's Tau B                 -.27305               .1089

Number of Missing Observations =        0
```

85 Crosstabulation: AUTHSPL By GENDER

```
               Count  |
              Row Pct |Male    |Female  |
GENDER->      Col Pct |        |        |  Row
              Tot Pct |       1|       2|  Total
AUTHSPL       --------+--------+--------+
```

```
                1  |    9   |    2   |   11
                   |  81.8  |  18.2  |  61.1
                   |  90.0  |  25.0  |
                   |  50.0  |  11.1  |
                   +--------+--------+
                2  |    1   |    6   |    7
                   |  14.3  |  85.7  |  38.9
                   |  10.0  |  75.0  |
                   |   5.6  |  33.3  |
                   +--------+--------+
           Column      10        8       18
            Total    55.6     44.4    100.0

         STATISTIC                 One Tail          Two Tail
         ---------                 --------          --------
Fisher's Exact Test                  .00905            .01282

Number of Missing Observations =        0
```

86 Crosstabulation: AUTHSPL By YRTEACIN

```
              Count |
            Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->  Col Pct |        |        |        |        |        | Row
            Tot Pct |      1 |      2 |      3 |      4 |      5 | Total
AUTHSPL     --------+--------+--------+--------+--------+--------+
                1   |    6   |    3   |    1   |    1   |        |   11
                    |  54.5  |  27.3  |   9.1  |   9.1  |        |  61.1
                    |  60.0  |  75.0  |  50.0  | 100.0  |        |
                    |  33.3  |  16.7  |   5.6  |   5.6  |        |
                    +--------+--------+--------+--------+--------+
                2   |    4   |    1   |    1   |        |    1   |    7
                    |  57.1  |  14.3  |  14.3  |        |  14.3  |  38.9
                    |  40.0  |  25.0  |  50.0  |        | 100.0  |
                    |  22.2  |   5.6  |   5.6  |        |   5.6  |
                    +--------+--------+--------+--------+--------+
            Column      10        4        2        1        1      18
             Total    55.6     22.2     11.1      5.6      5.6   100.0

         Statistic                   Value          Significance
         ---------                   -----          ------------
Kendall's Tau B                     .03402              .4403

Number of Missing Observations =        0
```

87 Crosstabulation: REALSIT By GENDER

```
              Count |
            Row Pct |Male    |Female  |
GENDER->    Col Pct |        |        | Row
            Tot Pct |      1 |      2 | Total
REALSIT     --------+--------+--------+
                1   |    4   |    1   |    5
                    |  80.0  |  20.0  |  27.8
                    |  40.0  |  12.5  |
                    |  22.2  |   5.6  |
                    +--------+--------+
                2   |    5   |    5   |   10
                    |  50.0  |  50.0  |  55.6
                    |  50.0  |  62.5  |
                    |  27.8  |  27.8  |
                    +--------+--------+
                3   |    1   |    2   |    3
                    |  33.3  |  66.7  |  16.7
                    |  10.0  |  25.0  |
                    |   5.6  |  11.1  |
                    +--------+--------+
            Column      10        8      18
             Total    55.6     44.4   100.0

 Chi-Square     D.F.      Significance      Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------      --------      ------------------
   1.93500        2           .3800           1.333       5 OF     6 ( 83.3%)

Number of Missing Observations =        0
```

88 Crosstabulation: REALSIT By YRTEACIN

```
              Count |
            Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->  Col Pct |        |        |        |        |        | Row
            Tot Pct |      1 |      2 |      3 |      4 |      5 | Total
REALSIT     --------+--------+--------+--------+--------+--------+
                1   |    4   |        |    1   |        |        |    5
                    |  80.0  |        |  20.0  |        |        |  27.8
                    |  40.0  |        |  50.0  |        |        |
                    |  22.2  |        |   5.6  |        |        |
```

```
               +--------+--------+--------+--------+--------+
            2  |     4  |     4  |        |     1  |     1  |    10
               |  40.0  |  40.0  |        |  10.0  |  10.0  |  55.6
               |  40.0  | 100.0  |        | 100.0  | 100.0  |
               |  22.2  |  22.2  |        |   5.6  |   5.6  |
               +--------+--------+--------+--------+--------+
            3  |     2  |        |     1  |        |        |     3
               |  66.7  |        |  33.3  |        |        |  16.7
               |  20.0  |        |  50.0  |        |        |
               |  11.1  |        |   5.6  |        |        |
               +--------+--------+--------+--------+--------+
         Column      10        4        2        1        1       18
          Total    55.6     22.2     11.1      5.6      5.6    100.0

        Statistic                 Value       Significance
        ---------                 -----       ------------
Kendall's Tau B                  .14292          .2546

Number of Missing Observations =       0
```

89 Crosstabulation: PRACTIC By GENDER

```
            Count  |
          Row Pct  |Male     |Female   |
GENDER->  Col Pct  |         |         |  Row
          Tot Pct  |       1 |       2 |  Total
PRACTIC   ---------+---------+---------+
                1  |     7   |     3   |    10
                   |  70.0   |  30.0   |  55.6
                   |  70.0   |  37.5   |
                   |  38.9   |  16.7   |
                   +---------+---------+
                2  |     3   |     4   |     7
                   |  42.9   |  57.1   |  38.9
                   |  30.0   |  50.0   |
                   |  16.7   |  22.2   |
                   +---------+---------+
                3  |         |     1   |     1
                   |         | 100.0   |   5.6
                   |         |  12.5   |
                   |         |   5.6   |
                   +---------+---------+
           Column       10        8       18
            Total     55.6     44.4    100.0

 Chi-Square     D.F.      Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------       --------      ------------------
   2.55214        2          .2791              .444        5 OF     6 ( 83.3%)

Number of Missing Observations =       0
```

90 Crosstabulation: PRACTIC By YRTEACIN

```
              Count  |
            Row Pct  |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN->  Col Pct  |         |         |         |         |         |  Row
            Tot Pct  |       1 |       2 |       3 |       4 |       5 |  Total
PRACTIC     ---------+---------+---------+---------+---------+---------+
                  1  |     3   |     4   |     2   |     1   |         |    10
                     |  30.0   |  40.0   |  20.0   |  10.0   |         |  55.6
                     |  30.0   | 100.0   | 100.0   | 100.0   |         |
                     |  16.7   |  22.2   |  11.1   |   5.6   |         |
                     +---------+---------+---------+---------+---------+
                  2  |     6   |         |         |         |     1   |     7
                     |  85.7   |         |         |         |  14.3   |  38.9
                     |  60.0   |         |         |         | 100.0   |
                     |  33.3   |         |         |         |   5.6   |
                     +---------+---------+---------+---------+---------+
                  3  |     1   |         |         |         |         |     1
                     | 100.0   |         |         |         |         |   5.6
                     |  10.0   |         |         |         |         |
                     |   5.6   |         |         |         |         |
                     +---------+---------+---------+---------+---------+
             Column       10         4         2         1         1      18
              Total     55.6      22.2      11.1       5.6       5.6   100.0
        Statistic                 Value       Significance
        ---------                 -----       ------------
Kendall's Tau B                 -.42672          .0270

Number of Missing Observations =       0
```

91 Crosstabulation: STNEED By GENDER

```
            Count  |
          Row Pct  |Male     |Female   |
GENDER->  Col Pct  |         |         |  Row
          Tot Pct  |       1 |       2 |  Total
```

```
STNEED     --------+--------+--------+
                 1 |      2 |        |      2
                   |  100.0 |        |   11.1
                   |   20.0 |        |
                   |   11.1 |        |
                   +--------+--------+
                 2 |      8 |      6 |     14
                   |   57.1 |   42.9 |   77.8
                   |   80.0 |   75.0 |
                   |   44.4 |   33.3 |
                   +--------+--------+
                 3 |        |      2 |      2
                   |        |  100.0 |   11.1
                   |        |   25.0 |
                   |        |   11.1 |
                   +--------+--------+
            Column       10        8       18
             Total     55.6     44.4    100.0

 Chi-Square     D.F.       Significance        Min E.F.     Cells with E.F.< 5
 ----------     ----       ------------        --------     ------------------
    4.11429        2              .1278            .889     4 OF     6 ( 66.7%)

Number of Missing Observations =        0
```

92 Crosstabulation: STNEED By YRTEACIN

```
            Count |
           Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Col Pct |        |        |        |        |        | Row
           Tot Pct |       1|       2|       3|       4|       5| Total
STNEED     --------+--------+--------+--------+--------+--------+
                 1 |      1 |        |      1 |        |        |     2
                   |   50.0 |        |   50.0 |        |        |  11.1
                   |   10.0 |        |   50.0 |        |        |
                   |    5.6 |        |    5.6 |        |        |
                   +--------+--------+--------+--------+--------+
                 2 |      8 |      4 |      1 |      1 |        |    14
                   |   57.1 |   28.6 |    7.1 |    7.1 |        |  77.8
                   |   80.0 |  100.0 |   50.0 |  100.0 |        |
                   |   44.4 |   22.2 |    5.6 |    5.6 |        |
                   +--------+--------+--------+--------+--------+
                 3 |      1 |        |        |        |      1 |     2
                   |   50.0 |        |        |        |   50.0 |  11.1
                   |   10.0 |        |        |        |  100.0 |
                   |    5.6 |        |        |        |    5.6 |
                   +--------+--------+--------+--------+--------+
            Column       10        4        2        1        1      18
             Total     55.6     22.2     11.1      5.6      5.6   100.0

        Statistic                  Value           Significance
        ---------                  -----           ------------
Kendall's Tau B                   .05138               .4079

Number of Missing Observations =        0
```

93 Crosstabulation: STINTRS By GENDER

```
            Count |
           Row Pct |Male    |Female  |
GENDER->   Col Pct |        |        | Row
           Tot Pct |       1|       2| Total
STINTRS    --------+--------+--------+
                 1 |      4 |      3 |      7
                   |   57.1 |   42.9 |   38.9
                   |   40.0 |   37.5 |
                   |   22.2 |   16.7 |
                   +--------+--------+
                 2 |      5 |      4 |      9
                   |   55.6 |   44.4 |   50.0
                   |   50.0 |   50.0 |
                   |   27.8 |   22.2 |
                   +--------+--------+
                 3 |      1 |      1 |      2
                   |   50.0 |   50.0 |   11.1
                   |   10.0 |   12.5 |
                   |    5.6 |    5.6 |
                   +--------+--------+
            Column       10        8       18
             Total     55.6     44.4    100.0

 Chi-Square     D.F.       Significance        Min E.F.     Cells with E.F.< 5
 ----------     ----       ------------        --------     ------------------
     .03214        2              .9841            .889     5 OF     6 ( 83.3%)

Number of Missing Observations =        0
```

94 Crosstabulation: STINTRS By YRTEACIN

```
             Count |
           Row Pct |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN-> Col Pct |         |         |         |         |         | Row
           Tot Pct |       1 |       2 |       3 |       4 |       5 | Total
STINTRS    --------+---------+---------+---------+---------+---------+
                 1 |     3   |     2   |     1   |     1   |         |    7
                   |  42.9   |  28.6   |  14.3   |  14.3   |         |  38.9
                   |  30.0   |  50.0   |  50.0   | 100.0   |         |
                   |  16.7   |  11.1   |   5.6   |   5.6   |         |
                   +---------+---------+---------+---------+---------+
                 2 |     5   |     2   |     1   |         |     1   |    9
                   |  55.6   |  22.2   |  11.1   |         |  11.1   |  50.0
                   |  50.0   |  50.0   |  50.0   |         | 100.0   |
                   |  27.8   |  11.1   |   5.6   |         |   5.6   |
                   +---------+---------+---------+---------+---------+
                 3 |     2   |         |         |         |         |    2
                   | 100.0   |         |         |         |         |  11.1
                   |  20.0   |         |         |         |         |
                   |  11.1   |         |         |         |         |
                   +---------+---------+---------+---------+---------+
            Column      10         4         2         1         1      18
             Total    55.6      22.2      11.1       5.6       5.6   100.0

          Statistic                   Value            Significance
          ---------                   -----            ------------
Kendall's Tau B                     -.23480                .1409

Number of Missing Observations =        0
```

95 Crosstabulation: EASYLT By GENDER

```
             Count |
           Row Pct |Male     |Female   |
GENDER->   Col Pct |         |         | Row
           Tot Pct |       1 |       2 | Total
EASYLT     --------+---------+---------+
                 1 |     3   |     1   |    4
                   |  75.0   |  25.0   |  22.2
                   |  30.0   |  12.5   |
                   |  16.7   |   5.6   |
                   +---------+---------+
                 2 |     5   |     5   |   10
                   |  50.0   |  50.0   |  55.6
                   |  50.0   |  62.5   |
                   |  27.8   |  27.8   |
                   +---------+---------+
                 3 |     2   |     2   |    4
                   |  50.0   |  50.0   |  22.2
                   |  20.0   |  25.0   |
                   |  11.1   |  11.1   |
                   +---------+---------+
            Column      10         8      18
             Total    55.6      44.4   100.0

  Chi-Square      D.F.        Significance       Min E.F.      Cells with E.F.< 5
  ----------      ----        ------------       --------      ------------------
     .78750         2            .6745             1.778       5 OF     6 ( 83.3%)

Number of Missing Observations =        0
```

96 Crosstabulation: EASYLT By YRTEACIN

```
             Count |
           Row Pct |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN-> Col Pct |         |         |         |         |         | Row
           Tot Pct |       1 |       2 |       3 |       4 |       5 | Total
EASYLT     --------+---------+---------+---------+---------+---------+
                 1 |     3   |         |     1   |         |         |    4
                   |  75.0   |         |  25.0   |         |         |  22.2
                   |  30.0   |         |  50.0   |         |         |
                   |  16.7   |         |   5.6   |         |         |
                   +---------+---------+---------+---------+---------+
                 2 |     6   |     3   |     1   |         |         |   10
                   |  60.0   |  30.0   |  10.0   |         |         |  55.6
                   |  60.0   |  75.0   |  50.0   |         |         |
                   |  33.3   |  16.7   |   5.6   |         |         |
                   +---------+---------+---------+---------+---------+
                 3 |     1   |     1   |         |     1   |     1   |    4
                   |  25.0   |  25.0   |         |  25.0   |  25.0   |  22.2
                   |  10.0   |  25.0   |         | 100.0   | 100.0   |
                   |   5.6   |   5.6   |         |   5.6   |   5.6   |
                   +---------+---------+---------+---------+---------+
            Column      10         4         2         1         1      18
             Total    55.6      22.2      11.1       5.6       5.6   100.0
```

```
        Statistic                   Value          Significance
        ---------                   -----          ------------
Kendall's Tau B                    .33513             .0604

Number of Missing Observations =      0
```

97 Crosstabulation: BYUAUTH By GENDER

```
             Count  |
             Row Pct |Male    |Female  |
GENDER->     Col Pct |        |        | Row
             Tot Pct |       1|       2| Total
BYUAUTH      --------+--------+--------+
                1    |     1  |        |     1
                     | 100.0  |        |   5.6
                     |  10.0  |        |
                     |   5.6  |        |
                     +--------+--------+
                2    |     3  |     3  |     6
                     |  50.0  |  50.0  |  33.3
                     |  30.0  |  37.5  |
                     |  16.7  |  16.7  |
                     +--------+--------+
                3    |     6  |     5  |    11
                     |  54.5  |  45.5  |  61.1
                     |  60.0  |  62.5  |
                     |  33.3  |  27.8  |
                     +--------+--------+
             Column      10        8       18
              Total     55.6     44.4    100.0

 Chi-Square     D.F.       Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----       ------------       --------      ------------------
    .87955        2           .6442              .444       5 OF     6 ( 83.3%)

Number of Missing Observations =      0
```

98 Crosstabulation: BYUAUTH By YRTEACIN

```
             Count  |
             Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->   Col Pct |        |        |        |        |        | Row
             Tot Pct |       1|       2|       3|       4|       5| Total
BYUAUTH      --------+--------+--------+--------+--------+--------+
                1    |     1  |        |        |        |        |     1
                     | 100.0  |        |        |        |        |   5.6
                     |  10.0  |'       |        |        |        |
                     |   5.6  |        |        |        |        |
                     +--------+--------+--------+--------+--------+
                2    |     3  |        |     2  |        |     1  |     6
                     |  50.0  |        |  33.3  |        |  16.7  |  33.3
                     |  30.0  |        | 100.0  |        | 100.0  |
                     |  16.7  |        |  11.1  |        |   5.6  |
                     +--------+--------+--------+--------+--------+
                3    |     6  |     4  |        |     1  |        |    11
                     |  54.5  |  36.4  |        |   9.1  |        |  61.1
                     |  60.0  | 100.0  |        | 100.0  |        |
                     |  33.3  |  22.2  |        |   5.6  |        |
                     +--------+--------+--------+--------+--------+
             Column      10        4        2        1        1       18
              Total     55.6     22.2     11.1      5.6      5.6    100.0

        Statistic                   Value          Significance
        ---------                   -----          ------------
Kendall's Tau B                   -.06553             .3837

Number of Missing Observations =      0
```

99 Crosstabulation: BYSTUD By GENDER

```
             Count  |
             Row Pct |Male    |Female  |
GENDER->     Col Pct |        |        | Row
             Tot Pct |       1|       2| Total
BYSTUD       --------+--------+--------+
                1    |     1  |     2  |     3
                     |  33.3  |  66.7  |  16.7
                     |  10.0  |  25.0  |
                     |   5.6  |  11.1  |
                     +--------+--------+
                2    |     5  |     3  |     8
                     |  62.5  |  37.5  |  44.4
                     |  50.0  |  37.5  |
                     |  27.8  |  16.7  |
                     +--------+--------+
                3    |     4  |     2  |     6
                     |  66.7  |  33.3  |  33.3
```

```
              |  40.0  |  25.0  |
              |  22.2  |  11.1  |
              +--------+--------+
          4   |        |     1  |      1
              |        | 100.0  |    5.6
              |        |  12.5  |
              |        |   5.6  |
              +--------+--------+
       Column     10        8       18
        Total   55.6     44.4    100.0

 Chi-Square    D.F.      Significance      Min E.F.     Cells with E.F.< 5
 ----------    ----      ------------      --------     ------------------
   2.30625       3          .5113             .444      8 OF     8 (100.0%)

Number of Missing Observations =       0
```

100 Crosstabulation: BYSTUD By YRTEACIN

```
                Count  |
              Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->    Col Pct  |        |        |        |        |        |  Row
              Tot Pct  |     1  |     2  |     3  |     4  |     5  | Total
BYSTUD        ---------+--------+--------+--------+--------+--------+
                    1  |     2  |     1  |        |        |        |     3
                       |  66.7  |  33.3  |        |        |        |  16.7
                       |  20.0  |  25.0  |        |        |        |
                       |  11.1  |   5.6  |        |        |        |
                       +--------+--------+--------+--------+--------+
                    2  |     6  |        |     1  |        |     1  |     8
                       |  75.0  |        |  12.5  |        |  12.5  |  44.4
                       |  60.0  |        |  50.0  |        | 100.0  |
                       |  33.3  |        |   5.6  |        |   5.6  |
                       +--------+--------+--------+--------+--------+
                    3  |     2  |     2  |     1  |     1  |        |     6
                       |  33.3  |  33.3  |  16.7  |  16.7  |        |  33.3
                       |  20.0  |  50.0  |  50.0  | 100.0  |        |
                       |  11.1  |  11.1  |   5.6  |   5.6  |        |
                       +--------+--------+--------+--------+--------+
                    4  |        |     1  |        |        |        |     1
                       |        | 100.0  |        |        |        |   5.6
                       |        |  25.0  |        |        |        |
                       |        |   5.6  |        |        |        |
                       +--------+--------+--------+--------+--------+
               Column      10        4        2        1        1      18
                Total    55.6     22.2     11.1      5.6      5.6   100.0

           Statistic                   Value          Significance
           ---------                   -----          ------------
Kendall's Tau B                       .27896             .0947

Number of Missing Observations =       0
```

101 Crosstabulation: UAUTHELP By GENDER

```
                Count  |
              Row Pct  |Male    |Female  |
GENDER->      Col Pct  |        |        |  Row
              Tot Pct  |     1  |     2  | Total
UAUTHELP      ---------+--------+--------+
                    1  |     2  |     1  |     3
                       |  66.7  |  33.3  |  16.7
                       |  20.0  |  12.5  |
                       |  11.1  |   5.6  |
                       +--------+--------+
                    2  |     4  |     6  |    10
                       |  40.0  |  60.0  |  55.6
                       |  40.0  |  75.0  |
                       |  22.2  |  33.3  |
                       +--------+--------+
                    3  |     4  |     1  |     5
                       |  80.0  |  20.0  |  27.8
                       |  40.0  |  12.5  |
                       |  22.2  |   5.6  |
                       +--------+--------+
               Column      10        8      18
                Total    55.6     44.4   100.0

 Chi-Square    D.F.      Significance      Min E.F.     Cells with E.F.< 5
 ----------    ----      ------------      --------     ------------------
   2.34000       2          .3104            1.333      5 OF     6 ( 83.3%)

Number of Missing Observations =       0
```

102 Crosstabulation: UAUTHELP By YRTEACIN

```
               Count  |
              Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->    Col Pct |        |        |        |        |        |  Row
              Tot Pct |       1|       2|       3|       4|       5| Total
UAUTHELP      --------+--------+--------+--------+--------+--------+
                   1  |     1  |     1  |     1  |        |        |     3
                      |  33.3  |  33.3  |  33.3  |        |        |  16.7
                      |  10.0  |  25.0  |  50.0  |        |        |
                      |   5.6  |   5.6  |   5.6  |        |        |
                      +--------+--------+--------+--------+--------+
                   2  |     7  |     1  |     1  |        |     1  |    10
                      |  70.0  |  10.0  |  10.0  |        |  10.0  |  55.6
                      |  70.0  |  25.0  |  50.0  |        | 100.0  |
                      |  38.9  |   5.6  |   5.6  |        |   5.6  |
                      +--------+--------+--------+--------+--------+
                   3  |     2  |     2  |        |     1  |        |     5
                      |  40.0  |  40.0  |        |  20.0  |        |  27.8
                      |  20.0  |  50.0  |        | 100.0  |        |
                      |  11.1  |  11.1  |        |   5.6  |        |
                      +--------+--------+--------+--------+--------+
               Column      10        4        2        1        1      18
                Total    55.6     22.2     11.1      5.6      5.6   100.0

       Statistic                 Value            Significance
       ---------                 -----            ------------
Kendall's Tau B                 .02042                .4624

Number of Missing Observations =        0
```

103 Crosstabulation: *ENJOY* *By GENDER*

```
               Count  |
              Row Pct |Male    |Female  |
GENDER->      Col Pct |        |        |  Row
              Tot Pct |       1|       2| Total
ENJOY         --------+--------+--------+
                   1  |     2  |     1  |     3
                      |  66.7  |  33.3  |  16.7
                      |  20.0  |  12.5  |
                      |  11.1  |   5.6  |
                      +--------+--------+
                   2  |     7  |     7  |    14
                      |  50.0  |  50.0  |  77.8
                      |  70.0  |  87.5  |
                      |  38.9  |  38.9  |
                      +--------+--------+
                   3  |     1  |        |     1
                      | 100.0  |        |   5.6
                      |  10.0  |        |
                      |   5.6  |        |
                      +--------+--------+
               Column      10        8      18
                Total    55.6     44.4   100.0

  Chi-Square      D.F.        Significance       Min E.F.      Cells with E.F.< 5
  ----------      ----        ------------       --------      ------------------
     1.12500        2            .5698              .444       4 OF     6 ( 66.7%)

Number of Missing Observations =        0
```

104 Crosstabulation: ENJOY By YRTEACIN

```
               Count  |
              Row Pct |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->    Col Pct |        |        |        |        |        |  Row
              Tot Pct |       1|       2|       3|       4|       5| Total
ENJOY         --------+--------+--------+--------+--------+--------+
                   1  |     2  |        |     1  |        |        |     3
                      |  66.7  |        |  33.3  |        |        |  16.7
                      |  20.0  |        |  50.0  |        |        |
                      |  11.1  |        |   5.6  |        |        |
                      +--------+--------+--------+--------+--------+
                   2  |     8  |     4  |        |     1  |     1  |    14
                      |  57.1  |  28.6  |        |   7.1  |   7.1  |  77.8
                      |  80.0  | 100.0  |        | 100.0  | 100.0  |
                      |  44.4  |  22.2  |        |   5.6  |   5.6  |
                      +--------+--------+--------+--------+--------+
                   3  |        |        |     1  |        |        |     1
                      |        |        | 100.0  |        |        |   5.6
                      |        |        |  50.0  |        |        |
                      |        |        |   5.6  |        |        |
                      +--------+--------+--------+--------+--------+
               Column      10        4        2        1        1      18
                Total    55.6     22.2     11.1      5.6      5.6   100.0
```

```
         Statistic                   Value          Significance
         ---------                   -----          ------------
Kendall's Tau B                     .18136               .2071

Number of Missing Observations =       0
```

105 Crosstabulation: COMMIT By GENDER

```
                Count  |
              Row Pct  |Male     |Female  |
GENDER->      Col Pct  |         |        |  Row
              Tot Pct  |       1 |      2 | Total
COMMIT        ---------+---------+--------+
                  1    |    3    |    1   |    4
                       |  75.0   |  25.0  |  22.2
                       |  30.0   |  12.5  |
                       |  16.7   |   5.6  |
                       +---------+--------+
                  2    |    3    |    5   |    8
                       |  37.5   |  62.5  |  44.4
                       |  30.0   |  62.5  |
                       |  16.7   |  27.8  |
                       +---------+--------+
                  3    |    4    |    1   |    5
                       |  80.0   |  20.0  |  27.8
                       |  40.0   |  12.5  |
                       |  22.2   |   5.6  |
                       +---------+--------+
                  4    |         |    1   |    1
                       |         | 100.0  |   5.6
                       |         |  12.5  |
                       |         |   5.6  |
                       +---------+--------+
               Column      10        8       18
                Total     55.6     44.4    100.0

  Chi-Square    D.F.      Significance      Min E.F.    Cells with E.F.< 5
  ----------    ----      ------------      --------    ------------------
    4.12875       3           .2479            .444      8 OF     8 (100.0%)

Number of Missing Observations =       0
```

106 Crosstabulation: COMMIT By YRTEACIN

```
                Count  |
              Row Pct  |1-5      |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->    Col Pct  |         |        |        |        |        |  Row
              Tot Pct  |       1 |      2 |      3 |      4 |      5 | Total
COMMIT        ---------+---------+--------+--------+--------+--------+
                  1    |    3    |        |    1   |        |        |    4
                       |  75.0   |        |  25.0  |        |        |  22.2
                       |  30.0   |        |  50.0  |        |        |
                       |  16.7   |        |   5.6  |        |        |
                       +---------+--------+--------+--------+--------+
                  2    |    5    |    3   |        |        |        |    8
                       |  62.5   |  37.5  |        |        |        |  44.4
                       |  50.0   |  75.0  |        |        |        |
                       |  27.8   |  16.7  |        |        |        |
                       +---------+--------+--------+--------+--------+
                  3    |    2    |    1   |    1   |    1   |        |    5
                       |  40.0   |  20.0  |  20.0  |  20.0  |        |  27.8
                       |  20.0   |  25.0  |  50.0  | 100.0  |        |
                       |  11.1   |   5.6  |   5.6  |   5.6  |        |
                       +---------+--------+--------+--------+--------+
                  4    |         |        |        |        |    1   |    1
                       |         |        |        |        | 100.0  |   5.6
                       |         |        |        |        | 100.0  |
                       |         |        |        |        |   5.6  |
                       +---------+--------+--------+--------+--------+
               Column      10        4        2        1        1       18
                Total     55.6     22.2     11.1      5.6      5.6    100.0

         Statistic                   Value          Significance
         ---------                   -----          ------------
Kendall's Tau B                     .38123               .0359

Number of Missing Observations =       0
```

107 Crosstabulation: STFYTEAH By GENDER

```
                Count  |
              Row Pct  |Male     |Female  |
GENDER->      Col Pct  |         |        |  Row
              Tot Pct  |       1 |      2 | Total
STFYTEAH      ---------+---------+--------+
                  0    |    6    |    7   |   13
                       |  46.2   |  53.8  |  72.2
```

```
                   |  60.0  |  87.5  |
                   |  33.3  |  38.9  |
                   +--------+--------+
                1  |     4  |     1  |     5
                   |  80.0  |  20.0  |  27.8
                   |  40.0  |  12.5  |
                   |  22.2  |   5.6  |
                   +--------+--------+
           Column       10        8       18
            Total     55.6     44.4    100.0

        STATISTIC              One Tail        Two Tail
        ---------              --------        --------
Fisher's Exact Test             .22549          .31373

Number of Missing Observations =       0
```

108 Crosstabulation: STFYTEAH By YRTEACIN

```
             Count  |
           Row Pct  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Col Pct  |        |        |        |        |        | Row
           Tot Pct  |      1 |      2 |      3 |      4 |      5 | Total
STFYTEAH   ---------+--------+--------+--------+--------+--------+
                0   |     6  |     3  |     2  |     1  |     1  |    13
                    |  46.2  |  23.1  |  15.4  |   7.7  |   7.7  |  72.2
                    |  60.0  |  75.0  | 100.0  | 100.0  | 100.0  |
                    |  33.3  |  16.7  |  11.1  |   5.6  |   5.6  |
                    +--------+--------+--------+--------+--------+
                1   |     4  |     1  |        |        |        |     5
                    |  80.0  |  20.0  |        |        |        |  27.8
                    |  40.0  |  25.0  |        |        |        |
                    |  22.2  |   5.6  |        |        |        |
                    +--------+--------+--------+--------+--------+
            Column       10        4        2        1        1      18
             Total     55.6     22.2     11.1      5.6      5.6   100.0

  Chi-Square     D.F.       Significance      Min E.F.     Cells with E.F.< 5
  ----------     ----       ------------      --------     ------------------
    2.29846        4            .6810            .278      9 OF    10 ( 90.0%)

Number of Missing Observations =       0
```

E.4 Crosstabulations and tests of association of students for sections, 5.2.1, 5.2.2, and 5.2.3

1 Crosstabulation: HWINTRMT By GENDER

```
              Count  |
            Row Pct  |Male    |Female  |
GENDER->    Col Pct  |        |        |  Row
            Tot Pct  |      1 |      2 | Total
HWINTRMT    ---------+--------+--------+
                  1  |   45   |   14   |   59
   Very interested   |  76.3  |  23.7  |  14.8
                     |  16.6  |  10.9  |
                     |  11.3  |   3.5  |
                     +--------+--------+
                  2  |  126   |   69   |  195
   Fairly intereste  |  64.6  |  35.4  |  48.8
                     |  46.5  |  53.5  |
                     |  31.5  |  17.3  |
                     +--------+--------+
                  3  |   92   |   36   |  128
   Not particularly  |  71.9  |  28.1  |  32.0
                     |  33.9  |  27.9  |
                     |  23.0  |   9.0  |
                     +--------+--------+
                  4  |    8   |   10   |   18
   Not interested a  |  44.4  |  55.6  |   4.5
                     |   3.0  |   7.8  |
                     |   2.0  |   2.5  |
                     +--------+--------+
             Column     271      129      400
              Total    67.8     32.3    100.0

 Chi-Square    D.F.      Significance      Min E.F.     Cells with E.F.< 5
 ----------    ----      ------------      --------     ------------------
   8.30904       3          .0400            5.805      None

Number of Missing Observations =       0
```

2 Crosstabulation: HWINTRMT By YEAR

```
              Count  |
            Row Pct  |1       |2       |3       |4       |
YEAR->      Col Pct  |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 | Total
HWINTRMT    ---------+--------+--------+--------+--------+
                  1  |   16   |   14   |   16   |   13   |   59
   Very interested   |  27.1  |  23.7  |  27.1  |  22.0  |  14.8
                     |  19.8  |  15.1  |  11.1  |  15.9  |
                     |   4.0  |   3.5  |   4.0  |   3.3  |
                     +--------+--------+--------+--------+
                  2  |   39   |   38   |   81   |   37   |  195
   Fairly intereste  |  20.0  |  19.5  |  41.5  |  19.0  |  48.8
                     |  48.1  |  40.9  |  56.3  |  45.1  |
                     |   9.8  |   9.5  |  20.3  |   9.3  |
                     +--------+--------+--------+--------+
                  3  |   23   |   36   |   44   |   25   |  128
   Not particularly  |  18.0  |  28.1  |  34.4  |  19.5  |  32.0
                     |  28.4  |  38.7  |  30.6  |  30.5  |
                     |   5.8  |   9.0  |  11.0  |   6.3  |
                     +--------+--------+--------+--------+
                  4  |    3   |    5   |    3   |    7   |   18
   Not interested a  |  16.7  |  27.8  |  16.7  |  38.9  |   4.5
                     |   3.7  |   5.4  |   2.1  |   8.5  |
                     |    .8  |   1.3  |    .8  |   1.8  |
                     +--------+--------+--------+--------+
             Column      81       93      144       82      400
              Total    20.3     23.3     36.0     20.5    100.0

         Statistic                  Value          Significance
         ---------                  -----          ------------
Kendall's Tau B                    .02648             .2702

Number of Missing Observations =       0
```

3 Crosstabulation: EXPEMTLL By GENDER

```
              Count  |
            Row Pct  |Male    |Female  |
GENDER->    Col Pct  |        |        |  Row
            Tot Pct  |      1 |      2 | Total
EXPEMTLL    ---------+--------+--------+
                  0  |   56   |   33   |   89
   No                |  62.9  |  37.1  |  22.3
                     |  20.7  |  25.6  |
                     |  14.0  |   8.3  |
```

```
               +--------+--------+
             1 |   215  |    96  |   311
  Yes          |  69.1  |  30.9  |  77.8
               |  79.3  |  74.4  |
               |  53.8  |  24.0  |
               +--------+--------+
        Column     271      129      400
         Total    67.8     32.3    100.0

Chi-Square    D.F.      Significance      Min E.F.     Cells with E.F.< 5
----------    ----      ------------      --------     ------------------
    .95382      1           .3287          28.702         None
   1.22153      1           .2691        ( Before Yates Correction )

Number of Missing Observations =       0
```

4 Crosstabulation: EXPEMTLL By YEAR

```
           Count  |
         Row Pct  |1        |2        |3        |4        |
YEAR->   Col Pct  |         |         |         |         |  Row
         Tot Pct  |       1 |       2 |       3 |       4 | Total
EXPEMTLL  --------+---------+---------+---------+---------+
               0  |    26   |    21   |    23   |    19   |    89
  No              |  29.2   |  23.6   |  25.8   |  21.3   |  22.3
                  |  32.1   |  22.6   |  16.0   |  23.2   |
                  |   6.5   |   5.3   |   5.8   |   4.8   |
                  +---------+---------+---------+---------+
               1  |    55   |    72   |   121   |    63   |   311
  Yes             |  17.7   |  23.2   |  38.9   |  20.3   |  77.8
                  |  67.9   |  77.4   |  84.0   |  76.8   |
                  |  13.8   |  18.0   |  30.3   |  15.8   |
                  +---------+---------+---------+---------+
          Column       81        93       144        82       400
           Total     20.3      23.3      36.0      20.5     100.0

Chi-Square    D.F.      Significance      Min E.F.     Cells with E.F.< 5
----------    ----      ------------      --------     ------------------
   7.86829      3           .0488          18.022         None

Number of Missing Observations =       0
```

5 Crosstabulation: WHEREUSE By GENDER

```
           Count  |
         Row Pct  |Male     |Female   |
GENDER-> Col Pct  |         |         |  Row
         Tot Pct  |       1 |       2 | Total
WHEREUSE  --------+---------+---------+
               1  |    83   |    45   |   128
  Whole class     |  64.8   |  35.2   |  41.2
                  |  38.6   |  46.9   |
                  |  26.7   |  14.5   |
                  +---------+---------+
               2  |    29   |    14   |    43
  Remedial        |  67.4   |  32.6   |  13.8
                  |  13.5   |  14.6   |
                  |   9.3   |   4.5   |
                  +---------+---------+
               3  |     4   |     5   |     9
  Tutorial        |  44.4   |  55.6   |   2.9
                  |   1.9   |   5.2   |
                  |   1.3   |   1.6   |
                  +---------+---------+
               4  |    99   |    32   |   131
  SELF            |  75.6   |  24.4   |  42.1
                  |  46.0   |  33.3   |
                  |  31.8   |  10.3   |
                  +---------+---------+
          Column      215        96       311
           Total     69.1      30.9     100.0

Chi-Square    D.F.      Significance      Min E.F.     Cells with E.F.< 5
----------    ----      ------------      --------     ------------------
   6.27741      3           .0989           2.778      1 OF     8 ( 12.5%)

Number of Missing Observations =      89
```

6 Crosstabulation: WHEREUSE By YEAR

```
           Count  |
         Row Pct  |1        |2        |3        |4        |
YEAR->   Col Pct  |         |         |         |         |  Row
         Tot Pct  |       1 |       2 |       3 |       4 | Total
WHEREUSE  --------+---------+---------+---------+---------+
               1  |    35   |    28   |    43   |    22   |   128
  Whole class     |  27.3   |  21.9   |  33.6   |  17.2   |  41.2
```

```
                         |  63.6  |  38.9  |  35.5  |  34.9  |
                         |  11.3  |   9.0  |  13.8  |   7.1  |
                         +--------+--------+--------+--------+
                    2    |     6  |    18  |    11  |     8  |    43
  Remedial               |  14.0  |  41.9  |  25.6  |  18.6  |  13.8
                         |  10.9  |  25.0  |   9.1  |  12.7  |
                         |   1.9  |   5.8  |   3.5  |   2.6  |
                         +--------+--------+--------+--------+
                    3    |     4  |     3  |     1  |     1  |     9
  Tutorial               |  44.4  |  33.3  |  11.1  |  11.1  |   2.9
                         |   7.3  |   4.2  |    .8  |   1.6  |
                         |   1.3  |   1.0  |    .3  |    .3  |
                         +--------+--------+--------+--------+
                    4    |    10  |    23  |    66  |    32  |   131
  SELF                   |   7.6  |  17.6  |  50.4  |  24.4  |  42.1
                         |  18.2  |  31.9  |  54.5  |  50.8  |
                         |   3.2  |   7.4  |  21.2  |  10.3  |
                         +--------+--------+--------+--------+
                 Column      55       72      121       63      311
                  Total    17.7     23.2     38.9     20.3    100.0

 Chi-Square     D.F.        Significance        Min E.F.     Cells with E.F.< 5
 ----------     ----        ------------        --------     ------------------
   38.24549       9            .0000              1.592      4 OF    16 ( 25.0%)

Number of Missing Observations =       89
```

7 Crosstabulation: WHMEDIA By GENDER

```
                  Count  |
                Row Pct  |Male     |Female   |
GENDER->        Col Pct  |         |         |  Row
                Tot Pct  |       1 |       2 |  Total
WHMEDIA         ---------+---------+---------+
                    1    |   127   |    42   |   169
  AUDIO                  |  75.1   |  24.9   |  54.3
                         |  59.1   |  43.8   |
                         |  40.8   |  13.5   |
                         +---------+---------+
                    2    |    36   |    23   |    59
  TV                     |  61.0   |  39.0   |  19.0
                         |  16.7   |  24.0   |
                         |  11.6   |   7.4   |
                         +---------+---------+
                    3    |    43   |    27   |    70
  VIDEO                  |  61.4   |  38.6   |  22.5
                         |  20.0   |  28.1   |
                         |  13.8   |   8.7   |
                         +---------+---------+
                    4    |     9   |     4   |    13
  COMPUTER               |  69.2   |  30.8   |   4.2
                         |   4.2   |   4.2   |
                         |   2.9   |   1.3   |
                         +---------+---------+
                 Column      215        96       311
                  Total     69.1      30.9     100.0

 Chi-Square     D.F.        Significance        Min E.F.     Cells with E.F.< 5
 ----------     ----        ------------        --------     ------------------
    6.63357       3            .0845              4.013      1 OF     8 ( 12.5%)

Number of Missing Observations =       89
```

8 Crosstabulation: WHMEDIA By YEAR

```
                  Count  |
                Row Pct  |1       |2       |3       |4       |
YEAR->          Col Pct  |        |        |        |        |  Row
                Tot Pct  |      1 |      2 |      3 |      4 |  Total
WHMEDIA         ---------+--------+--------+--------+--------+
                    1    |    27  |    37  |    76  |    29  |   169
  AUDIO                  |  16.0  |  21.9  |  45.0  |  17.2  |  54.3
                         |  49.1  |  51.4  |  62.8  |  46.0  |
                         |   8.7  |  11.9  |  24.4  |   9.3  |
                         +--------+--------+--------+--------+
                    2    |     7  |    16  |    23  |    13  |    59
  TV                     |  11.9  |  27.1  |  39.0  |  22.0  |  19.0
                         |  12.7  |  22.2  |  19.0  |  20.6  |
                         |   2.3  |   5.1  |   7.4  |   4.2  |
                         +--------+--------+--------+--------+
                    3    |    18  |    16  |    17  |    19  |    70
  VIDEO                  |  25.7  |  22.9  |  24.3  |  27.1  |  22.5
                         |  32.7  |  22.2  |  14.0  |  30.2  |
                         |   5.8  |   5.1  |   5.5  |   6.1  |
                         +--------+--------+--------+--------+
                    4    |     3  |     3  |     5  |     2  |    13
  COMPUTER               |  23.1  |  23.1  |  38.5  |  15.4  |   4.2
                         |   5.5  |   4.2  |   4.1  |   3.2  |
                         |   1.0  |   1.0  |   1.6  |    .6  |
```

```
                +--------+--------+--------+--------+
         Column      55       72      121       63      311
          Total    17.7     23.2     38.9     20.3    100.0

  Chi-Square     D.F.       Significance       Min E.F.     Cells with E.F.< 5
  ----------     ----       ------------       --------     ------------------
    12.82116       9           .1709              2.299     3 OF    16 ( 18.8%)

Number of Missing Observations =       89
```

9 Crosstabulation: SATTMUSE By GENDER

```
              Count  |
            Row Pct  |Male    |Female  |
GENDER->    Col Pct  |        |        |  Row
            Tot Pct  |      1 |      2 | Total
SATTMUSE    --------+--------+--------+
                  0  |   160  |    69  |   229
  No                 |  69.9  |  30.1  |  57.3
                     |  59.0  |  53.5  |
                     |  40.0  |  17.3  |
                     +--------+--------+
                  1  |   111  |    60  |   171
  Yes                |  64.9  |  35.1  |  42.8
                     |  41.0  |  46.5  |
                     |  27.8  |  15.0  |
                     +--------+--------+
             Column     271      129      400
              Total    67.8     32.3    100.0

  Chi-Square     D.F.       Significance       Min E.F.     Cells with E.F.< 5
  ----------     ----       ------------       --------     ------------------
      .88566       1           .3467             55.147          None
     1.10083       1           .2941           ( Before Yates Correction )

Number of Missing Observations =        0
```

10 Crosstabulation: SATTMUSE By YEAR

```
              Count  |
            Row Pct  |1       |2       |3       |4       |
  YEAR->    Col Pct  |        |        |        |        |  Row
            Tot Pct  |      1 |      2 |      3 |      4 | Total
SATTMUSE    --------+--------+--------+--------+--------+
                  0  |    49  |    50  |    82  |    48  |   229
  No                 |  21.4  |  21.8  |  35.8  |  21.0  |  57.3
                     |  60.5  |  53.8  |  56.9  |  58.5  |
                     |  12.3  |  12.5  |  20.5  |  12.0  |
                     +--------+--------+--------+--------+
                  1  |    32  |    43  |    62  |    34  |   171
  Yes                |  18.7  |  25.1  |  36.3  |  19.9  |  42.8
                     |  39.5  |  46.2  |  43.1  |  41.5  |
                     |   8.0  |  10.8  |  15.5  |   8.5  |
                     +--------+--------+--------+--------+
             Column      81       93      144       82      400
              Total    20.3     23.3     36.0     20.5    100.0

  Chi-Square     D.F.       Significance       Min E.F.     Cells with E.F.< 5
  ----------     ----       ------------       --------     ------------------
      .87112       3           .8324             34.627          None

Number of Missing Observations =        0
```

11 Crosstabulation: SATTMNOT By GENDER

```
              Count  |
            Row Pct  |Male    |Female  |
GENDER->    Col Pct  |        |        |  Row
            Tot Pct  |      1 |      2 | Total
SATTMNOT    --------+--------+--------+
                  0  |   191  |    89  |   280
  No                 |  68.2  |  31.8  |  70.0
                     |  70.5  |  69.0  |
                     |  47.8  |  22.3  |
                     +--------+--------+
                  1  |    80  |    40  |   120
  Yes                |  66.7  |  33.3  |  30.0
                     |  29.5  |  31.0  |
                     |  20.0  |  10.0  |
                     +--------+--------+
             Column     271      129      400
              Total    67.8     32.3    100.0

  Chi-Square     D.F.       Significance       Min E.F.     Cells with E.F.< 5
  ----------     ----       ------------       --------     ------------------
      .03487       1           .8519             38.700          None
      .09208       1           .7615           ( Before Yates Correction )
```

```
Number of Missing Observations =      0
```

12 Crosstabulation: SATTMNOT By YEAR

```
            Count  |
          Row Pct  |1        |2        |3        |4        |
YEAR->    Col Pct  |         |         |         |         | Row
          Tot Pct  |       1 |       2 |       3 |       4 | Total
SATTMNOT  --------+---------+---------+---------+---------+
               0  |    51   |    57   |   116   |    56   |   280
 No               |  18.2   |  20.4   |  41.4   |  20.0   |  70.0
                  |  63.0   |  61.3   |  80.6   |  68.3   |
                  |  12.8   |  14.3   |  29.0   |  14.0   |
                  +---------+---------+---------+---------+
               1  |    30   |    36   |    28   |    26   |   120
 Yes              |  25.0   |  30.0   |  23.3   |  21.7   |  30.0
                  |  37.0   |  38.7   |  19.4   |  31.7   |
                  |   7.5   |   9.0   |   7.0   |   6.5   |
                  +---------+---------+---------+---------+
            Column      81        93       144        82       400
             Total    20.3      23.3      36.0      20.5     100.0

 Chi-Square     D.F.      Significance       Min E.F.      Cells with E.F.< 5
 ----------     ----      ------------       --------      ------------------
   13.02353       3           .0046           24.300          None

Number of Missing Observations =      0
```

13 Crosstabulation: IMPFAC1 By GENDER

```
            Count  |
          Row Pct  |Male     |Female   |
GENDER->  Col Pct  |         |         | Row
          Tot Pct  |       1 |       2 | Total
IMPFAC1   --------+---------+---------+
               1  |    79   |    31   |   110
  1               |  71.8   |  28.2   |  30.2
                  |  32.2   |  26.1   |
                  |  21.7   |   8.5   |
                  +---------+---------+
               2  |    66   |    28   |    94
  2               |  70.2   |  29.8   |  25.8
                  |  26.9   |  23.5   |
                  |  18.1   |   7.7   |
                  +---------+---------+
               3  |    11   |     9   |    20
  3               |  55.0   |  45.0   |   5.5
                  |   4.5   |   7.6   |
                  |   3.0   |   2.5   |
                  +---------+---------+
               4  |     9   |     5   |    14
  4               |  64.3   |  35.7   |   3.8
                  |   3.7   |   4.2   |
                  |   2.5   |   1.4   |
                  +---------+---------+
               5  |    59   |    33   |    92
  5               |  64.1   |  35.9   |  25.3
                  |  24.1   |  27.7   |
                  |  16.2   |   9.1   |
                  +---------+---------+
               6  |    21   |    13   |    34
  6               |  61.8   |  38.2   |   9.3
                  |   8.6   |  10.9   |
                  |   5.8   |   3.6   |
                  +---------+---------+
            Column     245       119       364
             Total    67.3      32.7     100.0

        Statistic                   Value           Significance
        ---------                   -----           ------------
 Kendall's Tau B                   .07321              .0615

 Number of Missing Observations =      36
```

14 Crosstabulation: IMPFAC1 By YEAR

```
            Count  |
          Row Pct  |1        |2        |3        |4        |
YEAR->    Col Pct  |         |         |         |         | Row
          Tot Pct  |       1 |       2 |       3 |       4 | Total
IMPFAC1   --------+---------+---------+---------+---------+
               1  |    21   |    17   |    50   |    22   |   110
  1               |  19.1   |  15.5   |  45.5   |  20.0   |  30.2
                  |  29.6   |  20.7   |  37.0   |  28.9   |
                  |   5.8   |   4.7   |  13.7   |   6.0   |
                  +---------+---------+---------+---------+
               2  |     9   |    33   |    31   |    21   |    94
```

```
  2                 |   9.6  |  35.1  |  33.0  |  22.3  |  25.8
                    |  12.7  |  40.2  |  23.0  |  27.6  |
                    |   2.5  |   9.1  |   8.5  |   5.8  |
                    +--------+--------+--------+--------+
                  3 |     1  |     7  |     5  |     7  |    20
  3                 |   5.0  |  35.0  |  25.0  |  35.0  |   5.5
                    |   1.4  |   8.5  |   3.7  |   9.2  |
                    |    .3  |   1.9  |   1.4  |   1.9  |
                    +--------+--------+--------+--------+
                  4 |     5  |        |     7  |     2  |    14
  4                 |  35.7  |        |  50.0  |  14.3  |   3.8
                    |   7.0  |        |   5.2  |   2.6  |
                    |   1.4  |        |   1.9  |    .5  |
                    +--------+--------+--------+--------+
                  5 |    26  |    19  |    32  |    15  |    92
  5                 |  28.3  |  20.7  |  34.8  |  16.3  |  25.3
                    |  36.6  |  23.2  |  23.7  |  19.7  |
                    |   7.1  |   5.2  |   8.8  |   4.1  |
                    +--------+--------+--------+--------+
                  6 |     9  |     6  |    10  |     9  |    34
  6                 |  26.5  |  17.6  |  29.4  |  26.5  |   9.3
                    |  12.7  |   7.3  |   7.4  |  11.8  |
                    |   2.5  |   1.6  |   2.7  |   2.5  |
                    +--------+--------+--------+--------+
             Column      71       82      135       76     364
              Total    19.5     22.5     37.1     20.9   100.0

         Statistic                 Value           Significance
         ---------                 -----           ------------
Kendall's Tau B                  -.06761               .0602

Number of Missing Observations =      36
```

15 Crosstabulation: IMPFAC2 By GENDER

```
             Count  |
           Row Pct  |Male     |Female  |
GENDER->   Col Pct  |         |        |  Row
           Tot Pct  |       1 |      2 | Total
IMPFAC2    --------+--------+--------+
                  1 |    69  |    23  |    92
  1                 |  75.0  |  25.0  |  25.3
                    |  28.2  |  19.3  |
                    |  19.0  |   6.3  |
                    +--------+--------+
                  2 |    66  |    35  |   101
  2                 |  65.3  |  34.7  |  27.7
                    |  26.9  |  29.4  |
                    |  18.1  |   9.6  |
                    +--------+--------+
                  3 |     9  |     6  |    15
  3                 |  60.0  |  40.0  |   4.1
                    |   3.7  |   5.0  |
                    |   2.5  |   1.6  |
                    +--------+--------+
                  4 |    22  |     4  |    26
  4                 |  84.6  |  15.4  |   7.1
                    |   9.0  |   3.4  |
                    |   6.0  |   1.1  |
                    +--------+--------+
                  5 |    46  |    35  |    81
  5                 |  56.8  |  43.2  |  22.3
                    |  18.8  |  29.4  |
                    |  12.6  |   9.6  |
                    +--------+--------+
                  6 |    33  |    16  |    49
  6                 |  67.3  |  32.7  |  13.5
                    |  13.5  |  13.4  |
                    |   9.1  |   4.4  |
                    +--------+--------+
             Column     245      119     364
              Total    67.3     32.7   100.0

         Statistic                 Value           Significance
         ---------                 -----           ------------
Kendall's Tau B                   .07778               .0494

Number of Missing Observations =      36
```

16 Crosstabulation: IMPFAC2 By YEAR

```
             Count  |
           Row Pct  |1        |2       |3       |4       |
YEAR->     Col Pct  |         |        |        |        |  Row
           Tot Pct  |       1 |      2 |      3 |      4 | Total
IMPFAC2    --------+--------+--------+--------+--------+
                  1 |    14  |    27  |    34  |    17  |    92
  1                 |  15.2  |  29.3  |  37.0  |  18.5  |  25.3
                    |  19.7  |  32.9  |  25.2  |  22.4  |
```

```
                     |   3.8  |   7.4  |   9.3  |   4.7  |
                     +--------+--------+--------+--------+
                   2 |    23  |    24  |    32  |    22  |   101
  2                  |  22.8  |  23.8  |  31.7  |  21.8  |  27.7
                     |  32.4  |  29.3  |  23.7  |  28.9  |
                     |   6.3  |   6.6  |   8.8  |   6.0  |
                     +--------+--------+--------+--------+
                   3 |        |     3  |     5  |     7  |    15
  3                  |        |  20.0  |  33.3  |  46.7  |   4.1
                     |        |   3.7  |   3.7  |   9.2  |
                     |        |    .8  |   1.4  |   1.9  |
                     +--------+--------+--------+--------+
                   4 |     8  |     4  |     9  |     5  |    26
  4                  |  30.8  |  15.4  |  34.6  |  19.2  |   7.1
                     |  11.3  |   4.9  |   6.7  |   6.6  |
                     |   2.2  |   1.1  |   2.5  |   1.4  |
                     +--------+--------+--------+--------+
                   5 |    15  |    13  |    34  |    19  |    81
  5                  |  18.5  |  16.0  |  42.0  |  23.5  |  22.3
                     |  21.1  |  15.9  |  25.2  |  25.0  |
                     |   4.1  |   3.6  |   9.3  |   5.2  |
                     +--------+--------+--------+--------+
                   6 |    11  |    11  |    21  |     6  |    49
  6                  |  22.4  |  22.4  |  42.9  |  12.2  |  13.5
                     |  15.5  |  13.4  |  15.6  |   7.9  |
                     |   3.0  |   3.0  |   5.8  |   1.6  |
                     +--------+--------+--------+--------+
              Column      71       82      135       76      364
               Total    19.5     22.5     37.1     20.9    100.0

        Statistic                  Value             Significance
        ---------                  -----             ------------
Kendall's Tau B                   .00511                 .4530

Number of Missing Observations =      36
```

17 Crosstabulation: IMPFAC3 By GENDER

```
              Count  |
            Row Pct  |Male     |Female   |
GENDER->    Col Pct  |         |         |  Row
            Tot Pct  |       1 |       2 |  Total
IMPFAC3     ---------+---------+---------+
                   1 |    38   |    39   |    77
  1                  |  49.4   |  50.6   |  21.2
                     |  15.5   |  32.8   |
                     |  10.4   |  10.7   |
                     +---------+---------+
                   2 |    46   |    28   |    74
  2                  |  62.2   |  37.8   |  20.3
                     |  18.8   |  23.5   |
                     |  12.6   |   7.7   |
                     +---------+---------+
                   3 |    38   |     6   |    44
  3                  |  86.4   |  13.6   |  12.1
                     |  15.5   |   5.0   |
                     |  10.4   |   1.6   |
                     +---------+---------+
                   4 |    30   |     8   |    38
  4                  |  78.9   |  21.1   |  10.4
                     |  12.2   |   6.7   |
                     |   8.2   |   2.2   |
                     +---------+---------+
                   5 |    62   |    18   |    80
  5                  |  77.5   |  22.5   |  22.0
                     |  25.3   |  15.1   |
                     |  17.0   |   4.9   |
                     +---------+---------+
                   6 |    31   |    20   |    51
  6                  |  60.8   |  39.2   |  14.0
                     |  12.7   |  16.8   |
                     |   8.5   |   5.5   |
                     +---------+---------+
              Column     245       119      364
               Total    67.3      32.7    100.0

        Statistic                  Value             Significance
        ---------                  -----             ------------
Kendall's Tau B                   -.12713                .0031

Number of Missing Observations =      36
```

18 Crosstabulation: IMPFAC3 By YEAR

```
              Count  |
            Row Pct  |1        |2        |3        |4        |
   YEAR->   Col Pct  |         |         |         |         |  Row
            Tot Pct  |       1 |       2 |       3 |       4 |  Total
IMPFAC3     ---------+---------+---------+---------+---------+
```

```
                 1 |  17    |  19    |  25    |  16    |  77
  1                | 22.1   | 24.7   | 32.5   | 20.8   | 21.2
                   | 23.9   | 23.2   | 18.5   | 21.1   |
                   |  4.7   |  5.2   |  6.9   |  4.4   |
                   +--------+--------+--------+--------+
                 2 |  17    |  10    |  30    |  17    |  74
  2                | 23.0   | 13.5   | 40.5   | 23.0   | 20.3
                   | 23.9   | 12.2   | 22.2   | 22.4   |
                   |  4.7   |  2.7   |  8.2   |  4.7   |
                   +--------+--------+--------+--------+
                 3 |  10    |  12    |  15    |   7    |  44
  3                | 22.7   | 27.3   | 34.1   | 15.9   | 12.1
                   | 14.1   | 14.6   | 11.1   |  9.2   |
                   |  2.7   |  3.3   |  4.1   |  1.9   |
                   +--------+--------+--------+--------+
                 4 |   5    |   9    |  14    |  10    |  38
  4                | 13.2   | 23.7   | 36.8   | 26.3   | 10.4
                   |  7.0   | 11.0   | 10.4   | 13.2   |
                   |  1.4   |  2.5   |  3.8   |  2.7   |
                   +--------+--------+--------+--------+
                 5 |  12    |  21    |  32    |  15    |  80
  5                | 15.0   | 26.3   | 40.0   | 18.8   | 22.0
                   | 16.9   | 25.6   | 23.7   | 19.7   |
                   |  3.3   |  5.8   |  8.8   |  4.1   |
                   +--------+--------+--------+--------+
                 6 |  10    |  11    |  19    |  11    |  51
  6                | 19.6   | 21.6   | 37.3   | 21.6   | 14.0
                   | 14.1   | 13.4   | 14.1   | 14.5   |
                   |  2.7   |  3.0   |  5.2   |  3.0   |
                   +--------+--------+--------+--------+
            Column    71       82       135      76       364
             Total   19.5     22.5      37.1    20.9     100.0

         Statistic                   Value            Significance
         ---------                   -----            ------------
Kendall's Tau B                     .02237                .3000

Number of Missing Observations =      36
```

19 Crosstabulation: IMPFAC4 By GENDER

```
             Count  |
             Row Pct |Male     |Female  |
GENDER->     Col Pct |         |        |  Row
             Tot Pct |      1  |     2  |  Total
IMPFAC4      --------+---------+--------+
                   1 |  32     |  15    |  47
  1                | 68.1    | 31.9   | 12.9
                   | 13.1    | 12.6   |
                   |  8.8    |  4.1   |
                   +---------+--------+
                   2 |  39     |  18    |  57
  2                | 68.4    | 31.6   | 15.7
                   | 15.9    | 15.1   |
                   | 10.7    |  4.9   |
                   +---------+--------+
                   3 |  37     |  15    |  52
  3                | 71.2    | 28.8   | 14.3
                   | 15.1    | 12.6   |
                   | 10.2    |  4.1   |
                   +---------+--------+
                   4 |  46     |  32    |  78
  4                | 59.0    | 41.0   | 21.4
                   | 18.8    | 26.9   |
                   | 12.6    |  8.8   |
                   +---------+--------+
                   5 |  32     |  11    |  43
  5                | 74.4    | 25.6   | 11.8
                   | 13.1    |  9.2   |
                   |  8.8    |  3.0   |
                   +---------+--------+
                   6 |  59     |  28    |  87
  6                | 67.8    | 32.2   | 23.9
                   | 24.1    | 23.5   |
                   | 16.2    |  7.7   |
                   +---------+--------+
            Column    245       119      364
             Total    67.3      32.7    100.0

         Statistic                   Value            Significance
         ---------                   -----            ------------
Kendall's Tau B                     .00141                .4879

Number of Missing Observations =      36
```

20 Crosstabulation: IMPFAC4 By YEAR

```
             Count  |
             Row Pct |1        |2        |3        |4        |
```

```
  YEAR->   Col Pct |        |        |        |        | Row
           Tot Pct |      1 |      2 |      3 |      4 | Total
IMPFAC4    --------+--------+--------+--------+--------+
                 1 |   11   |    9   |   14   |   13   |   47
  1                |  23.4  |  19.1  |  29.8  |  27.7  |  12.9
                   |  15.5  |  11.0  |  10.4  |  17.1  |
                   |   3.0  |   2.5  |   3.8  |   3.6  |
                   +--------+--------+--------+--------+
                 2 |   17   |   11   |   21   |    8   |   57
  2                |  29.8  |  19.3  |  36.8  |  14.0  |  15.7
                   |  23.9  |  13.4  |  15.6  |  10.5  |
                   |   4.7  |   3.0  |   5.8  |   2.2  |
                   +--------+--------+--------+--------+
                 3 |   12   |   11   |   19   |   10   |   52
  3                |  23.1  |  21.2  |  36.5  |  19.2  |  14.3
                   |  16.9  |  13.4  |  14.1  |  13.2  |
                   |   3.3  |   3.0  |   5.2  |   2.7  |
                   +--------+--------+--------+--------+
                 4 |    8   |   16   |   39   |   15   |   78
  4                |  10.3  |  20.5  |  50.0  |  19.2  |  21.4
                   |  11.3  |  19.5  |  28.9  |  19.7  |
                   |   2.2  |   4.4  |  10.7  |   4.1  |
                   +--------+--------+--------+--------+
                 5 |    5   |   15   |   14   |    9   |   43
  5                |  11.6  |  34.9  |  32.6  |  20.9  |  11.8
                   |   7.0  |  18.3  |  10.4  |  11.8  |
                   |   1.4  |   4.1  |   3.8  |   2.5  |
                   +--------+--------+--------+--------+
                 6 |   18   |   20   |   28   |   21   |   87
  6                |  20.7  |  23.0  |  32.2  |  24.1  |  23.9
                   |  25.4  |  24.4  |  20.7  |  27.6  |
                   |   4.9  |   5.5  |   7.7  |   5.8  |
                   +--------+--------+--------+--------+
            Column     71       82      135       76      364
             Total    19.5     22.5     37.1     20.9    100.0

        Statistic                  Value           Significance
        ---------                  -----           ------------
Kendall's Tau B                   .03419               .2112

Number of Missing Observations =      36
```

21 Crosstabulation: IMPFAC5 By GENDER

```
           Count  |
           Row Pct |Male    |Female  |
GENDER->   Col Pct |        |.       | Row
           Tot Pct |      1 |      2 | Total
IMPFAC5    --------+--------+--------+
                 1 |   16   |    4   |   20
  1                |  80.0  |  20.0  |   5.5
                   |   6.5  |   3.4  |
                   |   4.4  |   1.1  |
                   +--------+--------+
                 2 |   21   |    9   |   30
  2                |  70.0  |  30.0  |   8.2
                   |   8.6  |   7.6  |
                   |   5.8  |   2.5  |
                   +--------+--------+
                 3 |   62   |   41   |  103
  3                |  60.2  |  39.8  |  28.3
                   |  25.3  |  34.5  |
                   |  17.0  |  11.3  |
                   +--------+--------+
                 4 |   72   |   34   |  106
  4                |  67.9  |  32.1  |  29.1
                   |  29.4  |  28.6  |
                   |  19.8  |   9.3  |
                   +--------+--------+
                 5 |   28   |   12   |   40
  5                |  70.0  |  30.0  |  11.0
                   |  11.4  |  10.1  |
                   |   7.7  |   3.3  |
                   +--------+--------+
                 6 |   46   |   19   |   65
  6                |  70.8  |  29.2  |  17.9
                   |  18.8  |  16.0  |
                   |  12.6  |   5.2  |
                   +--------+--------+
            Column    245      119      364
             Total    67.3     32.7    100.0

        Statistic                  Value           Significance
        ---------                  -----           ------------
Kendall's Tau B                  -.02528               .2958

Number of Missing Observations =      36
```

22 Crosstabulation: IMPFAC5 By YEAR

```
            Count  |
           Row Pct |1        |2        |3        |4        |
YEAR->     Col Pct |         |         |         |         | Row
           Tot Pct |       1 |       2 |       3 |       4 | Total
IMPFAC5    --------+---------+---------+---------+---------+
                 1 |     2   |     4   |     8   |     6   |   20
1                  |  10.0   |  20.0   |  40.0   |  30.0   |  5.5
                   |   2.8   |   4.9   |   5.9   |   7.9   |
                   |    .5   |   1.1   |   2.2   |   1.6   |
                   +---------+---------+---------+---------+
                 2 |     5   |     4   |    14   |     7   |   30
2                  |  16.7   |  13.3   |  46.7   |  23.3   |  8.2
                   |   7.0   |   4.9   |  10.4   |   9.2   |
                   |   1.4   |   1.1   |   3.8   |   1.9   |
                   +---------+---------+---------+---------+
                 3 |    23   |    20   |    42   |    18   |  103
3                  |  22.3   |  19.4   |  40.8   |  17.5   | 28.3
                   |  32.4   |  24.4   |  31.1   |  23.7   |
                   |   6.3   |   5.5   |  11.5   |   4.9   |
                   +---------+---------+---------+---------+
                 4 |    18   |    31   |    32   |    25   |  106
4                  |  17.0   |  29.2   |  30.2   |  23.6   | 29.1
                   |  25.4   |  37.8   |  23.7   |  32.9   |
                   |   4.9   |   8.5   |   8.8   |   6.9   |
                   +---------+---------+---------+---------+
                 5 |     7   |    10   |    14   |     9   |   40
5                  |  17.5   |  25.0   |  35.0   |  22.5   | 11.0
                   |   9.9   |  12.2   |  10.4   |  11.8   |
                   |   1.9   |   2.7   |   3.8   |   2.5   |
                   +---------+---------+---------+---------+
                 6 |    16   |    13   |    25   |    11   |   65
6                  |  24.6   |  20.0   |  38.5   |  16.9   | 17.9
                   |  22.5   |  15.9   |  18.5   |  14.5   |
                   |   4.4   |   3.6   |   6.9   |   3.0   |
                   +---------+---------+---------+---------+
            Column       71        82       135        76      364
             Total     19.5      22.5      37.1      20.9    100.0

        Statistic                    Value          Significance
        ---------                    -----          ------------
Kendall's Tau B                    -.05086             .1197

Number of Missing Observations =       36
```

23 Crosstabulation: IMPFAC6 By GENDER

```
            Count  |
           Row Pct |Male     |Female   |
GENDER->   Col Pct |         |         | Row
           Tot Pct |       1 |       2 | Total
IMPFAC6    --------+---------+---------+
                 1 |    11   |     7   |   18
1                  |  61.1   |  38.9   |  4.9
                   |   4.5   |   5.9   |
                   |   3.0   |   1.9   |
                   +---------+---------+
                 2 |     7   |     1   |    8
2                  |  87.5   |  12.5   |  2.2
                   |   2.9   |    .8   |
                   |   1.9   |    .3   |
                   +---------+---------+
                 3 |    88   |    42   |  130
3                  |  67.7   |  32.3   | 35.7
                   |  35.9   |  35.3   |
                   |  24.2   |  11.5   |
                   +---------+---------+
                 4 |    66   |    36   |  102
4                  |  64.7   |  35.3   | 28.0
                   |  26.9   |  30.3   |
                   |  18.1   |   9.9   |
                   +---------+---------+
                 5 |    18   |    10   |   28
5                  |  64.3   |  35.7   |  7.7
                   |   7.3   |   8.4   |
                   |   4.9   |   2.7   |
                   +---------+---------+
                 6 |    55   |    23   |   78
6                  |  70.5   |  29.5   | 21.4
                   |  22.4   |  19.3   |
                   |  15.1   |   6.3   |
                   +---------+---------+
            Column      245       119      364
             Total     67.3      32.7    100.0

        Statistic                    Value          Significance
        ---------                    -----          ------------
Kendall's Tau B                    -.00550             .4542
```

```
Number of Missing Observations =       36
```

24 Crosstabulation: IMPFAC6 By YEAR

```
             Count  |
           Row Pct  |1       |2       |3       |4       |
YEAR->     Col Pct  |        |        |        |        |  Row
           Tot Pct  |       1|       2|       3|       4|  Total
IMPFAC6    --------+--------+--------+--------+--------+
                 1  |     6  |     6  |     4  |     2  |    18
  1                 |  33.3  |  33.3  |  22.2  |  11.1  |   4.9
                    |   8.5  |   7.3  |   3.0  |   2.6  |
                    |   1.6  |   1.6  |   1.1  |    .5  |
                    +--------+--------+--------+--------+
                 2  |        |        |     7  |     1  |     8
  2                 |        |        |  87.5  |  12.5  |   2.2
                    |        |        |   5.2  |   1.3  |
                    |        |        |   1.9  |    .3  |
                    +--------+--------+--------+--------+
                 3  |    25  |    29  |    49  |    27  |   130
  3                 |  19.2  |  22.3  |  37.7  |  20.8  |  35.7
                    |  35.2  |  35.4  |  36.3  |  35.5  |
                    |   6.9  |   8.0  |  13.5  |   7.4  |
                    +--------+--------+--------+--------+
                 4  |    27  |    22  |    34  |    19  |   102
  4                 |  26.5  |  21.6  |  33.3  |  18.6  |  28.0
                    |  38.0  |  26.8  |  25.2  |  25.0  |
                    |   7.4  |   6.0  |   9.3  |   5.2  |
                    +--------+--------+--------+--------+
                 5  |     6  |     4  |     9  |     9  |    28
  5                 |  21.4  |  14.3  |  32.1  |  32.1  |   7.7
                    |   8.5  |   4.9  |   6.7  |  11.8  |
                    |   1.6  |   1.1  |   2.5  |   2.5  |
                    +--------+--------+--------+--------+
                 6  |     7  |    21  |    32  |    18  |    78
  6                 |   9.0  |  26.9  |  41.0  |  23.1  |  21.4
                    |   9.9  |  25.6  |  23.7  |  23.7  |
                    |   1.9  |   5.8  |   8.8  |   4.9  |
                    +--------+--------+--------+--------+
            Column      71       82      135       76      364
             Total    19.5     22.5     37.1     20.9    100.0

        Statistic                  Value            Significance
        ---------                  -----            ------------
Kendall's Tau B                   .06068                .0834

Number of Missing Observations =       36
```

25 Crosstabulation: HOFTNMTS By GENDER

```
             Count  |
           Row Pct  |Male    |Female  |
GENDER->   Col Pct  |        |        |  Row
           Tot Pct  |       1|       2|  Total
HOFTNMTS   --------+--------+--------+
                 1  |    37  |    13  |    50
  Always            |  74.0  |  26.0  |  12.5
                    |  13.7  |  10.1  |
                    |   9.3  |   3.3  |
                    +--------+--------+
                 2  |    77  |    35  |   112
  Almost always     |  68.8  |  31.3  |  28.0
                    |  28.4  |  27.1  |
                    |  19.3  |   8.8  |
                    +--------+--------+
                 3  |   101  |    48  |   149
  Sometimes         |  67.8  |  32.2  |  37.3
                    |  37.3  |  37.2  |
                    |  25.3  |  12.0  |
                    +--------+--------+
                 4  |    56  |    33  |    89
  Never             |  62.9  |  37.1  |  22.3
                    |  20.7  |  25.6  |
                    |  14.0  |   8.3  |
                    +--------+--------+
            Column     271      129      400
             Total    67.8     32.3    100.0

 Chi-Square      D.F.      Significance       Min E.F.     Cells with E.F.< 5
 ----------      ----      ------------       --------     ------------------
   1.89498          3          .5945           16.125       None

Number of Missing Observations =       0
```

26 Crosstabulation: HOFTNMTS By YEAR

```
             Count  |
```

```
            Row Pct |1       |2       |3       |4       |
YEAR->      Col Pct |        |        |        |        | Row
            Tot Pct |      1 |      2 |      3 |      4 | Total
HOFTNMTS    --------+--------+--------+--------+--------+
                 1  |    7   |   13   |   24   |    6   |   50
  Always            |  14.0  |  26.0  |  48.0  |  12.0  |  12.5
                    |   8.6  |  14.0  |  16.7  |   7.3  |
                    |   1.8  |   3.3  |   6.0  |   1.5  |
                    +--------+--------+--------+--------+
                 2  |   23   |   32   |   34   |   23   |  112
  Almost always     |  20.5  |  28.6  |  30.4  |  20.5  |  28.0
                    |  28.4  |  34.4  |  23.6  |  28.0  |
                    |   5.8  |   8.0  |   8.5  |   5.8  |
                    +--------+--------+--------+--------+
                 3  |   25   |   27   |   63   |   34   |  149
  Sometimes         |  16.8  |  18.1  |  42.3  |  22.8  |  37.3
                    |  30.9  |  29.0  |  43.8  |  41.5  |
                    |   6.3  |   6.8  |  15.8  |   8.5  |
                    +--------+--------+--------+--------+
                 4  |   26   |   21   |   23   |   19   |   89
  Never             |  29.2  |  23.6  |  25.8  |  21.3  |  22.3
                    |  32.1  |  22.6  |  16.0  |  23.2  |
                    |   6.5  |   5.3  |   5.8  |   4.8  |
                    +--------+--------+--------+--------+
             Column     81       93      144       82      400
              Total    20.3     23.3     36.0     20.5    100.0

        Statistic                 Value            Significance
        ---------                 -----            ------------
Kendall's Tau B                 -.01442                .3665

Number of Missing Observations =       0
```

27 Crosstabulation: IFMORAUI By GENDER

```
              Count |
            Row Pct |Male    |Female  |
GENDER->    Col Pct |        |        | Row
            Tot Pct |      1 |      2 | Total
IFMORAUI    --------+--------+--------+
                 0  |    7   |    3   |   10
                    |  70.0  |  30.0  |   2.5
                    |   2.6  |   2.3  |
                    |   1.8  |    .8  |
                    +--------+--------+
                30  |   94   |   51   |  145
                    |  64.8  |  35.2  |  36.3
                    |  34.7  |  39.5  |
                    |  23.5  |  12.8  |
                    +--------+--------+
                60  |  123   |   56   |  179
                    |  68.7  |  31.3  |  44.8
                    |  45.4  |  43.4  |
                    |  30.8  |  14.0  |
                    +--------+--------+
                90  |   47   |   19   |   66
                    |  71.2  |  28.8  |  16.5
                    |  17.3  |  14.7  |
                    |  11.8  |   4.8  |
                    +--------+--------+
             Column    271      129      400
              Total    67.8     32.3    100.0

  Chi-Square     D.F.      Significance      Min E.F.     Cells with E.F.< 5
  ----------     ----      ------------      --------     ------------------
     1.02832       3           .7944            3.225     1 OF     8 ( 12.5%)

Number of Missing Observations =       0
```

28 Crosstabulation: IFMORAUI By YEAR

```
              Count |
            Row Pct |1       |2       |3       |4       |
YEAR->      Col Pct |        |        |        |        | Row
            Tot Pct |      1 |      2 |      3 |      4 | Total
IFMORAUI    --------+--------+--------+--------+--------+
                 0  |    1   |    4   |    3   |    2   |   10
                    |  10.0  |  40.0  |  30.0  |  20.0  |   2.5
                    |   1.2  |   4.3  |   2.1  |   2.4  |
                    |    .3  |   1.0  |    .8  |    .5  |
                    +--------+--------+--------+--------+
                30  |   27   |   35   |   42   |   41   |  145
                    |  18.6  |  24.1  |  29.0  |  28.3  |  36.3
                    |  33.3  |  37.6  |  29.2  |  50.0  |
                    |   6.8  |   8.8  |  10.5  |  10.3  |
                    +--------+--------+--------+--------+
                60  |   35   |   43   |   72   |   29   |  179
                    |  19.6  |  24.0  |  40.2  |  16.2  |  44.8
                    |  43.2  |  46.2  |  50.0  |  35.4  |
```

```
               |   8.8  |  10.8  |  18.0  |   7.3  |
               +--------+--------+--------+--------+
         90    |   18   |   11   |   27   |   10   |    66
               |  27.3  |  16.7  |  40.9  |  15.2  |  16.5
               |  22.2  |  11.8  |  18.8  |  12.2  |
               |   4.5  |   2.8  |   6.8  |   2.5  |
               +--------+--------+--------+--------+
       Column      81       93      144       82       400
        Total    20.3     23.3     36.0     20.5     100.0

      Statistic                  Value           Significance
      ---------                  -----           ------------
Kendall's Tau B                 -.06659              .0623

Number of Missing Observations =       0
```

29 Crosstabulation: IFMORVII By GENDER

```
              Count  |
            Row Pct  |Male     |Female   |
GENDER->    Col Pct  |         |         |  Row
            Tot Pct  |       1 |       2 |  Total
IFMORVII    ---------+---------+---------+
                0    |     7   |     1   |     8
                     |  87.5   |  12.5   |   2.0
                     |   2.6   |    .8   |
                     |   1.8   |    .3   |
                     +---------+---------+
               30    |    57   |    16   |    73
                     |  78.1   |  21.9   |  18.3
                     |  21.0   |  12.4   |
                     |  14.3   |   4.0   |
                     +---------+---------+
               60    |   134   |    67   |   201
                     |  66.7   |  33.3   |  50.3
                     |  49.4   |  51.9   |
                     |  33.5   |  16.8   |
                     +---------+---------+
               90    |    73   |    45   |   118
                     |  61.9   |  38.1   |  29.5
                     |  26.9   |  34.9   |
                     |  18.3   |  11.3   |
                     +---------+---------+
              Column     271       129      400
               Total    67.8      32.3    100.0

  Chi-Square     D.F.      Significance       Min E.F.      Cells with E.F.< 5
  ----------     ----      ------------       --------      ------------------
    6.97365        3          .0727             2.580       1 OF     8 ( 12.5%)

Number of Missing Observations =       0
```

30 Crosstabulation: IFMORVII By YEAR

```
              Count  |
            Row Pct  |1        |2        |3        |4        |
YEAR->      Col Pct  |         |         |         |         |  Row
            Tot Pct  |       1 |       2 |       3 |       4 |  Total
IFMORVII    ---------+---------+---------+---------+---------+
                0    |     1   |     2   |     5   |         |     8
                     |  12.5   |  25.0   |  62.5   |         |   2.0
                     |   1.2   |   2.2   |   3.5   |         |
                     |    .3   |    .5   |   1.3   |         |
                     +---------+---------+---------+---------+
               30    |    15   |    17   |    22   |    19   |    73
                     |  20.5   |  23.3   |  30.1   |  26.0   |  18.3
                     |  18.5   |  18.3   |  15.3   |  23.2   |
                     |   3.8   |   4.3   |   5.5   |   4.8   |
                     +---------+---------+---------+---------+
               60    |    35   |    50   |    77   |    39   |   201
                     |  17.4   |  24.9   |  38.3   |  19.4   |  50.3
                     |  43.2   |  53.8   |  53.5   |  47.6   |
                     |   8.8   |  12.5   |  19.3   |   9.8   |
                     +---------+---------+---------+---------+
               90    |    30   |    24   |    40   |    24   |   118
                     |  25.4   |  20.3   |  33.9   |  20.3   |  29.5
                     |  37.0   |  25.8   |  27.8   |  29.3   |
                     |   7.5   |   6.0   |  10.0   |   6.0   |
                     +---------+---------+---------+---------+
              Column      81        93       144        82       400
               Total    20.3      23.3      36.0      20.5     100.0

      Statistic                  Value           Significance
      ---------                  -----           ------------
Kendall's Tau B                 -.03352              .2200

Number of Missing Observations =       0
```

31 Crosstabulation: IFMORCOI By GENDER

```
             Count  |
           Row Pct  |Male     |Female   |
GENDER->   Col Pct  |         |         |  Row
           Tot Pct  |       1 |       2 | Total
IFMORCOI   --------+---------+---------+
                0  |    22   |     9   |    31
                   |  71.0   |  29.0   |   7.8
                   |   8.1   |   7.0   |
                   |   5.5   |   2.3   |
                   +---------+---------+
               30  |    81   |    43   |   124
                   |  65.3   |  34.7   |  31.0
                   |  29.9   |  33.3   |
                   |  20.3   |  10.8   |
                   +---------+---------+
               60  |   103   |    48   |   151
                   |  68.2   |  31.8   |  37.8
                   |  38.0   |  37.2   |
                   |  25.8   |  12.0   |
                   +---------+---------+
               90  |    65   |    29   |    94
                   |  69.1   |  30.9   |  23.5
                   |  24.0   |  22.5   |
                   |  16.3   |   7.3   |
                   +---------+---------+
            Column      271       129      400
             Total     67.8      32.3    100.0

  Chi-Square      D.F.       Significance       Min E.F.     Cells with E.F.< 5
  ----------      ----       ------------       --------     ------------------
     .58025         3            .9009             9.998       None

Number of Missing Observations =       0
```

32 Crosstabulation: IFMORCOI By YEAR

```
             Count  |
           Row Pct  |1        |2        |3        |4        |
YEAR->     Col Pct  |         |         |         |         |  Row
           Tot Pct  |       1 |       2 |       3 |       4 | Total
IFMORCOI   --------+---------+---------+---------+---------+
                0  |     8   |    11   |     9   |     3   |    31
                   |  25.8   |  35.5   |  29.0   |   9.7   |   7.8
                   |   9.9   |  11.8   |   6.3   |   3.7   |
                   |   2.0   |   2.8   |   2.3   |    .8   |
                   +---------+---------+---------+---------+
               30  |    22   |    22   |    44   |    36   |   124
                   |  17.7   |  17.7   |  35.5   |  29.0   |  31.0
                   |  27.2   |  23.7   |  30.6   |  43.9   |
                   |   5.5   |   5.5   |  11.0   |   9.0   |
                   +---------+---------+---------+---------+
               60  |    27   |    39   |    55   |    30   |   151
                   |  17.9   |  25.8   |  36.4   |  19.9   |  37.8
                   |  33.3   |  41.9   |  38.2   |  36.6   |
                   |   6.8   |   9.8   |  13.8   |   7.5   |
                   +---------+---------+---------+---------+
               90  |    24   |    21   |    36   |    13   |    94
                   |  25.5   |  22.3   |  38.3   |  13.8   |  23.5
                   |  29.6   |  22.6   |  25.0   |  15.9   |
                   |   6.0   |   5.3   |   9.0   |   3.3   |
                   +---------+---------+---------+---------+
            Column       81        93       144        82      400
             Total     20.3      23.3      36.0      20.5    100.0

         Statistic                    Value            Significance
         ---------                    -----            ------------
Kendall's Tau B                     -.05460                 .0997

Number of Missing Observations =       0
```

E.5 Crosstabulations and tests of association of teachers for section 6.3.2.2

1 Crosstabulation: INTRSTLT By GENDER

```
              Count  |Male     |Female  |
GENDER->    Tot Pct  |         |        |  Row
                     |      1  |     2  |  Total
INTRSTLT     --------+---------+--------+
                  1  |   14    |    4   |    18
  Very interested    |  53.8   |  15.4  |  69.2
                     +---------+--------+
                  2  |    4    |    4   |     8
  Fairly intereste   |  15.4   |  15.4  |  30.8
                     +---------+--------+
             Column      18        8        26
              Total     69.2     30.8     100.0

 Chi-Square     D.F.      Significance      Min E.F.     Cells with E.F.< 5
 ----------     ----      ------------      --------     ------------------
    .91406        1           .3390            2.462     1 of     4 ( 25.0%)
   2.00617        1           .1567          ( Before Yates Correction )

Number of Missing Observations =       0
```

2 Crosstabulation: INTRSTLT By YRTEACIN

```
               Count  |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN->   Tot Pct  |         |         |         |         |         |  Row
                      |      1  |      2  |      3  |      4  |      5  |  Total
INTRSTLT      --------+---------+---------+---------+---------+---------+
                   1  |    4    |    3    |    4    |    3    |    4    |    18
  Very interested     |  15.4   |  11.5   |  15.4   |  11.5   |  15.4   |  69.2
                      +---------+---------+---------+---------+---------+
                   2  |    2    |    2    |    3    |    1    |         |     8
  Fairly intereste    |   7.7   |   7.7   |  11.5   |   3.8   |         |  30.8
                      +---------+---------+---------+---------+---------+
              Column       6         5         7         4         4         26
               Total     23.1      19.2      26.9      15.4      15.4     100.0

       Statistic                 Value           Significance
       ---------                 -----           ------------
Kendall's Tau B                -.17850               .1599

Number of Missing Observations =       0
```

3 Crosstabulation: USEFLL By GENDER

```
              Count  |Male     |Female  |
GENDER->    Tot Pct  |         |        |  Row
                     |      1  |     2  |  Total
USEFLL       --------+---------+--------+
                  1  |   13    |    4   |    17
  Very useful        |  50.0   |  15.4  |  65.4
                     +---------+--------+
                  2  |    5    |    4   |     9
  Fairly useful      |  19.2   |  15.4  |  34.6
                     +---------+--------+
             Column      18        8        26
              Total     69.2     30.8     100.0

 Chi-Square     D.F.      Significance      Min E.F.     Cells with E.F.< 5
 ----------     ----      ------------      --------     ------------------
    .42602        1           .5140            2.769     1 of     4 ( 25.0%)
   1.20842        1           .2716          ( Before Yates Correction )

Number of Missing Observations =       0
```

4 Crosstabulation: USEFLL By YRTEACIN

```
               Count  |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN->   Tot Pct  |         |         |         |         |         |  Row
                      |      1  |      2  |      3  |      4  |      5  |  Total
USEFLL        --------+---------+---------+---------+---------+---------+
                   1  |    4    |    2    |    5    |    2    |    4    |    17
  Very useful         |  15.4   |   7.7   |  19.2   |   7.7   |  15.4   |  65.4
                      +---------+---------+---------+---------+---------+
                   2  |    2    |    3    |    2    |    2    |         |     9
  Fairly useful       |   7.7   |  11.5   |   7.7   |   7.7   |         |  34.6
                      +---------+---------+---------+---------+---------+
              Column       6         5         7         4         4         26
               Total     23.1      19.2      26.9      15.4      15.4     100.0

       Statistic                 Value           Significance
       ---------                 -----           ------------
Kendall's Tau B                -.16327               .1814

Number of Missing Observations =       0
```

5 Crosstabulation: USEFTEAC By GENDER

```
            Count  |Male    |Female  |
GENDER->   Tot Pct |        |        |  Row
                   |     1  |     2  | Total
USEFTEAC   --------+--------+--------+
                1  |   10   |    6   |   16
  Very useful      |  38.5  |  23.1  |  61.5
                   +--------+--------+
                2  |    8   |    2   |   10
  Fairly useful    |  30.8  |   7.7  |  38.5
                   +--------+--------+
           Column     18        8       26
            Total    69.2     30.8    100.0

 Chi-Square   D.F.      Significance       Min E.F.     Cells with E.F.< 5
 ----------   ----      ------------       --------     ------------------
    .25391      1           .6143            3.077      2 of      4 ( 50.0%)
    .88472      1           .3469          ( Before Yates Correction )

Number of Missing Observations =       0
```

6 Crosstabulation: USEFTEAC By YRTEACIN

```
             Count  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Tot Pct  |        |        |        |        |        |  Row
                    |     1  |     2  |     3  |     4  |     5  | Total
USEFTEAC   ---------+--------+--------+--------+--------+--------+
                1   |    3   |    3   |    5   |    2   |    3   |   16
  Very useful       |  11.5  |  11.5  |  19.2  |   7.7  |  11.5  |  61.5
                    +--------+--------+--------+--------+--------+
                2   |    3   |    2   |    2   |    2   |    1   |   10
  Fairly useful     |  11.5  |   7.7  |   7.7  |   7.7  |   3.8  |  38.5
                    +--------+--------+--------+--------+--------+
            Column       6        5        7        4        4       26
             Total    23.1     19.2     26.9     15.4     15.4    100.0

          Statistic                 Value         Significance
          ---------                 -----         ------------
Kendall's Tau B                   -.10644             .2765
```

7 Crosstabulation: HOFTNYU By GENDER

```
            Count  |Male    |Female  |
GENDER->   Tot Pct |        |        |  Row
                   |     1  |     2  | Total
HOFTNYU    --------+--------+--------+
                1  |    4   |    1   |    5
  Always           |  15.4  |   3.8  |  19.2
                   +--------+--------+
                2  |    6   |    4   |   10
  Almost always    |  23.1  |  15.4  |  38.5
                   +--------+--------+
                3  |    7   |    2   |    9
  Sometimes        |  26.9  |   7.7  |  34.6
                   +--------+--------+
                4  |    1   |    1   |    2
  Never            |   3.8  |   3.8  |   7.7
                   +--------+--------+
           Column     18        8       26
            Total    69.2     30.8    100.0

 Chi-Square   D.F.      Significance       Min E.F.     Cells with E.F.< 5
 ----------   ----      ------------       --------     ------------------
   1.32809      3           .7225             .615      6 OF      8 ( 75.0%)

Number of Missing Observations =       0
```

8 Crosstabulation: HOFTNYU By YRTEACIN

```
             Count  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Tot Pct  |        |        |        |        |        |  Row
                    |     1  |     2  |     3  |     4  |     5  | Total
HOFTNYU    ---------+--------+--------+--------+--------+--------+
                1   |    1   |    1   |    2   |        |    1   |    5
  Always            |   3.8  |   3.8  |   7.7  |        |   3.8  |  19.2
                    +--------+--------+--------+--------+--------+
                2   |    3   |    2   |    1   |    2   |    2   |   10
  Almost always     |  11.5  |   7.7  |   3.8  |   7.7  |   7.7  |  38.5
                    +--------+--------+--------+--------+--------+
                3   |    1   |    2   |    4   |    1   |    1   |    9
  Sometimes         |   3.8  |   7.7  |  15.4  |   3.8  |   3.8  |  34.6
                    +--------+--------+--------+--------+--------+
                4   |    1   |        |        |    1   |        |    2
  Never             |   3.8  |        |        |   3.8  |        |   7.7
                    +--------+--------+--------+--------+--------+
            Column       6        5        7        4        4       26
             Total    23.1     19.2     26.9     15.4     15.4    100.0
```

```
        Statistic                   Value          Significance
        ---------                   -----          ------------
Kendall's Tau B                    .00401              .4904

Number of Missing Observations =       0
```

9 Crosstabulation: HOFTNCLS By GENDER

```
               Count  |Male     |Female   |
GENDER->     Tot Pct  |         |         |  Row
                      |       1 |       2 | Total
HOFTNCLS     ---------+---------+---------+
                   1  |     3   |     1   |     4
  Always              |  11.5   |   3.8   |  15.4
                      +---------+---------+
                   2  |     4   |     3   |     7
  Almost always       |  15.4   |  11.5   |  26.9
                      +---------+---------+
                   3  |     9   |     3   |    12
  Somtimes            |  34.6   |  11.5   |  46.2
                      +---------+---------+
                   4  |     2   |     1   |     3
  Never               |   7.7   |   3.8   |  11.5
                      +---------+---------+
              Column       18         8        26
               Total     69.2      30.8     100.0

  Chi-Square      D.F.        Significance        Min E.F.      Cells with E.F.< 5
  ----------      ----        ------------        --------      ------------------
     .73942         3             .8639              .923       7 OF     8 ( 87.5%)

Number of Missing Observations =       0
```

10 Crosstabulation: HOFTNCLS By YRTEACIN

```
               Count  |1-5      |6-10     |11-15    |16-20    |21-25    |
YRTEACIN->   Tot Pct  |         |         |         |         |         |  Row
                      |       1 |       2 |       3 |       4 |       5 | Total
HOFTNCLS     ---------+---------+---------+---------+---------+---------+
                   1  |         |     1   |     2   |         |     1   |     4

  Always              |         |   3.8   |   7.7   |         |   3.8   |  15.4
                      +---------+---------+---------+---------+---------+
                   2  |     2   |     1   |     3   |     1   |         |     7
  Almost always       |   7.7   |   3.8   |  11.5   |   3.8   |         |  26.9
                      +---------+---------+---------+---------+---------+
                   3  |     4   |     2   |     2   |     2   |     2   |    12
  Somtimes            |  15.4   |   7.7   |   7.7   |   7.7   |   7.7   |  46.2
                      +---------+---------+---------+---------+---------+
                   4  |         |     1   |         |     1   |     1   |     3
  Never               |         |   3.8   |         |   3.8   |   3.8   |  11.5
                      +---------+---------+---------+---------+---------+
              Column        6         5         7         4         4        26
               Total     23.1      19.2      26.9      15.4      15.4     100.0

        Statistic                   Value          Significance
        ---------                   -----          ------------
Kendall's Tau B                    .04853              .3857

Number of Missing Observations =       0
```

11 Crosstabulation: AVAHARD By GENDER

```
GENDER->       Count  |                   |  Row
             Tot Pct  |       1 |       2 | Total
AVAHARD      ---------+---------+---------+
                   1  |     2   |     2   |     4
  Easily available    |   7.7   |   7.7   |  15.4
                      +---------+---------+
                   2  |    10   |     4   |    14
  Fairly easily av    |  38.5   |  15.4   |  53.8
                      +---------+---------+
                   3  |     5   |     2   |     7
  Availability dif    |  19.2   |   7.7   |  26.9
                      +---------+---------+
                   4  |     1   |         |     1
  Not available at    |   3.8   |         |   3.8
                      +---------+---------+
              Column       18         8        26
               Total     69.2      30.8     100.0

  Chi-Square      D.F.        Significance        Min E.F.      Cells with E.F.< 5
  ----------      ----        ------------        --------      ------------------
    1.18651         3             .7562              .308       7 OF     8 ( 87.5%)

Number of Missing Observations =       0
```

12 Crosstabulation: AVAHARD By YRTEACIN

```
YRTEACIN->  Count |                                            | Row
          Tot Pct |      1 |      2 |      3 |      4 |      5 | Total
AVAHARD   --------+--------+--------+--------+--------+--------+
                1 |        |      1 |      3 |        |        |     4
 Easily available |        |    3.8 |   11.5 |        |        |  15.4
                  +--------+--------+--------+--------+--------+
                2 |      5 |      4 |      1 |      2 |      2 |    14
 Fairly easily av |   19.2 |   15.4 |    3.8 |    7.7 |    7.7 |  53.8
                  +--------+--------+--------+--------+--------+
                3 |      1 |        |      3 |      1 |      2 |     7
 Availability dif |    3.8 |        |   11.5 |    3.8 |    7.7 |  26.9
                  +--------+--------+--------+--------+--------+
                4 |        |        |        |      1 |        |     1
 Not available at |        |        |        |    3.8 |        |   3.8
                  +--------+--------+--------+--------+--------+
           Column        6        5        7        4        4      26
            Total     23.1     19.2     26.9     15.4     15.4   100.0

        Statistic                    Value          Significance
        ---------                    -----          ------------
Kendall's Tau B                     .20417               .1146

Number of Missing Observations =         0
```

13 Crosstabulation: AVASOFT By GENDER

```
GENDER->    Count |                 | Row
          Tot Pct |      1 |      2 | Total
AVASOFT   --------+--------+--------+
                1 |        |      1 |     1
 Easily available |        |    3.8 |   3.8
                  +--------+--------+
                2 |      6 |      2 |     8
 Fairly easily av |   23.1 |    7.7 |  30.8
                  +--------+--------+
                3 |      7 |      4 |    11
 Availability dif |   26.9 |   15.4 |  42.3
                  +--------+--------+
                4 |      5 |      1 |     6
 Not available at |   19.2 |    3.8 |  23.1
                  +--------+--------+
           Column       18        8      26
            Total     69.2     30.8   100.0

  Chi-Square     D.F.       Significance      Min E.F.      Cells with E.F.< 5
  ----------     ----       ------------      --------      ------------------
     3.09680        3             .3769           .308      6 OF     8 ( 75.0%)

Number of Missing Observations =         0
```

14 Crosstabulation: AVASOFT By YRTEACIN

```
YRTEACIN->  Count |                                            | Row
          Tot Pct |      1 |      2 |      3 |      4 |      5 | Total
AVASOFT   --------+--------+--------+--------+--------+--------+
                1 |        |        |      1 |        |        |     1
 Easily available |        |        |    3.8 |        |        |   3.8
                  +--------+--------+--------+--------+--------+
                2 |      2 |      2 |      3 |      1 |        |     8
 Fairly easily av |    7.7 |    7.7 |   11.5 |    3.8 |        |  30.8
                  +--------+--------+--------+--------+--------+
                3 |      3 |      3 |      1 |      2 |      2 |    11
 Availability dif |   11.5 |   11.5 |    3.8 |    7.7 |    7.7 |  42.3
                  +--------+--------+--------+--------+--------+
                4 |      1 |        |      2 |      1 |      2 |     6
 Not available at |    3.8 |        |    7.7 |    3.8 |    7.7 |  23.1
                  +--------+--------+--------+--------+--------+
           Column        6        5        7        4        4      26
            Total     23.1     19.2     26.9     15.4     15.4   100.0

        Statistic                    Value          Significance
        ---------                    -----          ------------
Kendall's Tau B                     .19497               .1232

Number of Missing Observations =         0
```

15 Crosstabulation: IMPFAC1 By GENDER

```
            Count |Male    |Female  |
GENDER->  Tot Pct |        |        | Row
                  |      1 |      2 | Total
IMPFAC1   --------+--------+--------+
                1 |      3 |      2 |     5
  1               |   11.5 |    7.7 |  19.2
                  +--------+--------+
```

```
               2 |     7  |     2  |     9
    2            |  26.9  |   7.7  |  34.6
                 +--------+--------+
               4 |     1  |        |     1
    4            |   3.8  |        |   3.8
                 +--------+--------+
               5 |     4  |     4  |     8
    5            |  15.4  |  15.4  |  30.8
                 +--------+--------+
               6 |     3  |        |     3
    6            |  11.5  |        |  11.5
                 +--------+--------+
          Column      18        8       26
           Total    69.2     30.8    100.0

        Statistic                 Value          Significance
        ---------                 -----          ------------
Kendall's Tau B                 -.04233              .4085

Number of Missing Observations =       0
```

16 Crosstabulation: IMPFAC1 By YRTEACIN

```
            Count  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Tot Pct |        |        |        |        |        |  Row
                   |     1  |     2  |     3  |     4  |     5  | Total
IMPFAC1    --------+--------+--------+--------+--------+--------+
                 1 |     3  |     1  |     1  |        |        |     5
    1              |  11.5  |   3.8  |   3.8  |        |        |  19.2
                   +--------+--------+--------+--------+--------+
                 2 |     1  |     2  |     2  |     1  |     3  |     9
    2              |   3.8  |   7.7  |   7.7  |   3.8  |  11.5  |  34.6
                   +--------+--------+--------+--------+--------+
                 4 |        |        |        |        |     1  |     1
    4              |        |        |        |        |   3.8  |   3.8
                   +--------+--------+--------+--------+--------+
                 5 |     2  |     1  |     3  |     2  |        |     8
    5              |   7.7  |   3.8  |  11.5  |   7.7  |        |  30.8
                   +--------+--------+--------+--------+--------+
                 6 |        |     1  |     1  |     1  |        |     3
    6              |        |   3.8  |   3.8  |   3.8  |        |  11.5
                   +--------+--------+--------+--------+--------+
            Column       6        5        7        4        4       26
             Total    23.1     19.2     26.9     15.4     15.4    100.0

        Statistic                 Value          Significance
        ---------                 -----          ------------
Kendall's Tau B                  .15933              .1663

Number of Missing Observations =       0
```

17 Crosstabulation: IMPFAC2 By GENDER

```
            Count  |Male    |Female  |
GENDER->   Tot Pct |        |        |  Row
                   |     1  |     2  | Total
IMPFAC2    --------+--------+--------+
                 1 |     2  |     2  |     4
    1              |   7.7  |   7.7  |  15.4
                   +--------+--------+
                 2 |     5  |     2  |     7
    2              |  19.2  |   7.7  |  26.9
                   +--------+--------+
                 3 |     1  |        |     1
    3              |   3.8  |        |   3.8
                   +--------+--------+
                 4 |     1  |        |     1
    4              |   3.8  |        |   3.8
                   +--------+--------+
                 5 |     7  |     1  |     8
    5              |  26.9  |   3.8  |  30.8
                   +--------+--------+
                 6 |     2  |     3  |     5
    6              |   7.7  |  11.5  |  19.2
                   +--------+--------+
            Column      18        8       26
             Total    69.2     30.8    100.0

        Statistic                 Value          Significance
        ---------                 -----          ------------
Kendall's Tau B                  .02584              .4431

Number of Missing Observations =       0
```

18 Crosstabulation: IMPFAC2 By YRTEACIN

```
            Count  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Tot Pct |        |        |        |        |        |  Row
                   |     1  |     2  |     3  |     4  |     5  | Total
IMPFAC2    --------+--------+--------+--------+--------+--------+
                 1 |        |     1  |        |     2  |     1  |     4
```

```
  1                |        |    3.8 |        |    7.7 |    3.8 |   15.4
                   +--------+--------+--------+--------+--------+
                 2 |      2 |      2 |      2 |      1 |        |      7
  2                |    7.7 |    7.7 |    7.7 |    3.8 |        |   26.9
                   +--------+--------+--------+--------+--------+
                 3 |        |        |        |        |      1 |      1
  3                |        |        |        |        |    3.8 |    3.8
                   +--------+--------+--------+--------+--------+
                 4 |        |        |      1 |        |        |      1
  4                |        |        |    3.8 |        |        |    3.8
                   +--------+--------+--------+--------+--------+
                 5 |      2 |      1 |      2 |      1 |      2 |      8
  5                |    7.7 |    3.8 |    7.7 |    3.8 |    7.7 |   30.8
                   +--------+--------+--------+--------+--------+
                 6 |      2 |      1 |      2 |        |        |      5
  6                |    7.7 |    3.8 |    7.7 |        |        |   19.2
                   +--------+--------+--------+--------+--------+
            Column        6        5        7        4        4       26
             Total     23.1     19.2     26.9     15.4     15.4    100.0

        Statistic                 Value          Significance
        ---------                 -----          ------------
Kendall's Tau B                  -.19357             .1166

Number of Missing Observations =      0
```

19 Crosstabulation: IMPFAC3 By GENDER

```
             Count |Male    |Female  |
GENDER->   Tot Pct |        |        | Row
                   |      1 |      2 | Total
IMPFAC3    --------+--------+--------+
                 1 |      7 |      2 |      9
  1                |   26.9 |    7.7 |   34.6
                   +--------+--------+
                 2 |      2 |      1 |      3
  2                |    7.7 |    3.8 |   11.5
                   +--------+--------+
                 3 |      1 |        |      1
  3                |    3.8 |        |    3.8
                   +--------+--------+
                 4 |      2 |        |      2
  4                |    7.7 |        |    7.7
                   +--------+--------+
                 5 |      3 |      3 |      6
  5                |   11.5 |   11.5 |   23.1
                   +--------+--------+
                 6 |      3 |      2 |      5
  6                |   11.5 |    7.7 |   19.2
                   +--------+--------+
            Column       18        8       26
             Total     69.2     30.8    100.0

        Statistic                 Value          Significance
        ---------                 -----          ------------
Kendall's Tau B                   .17055             .1720

Number of Missing Observations =      0
```

20 Crosstabulation: IMPFAC3 By YRTEACIN

```
             Count |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Tot Pct |        |        |        |        |        | Row
                   |      1 |      2 |      3 |      4 |      5 | Total
IMPFAC3    --------+--------+--------+--------+--------+--------+
                 1 |      2 |      1 |      3 |      2 |      1 |      9
  1                |    7.7 |    3.8 |   11.5 |    7.7 |    3.8 |   34.6
                   +--------+--------+--------+--------+--------+
                 2 |        |      1 |      1 |        |      1 |      3
  2                |        |    3.8 |    3.8 |        |    3.8 |   11.5
                   +--------+--------+--------+--------+--------+
                 3 |      1 |        |        |        |        |      1
  3                |    3.8 |        |        |        |        |    3.8
                   +--------+--------+--------+--------+--------+
                 4 |        |      1 |        |        |      1 |      2
  4                |        |    3.8 |        |        |    3.8 |    7.7
                   +--------+--------+--------+--------+--------+
                 5 |      2 |      2 |      1 |      1 |        |      6
  5                |    7.7 |    7.7 |    3.8 |    3.8 |        |   23.1
                   +--------+--------+--------+--------+--------+
                 6 |      1 |        |      2 |      1 |      1 |      5
  6                |    3.8 |        |    7.7 |    3.8 |    3.8 |   19.2
                   +--------+--------+--------+--------+--------+
            Column        6        5        7        4        4       26
             Total     23.1     19.2     26.9     15.4     15.4    100.0

        Statistic                 Value          Significance
        ---------                 -----          ------------
Kendall's Tau B                  -.02277             .4441
```

```
Number of Missing Observations =      0
```

21 Crosstabulation: IMPFAC4 By GENDER

```
               Count  |Male     |Female  |
GENDER->      Tot Pct |         |        | Row
                      |       1 |      2 | Total
IMPFAC4       --------+---------+--------+
                   1  |     4   |     1  |     5
  1                   |  15.4   |   3.8  |  19.2
                      +---------+--------+
                   2  |     2   |     2  |     4
  2                   |   7.7   |   7.7  |  15.4
                      +---------+--------+
                   3  |     2   |     3  |     5
  3                   |   7.7   |  11.5  |  19.2
                      +---------+--------+
                   4  |     1   |     1  |     2
  4                   |   3.8   |   3.8  |   7.7
                      +---------+--------+
                   5  |     2   |        |     2
  5                   |   7.7   |        |   7.7
                      +---------+--------+
                   6  |     7   |     1  |     8
  6                   |  26.9   |   3.8  |  30.8
                      +---------+--------+
               Column       18        8       26
                Total     69.2     30.8    100.0

        Statistic                     Value            Significance
        ---------                     -----            ------------
Kendall's Tau B                     -.16259               .1813

Number of Missing Observations =      0
```

22 Crosstabulation: IMPFAC4 By YRTEACIN

```
               Count  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->    Tot Pct |        |        |        |        |        | Row
                      |      1 |      2 |      3 |      4 |      5 | Total
IMPFAC4       --------+--------+--------+--------+--------+--------+
                   1  |     1  |     2  |     2  |        |        |     5
  1                   |   3.8  |   7.7  |   7.7  |        |        |  19.2
                      +--------+--------+--------+--------+--------+
                   2  |     1  |        |     1  |     2  |        |     4
  2                   |   3.8  |        |   3.8  |   7.7  |        |  15.4
                      +--------+--------+--------+--------+--------+
                   3  |     1  |     2  |     1  |     1  |        |     5
  3                   |   3.8  |   7.7  |   3.8  |   3.8  |        |  19.2
                      +--------+--------+--------+--------+--------+
                   4  |        |        |     2  |        |        |     2
  4                   |        |        |   7.7  |        |        |   7.7
                      +--------+--------+--------+--------+--------+
                   5  |        |        |     1  |        |     1  |     2
  5                   |        |        |   3.8  |        |   3.8  |   7.7
                      +--------+--------+--------+--------+--------+
                   6  |     3  |     1  |        |     1  |     3  |     8
  6                   |  11.5  |   3.8  |        |   3.8  |  11.5  |  30.8
                      +--------+--------+--------+--------+--------+
               Column       6        5        7        4        4       26
                Total    23.1     19.2     26.9     15.4     15.4    100.0

        Statistic                     Value            Significance
        ---------                     -----            ------------
Kendall's Tau B                      .16418               .1534

Number of Missing Observations =      0
```

23 Crosstabulation: IMPFAC5 By GENDER

```
               Count  |Male    |Female  |
GENDER->      Tot Pct |        |        | Row
                      |      1 |      2 | Total
IMPFAC5       --------+--------+--------+
                   1  |     2  |        |     2
  1                   |   7.7  |        |   7.7
                      +--------+--------+
                   2  |     1  |     1  |     2
  2                   |   3.8  |   3.8  |   7.7
                      +--------+--------+
                   3  |     4  |     3  |     7
  3                   |  15.4  |  11.5  |  26.9
                      +--------+--------+
                   4  |    10  |     3  |    13
  4                   |  38.5  |  11.5  |  50.0
                      +--------+--------+
                   5  |     1  |        |     1
  5                   |   3.8  |        |   3.8
                      +--------+--------+
```

```
               6 |        |     1  |     1
    6            |        |   3.8  |   3.8
                 +--------+--------+
          Column      18        8        26
           Total    69.2     30.8     100.0

       Statistic                Value          Significance
       ---------                -----          ------------
Kendall's Tau B                -.00557             .4880

Number of Missing Observations =       0
```

24 Crosstabulation: IMPFAC5 By YRTEACIN

```
            Count  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Tot Pct |        |        |        |        |        |  Row
                   |       1|       2|       3|       4|       5| Total
IMPFAC5    --------+--------+--------+--------+--------+--------+
               1   |        |        |        |        |     2  |     2
    1              |        |        |        |        |   7.7  |   7.7
                   +--------+--------+--------+--------+--------+
               2   |     2  |        |        |        |        |     2
    2              |   7.7  |        |        |        |        |   7.7
                   +--------+--------+--------+--------+--------+
               3   |     2  |     1  |     3  |     1  |        |     7
    3              |   7.7  |   3.8  |  11.5  |   3.8  |        |  26.9
                   +--------+--------+--------+--------+--------+
               4   |     2  |     3  |     3  |     3  |     2  |    13
    4              |   7.7  |  11.5  |  11.5  |  11.5  |   7.7  |  50.0
                   +--------+--------+--------+--------+--------+
               5   |        |     1  |        |        |        |     1
    5              |        |   3.8  |        |        |        |   3.8
                   +--------+--------+--------+--------+--------+
               6   |        |        |     1  |        |        |     1
    6              |        |        |   3.8  |        |        |   3.8
                   +--------+--------+--------+--------+--------+
            Column       6        5        7        4        4       26
             Total    23.1     19.2     26.9     15.4     15.4    100.0

       Statistic                Value          Significance
       ---------                -----          ------------
Kendall's Tau B                 .03680             .4126

Number of Missing Observations =       0
```

25 Crosstabulation: IMPFAC6 By GENDER

```
            Count  |Male    |Female  |
GENDER->   Tot Pct |        |        |  Row
                   |       1|       2| Total
IMPFAC6    --------+--------+--------+
               1   |        |     1  |     1
    1              |        |   3.8  |   3.8
                   +--------+--------+

               2   |     1  |        |     1
    2              |   3.8  |        |   3.8
                   +--------+--------+
               3   |    10  |     2  |    12
    3              |  38.5  |   7.7  |  46.2
                   +--------+--------+
               4   |     3  |     4  |     7
    4              |  11.5  |  15.4  |  26.9
                   +--------+--------+
               5   |     1  |        |     1
    5              |   3.8  |        |   3.8
                   +--------+--------+
               6   |     3  |     1  |     4
    6              |  11.5  |   3.8  |  15.4
                   +--------+--------+
            Column      18        8        26
             Total    69.2     30.8     100.0

       Statistic                Value          Significance
       ---------                -----          ------------
Kendall's Tau B                 .07112             .3501

Number of Missing Observations =       0
```

26 Crosstabulation: IMPFAC6 By YRTEACIN

```
            Count  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Tot Pct |        |        |        |        |        |  Row
                   |       1|       2|       3|       4|       5| Total
IMPFAC6    --------+--------+--------+--------+--------+--------+
               1   |        |        |     1  |        |        |     1
    1              |        |        |   3.8  |        |        |   3.8
                   +--------+--------+--------+--------+--------+
               2   |        |        |     1  |        |        |     1
    2              |        |        |   3.8  |        |        |   3.8
```

```
                +--------+--------+--------+--------+--------+
              3 |     2  |     2  |     3  |     2  |     3  |    12
 3              |   7.7  |   7.7  |  11.5  |   7.7  |  11.5  |  46.2
                +--------+--------+--------+--------+--------+
              4 |     4  |     1  |     1  |     1  |        |     7
 4              |  15.4  |   3.8  |   3.8  |   3.8  |        |  26.9
                +--------+--------+--------+--------+--------+
              5 |        |        |        |        |     1  |     1
 5              |        |        |        |        |   3.8  |   3.8
                +--------+--------+--------+--------+--------+
              6 |        |     2  |     1  |     1  |        |     4
 6              |        |   7.7  |   3.8  |   3.8  |        |  15.4
                +--------+--------+--------+--------+--------+
         Column        6        5        7        4        4       26
          Total     23.1     19.2     26.9     15.4     15.4    100.0

     Statistic                 Value           Significance
     ---------                 -----           ------------
Kendall's Tau B              -.12857               .2193

Number of Missing Observations =       0
```

27 Crosstabulation: ENJOYWS By GENDER

```
            Count  |Male     |Female  |
GENDER->  Tot Pct  |         |        |  Row
                   |       1 |      2 | Total
ENJOYWS    --------+---------+--------+
                 1 |    14   |    3   |   17
  Very much        |  53.8   |  11.5  |  65.4
                   +---------+--------+
                 2 |     3   |    4   |    7
  A little         |  11.5   |  15.4  |  26.9
                   +---------+--------+
                 3 |     1   |    1   |    2
  Not very much    |   3.8   |   3.8  |   7.7
                   +---------+--------+
            Column      18        8       26
             Total    69.2     30.8    100.0

 Chi-Square    D.F.      Significance      Min E.F.      Cells with E.F.< 5
 ----------    ----      ------------      --------      ------------------
   4.00712       2           .1349            .615       4 OF     6 ( 66.7%)

Number of Missing Observations =       0
```

28 Crosstabulation: ENJOYWS By YRTEACIN

```
            Count  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Tot Pct |        |        |        |        |        |  Row
                   |      1 |      2 |      3 |      4 |      5 | Total
ENJOYWS    --------+--------+--------+--------+--------+--------+
                 1 |     5  |     3  |     5  |     2  |     2  |    17
  Very much        |  19.2  |  11.5  |  19.2  |   7.7  |   7.7  |  65.4
                   +--------+--------+--------+--------+--------+
                 2 |     1  |     2  |     1  |     2  |     1  |     7
  A little         |   3.8  |   7.7  |   3.8  |   7.7  |   3.8  |  26.9
                   +--------+--------+--------+--------+--------+
                 3 |        |        |     1  |        |     1  |     2
  Not very much    |        |        |   3.8  |        |   3.8  |   7.7
                   +--------+--------+--------+--------+--------+
            Column       6        5        7        4        4       26
             Total    23.1     19.2     26.9     15.4     15.4    100.0

     Statistic                 Value           Significance
     ---------                 -----           ------------
Kendall's Tau B               .21784               .1060

Number of Missing Observations =       0
```

29 Crosstabulation: WSUSEFUL By GENDER

```
            Count  |Male     |Female  |
GENDER->  Tot Pct  |         |        |  Row
                   |       1 |      2 | Total
WSUSEFUL   --------+---------+--------+
                 1 |    12   |    7   |   19
  Very useful      |  46.2   |  26.9  |  73.1
                   +---------+--------+
                 2 |     5   |    1   |    6
  Fairly useful    |  19.2   |   3.8  |  23.1
                   +---------+--------+
                 3 |     1   |        |    1
  Not very useful  |   3.8   |        |   3.8
                   +---------+--------+
            Column      18        8       26
             Total    69.2     30.8    100.0
```

```
  Chi-Square    D.F.      Significance       Min E.F.      Cells with E.F.< 5
  ----------    ----      ------------       --------      ------------------
     1.33358      2          .5134              .308       4 OF     6 ( 66.7%)

Number of Missing Observations =       0
```

30 Crosstabulation: WSUSEFUL By YRTEACIN

```
              Count  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->  Tot Pct  |        |        |        |        |        | Row
                     |      1 |      2 |      3 |      4 |      5 | Total
WSUSEFUL    ---------+--------+--------+--------+--------+--------+
                  1  |     5  |     4  |     5  |     4  |     1  |    19
  Very useful        |  19.2  |  15.4  |  19.2  |  15.4  |   3.8  |  73.1
                     +--------+--------+--------+--------+--------+
                  2  |     1  |     1  |     2  |        |     2  |     6
  Fairly useful      |   3.8  |   3.8  |   7.7  |        |   7.7  |  23.1
                     +--------+--------+--------+--------+--------+
                  3  |        |        |        |        |     1  |     1
  Not very useful    |        |        |        |        |   3.8  |   3.8
                     +--------+--------+--------+--------+--------+
             Column       6        5        7        4        4       26
              Total    23.1     19.2     26.9     15.4     15.4    100.0

        Statistic                 Value          Significance
        ---------                 -----          ------------
Kendall's Tau B                  .24397              .0836

Number of Missing Observations =       0
```

31 Crosstabulation: LEARNTWS By GENDER

```
              Count  |Male    |Female  |
GENDER->    Tot Pct  |        |        | Row
                     |      1 |      2 | Total
LEARNTWS    ---------+--------+--------+
                  1  |     6  |     6  |    12
  Very much          |  23.1  |  23.1  |  46.2
                     +--------+--------+
                  2  |     7  |     2  |     9
  A little           |  26.9  |   7.7  |  34.6
                     +--------+--------+
                  3  |     5  |        |     5
  Not very much      |  19.2  |        |  19.2
                     +--------+--------+
             Column      18        8       26
              Total    69.2     30.8    100.0

  Chi-Square    D.F.      Significance       Min E.F.      Cells with E.F.< 5
  ----------    ----      ------------       --------      ------------------
     4.61420      2          .0995              1.538      4 OF     6 ( 66.7%)

Number of Missing Observations =       0
```

32 Crosstabulation: LEARNTWS By YRTEACIN

```
              Count  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN->  Tot Pct  |        |        |        |        |        | Row
                     |      1 |      2 |      3 |      4 |      5 | Total
LEARNTWS    ---------+--------+--------+--------+--------+--------+
                  1  |     3  |     2  |     4  |     1  |     2  |    12
  Very much          |  11.5  |   7.7  |  15.4  |   3.8  |   7.7  |  46.2
                     +--------+--------+--------+--------+--------+
                  2  |     1  |     2  |     3  |     2  |     1  |     9
  A little           |   3.8  |   7.7  |  11.5  |   7.7  |   3.8  |  34.6
                     +--------+--------+--------+--------+--------+
                  3  |     2  |     1  |        |     1  |     1  |     5
  Not very much      |   7.7  |   3.8  |        |   3.8  |   3.8  |  19.2
                     +--------+--------+--------+--------+--------+
             Column       6        5        7        4        4       26
              Total    23.1     19.2     26.9     15.4     15.4    100.0

        Statistic                 Value          Significance
        ---------                 -----          ------------
Kendall's Tau B                  .00000              .5000

Number of Missing Observations =       0
```

33 Crosstabulation: ATTENDWS By GENDER

```
              Count  |Male    |Female  |
GENDER->    Tot Pct  |        |        | Row
                     |      1 |      2 | Total
ATTENDWS    ---------+--------+--------+
                  1  |    17  |     7  |    24
  Very much          |  65.4  |  26.9  |  92.3
                     +--------+--------+
                  2  |     1  |     1  |     2
```

```
 A little          |   3.8  |   3.8  |   7.7
                   +--------+--------+
           Column      18        8       26
            Total    69.2     30.8    100.0

 Chi-Square     D.F.       Significance      Min E.F.      Cells with E.F.< 5
 ----------     ----       ------------      --------      ------------------
     .00000       1          1.0000              .615      2 of     4 ( 50.0%)
     .37616       1           .5397          ( Before Yates Correction )

Number of Missing Observations =        0
```

34 Crosstabulation: ATTENDWS By YRTEACIN

```
              Count  |1-5     |6-10    |11-15   |16-20   |21-25   |
YRTEACIN-> Tot Pct |        |        |        |        |        |  Row
                   |       1|       2|       3|       4|       5| Total
ATTENDWS   --------+--------+--------+--------+--------+--------+
                 1 |     5  |     4  |     7  |     4  |     4  |   24
  Very much        |  19.2  |  15.4  |  26.9  |  15.4  |  15.4  |  92.3
                   +--------+--------+--------+--------+--------+
                 2 |     1  |     1  |        |        |        |    2
  A little         |   3.8  |   3.8  |        |        |        |   7.7
                   +--------+--------+--------+--------+--------+
            Column       6        5        7        4        4       26
             Total    23.1     19.2     26.9     15.4     15.4    100.0

        Statistic                Value          Significance
        ---------                -----          ------------
 Kendall's Tau B                -.25617              .0767

 Number of Missing Observations =        0
```

Appendix F Tables of N-Way Analysis of Variance (ANOVA)

F.1 Tables of means and ANOVA for section 5.2.1.9

```
                    * * * C E L L   M E A N S * * *

1             IFMORVII
         BY GENDER
              YRTEACIN

 TOTAL POPULATION
     75.00
  (     48)

 GENDER                 YRTEACIN
        1         2           1         2         3         4         5         6

    74.06     76.88       72.00     81.00     63.75     90.00     79.09     75.00
 (     32) (     16)   (     15) (     10) (      8) (      2) (     11) (      2)

            YRTEACIN
                    1          2          3          4          5          6
 GENDER
         1      69.00      80.00      66.00      90.00      77.14      75.00
             (     10)  (      6)  (      5)  (      2)  (      7)  (      2)

         2      78.00      82.50      60.00        .00      82.50        .00
             (      5)  (      4)  (      3)  (      0)  (      4)  (      0)


2             IFMORCOI
         BY GENDER
              YRTEACIN

 TOTAL POPULATION
     64.38
  (     48)

 GENDER                 YRTEACIN
        1         2           1         2         3         4         5         6

    61.88     69.38       62.00     69.00     56.25     75.00     68.18     60.00
 (     32) (     16)   (     15) (     10) (      8) (      2) (     11) (      2)

            YRTEACIN
                    1          2          3          4          5          6
 GENDER
         1      60.00      65.00      54.00      75.00      64.29      60.00
             (     10)  (      6)  (      5)  (      2)  (      7)  (      2)

         2      66.00      75.00      60.00        .00      75.00        .00
             (      5)  (      4)  (      3)  (      0)  (      4)  (      0)


3             IFMORIVI
         BY GENDER
              YRTEACIN

 TOTAL POPULATION
     61.88
  (     48)
```

```
GENDER                 YRTEACIN
        1         2           1         2         3         4         5         6

    59.06     67.50       58.00     72.00     56.25     60.00     65.45     45.00
 (    32) (    16)    (    15) (    10) (     8) (     2) (    11) (     2)


          YRTEACIN
                  1          2          3          4          5          6
 GENDER
        1     57.00      75.00      48.00      60.00      60.00      45.00
          (     10)  (      6)  (      5)  (      2)  (      7)  (      2)

        2     60.00      67.50      70.00        .00      75.00        .00
          (      5)  (      4)  (      3)  (      0)  (      4)  (      0)
```

4 IFMORCDI BY GENDER YRTEACIN

```
 TOTAL POPULATION
     48.13
  (     48)

 GENDER                YRTEACIN
        1         2           1         2         3         4         5         6

    44.06     56.25       38.00     57.00     45.00     30.00     60.00     45.00
 (    32) (    16)    (    15) (    10) (     8) (     2) (    11) (     2)


          YRTEACIN
                  1          2          3          4          5          6
 GENDER
        1     39.00      55.00      36.00      30.00      51.43      45.00
          (     10)  (      6)  (      5)  (      2)  (      7)  (      2)

        2     36.00      60.00      60.00        .00      75.00        .00
          (      5)  (      4)  (      3)  (      0)  (      4)  (      0)
```

5 IFMORAUI BY GENDER YRTEACIN

```
 TOTAL POPULATION
     67.50
  (     48)

 GENDER                 YRTEACIN
        1          2          1         2         3         4         5         6

    69.38      63.75       78.00     57.00     63.75     75.00     62.73     75.00
 (    32)  (    16)    (    15) (    10) (     8) (     2) (    11) (     2)

          YRTEACIN
                  1          2          3          4          5          6
 GENDER
        1     81.00      60.00      60.00      75.00      64.29      75.00
          (     10)  (      6)  (      5)  (      2)  (      7)  (      2)

        2     72.00      52.50      70.00        .00      60.00        .00
          (      5)  (      4)  (      3)  (      0)  (      4)  (      0)
```

*** ANALYSIS OF VARIANCE ***

1 IFMORVII
BY GENDER
YRTEACIN

```
                              Sum of              Mean              Signif
Source of Variation           Squares      DF     Square        F     of F

Main Effects                 2286.710       6    381.118    1.224    .316
  GENDER                      145.120       1    145.120     .466    .499
  YRTEACIN                   2202.335       5    440.467    1.415    .241

2-way Interactions            280.432       3     93.477     .300    .825
  GENDER   YRTEACIN           280.432       3     93.477     .300    .825

Explained                    2567.143       9    285.238     .916    .522

Residual                    11832.857      38    311.391

Total                       14400.000      47    306.383

     48 Cases were processed.
      0 CASES (   .0 PCT) were missing.
```

* ** MULTIPLE CLASSIFICATION ANALYSIS ***

1 IFMORVII
By GENDER
YRTEACIN

```
Grand Mean =     75.000                                        Adjusted for
                                                Adjusted for   Independents
                                   Unadjusted   Independents   + Covariates
Variable + Category         N     Dev'n  Eta    Dev'n   Beta   Dev'n   Beta

GENDER
   1 Male                  32      -.94          -1.26
   2 Female                16      1.88           2.52
                                           .08            .10

YRTEACIN
   1 1-5                   15     -3.00          -3.00
   2 6-10                  10      6.00           5.75
   3 11-15                  8    -11.25         -11.41
   4 16-20                  2     15.00          16.26
   5 21-25                 11      4.09           3.98
   6 26-30                  2       .00           1.26
                                           .39            .39

Multiple R Squared                                       .159
Multiple R                                               .398
```

*** ANALYSIS OF VARIANCE ***

2 IFMORCOI
BY GENDER
YRTEACIN

```
                              Sum of              Mean              Signif
Source of Variation           Squares      DF     Square        F     of F

Main Effects                 1920.799       6    320.133     .683    .664
  GENDER                      670.686       1    670.686    1.431    .239
  YRTEACIN                   1320.799       5    264.160     .564    .727
```

```
2-way Interactions              49.022      3        16.341       .035    .991
     GENDER    YRTEACIN            49.022      3        16.341       .035    .991

   Explained                     1969.821      9       218.869       .467    .888

   Residual                     17811.429     38       468.722

   Total                        19781.250     47       420.878

        48 Cases were processed.
         0 CASES (    .0 PCT) were missing.
```

* * * MULTIPLE CLASSIFICATION ANALYSIS * * *

2 IFMORCOI
By GENDER
YRTEACIN

```
   Grand Mean =      64.375                                         Adjusted for
                                                   Adjusted for     Independents
                                       Unadjusted  Independents     + Covariates
   Variable + Category          N      Dev'n  Eta  Dev'n    Beta    Dev'n   Beta

   GENDER
       1 Male                  32      -2.50       -2.71
       2 Female                16       5.00        5.42
                                              .17              .19
   YRTEACIN
       1 1-5                   15      -2.38       -2.38
       2 6-10                  10       4.63        4.08
       3 11-15                  8      -8.13       -8.46
       4 16-20                  2      10.63       13.33
       5 21-25                 11       3.81        3.56
       6 26-30                  2      -4.38       -1.67
                                              .25              .26

   Multiple R Squared        .                                 .097
   Multiple R                                                  .312
```

* * * ANALYSIS OF VARIANCE * * *

3 IFMORIVI
BY GENDER
YRTEACIN

```
                                 Sum of                Mean              Signif
   Source of Variation          Squares       DF      Square        F     of F

   Main Effects                 2723.545       6     453.924      .589    .737
     GENDER                      502.522       1     502.522      .653    .424
     YRTEACIN                   1964.170       5     392.834      .510    .767

   2-way Interactions           1142.705       3     380.902      .495    .688
     GENDER    YRTEACIN         1142.705       3     380.902      .495    .688

   Explained                    3866.250       9     429.583      .558    .822

   Residual                    29265.000      38     770.132

   Total                       33131.250      47     704.920

        48 Cases were processed.
         0 CASES (    .0 PCT) were missing.
```

*** MULTIPLE CLASSIFICATION ANALYSIS ***

3 IFMORIVI
By GENDER
YRTEACIN

```
Grand Mean =      61.875                                     Adjusted for
                                              Adjusted for   Independents
                                 Unadjusted   Independents   + Covariates
Variable + Category      N       Dev'n  Eta   Dev'n   Beta   Dev'n   Beta

GENDER
    1 Male              32       -2.81        -2.34
    2 Female            16        5.63         4.69
                                        .15            .13
YRTEACIN
    1 1-5               15       -3.88        -3.88
    2 6-10              10       10.13         9.66
    3 11-15              8       -5.63        -5.92
    4 16-20              2       -1.88          .47
    5 21-25             11        3.58         3.37
    6 26-30              2      -16.88       -14.53
                                        .26            .24

Multiple R Squared                                    .082
Multiple R                                            .287
```

*** ANALYSIS OF VARIANCE ***

4 IFMORCDI
BY GENDER
YRTEACIN

```
                               Sum of                Mean              Signif
Source of Variation       .    Squares      DF      Square        F     of F

Main Effects                  5758.810       6     959.802    1.727     .141
   GENDER                     1127.560       1    1127.560    2.029     .162
   YRTEACIN                   4174.435       5     834.887    1.502     .212

2-way Interactions            1456.726       3     485.575     .874     .463
   GENDER    YRTEACIN         1456.726       3     485.575     .874     .463

Explained                     7215.536       9     801.726    1.443     .205

Residual                     21115.714      38     555.677

Total                        28331.250      47     602.793

     48 Cases were processed.
      0 CASES (    .0 PCT) were missing.
```

* ** MULTIPLE CLASSIFICATION ANALYSIS ***

4 IFMORCDI
By GENDER
YRTEACIN

```
Grand Mean =      48.125                                     Adjusted for
                                              Adjusted for   Independents
                                 Unadjusted   Independents   + Covariates
Variable + Category      N       Dev'n  Eta   Dev'n   Beta   Dev'n   Beta

GENDER
    1 Male              32       -4.06        -3.51
    2 Female            16        8.13         7.03
                                        .24            .20
```

```
YRTEACIN
    1 1-5                 15    -10.13       -10.13
    2 6-10                10      8.88         8.17
    3 11-15                8     -3.13        -3.56
    4 16-20                2    -18.13       -14.61
    5 21-25               11     11.88        11.56
    6 26-30                2     -3.13          .39
                                         .40           .39

Multiple R Squared                                    .203
Multiple R                                            .451
```

*** ANALYSIS OF VARIANCE ***

5 IFMORAUI
BY GENDER
YRTEACIN

```
                                Sum of               Mean                Signif
Source of Variation            Squares     DF       Square          F      of F

Main Effects                  3503.151      6      583.858      1.092      .385
  GENDER                       158.833      1      158.833       .297      .589
  YRTEACIN                    3165.651      5      633.130      1.184      .335

2-way Interactions             480.421      3      160.140       .300      .826
  GENDER    YRTEACIN           480.421      3      160.140       .300      .826

Explained                     3983.571      9      442.619       .828      .595

Residual                     20316.429     38      534.643

Total                        24300.000     47      517.021

     48 Cases were processed.
      0 CASES (    .0 PCT) were missing.
```

*** MULTIPLE CLASSIFICATION ANALYSIS ***

5 IFMORAUI
By GENDER
YRTEACIN

```
Grand Mean =      67.500                                          Adjusted for
                                                 Adjusted for     Independents
                                    Unadjusted   Independents     + Covariates
Variable + Category          N      Dev'n  Eta   Dev'n   Beta     Dev'n   Beta

GENDER
    1 Male                  32       1.88          1.32
    2 Female                16      -3.75         -2.64
                                             .12            .08
YRTEACIN
    1 1-5                   15      10.50         10.50
    2 6-10                  10     -10.50        -10.24
    3 11-15                  8      -3.75         -3.59
    4 16-20                  2       7.50          6.18
    5 21-25                 11      -4.77         -4.65
    6 26-30                  2       7.50          6.18
                                             .37            .36

Multiple R Squared                                         .144
Multiple R                                                 .380
```

F.2 Tables of means and ANOVA of students for section 5.2.1.9

```
                              *** CELL MEANS ***

1            IFMORAUI
        BY GENDER
             YEAR

TOTAL POPULATION
    52.58
 (    400)

GENDER
        1         2

    53.25      51.16
 (    271) (    129)

YEAR
        1         2         3         4

    55.93      49.68      55.63      47.20
 (     81) (     93) (    144) (     82)

          YEAR
                   1          2          3          4
GENDER
        1      57.60      50.31      55.92      47.55
            (     50)  (    65)  (   103)  (     53)

        2      53.23      48.21      54.88      46.55
            (     31)  (    28)  (     41)  (     29)

2            IFMORVII
        BY GENDER
             YEAR

TOTAL POPULATION
    62.18
 (    400)

GENDER
        1         2

    60.22      66.28
 (    271) (    129)

YEAR
        1         2         3         4

    64.81      60.97      61.67      61.83
 (     81) (     93) (    144) (     82)

          YEAR
                   1          2          3          4
GENDER
        1      63.00      60.46      58.54      60.57
            (     50)  (    65)  (   103)  (     53)

        2      67.74      62.14      69.51      64.14
            (     31)  (    28)  (     41)  (     29)
```

3 IFMORCOI
BY GENDER
YEAR

```
TOTAL POPULATION
    53.10
 (   400)


GENDER
          1          2

    53.36      52.56
 (   271)  (   129)


YEAR
          1          2          3          4

    54.81      52.58      54.58      49.39
 (    81)  (    93)  (   144)  (    82)


          YEAR
                    1          2          3          4
GENDER
          1     56.40      56.77      53.01      46.98
             (    50)  (    65)  (   103)  (    53)

          2     52.26      42.86      58.54      53.79
             (    31)  (    28)  (    41)  (    29)
```

*** ANALYSIS OF VARIANCE ***

1 IFMORAUI
BY GENDER
YEAR

```
                                      Sum of                 Mean              Signif
Source of Variation                  Squares     DF        Square          F     of F

Main Effects                        5751.962      4      1437.990      2.848     .024
   GENDER                            348.718      1       348.718       .691     .406
   YEAR                             5372.228      3      1790.743      3.546     .015

2-way Interactions                   153.735      3        51.245       .101     .959
   GENDER     YEAR                   153.735      3        51.245       .101     .959

Explained                           5905.697      7       843.671      1.671     .115

Residual                          197942.053    392       504.954

Total                             203847.750    399       510.897

    400 Cases were processed.
      0 CASES (    .0 PCT) were missing.
```

*** MULTIPLE CLASSIFICATION ANALYSIS ***

1 IFMORAUI
By GENDER
YEAR

```
Grand Mean =        52.575                                        Adjusted for
                                                   Adjusted for   Independents
                                      Unadjusted   Independents   + Covariates
Variable + Category            N      Dev'n  Eta   Dev'n    Beta  Dev'n    Beta
```

```
GENDER
    1 Male                                271         .67          .65
    2 Female                              129       -1.41        -1.36
                                                            .04          .04

YEAR
    1 1                                    81        3.35         3.47
    2 2                                    93       -2.90        -2.94
    3 3                                   144        3.05         2.97
    4 4                                    82       -5.38        -5.32
                                                            .16          .16

Multiple R Squared                                                      .028
Multiple R                                                              .168
```

*** ANALYSIS OF VARIANCE ***

2 IFMORVII
BY GENDER
YEAR

```
                                   Sum of                Mean               Signif
Source of Variation               Squares      DF       Square          F     of F

Main Effects                     3771.034       4      942.758      1.907     .109
   GENDER                        3024.019       1     3024.019      6.116     .014
   YEAR                           563.953       3      187.984       .380     .767

2-way Interactions               1228.934       3      409.645       .829     .479
   GENDER    YEAR                1228.934       3      409.645       .829     .479

Explained                        4999.968       7      714.281      1.445     .186

Residual                       193807.782     392      494.408

Total                          198807.750     399      498.265

    400 Cases were processed.
      0 CASES (    .0 PCT) were missing.
```

*** MULTIPLE CLASSIFICATION ANALYSIS ***

2 IFMORVII
By GENDER
YEAR

```
Grand Mean =       62.175                                                Adjusted for
                                                           Adjusted for  Independents
                                              Unadjusted   Independents  + Covariates
Variable + Category                    N      Dev'n  Eta   Dev'n   Beta  Dev'n   Beta

GENDER
    1 Male                           271      -1.95        -1.90
    2 Female                         129       4.10         4.00
                                                      .13          .12

YEAR
    1 1                               81       2.64         2.28
    2 2                               93      -1.21        -1.08
    3 3                              144       -.51         -.29
    4 4                               82       -.35         -.53
                                                      .06          .05

Multiple R Squared                                                .019
Multiple R                                                        .138
```

* * * ANALYSIS OF VARIANCE * * *

3 IFMORCOI
BY GENDER
YEAR

```
                                   Sum of                 Mean            Signif
Source of Variation               Squares        DF      Square       F    of F

Main Effects                     1752.563         4     438.141    .611    .655
  GENDER                           43.943         1      43.943    .061    .805
  YEAR                           1696.658         3     565.553    .788    .501

2-way Interactions               5837.609         3    1945.870   2.713    .045
  GENDER    YEAR                 5837.609         3    1945.870   2.713    .045

Explained                        7590.172         7    1084.310   1.512    .162

Residual                       281165.828       392     717.260

Total                          288756.000       399     723.699

    400 Cases were processed.
      0 CASES (    .0 PCT) were missing.
```

* * * MULTIPLE CLASSIFICATION ANALYSIS * * *

3 IFMORCOI
By GENDER
YEAR

```
Grand Mean =        53.100                                        Adjusted for
                                                  Adjusted for    Independents
                                    Unadjusted    Independents    + Covariates
Variable + Category          N      Dev'n  Eta    Dev'n   Beta    Dev'n   Beta

GENDER
    1 Male                 271        .26           .23
    2 Female               129       -.54          -.48
                                             .01            .01

YEAR
    1 1                     81       1.71          1.76
    2 2                     93       -.52          -.53
    3 3                    144       1.48          1.46
    4 4                     82      -3.71         -3.69
                                             .08            .08

Multiple R Squared                                         .006
Multiple R                                                 .078
```

Appendix G Tables and Histograms of Multiple Regression

G.1 Results of multiple regression for section 5.2.1.9

Equation Number 1 Dependent Variable.. IFMORVII

```
 Beginning Block Number  1.  Method:  Stepwise

 Variable(s) Entered on Step Number  1..    USEMTLT

 Multiple R           .42817   Analysis of Variance
 R Square             .18333                       DF  Sum of Squares  Mean Square
 Adjusted R Square    .16558   Regression           1      2640.00000   2640.00000
 Standard Error     15.98913   Residual            46     11760.00000    255.65217

                               F =    10.32653       Signif F =  .0024

------------------ Variables in the Equation ------------------

 Variable              B        SE B       Beta         T  Sig T

 USEMTLT        16.00000    4.97901     .42817     3.213  .0024
 (Constant)     64.00000    4.12837               15.502  .0000

------------- Variables not in the Equation -------------

 Variable     Beta In  Partial  Min Toler         T  Sig T

 GENDERDU  5.2957E-03   .00575     .96364      .039  .9694
 YRTEACNO    -.07628  -.08347     .97787     -.562  .5770

 End Block Number   1   PIN =    .050 Limits reached.

* * * * * * * * * * * * * * * * * * * * * * * * * * * * *

Residuals Statistics:

                   Min           Max      Mean   Std Dev    N

*PRED          64.0000       80.0000   75.0000    7.4947   48
*RESID        -34.0000       26.0000     .0000   15.8181   48
*ZPRED         -1.4677         .6671     .0000    1.0000   48
*ZRESID        -2.1264        1.6261     .0000     .9893   48

Total Cases =       48

Durbin-Watson Test =   2.00646

* * * * * * * * * * * * * * * * * * * * * * * * * * * * *

Outliers - Standardized Residual

 Case #       *ZRESID

     39      -2.12645
     34      -2.12645
     46       1.62611
     42       1.62611
     41       1.62611
     36       1.62611
     33      -1.25085
     29      -1.25085
     25      -1.25085
     24      -1.25085

* * * * * * * * * * * * * * * * * * * * * * * * * * * * *
```

```
Histogram - Standardized Residual

NExp N       (* = 1 Cases,    . : = Normal Curve)
0  .04   Out
0  .07  3.00
0  .19  2.67
0  .43  2.33
0  .88  2.00 .
4 1.60  1.67 *:**
0 2.63  1.33   .
0 3.87  1.00    .
* 5.10   .67 ****:*****************
0 6.01   .33      .
0 6.35   .00      .
9 6.01  -.33 *****:***
0 5.10  -.67     .
0 3.87 -1.00    .
* 2.63 -1.33 **:********
0 1.60 -1.67  .
2  .88 -2.00 :*
0  .43 -2.33
0  .19 -2.67
0  .07 -3.00
0  .04   Out


Normal Probability (P-P) Plot
Standardized Residual
  1.0  +---------+---------+---------+-------***
       |                                     . |
       |                             ********  |
       |                                 .     |
       |                               .       |
   .75 +                             .         +
       |                           .           |
 O     |                         .             |
 b     |                       .               |
 s     |                     .                 |
 e .5  +                   .                   +
 r     |                *************          |
 v     |               .                       |
 e     |             .                         |
 d     |           .         .                 |
   .25 +    ************                       +
       |       .                               |
       |     .                                 |
       |   .                                   |
       |****                                   |
       +---------+---------+---------+---------+ Expected
               .25        .5       .75       1.0


 * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

Standardized Scatterplot
Across - USEMTLT    Down - *RESID
Out ++-----+-----+-----+-----+-----+-----++
  3 +                                     +   Symbols:
    |                                     |
    |                                     |      Max N
  2 +                                     +
    |         .                           |   .       5.0
    |                                     |   :      10.0
  1 +                                     +   *      22.0
    |                      *              |
    |                                     |
  0 +                                     +
    |         :                           |
    |                                     |
 -1 +                                     +
    |       .              *              |
    |                                     |
 -2 +         .                           +
    |                                     |
    |                                     |
 -3 +                                     +
Out ++-----+-----+-----+-----+-----+-----++
    -3    -2    -1     0     1     2     3 Out
```

Equation Number 2 Dependent Variable.. IFMORCOI

```
 Beginning Block Number  1.  Method:  Stepwise

 Variable(s) Entered on Step Number  1..     USEMTLT

 Multiple R            .47741   Analysis of Variance
 R Square              .22792                       DF  Sum of Squares  Mean Square
 Adjusted R Square     .21113   Regression           1      4508.52273   4508.52273
 Standard Error      18.22130   Residual            46     15272.72727    332.01581

                                F =     13.57924      Signif F =  .0006

------------------ Variables in the Equation ------------------

Variable              B          SE B        Beta          T  Sig T

USEMTLT         20.90909      5.67411      .47741      3.685  .0006
(Constant)      50.00000      4.70472                 10.628  .0000

------------- Variables not in the Equation -------------

Variable      Beta In  Partial  Min Toler         T  Sig T

GENDERDU      -.08626  -.09637     .96364     -.649  .5193
YRTEACNO  -8.421E-03  -.00948     .97787     -.064  .9496

End Block Number   1   PIN =     .050 Limits reached.

* * * * * * * * * * * * * * * * * * * * * * * * * * * * *

Residuals Statistics:

                  Min           Max      Mean   Std Dev   N

*PRED         50.0000       70.9091   64.3750    9.7942  48
*RESID       -40.9091       40.0000     .0000   18.0264  48
*ZPRED        -1.4677         .6671     .0000    1.0000  48
*ZRESID       -2.2451        2.1952     .0000     .9893  48

Total Cases =        48

Durbin-Watson Test =   1.41970

* * * * * * * * * * * * * * * * * * * * * * * * * * * * *

Outliers - Standardized Residual

  Case #        *ZRESID

      13      -2.24512
      11      -2.24512
      42       2.19523
      45      -1.09762
      44      -1.09762
      39      -1.09762
      38      -1.09762
      35      -1.09762
      34      -1.09762
      31       1.04772

* * * * * * * * * * * * * * * * * * * * * * * * * * * * *
```

```
Histogram - Standardized Residual

NExp N      (* = 1 Cases,     . : = Normal Curve)
0  .04   Out
0  .07  3.00
0  .19  2.67
1  .43  2.33 *
0  .88  2.00 .
0 1.60  1.67  .
0 2.63  1.33   .
* 3.87  1.00 ***:**********
8 5.10   .67 ****:***
0 6.01   .33      .
0 6.35   .00      .
0 6.01  -.33      .
* 5.10  -.67 ****:************
6 3.87 -1.00 ***:**
0 2.63 -1.33    .
0 1.60 -1.67  .
0  .88 -2.00 .
2  .43 -2.33 **
0  .19 -2.67
0  .07 -3.00
0  .04   Out
```

```
* * * * * * * * * * * * * * * * * * * * * * * * * * * * *
```

```
Normal Probability (P-P) Plot
Standardized Residual
  1.0 +---------+---------+---------+----******
      |                                      . |
      |                                   .   |
      |                                 .     |
      |                               .       |
   .75 +                             .         +
       |                           .******     |
 O     |                         .             |
 b     |                       .               |
 s     |                     .                 |
 e .5  +          ******************           +
 r     |                 .                     |
 v     |               .        .              |
 e     |             .                         |
 d     |           .                           |
   .25 +         .                             +
       |       .                               |
       |     *****                             |
       |   .                                   |
       |*****                                  |
       +---------+---------+---------+---------+ Expected
               .25        .5       .75       1.0
```

```
Standardized Scatterplot
Across - USEMTLT    Down - *RESID
Out ++-----+-----+-----+-----+-----+-----++
  3 +                                     +   Symbols:
    |                                     |
    |         .                           |     Max N
  2 +                                     +
    |                                     |   .     4.0
    |                                     |   :     8.0
  1 +                      *              +   *    17.0
    |         :                           |
    |                                     |
  0 +                                     +
    |                                     |
    |                      *              |
 -1 +         :                           +
    |                                     |
    |                                     |
 -2 +                                     +
    |                      .              |
    |                                     |
 -3 +                                     +
Out ++-----+-----+-----+-----+-----+-----++
    -3    -2    -1     0     1     2     3 Out
```

Equation Number 3 Dependent Variable.. IFMORIVI

```
Beginning Block Number  1.  Method:  Stepwise


Variable(s) Entered on Step Number  1..    USEMTLT


Multiple R           .35606   Analysis of Variance
R Square             .12678                         DF   Sum of Squares    Mean Square
Adjusted R Square    .10780   Regression             1       4200.34091     4200.34091
Standard Error     25.07853   Residual              46      28930.90909      628.93281

                                     F =       6.67852       Signif F =  .0130

------------------ Variables in the Equation ------------------

Variable              B          SE B       Beta          T  Sig T

USEMTLT         20.18182      7.80944     .35606      2.584  .0130
(Constant)      48.00000      6.47525                 7.413  .0000

------------- Variables not in the Equation -------------

Variable     Beta In  Partial  Min Toler         T  Sig T

GENDERDU     -.08665  -.09102     .96364     -.613  .5429
YRTEACNO     -.01223  -.01294     .97787     -.087  .9312

End Block Number   1   PIN =     .050 Limits reached.


* * * * * * * * * * * * * * * * * * * * * * * * * * * * *


Residuals Statistics:

                 Min          Max      Mean   Std Dev    N

*PRED        48.0000      68.1818   61.8750    9.4535   48
*RESID      -68.1818      42.0000    -.0000   24.8103   48
*ZPRED       -1.4677        .6671     .0000    1.0000   48
*ZRESID      -2.7187       1.6747    -.0000     .9893   48

Total Cases =       48


Durbin-Watson Test =   1.37211


* * * * * * * * * * * * * * * * * * * * * * * * * * * * *


Outliers - Standardized Residual

  Case #       *ZRESID

      22      -2.71873
      35      -1.91399
      48       1.67474
      42       1.67474
      27      -1.52249
      26      -1.52249
      21      -1.52249
      13      -1.52249
       9      -1.52249
      32        .86999


* * * * * * * * * * * * * * * * * * * * * * * * * * * * *
```

```
Histogram - Standardized Residual

NExp N       (* = 1 Cases,    . : = Normal Curve)
0  .04   Out
0  .07  3.00
0  .19  2.67
0  .43  2.33
0  .88  2.00 .
2 1.60  1.67 *:
0 2.63  1.33   .
* 3.87  1.00 ***:*************
0 5.10   .67     .
6 6.01   .33 *****:
0 6.35   .00      .
* 6.01  -.33 *****:*****
6 5.10  -.67 ****:*
0 3.87 -1.00    .
0 2.63 -1.33   .
5 1.60 -1.67 *:***
1  .88 -2.00 :
0  .43 -2.33
1  .19 -2.67 *
0  .07 -3.00
0  .04   Out


* * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

Normal Probability (P-P) Plot
Standardized Residual
  1.0  +---------+---------+---------+--------**
       |                                ****** |
       |                                    .  |
       |                                  .    |
       |                                .      |
   .75 +                              .        +
       |                            .          |
 O     |                          . *****      |
 b     |                        .              |
 s     |                      .                |
 e .5  +               *************           +
 r     |                 ..                    |
 v     |                .                      |
 e     |              .                        |
 d     |            .                          |
   .25 +          *****                        +
       |        .                              |
       |   *******                             |
       |    .                                  |
       |  *                                    |
       +*--------+---------+---------+---------+ Expected
                .25       .5        .75      1.0


Standardized Scatterplot
Across - USEMTLT    Down - *RESID
Out ++-----+-----+-----+-----+-----+-----++
   3 +                                    +   Symbols:
     |                                    |
     |                                    |      Max N
   2 +                                    +
     |        .                           |   .      4.0
     |                                    |   :      8.0
   1 +                      *             +   *     16.0
     |                                    |
     |        :                           |
   0 +                                    +
     |                      *             |
     |        :                           |
  -1 +  .                                 +
     |                                    |
     |                      :             |
  -2 +        .                           +
     |                                    |
     |                      .             |
  -3 +                                    +
Out ++-----+-----+-----+-----+-----+-----++
    -3    -2    -1     0     1     2     3 Out
```

Equation Number 4 Dependent Variable.. IFMORCDI

```
Beginning Block Number  1.  Method:  Stepwise


End Block Number   1   PIN =     .050 Limits reached.
No variables entered/removed for this block.
```

Equation Number 5 Dependent Variable.. IFMORAUI

```
Beginning Block Number  1.  Method:  Stepwise


End Block Number   1   PIN =     .050 Limits reached.
No variables entered/removed for this block.
```

G.2 Results of multiple regression of students' future use of media technology for section 5.2.1.9

Equation Number 1 Dependent Variable.. IFMORAUI

```
Beginning Block Number  1.  Method:  Stepwise

Variable(s) Entered on Step Number  1..     EXPEMTLL


Multiple R            .16752   Analysis of Variance
R Square              .02806                   DF   Sum of Squares    Mean Square
Adjusted R Square     .02562   Regression       1       5720.74397      5720.74397
Standard Error      22.31158   Residual       398     198127.00603       497.80655

                                 F =      11.49190       Signif F =  .0008


------------------ Variables in the Equation ------------------

Variable                B         SE B        Beta          T  Sig T

EXPEMTLL          9.09245      2.68216      .16752      3.390  .0008
(Constant)       45.50562      2.36502                 19.241  .0000


------------- Variables not in the Equation -------------

Variable     Beta In  Partial  Min Toler         T  Sig T

GENDERDU      .02217   .02244     .99633      .447  .6549
YRDUMMY1      .09616   .09684     .98576     1.939  .0533
YRDUMMY2     -.06991  -.07092     .99998    -1.417  .1574
YRDUMMY3      .08344   .08409     .98719     1.681  .0935


End Block Number   1   PIN =     .050 Limits reached.
```

Equation Number 2 Dependent Variable.. IFMORVII

```
Beginning Block Number  1.  Method:  Stepwise

Variable(s) Entered on Step Number  1..     GENDERDU


Multiple R            .12713   Analysis of Variance
R Square              .01616                   DF   Sum of Squares    Mean Square
Adjusted R Square     .01369   Regression       1       3212.94297      3212.94297
Standard Error      22.16854   Residual       398     195594.80703       491.44424

                                 F =       6.53776       Signif F =  .0109


------------------ Variables in the Equation ------------------

Variable                B         SE B        Beta          T  Sig T

GENDERDU         -6.01928      2.35413     -.12713     -2.557  .0109
(Constant)       66.28316      1.95194                 33.958  .0000


------------- Variables not in the Equation -------------

Variable     Beta In  Partial  Min Toler         T  Sig T

YRDUMMY1      .05104   .05133     .99513     1.024  .3064
YRDUMMY2     -.02422  -.02439     .99803     -.486  .6272
YRDUMMY3     -.01049  -.01056     .99727     -.210  .8334
EXPEMTLL      .09258   .09317     .99633     1.864  .0630

End Block Number   1   PIN =     .050 Limits reached.
```

Equation Number 3 Dependent Variable.. IFMORCOI

```
Beginning Block Number  1.  Method:  Stepwise

Variable(s) Entered on Step Number  1..    EXPEMTLL

Multiple R           .15121   Analysis of Variance
R Square             .02286                DF   Sum of Squares   Mean Square
Adjusted R Square    .02041   Regression    1       6601.98432    6601.98432
Standard Error     26.62573   Residual    398     282154.01568     708.92969

                              F =      9.31261       Signif F =  .0024

------------------ Variables in the Equation ------------------

Variable              B        SE B       Beta          T  Sig T

EXPEMTLL        9.76769     3.20078     .15121      3.052  .0024
(Constant)     45.50562     2.82232                16.123  .0000

------------- Variables not in the Equation -------------

Variable     Beta In  Partial  Min Toler         T  Sig T

GENDERDU  -4.487E-03  -.00453     .99633     -.090  .9281
YRDUMMY1      .05093   .05115     .98576     1.021  .3081
YRDUMMY2  -9.978E-03  -.01009     .99998     -.201  .8407
YRDUMMY3      .02460   .02473     .98719      .493  .6224

End Block Number   1   PIN =     .050 Limits reached.
```

Appendix H '95 CALL Workshop Schedule

'95 CALL Workshop

Wednesday 14th June - Friday 16th June, 1995
Computer Lab (4-236), The Computing Center, Inha University

By

Foreign Language Education Center, Inha University
Language Centre, University of Newcastle, UK
British Council in Korea

'95 CALL Workshop Timetable

🕐	**Day 1 (14 June)**	**Day 2 (15 June)**	**Day 3 (16 June)**
10.00 -12.00		Self-access	Self-access
Session 1 2.00-2.50	Opening speech - BUH Introduction to CALL (software) - SW	Using computer-based text and concordance software - SW/CHL	Introduction to multimedia software - SW/CHL
Session 2 3.00-3.50	Overview of CALL software - SW	Using the Internet - SW	Using and authoring hypertext software - SW/HRK/CHL
Session 3 4.00-4.50	Integrating CALL software - SW	The use of media technology in FLT/FLL at university level in Korea - CHL	Conclusion: What next? - SW/CHL Closing speech - BUH

Teacher Trainers:

Bo Up Hong (**BUH**): Director, Foreign Language Education Centre, Inha University
Scott Windeatt (**SW**): Course director, Media Technology for TEFL, University of Newcastle
Chung Hyun Lee (**CHL**): Research student in Media Technology for TEFL, University of Newcastle
Hye Reem Kim (**HRK**): Part-time instructor, Foreign Language Education Centre, Inha University, and Lecturer, MBC Cultural Center

Aims:

1. To provide language teachers with basic skills and knowledge needed to use computers for FLT/L.
2. To introduce and familiarise them with software types that can be used for language teaching and learning in particular.
3. To provide examples of good practice in the use of computers for FLT/L.

Procedure and specific aims

Day 1 (14 June, Wednesday)

Aims:
1. To provide an overview of the exercise types which are available in Computer Assisted Language Learning software.
2. To practise using CALL software.
3. To prepare some language practice material using CALL software.
4. To evaluate some examples of CALL software.
5. To consider how CALL activities can be integrated into language course.

By the end of the session participants will have:
- become familiar with the most common types of software that are available for language teaching
- produced at least one language teaching exercise themselves using at least one of the programs
- developed at least three ideas for integrating CALL software into a language course that they teach
- begun to develop techniques for evaluating the possibilities and limitations of CALL software

Session 1: An introduction to CALL software - What can CALL software do?

Participants will work intensively with one program, and will consider what kind of practice it offers. They will consider how it could be used with their own learners, and will begin to develop techniques for evaluating CALL software. Participants will then 'author' a piece of language practice material into the program.

Session 2: An overview of CALL software - What CALL software is available? How can it be evaluated?

Participants will work through a variety of CALL programs using a set of criteria for evaluation. They will be introduced to ideas for using the software in the classroom.

Session 3: Integrating CALL software - How can CALL software be used?

Participants will develop their ideas about the possibilities and limitations of CALL on the basis of the software they have seen. They will formulate their own ideas about how the programs might be used with their own learners.

Day 2 (15 June, Thursday)

Aims:
1. To practise using concordance software with computer-based texts to investigate language use.
2. To practise using the Internet for communication and to gather language data.
3. To consider the practicalities of using technology in the classroom.

By the end of the session participants will have:
- practised using a concordance program to search for examples of the way in which particular vocabulary and expressions are used in English.
- used software to search the WorldWideWeb for language data that is available on the Internet
- begun to tackle the practical problems that the use of technology such as computers poses for the teacher

Session 1: Using computer-based text and concordance software

Participants will be given practice in using word-processed text for language practice. In particular they will be shown how to use concordance software to search through large collections of text in order to identify language patterns, and to provide examples of language use for their learners.

Session 2: Using the Internet

Participants will be given practice in using the WorldWideWeb to search for language data that can be used in the language classroom.

Session 3: Introducing technology into the language classroom

Participants will be asked to consider a series of questions about using technology in general in the language classroom, and computers in particular. Their answers will form the basis of a discussion of practical measures for introducing technology into a language course.

Day 3 (16 June, Friday)

Aims:
1. To demonstrate multimedia programs.
2. To demonstrate and practise using hypertext software.
3. To prepare some hypertext material.
4. To consider the next steps in using CALL software.

By the end of the session participants will have:
- seen demonstrations of software with text, graphics, sound and video.
- been introduced to the principles of hypertext.
- practised using hypertext software.
- have produced a short program written using hypertext software.
- have considered how they might develop the knowledge they have gained about CALL.

Session 1: An introduction to multimedia software

Examples of multimedia software incorporating text, graphics, sound and video will be demonstrated. This will include both general-purpose software and software written specifically for language practice.

Session 2: Using and authoring hypertext software
Examples of material written using hypertext authoring software will be demonstrated. Participants will be able to be able to try out the software themselves, and will be given some practice in writing a short piece of material using the authoring facilities.

Session 3: What next?

Participants will be asked to consider how they might continue to develop the knowledge and skills they have gained during the workshop. Future developments in hardware, software and methodology will be discussed.

Appendix I Methods of Examining Relationships

There are a fixed set of rules to follow, and rules of thumb as well, in selecting appropriate methods of examining relationships. The statistical methods used in this study were based on these rules.

Firstly, when both variables are nominal (i.e., a nominal variable is sometimes called categorical, but it cannot rank the categories in any order, e.g., gender, media technologies, status, etc.) or when one variable is nominal and the other is ordinal (i.e., an ordinal variable is one in which it is meaningful to rank the categories, e.g., the strength of agreement - strongly agree, agree, disagree, and strongly disagree) or when one variable is nominal and the other is interval (i.e., an interval variable is one in which the categories have a natural ranking and the difference between the categories is identical, e.g., years of teaching experience), contingency-table analysis with Chi-Square test can be recommended (Bryman and Cramer 1994, de Vaus 1990). As stated above, however, further tests are available as follows (Startup and Whittaker, Bryman and Cramer 1994): For example, 1) Fisher's Exact Test, which will be best in the case of 2 x 2 tables when the sample size is small (less than 20) in particular - the exact probability of the observed occurrence assuming the null hypothesis of no association is given by

$$P = \frac{(A+B)!(C+D)!(A+C)!(B+D)!}{N!\ A!\ B!\ C!\ D!}$$

The use of this formula can be simply illustrated by an example of this study (see Appendix E: E.3: Crosstabulation 1, pp. E-67):

$$P = \frac{(7+7)!(3+1)!(7+3)!(7+1)!}{18!\ 7!\ 7!\ 3!\ 1!} = .3137$$

2) Cramer's *V* for larger tables in which the number of both rows and columns is greater than 2 (e.g., 3+ by 2+ tables) - there is no significance test, but the use of Cramer's *V* with chi-square can provide information that approximates to a direct significance test, i.e., approximate significance (Bryman and Cramer 1994).

Secondly, when both variables are ordinal or when one variable is ordinal and the other is interval (or in the case of rank order correlation), it is best to use Kendall's tau or Spearman's rho and their associated significance tests (Bryman and Cramer 1994, de Vaus 1990).

Thirdly, when both variables are interval, Pearson's *r* can be recommended (Bryman and Cramer 1994, de Vaus 1990).

Finally, analysts can use some alternative approaches to select the appropriate methods of examining relationships as follows: For example; 1) if a dichotomous nominal level variable (e.g., gender) is crosstabulated with an ordinal level variable, they can treat the variables both as ordinal and select an appropriate statistic (e.g., gammar or Kendall's tau); 2) The analysts can treat a higher level of measurement as if it is a lower level (but they cannot do the opposite, except for a dichotomous nominal level as mentioned in 1) - for example, if one is nominal and the other is ordinal, treat both as if they are nominal (Bryman and Cramer 1994, de Vaus 1990). (See *Quantitative Data Analysis for Social Scientists* (Bryman and Cramer 1994), pp.189, and *Surveys in Social Research* (de Vaus 1990), pp. 159-160, 183-185 for the further details.)