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Professional and pedagogical implications of training in Thinking Skills interventions:

Investigating primary school teachers' attitudes and beliefs about teaching thinking in England and in Portugal.

By

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I certify that all material in this Thesis which is not my own work has been identified and that no material is included which has been submitted for any other award or qualification.

Signed: _____

Date: 02/06/06

DEDICATION

This thesis is dedicated to the memory of my parents, **José** and **Leonida**, for instilling in me the values of hard work, perseverance and commitment. I am humbled by my doctoral experience since the real wisdom and aptitude to accomplish something of this magnitude was passed on from the two of them. Still, I persevere because I believe that

'Somos do tamanho dos nossos sonhos'
[*We are as big as our dreams*]
Fernando Pessoa

I also dedicate this thesis to my daughter **Leonida**, my most precious treasure, my never-ending spring of life and joy and **Alex**, my soul mate and my strength.

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TABLE OF ABBREVIATIONS

1. **ACSET:** Advisory Committee on the Supply and Education of Teachers
2. **CASE:** Cognitive Acceleration through Science Education
3. **CNE:** Conselho Nacional de Educação (National Education Council)
4. **CPD:** Continuous Professional Development
5. **DES:** Department of Education and Science
6. **Edu.:** Education
7. **ERA:** Education Reform Act
8. **GOVERM:** Government
9. **INSET:** In-Service Training
10. **ITT:** Initial Teacher Training
11. **IQ:** Intelligence Quotient
12. **LEA:** Local Education Authority
13. **M. Ed.:** Masters of Education
14. **NC:** National Curriculum
15. **NCITT:** National Curriculum for Initial Teacher Training
16. **NEC:** National Educational Commission
17. **SD:** Staff Development
18. **TD:** Teachers Development
19. **TPD:** Teachers' Professional Development
20. **TS:** Thinking Skills
21. **TT:** Teacher Training

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ABSTRACT

This small-scale multiple case study is an investigation into the perceptions of primary school teachers in the Northeast of England regarding the impact of training in Thinking Skills interventions. This study also outlines a research that examined the views Portuguese primary school teachers have on teaching thinking in a primary school setting. It attempts to identify teachers' views on how teaching thinking can ultimately improve children's attainment. It also aims at ascertaining the influences, limitations, and pedagogical implications that affect the way teachers perceive their professional development.

Data were gathered through semi-structured interviews, questionnaires, non-participant observations and analysis of documentary evidence. Data was collected from 14 English teachers and seven headteachers, and 10 Portuguese teachers, all with different professional experiences. A small group of English children were also interviewed in order to obtain their views on "Thinking lessons". Models of professional development were analysed to investigate how teachers' professional needs are met by existing policies and how teaching thinking slots in. Questions were raised about the impact the theoretical principles of Thinking Skills programmes had on practical teaching and classroom dynamics.

The report concludes that the training received by the English participants was considered to be valuable and to make a substantial contribution towards the improvement of the teaching and learning processes in their classrooms. It also shows that there is scope for improvement in Portuguese primary schools, as teachers propose ways in which the implementation of Thinking Skills interventions might be approached. Findings were analysed qualitatively in relation to the relevant literature and inferences were made on the data obtained. Conclusions also raised issues for further consideration.

Chapter One
Introduction

CHAPTER ONE

INTRODUCTION

1. Introduction

This chapter delineates a preliminary overview of the present study. It offers the statement of the problem studied and the main purpose that prompted the investigation. It presents relevant literature to support the necessity and importance of this study, as well as introducing the research questions.

1. 1 Purpose of this research project

The main purpose of this study was to examine the professional and pedagogical implications training in Thinking Skills (TS) interventions had on teachers in primary schools in the Northeast of England. The investigation focused on aspects that were inevitably and significantly affected, due to their marked relationship with training, which were: teachers' practice and reflection, pupils' learning, and attitudes towards change and educational policies.

The author did not implement the interventions nor provide training to teachers. All participating English teachers received this specific training prior to this investigation at their schools or from local course providers and were actively implementing the interventions in their classrooms. Most findings gathered represent the teachers' own evaluation and perceptions of the issues under investigation, which helped to determine:

- ♦ The extent to which training in these interventions contributed to the teachers' professional development.
- ♦ The extent to which training impacted on pupils' learning and attainment.

This study also investigated the viewpoints of Portuguese primary school teachers in relation to the implementation of programmes to promote pupils' thinking proficiency in their school.

This was a qualitative study and hence did not generate statistical evidence or a quantitative discussion. Rather than being a literal interpretation of the rationale and the proceedings that were looked into, this research provided a retrospective, interpretive social account of what the author discovered during fieldwork, without interfering with the subjects that participated in the process of research.

Research was conducted with a group of teachers and headteachers from selected primary schools in Northumberland and Sunderland, in England, and a second group of Portuguese primary school teachers who worked in different regions in Portugal. A small group of children was also involved in this investigation.

Data was collected from a number of sources, *e.g.*, interviews, questionnaires, observations and document analysis. Findings from this research project were also discussed in relation to the relevant literature. Implications for the author's personal professional development and for the improvement of educational contexts were also considered.

1. 2 Aims of the research project

By conducting this investigation, the author intended to:

- Determine which implications involving training in TS interventions had a greater impact on teachers' professional development, as perceived by the teachers.
- Ascertain what kind of contribution training in TS interventions would have to the improvement of teaching and learning processes in Portugal.

1. 3 Teaching thinking – Why change how people think?

> In education we are concerned with literacy and numeracy. That leaves out the most important aspect of all, which I call "operacy". The skills of action are every bit as important as the skills of knowing. We neglect them completely and turn out students who have little to contribute to society. (Edward de Bono, 1997)

Since time immemorial, the importance of thinking effectively has been addressed. It is well known that ancient Greek philosophers showed persistent concern with the development of doctrines that encouraged thinking.

The teaching of thinking has become an important area of educational research (Fisher, 1990) and it has been gaining more followers. This increasing interest has been impelled by more recent evidence that shows that it is possible to become a better thinker (Feuerstein, 1990a, 1990b, 1998; Halpern, 1997). Even though humans are born with the exclusive gift to think, the capacity to do it with more or less skill varies distinctly amongst people (Feuerstein, 1990b). Individuals might necessitate assistance to develop their cognitive faculty in order to reach their full potential (Buchel, 1990). It is also important to understand that thinking does not occur in isolation. Despite being an individual process, it arises in a social context and hence it is influenced and shaped, to some degree, by cultural and environmental elements (Fisher, 1990).

It has been argued that traditional education does not promote thinking and independent learners (Skuy *et al.,* 1996) and that people should know *how to think* but evidence from previous research reveals that a large number of people *do not* (Nickerson, 1987). De Bono (1997) suggests that people with high IQs (Intelligence Quotient) were not necessarily good thinkers; he argues that, in fact, they are often poor thinkers. Hence, some authors have suggested the earlier the change process starts, the better, while children's physical, cognitive and social patterns are still being shaped (Brierley, 1987; Fisher, 1990; Gardner, 1993; Morgan, 1996; Sternberg, 1982a, 1985b, 1987a).

Many authors believe it is essential to teach children how to think and to think about thinking as a means to develop their overall potential. Thinking is a process that involves critical analysis of arguments, application of knowledge and reason, and creative generation of ideas (De Bono, 2003; Fisher, 1990). By raising levels of intellectual ability, teachers promote, *inter alia*, academic success, which, in turn, may reverse pupils' behaviour, esteem and confidence. Mosley (1993) suggested pupils with low self-esteem viewed themselves as losers and incompetent, they could act defensibly in order to protect themselves from hurt and would not take risks that would expose them to failure. This resulted in poor social skills and reflected a constant inability to relate to others in an empathic way and fear of facing new learning experiences. It has been suggested self-esteem is not fixed and hence, a negative pattern of the spiral of failure can be interrupted and self-esteem can be influenced and enhanced (Mosley, 1993; Curry, 1997; Kavussanu & Harnisch, 2000).

It is therefore important to promote a non-threatening, safe learning environment, an aspect that TS interventions prominently claim to develop (Curry & Bromfield, 1994). Nowadays, educational initiatives and curricula tend to focus more on the *process* of learning, developing problem solving strategies, reading for meaning and making use of logical thinking in writing, rather than just develop the basic skills, reading, writing, listening, speaking and arithmetic, which were regarded as fundamental for many years (Fisher, 1990). Several authors have defended the development of thinking in schools as a fundamental means to promote dynamic cognitive processing, stimulating critical attitudes and communication skills (Baumfield *et al.,* 1995; McGuinness, 1999).

Other authors believe teachers should teach general TS in schools (which include the expansion of *metacognition* or self-regulatory practices), to support the development of expert thinking in children (Higgins and Baumfield, 1998). Ultimately, it is expected that pupils become more efficient in the processing of elaborate data, dealing with new problems in a more proficient way. The development of thinking is also supported by theories of cognition, which see learners as creators of their own knowledge and framework of interpretation. Learning is perceived as a way of finding meanings and demanding structure on thinking (McGuinness, 1999).

The English government has consulted with teachers, teaching agencies and local authorities and has made use of research studies to assist its policymaking so that strategies to support the implementation of TS interventions in schools can be developed. On the whole, educational initiatives aim at raising schools' standards by promoting and disseminating good practice, but most significantly, by ensuring teachers have access to adequate and continuing training and support to successfully deliver and implement these interventions in their classrooms. The advantages of the inclusion of teaching of thinking in the school curriculum are supported by evidence (Curry & Bromfield, 1994; Lawrence, 1996; Mosley, 1996; McGuinness, 1999; Sternberg, 1987c). However, how thinking can best be taught is still being debated. Nevertheless, the English National Curriculum (NC) acknowledges the importance of developing pupils' TS and independence and urges children to think effectively and at a qualitatively higher level, irrespective of their educational needs (Burden & Williams, 1998; DE, 1995; Dearing, 1993; DES, 1990; NCC, 1989; Rose *et al.*, 1994; Rouse, 1991).

The teaching of thinking in the classroom has been a determinant step towards the improvement of education in England and some authors see thinking as a set of transferable skills, such as problem solving and learning to learn, which schools should promote and develop (Burden & Williams, 1998; DE, 1995; Nutbrown, 1994b). However, implementation of TS interventions involves school reform and structuring of realistic and practical policies. Yet, studies have concluded that *time* is a major barrier to the educational change process, which evolves around teacher training and school change efforts (Collinson *et al.*, 2001; Fullan *et al.*, 1992b). As a result, a number of strategies for changing schools' schedules and practices have been recommended, so that teachers have more time to participate in school improvement efforts (Canaday *et al.*, 1995; NEC on Time and Learning, 1994). It is therefore important to understand that the combination of organizational issues and individual concerns are innately involved in the implementation of educational change (Van der Vegt *et al.*, 2001).

Two models for delivering TS interventions have been proposed (McGuinness, 1999): a *discrete intervention*, where general TS are exclusively improved through an additional programme slotted in the curriculum and an *infused approach*, where interventions for the development of thinking are infused across the normal curriculum. One major concern that has been under debate is that the implementation and application of TS interventions are said to be time consuming and, because teachers are mainly concerned with the delivery of the NC, they may not have the time to deliver extra subjects and activities. Hence, the latter model seems to be a sensible solution to the impasse, facilitating the delivery of the curriculum, as time is always pressing, and the implementation of these interventions in the classroom, avoiding resistance of teachers who may be sceptical about its teaching and learning benefits.

1. 4 Training to teach thinking – Recompense for pupils and teachers

> The most basic human skill, and the one on which both social and economic progress depends is not taught [in schools]. The single most important thing that any government can do anywhere is to teach "constructive" thinking to its youngsters. So why, except in a few countries, is this not being done?
> (Edward de Bono, 1997)

In the fast pace of today's world, it is vital to prepare children and youngsters for a competitive, ever changing and increasingly demanding work place.

In a society clearly dominated by technology created to facilitate innumerable aspects of life, there is a greater risk of lethargy of thinking, where the natural thinking process may become atrophied under the weightiness of fast processing electronic equipment. Hence, the importance of promoting both the skills of knowledge and the skills of action (De Bono, 1997), in order to form individuals that are simultaneously knowledgeable and proactive, idealistic and sensible, and analytical and inventive. Information, *per se,* is not enough. It has become apparent that people need larger amounts of information but they also need to ratiocinate more efficiently.

The teaching of thinking is currently perceived as a powerful vehicle for efficiently accessing school curricula. Individuals equipped with better TS are more likely to succeed in dealing with the current faster pace of change and with the high volume of information available to them (Nickerson, 1987). Schools must advocate the development of independent thinking, in order to promote successful learning experiences (Costa, 1991; Fogarty, 1997). McGuinness (1999) suggested that the development of pupils' thinking required open-minded teachers that were able to understand the nature of knowledge and thinking and capable of establishing an educational atmosphere where metacognition, prediction, questioning, challenging and arguing are actively pursued. Hence, it is imperative to prepare teachers for the tremendous responsibility of successfully developing pupils' knowledge and skills, and to prepare them for a brighter, yet more challenging, future.

TS interventions developed in community are particularly beneficial as they encourage the development of knowledge and social skills through interaction and collaborative learning, the sharing of ideas and discussing in order to achieve understanding (Baumfield *et al.*, 1995). Pupils may be assisted by adults or more able peers, as suggested by Vygotsky's concept of *Zone of Proximal Development* (Allal *et al.*, 2000; Feuerstein, 1980; Vygotsky, 1978).

Similarly, Philosophy for Children (Lipman *et al.,* 1980) stresses the creation of key environment conditions to foment cooperative learning by promoting a democratic community of enquiry within the class and making use of explicit norms. Modelling is a powerful way of learning and through discussion and exchange of ideas, children's progress can be rapid (Fisher, 1995b).

Moreover, TS programmes encourage pupils to think about thinking, a process called *metacognition* (Duell, 1986; Flavell, 1976; Forrest-Pressly *et al.,* 1985; Garner, 1987), by which pupils are asked to solve problems and to describe and explain the process they used to reach a solution. This is a vital factor of the programmes since it is through metacognition that pupils have the potential to regulate their own learning. In addition, the chances to establish understanding of core concepts and skills as well as transferring them to others contexts are deeply dependent on metacognition. One of the most significant intervention programmes that develop these concepts and skills is Instrumental Enrichment (Burden, 1996; Feuerstein *et al.,* 1981; Feuerstein *et al.,* 1994; Kettle, 1992). It rests on the assumption that intelligence is modifiable and dynamic, instead of being fixed and dormant, and it is designed to enhance the cognitive skills necessary for independent thinking. This intervention aims to improve critical thinking with the skills, concepts, operations and attitudes necessary for independent learning, to identify and adjust deficiencies in thinking and to help individuals "learn how to learn". In brief, it aspires to develop cognitive functions regarded as a shortfall in low achieving pupils.

There is still some debate on what each intervention specifically develops but, on the whole, the fundamental claim is that TS interventions aim to help pupils to become better thinkers, by supporting them to exploit their strengths, to repair their weaknesses in thinking and assists them to recognise and develop their potential (Sternberg, 1987c).

The teaching of thinking is also intimately intertwined with teachers' professional development as specific training received to implement TS interventions in the classroom may prompt improvement of practice (Adhami *et al.,* 1997). There is a relationship between pupils' work style during these lessons and teachers' professional development as the teaching of thinking leads to reflection, which subsequently generates improvements in teachers' practice. Reflection on action brings to light teachers' achievements and limitations, by submitting their practice to analysis and subsequent improvement.

By teaching pupils to think, it has been suggested that teachers become more perceptive of the circumstances that promote thinking in the classroom and turn into more powerful thinkers themselves, which further enhances their professional development (Costa, 1991).

Teachers' professional growth has been regarded as an inevitable and systematic process of learning and change (Clarke *et al.,* 2002). Teachers' change takes place through the mediating processes of reflection and enactment, in four distinctive domains which include every aspect of the teacher's life: the personal domain (teacher's knowledge, beliefs and attitudes); the practice domain (professional experimentation); the domain of consequences (significant results); and the external domain (resources of information, stimulus or support). This standpoint highlights the mediating processes of reflection and enactment as the instruments by which change in one domain leads to a change in another.

Teachers' beliefs effectively influence their classroom performances (Fang, 1996). In order to achieve teaching and learning improvement, it is important that teachers undoubtedly believe that their practice can be improved (Richardson, 1996). Moreover, a teacher's attitude towards a topic may affect his/her attitude towards the teaching of that topic in the classroom, impacting on the classroom's atmosphere and school's ethos (Ernest, 1989). Hence, teachers' reflectivity concerning the teaching and learning of a subject is vital, which, consequently, contributes to the implementation of change in the classroom. Adequate training and the acquisition of practical and useful strategies to deliver TS interventions in the classroom are paramount parameters that can further foment teachers' understanding and professional development. It is imperative that teachers continuously endeavour to perfect their teaching skills, so that teaching and learning become permanent successful experiences. It is crucial that all teachers feel confident about how they can help their pupils to become better thinkers (Swartz & Parks, 1994).

According to De Bono (2003) to learn to think is the most fundamental human necessity and competence and he prophesises that the world is condemned unless people start to think. He explained that our existing thinking habits were laid down by the Greek Gang of Three (Socrates, Plato and Aristotle) and introduced into Europe at the Renaissance. Even though these are excellent thinking habits, he argued that they are not enough. These skills focus mainly on 'recognition', where an individual analyzes a situation, identifies standard elements and then applies standard answers, a very successful type of thinking applied to Science and technology but rather deficient in human affairs. De Bono argues people's thinking is about the past and they have never developed the creative thinking needed to 'design the way forward'.

De Bono (2003) fervently urges people to start thinking about thinking, in order to be able to construct a brighter future. He concludes that "It is time we paid serious attention to 'thinking'. Complacency with our existing thinking habits is not only limiting but has become very, very dangerous".

1.5 Teaching thinking in Portugal

Unlike in England, the development of children's thinking in primary schools, specifically through TS interventions, is still a faint reality in Portugal. However, since the late 1980s' a significant number of projects have been developed in order to uncover new educational approaches that may improve the quality of education offered in Portuguese schools.

Perhaps one of the most relevant studies conducted thus far in Portugal is the *DIANOIA* Project "Learning to Think" that developed a number of important educational research projects related to teaching and learning to think (Valente, 1987, 1989b, 1997). It was structured as an intervention directed towards the teaching of thinking, recommending strategies and mechanisms that were supposedly able to promote some level of modifiability for the efficiency of thinking. It was grounded on theories of intelligence developed in cognitive psychology (Gardner, 1983; Perkins, 1981; Sternberg, 1987b) and focused on the use of metacognitive strategies in some curriculum teaching areas.

This project's goal was to create models of pedagogic intervention in the diverse curriculum areas, intended to improve learners' cognitive skills. It also focused on teachers' pre-service and in-service instruction and training, providing them with strategies and mechanism to develop cognitive abilities of learning and citizenship.

Several investigations from this project were conducted taking into consideration three main premises: high rate of school failure; lack of teaching methodologies for compensatory education in the Portuguese educational system; and to exert pressure on the process of curriculum reform. Furthermore, theoretical and experimental work that was conducted gave rise to a number of publications that intended to disseminate the results obtained and data regarding this specific line of research (Valente *et al.*, 1989a, 1989b, 1992).

In 1993-1994, another Portuguese university and a training centre took part in the European Union joint scheme known as Project *CREDIT*. This was an intervention with adolescents and adults with learning disabilities due to neurological or social causes, which aimed at improving general TS, autonomy, working attitudes and finding mainstream jobs. It also provided training of staff at schools and vocational training centres.

It might be worth mentioning that the most significant pieces of information that can be found in the Portuguese literature about projects on this line of research were part of *DIANOIA* Project. Most of these studies culminated in several Master and Doctorate awards, mainly in the fields of Psychology, Languages, Science, pre-service teacher training, curricula, and problem solving in Physics and Mathematics (Cruz, 1989; Gaspar, 1989; Morais, 1988; Novais, 1989; Salema, 1988, 1989; Valente *et al.*, 1987, 1989a, 1989b, 1992). Furthermore, research was mainly conducted with teachers and students from secondary schools, particularly in the capital city Lisbon. This may help to explain why the Portuguese primary school teachers that participated in the present research project, neither possessed explicit knowledge about the existence of the TS interventions nor knew anything about its implementation in Portuguese schools, in particular at primary school level.

After analysing the current literature, this was one of the key elements that prompted and justified the need and relevance of the present study with Portuguese primary school teachers. This apparent loophole in research means more work needs to be done, not only to disseminate the interventions in Portugal but also to provide training and continuing support to primary school teachers so that implementation starts at an earlier educational stage.

These educational initiatives and projects are clear attempts to hit the right balance between teachers' professional needs and students' learning needs, which comes one step nearer to achieving an extensive implementation of TS interventions in Portugal. However, this issue requires a more serious and committed engagement from the Portuguese government so that all teachers have access to vital training and ongoing support in schools and all children and youngsters can benefit from the well-documented advantages that spring from an active involvement and exposure to the interventions in the classroom.

1. 6 Statement of the research problem

The main purpose of this research was to investigate the impact of training in TS approaches on English primary school teachers' attitudes and perceptions of training needs, and its pedagogical and professional implications.

To a smaller extent, this study looked into the views Portuguese teachers have on teaching thinking in a primary school setting, first and foremost based on information provided to them, regarding the experience of the English participants, rather than drawing assumptions from their own experience in the matter.

1. 7 Personal motives

This study was of great magnitude to the author because it highlighted the need and importance of adequate training of teachers so that TS interventions can be delivered and developed successfully.

Moreover, it represented the perfect opportunity for the author to conduct further research into the impact of TS interventions and its implementation in English schools, compared to an evident, reduced dissemination in Portugal. This ambition materialized after the author conducted research to investigate effective teaching and learning strategies to support pupils with learning difficulties, as part of her Master of Education award.

The development and implementation of TS interventions has been an area of major interest for the author. After looking into the impact of these interventions on pupils with learning difficulties, it became even more relevant to investigate its impact on teachers who delivered it and pupils who had been exposed to the interventions for a longer period of time.

Having trained as a teacher in Portugal, the author believes that TS interventions are not sufficiently researched, promoted and practiced in Portugal. This represents a major gap between these two countries and there are evident benefits and disadvantages for those who are promoting and delivering the interventions and for those who do not do so.

Hence, it was important to gather more information about the impact training and the actual implementation of the interventions has had in schools in England so that lessons can be learned from English teachers' positive and negative experiences.

It was felt that this second research project in this specific field would provide the author with greater knowledge and expertise about teachers' needs, in terms of training and professional support, to successfully deliver the interventions and hence, to develop pupils' skills. Ultimately, the author would like to contribute to a more explicit and wider ranging implementation of these ground-breaking educational initiatives in Portugal, starting with proposals for a more adequate and ongoing training of teachers in this specific field.

1. 8 Research question and sub-questions

✦ Main research question

What are the pedagogical implications and the impact of training in Thinking Skills interventions on English primary school teachers' attitudes and perceptions of their professional development?

✦ Research sub-questions

1. What are teachers' views on teaching through Thinking Skills approaches in a primary school setting in England?

2. What are Portuguese views on teaching thinking in a primary school setting?

3. To what extent do teachers identify reflection as part of their professional development and practice?

1. 9 Structure of the text

This thesis was organized in a sequential manner that encompasses six chapters. *Chapter One* provides an overview of the present study. It establishes the purpose and aims of the study that primarily prompted the investigation. It provides a preliminary overview of the educational context of the teaching of thinking in England and in Portugal and introduces the research questions.

Chapter Two is a review of the existing literature related to the present research. It was important to analyse past and current studies regarding teachers' professional development, in particular, training on TS interventions, provided to primary school teachers in England, and their professional and pedagogical perceptions, beliefs and needs. This research also looked at the Portuguese educational context to understand the views of Portuguese teachers on teaching thinking in a primary school setting.

Chapter Three offers a description and justification of the methods used to collect the data, how the research was conceived, designed and executed, which is vital to allow readers to make some informed evaluations of the study. It offers a brief statement of the overall research epistemology, as well as discussing aspects such as ethical guidelines, validity and reliability of this study. It also discusses methodological issues and problems that arose during the field research.

Chapter Four comprises the presentation and an initial interpretation of the findings of this research project. Data was selected and summarized into six major categories that were considered to be vital instances of interest for this research: TRAINING, PRACTICE, CHANGE, REFLECTION, LEARNING and POLICY. This process facilitated the presentation of the findings and the subsequent drawing of conclusions.

Chapter Five offers a critical analysis and discussion of the findings. It demonstrates the author's understanding of the findings obtained by this research with reference to both the research questions and the broader literature. This chapter took into account the implications results may have for the matters and problems that firstly motivated this research, in order to understand what magnitude the data collected might have in the context of the overall goals of this study.

Chapter Six presents the main conclusions of this study as well as recommendations for future research, based on important instances that emerged during this research.

Chapter Two
Literature Review

CHAPTER TWO

LITERATURE REVIEW

2. Introduction

This chapter presents an overall review of the existing literature related to the current research project that constituted the sustaining theoretical knowledge on which this study was grounded. Particular issues and ideas that arose during the course of this research will be addressed and related to the relevant literature.

The present study focussed on a number of aspects that naturally evolve around teachers' professional development, in particular, the impact training on TS interventions, provided to primary school teachers, had on teaching and learning perceptions and dynamics. The research analysed the pedagogical implications of training for teachers and pupils in some schools in the Northeast of England. It also looked at the Portuguese educational context to identify the major issues that concerned Portuguese primary school teachers and their professional development and compared them with the key issues heightened by the research in England. Furthermore, this study was set to understand the views of Portuguese teachers on teaching thinking in a primary school setting. In order to provide an outline of the main themes addressed by this research, a review of the most relevant literature available on this field is presented next.

2. 1 Teachers' Professional Development in England

According to Hargreaves & Fullan (1992: 2) "a teaching force that is more skilled and flexible in its teaching strategies and more knowledgeable about its subject matter is a teaching force more able to improve the achievements of its pupils". This is why, the innovation and the continuous progress of any educational system cannot be successfully achieved unless a fundamental amount of effort is made with regard to the professional development of its educational agents, in particular, teachers who work or will eventually end up working for the system. Hence, it is imperative that the systems and development programmes are conceived and organised so that they can make a greater contribution to the improvement of the professional quality of teachers.

In order to reorganise teachers' professional development, two converging perspectives of performance and analysis of the system need to be taken into account:

- the creation of educational professional development programmes;
- and the organisation and management of those programmes.

The first viewpoint deals with questions related to conceptions, theoretical models and research upon education of teachers and their professional development. The second perspective focuses on institutional background and organizational mechanism of professional development.

Theoretically speaking, it seems possible to move from the educational theory to the organisational systems, as well as it is possible to consider the institutional model without focusing on conceptual questions about educational professional development. Whichever perspective is adopted, the coherence and quality of educational professional development programmes are reinforced when both analysis and performance are contemplated simultaneously, irrespectively of which should be dealt with first (Ribeiro, 1989).

Teachers' professional development can also be analysed in terms of curriculum development, *i.e.*, the conception and elaboration of a model for teachers' professional preparation that gives answers for education of both future teachers and teachers already in service.

The essence of school improvement effort rests on the new way of teachers and management working together, *i.e.*, both senior managers and teachers function as leaders and decision-makers in their endeavour to change a school. Hence, school improvement needs a reconceptualization of leadership, where teachers and managers can work together to share decision-making and risk-taking. Years of staff development "formula" created by consultants and curriculum developers have shown that teachers who concentrate on their own teaching practice are more likely to obtain gains in student achievement. It is crucial to understand the importance of concentrating upon students' outcomes in academic performances (rather than teachers' perceptions of the innovation) as this is the main success condition for school improvement (Harris, 2000).

Teachers' professional development is intrinsically intertwined with another major factor: children's varying abilities and needs (Hargreaves & Fullan, 1992). Even well-qualified teachers need to acquire and develop a flexible style of teaching, a *sine qua non* condition to deliver tasks that are both differentiated and adjusted within the class to match the varying needs of all pupils.

Thus, to be prepared to provide equal and improved opportunities to learn, which will enhance the quality and equality in education, is a condition that also requires opportunities to teach. Teacher development can be seen as knowledge and skills development, self-understanding, and ecological change (Woods, 1990). This is exactly the point where teacher development comes into perspective, and different approaches to training and teaching force improvement gain new strength.

2. 2 Definitions

Definitions of a concept often vary from one author to another. Similarly, opinions about definitions may also differ from one country and one culture to another. Definitions that apply to the English educational system will therefore be considered.

♦ Teachers' Professional Development (TPD)

For the purpose of this study, it is pertinent to start by defining teachers' professional development. For some authors, this concept implies the notion of teachers investigating their own practice to form their own theories of teaching (Hammett & Collins, 2002; Keiny, 1994). Literature about teachers and schools development has been disseminating valuable ideas for improving their performance. Yet, the concept of *teacher development* varies according to the different conceptual analysis in the literature and there seems to be no consensus on what the concept means. This concept appears to be relatively new and thus its boundaries are vague and the teacher development process is not clearly identified (Evans, 2002; Joia, 2001). Some authors (Fullan *et al.*, 1992a; Darling-Hammond, 1994a) could not provide definitions of teacher development or of professional development:

> We will not attempt to define the term *teacher development* at this stage [...] As will become clear we use it both to refer to specific developments through in-service or staff development, as well as to more thorough advances in teachers' sense of purpose, instructional skills and ability to work with colleagues (Fullan *et al.*, 1992a: 8-9).

However, Darling-Hammond (1994b) interprets the concept of teacher development implicitly and therefore it is only possible to make assumptions whether she regards professional development as a process or as a product. Aspects such as "the expansion of the teaching profession's knowledge base" (p. 1-2), "new structures and approaches for deepening and sharing knowledge for teaching" (p. 4) or "restructuring teaching knowledge" (p. 3), reflect what this author vaguely described as professional development:

> ... a process of enhancing teaching's professional status by expanding the knowledge base upon which the profession draws and increasing teachers' epistemological awareness (p. 10).

Bell and Gilbert (1994) provided a different view for teacher development, described as

> ... teachers learning, rather than as others getting teachers to change. In learning, teachers were developing their beliefs and ideas, developing their classroom practice, and attending to their feelings associated with changing (p. 493).

These authors identified three mains types of teacher development: personal, professional and social and described it as a process in which one aspect cannot evolve unless the others evolve as well. They also highlighted the fundamental characteristics of the teacher development process:

> ... teacher development can be seen as having two aspects. One is the input of new theoretical ideas and new teaching suggestions... The second is trying out, evaluation, and practice of these new theoretical and teaching ideas over an extended period of time in a collaborative situation where the teachers are able to receive support and feedback, and where they are able to reflect critically... Both are important if all three aspects of teacher development – personal, professional, and social development – are to occur (Bell and Gilbert, 1994: 494).

Teacher's development can also been seen as a subjective or an objective process, or both. In Evan's (2002) point of view, it can be thought as an internalised process on the part of teachers, or it may be an externally applied process directed to teachers, but produced by external agencies, in which case may not be totally successful.

Day (1999) defined professional development as an intricate process and added that

> ... it is the process by which, alone or with others, teachers review, renew and extend their commitment as change agents to the moral purposes of teaching; and by which they acquire and develop critically the knowledge, skills and emotional intelligence essential to good professional thinking, planning and practice with children, young people and colleagues through each phase of their teaching lives (p. 4).

As a fundamental part of professional development, teachers have been increasingly encouraged to engage in and with research and evidence. As a result, teachers will be better prepared to interpret the large amount of information within their classrooms and do a better use of the evidence given by the research findings (Baumfield, 2000).

♦ Teacher Training

This seems to be a concept at the centre of much debate in the UK. The conception presented in the James' Report (DES, 1972) indicated that teachers' education and training fell into three distinct phases: personal education; pre-service training (initial service) and induction; and in-service education and training (DES, 1972: 1.9).

The term *continuum* was later introduced in defining teacher training so that the Local Education Authorities (LEA) and Departments of Education and Science (DES) could reinforce the "continuity" between initial training, induction and career-long professional development, as requested by the then Secretary of State (DES, 1991). Subsequently, *teacher training* was described as *a training continuum* and contemplates teachers' experiences as school pupils as part of the process:

> Personal experience as a school pupil→ Initial training→ Probationary or induction period→ Staff development→ Appraisal→ Further staff development (Shaw, 1992: 16)

♦ Staff Development

Teachers' professional development is a constant and never-ending process, which is achieved through several different ways, consciously and unconsciously, and constantly increases teachers' expertise. It comprises personal experiences and knowledge acquired since the early days in school as a pupil, courses, in-service training, professional reading, good practice in teaching learned from others, and knowledge gained in meetings where matters of common concern are discussed.

♦ In-Service Training (INSET) for Teachers

Often referred to as "continuing professional development" (CPD), "staff development" (SD) and "teacher development" (TD), INSET has provoked effusive debates over its right definition (Dean, 1991; Glover *et al.*, 1996: 2; O'Sullivan *et al.*, 1994; Raths, 1988.). Some authors even use those terms interchangeably (Bolam, 1993; Glover *et al.*, 1996).

In-service education and training for teachers in England and Wales has increasingly gained attention over the years, which mirror the speed of change in school organisation, management and curricula (Williams, 1991). Due to the fact that those rapid changes expose our need to acquire new knowledge, it has been acknowledged as a "refreshing", "updating" or "awareness raising" valuable element in teacher education (Glover *et al.*, 1996: 11).

Morant (1981) succinctly described in-service education as "the education intended to support and assist the professional development that teachers ought to experience throughout their lives" (p. 1). As a constant, incessant process, teachers should start it off on the first day of teaching and terminate it with retirement. This notion of ongoing and life-long professional learning for teachers has been vehemently emphasised by many other authors. Jackson (1992) argued that "the motive for learning more about teaching is not to repair a personal inadequacy as a teacher, but to seek greater fulfilment as a practitioner of the art" (p. 26). Likewise, Schön (1983) highlighted the significance of ongoing, analytical reflection in teaching and suggested teachers should be "reflective practitioners", a notion later analysed in this chapter.

In 1984, the Advisory Committee on the Supply and Education of Teachers (ACSET) Report stressed the importance of in-service training to the career development of teachers (DES/Welsh Office, 1983). It also highlighted the need for "a closer and clearer relationship between training (including in-service training), experience and qualifications on the one hand and deployment – including promotion – on the other" (para. 91).

Bolam (1982) presented one possible definition of INSET as CPD, which featured concepts of education, training and support within a range of activities taken on by the teacher and education managers subsequent to the initial teacher certificate, intended to:

- add to their professional knowledge;
- improve their professional skills;
- clarify their professional values;
- allow their students to be educated more effectively.

In short, this definition consists of three components:

- *professional training:* short-term courses, conferences and workshops, mainly focused on practice and skills;
- *professional education:* long-term courses, secondments, mainly focused on theory and research-based knowledge;
- *professional support:* job-embedded arrangements and procedures.

2. 3 The teaching of thinking in primary school classrooms in England

> '... many highly intelligent people are bad thinkers. Intelligence is like the horsepower of a car. A powerful car has the potential to drive at speed. But you can have a powerful car and drive it badly. Thinking is the driving skill with which each individual drives his or her intelligence.' (de Bono, 1995)

After many years of investigation and debate, the importance of teaching thinking was finally acknowledged and is now an explicit part of the National Curriculum (NC) in England since 2000. In 1999 Carol McGuinness presented a review and assessment of the current research into TS and associated areas, which had been commissioned by The Department for Education and Employment. Succinctly, this review concluded that, (McGuinness, 1999):

- a general framework for developing TS, generated from research and practice, indicated that TS needs to be made explicit in the curriculum;
- models for delivering TS were underlined: discrete interventions, where general TS are specifically improved through an additional, structured programme slotted in the curriculum, as well as particular subject areas such as mathematics or history; and infused approaches, where interventions for TS development are infused across the normal curriculum;
- classroom evaluation studies revealed that not all interventions are successful; the most successful ones have at the base, good teacher support, explicit pedagogy, appropriate, well-designed materials, *inter alia;*
- explicit models of teacher development and teacher support characterise the most successful interventions.

Another major aspect that emerged from this report was the importance of teacher preparation and teacher support for the successful implementation of TS approaches in the classroom.

In order to be able to teach thinking, teachers must undergo specific training, also requiring adaptations from pupils and adequate equipment. Hence, in-service training, peer coaching and a thorough examination of evidence related to children's learning are *sine qua non* conditions for good practice.

Despite the fact that teaching is still largely centred in the results achieved in basic skills, which may neglect the potential children can achieve from being actively involved in the learning process (Fisher, 1990), contrarian efforts have insistently been put together in the past decades, in order to improve teaching and learning experiences.

A number of principles have been highlighted across TS programmes (Baumfield *et al.*, 1995). Some are more explicit than others but, in short, they are:

• TS programmes change the learner since they are constructivist in their origin. They intend to change and enhance mental structures, which will allow pupils to become better learners.

• TS programmes promote learning transfer in a process called *bridging*. At the end of an activity pupils have the chance to make links between the knowledge previously acquired in other contexts and what they have just learned.

• TS programmes encourage learning with others by promoting cooperative learning, the sharing of ideas and discussing in order to achieve understanding. Pupils may be assisted by adults or more able peers, as suggested by Vygotsky's concept of *Zone of Proximal Development* (Allal *et al.*, 2000; Feuerstein, 1980; Vygotsky, 1978). On the other hand, Philosophy for Children (Lipman *et al.*, 1980) emphasises the creation of essential conditions for cooperative learning by promoting a democratic community of enquiry within the class and making use of explicit norms.

• TS programmes help pupils to adjust their behaviour by promoting listening to others without direct criticism to the speaker and respect for each contribution and by encouraging thinking about what one wants to say beforehand.

• TS programmes challenge the learner. Instead of giving the low achieving pupil accessible and easy work, these programmes present problems at the limit of the pupil's capacity to provoke mental struggle and thus instigate new cognitive challenges.

• TS programmes are meticulously planned and teachers try to establish understanding of concepts by making frequent use of practical demonstrations as used in CASE (Cognitive Acceleration through Science Education) lessons (Adey *et al.,* 1994; Adey *et al.,* 1999; Adey & Shayer, 1994). Philosophy for Children starts with specific readings, which intends to help pupils to establish personal meaning as learners.

• TS programmes develop core concepts and skills. One of the most significant intervention programmes is Instrumental Enrichment (Burden, 1987; Feuerstein *et al.,* 1981; Feuerstein *et al.,* 1985; Feuerstein *et al.,* 1994; Kettle, 1992). It rests on the assumption that intelligence is modifiable and dynamic, not fixed and stagnant, and it is designed to enhance the cognitive skills necessary for independent thinking. This intervention aims to improve critical thinking with the skills, concepts, operations and attitudes necessary for independent learning, to identify and adjust deficiencies in thinking, and to help individuals "learn how to learn". In short, it aspires to develop cognitive functions regarded as a shortfall in low achieving pupils. Philosophy for Children (Fisher, 1995a, 1998, 1999a, 2000b; Lipman, 1985; Murris, 2000) seeks to build up translation skills such as comprehension and listening, concept formation skills, inquiry skills and reasoning skills. Once pupils acquire and expand these central concepts and methods of working they are better equipped to be independent workers.

• TS programmes make pupils think about thinking, a process called *metacognition* (Flavell, 1976; Forrest-Pressly *et al.,* 1985; Garner, 1987). Not only are pupils asked to give answers to problems but also to describe and explain the process they used to reach those answers. This is a vital factor of the programmes since it is through metacognition that pupils have the potential to regulate their own learning. Moreover, the chances to establish understanding of core concepts and skills as well as transferring them to others contexts are deeply dependent on metacognition.

Fundamentally, TS interventions have been described as powerful pedagogical strategies (Leat & Higgins, 2002) and its vital claim is that they aim to help pupils to become better thinkers, by supporting them to exploit their strengths and to repair their weaknesses in thinking. This assists them to recognise and develop their potential (Sternberg, 1987c).

Reuven Feuerstein's (1990b, 1998) theories of learning, instruction and cognitive modifiability considered the possibility of changing the way children think. He claimed that humans are capable of altering their "natural" developmental course through modifying their cognitive system. Humans are perceived as open systems and their future cannot be predicted based on biological, medical or psychometric data (Kozulin & Rand, 2000). Thus, if a child presents low cognitive abilities, one could argue that those abilities could be enhanced:

> 'Our present day knowledge of the child's mind is comparable to a fifteenth century map of the world - a mixture of truth and error...vast areas remain to be explored.' (Gesell, 1950: 5)

Although all humans are born with the unique capacity to think, ability varies enormously from one person to the other. Children may be able to produce thoughts and new ideas and may be able to form opinions, but may be inefficient in applying these skills appropriately to academic subject matters. They may need extra help to develop their cognitive abilities, their self-confidence and their communications skills in order to reach their full potential (Buchel, 1990; Feuerstein, 1990a).

Activities developed in community are particularly beneficial. Supporters of activities developed in community *e.g.* Circle Time (Ballard, 1982; Bliss *et al.,* 1995; Mosley, 1996; White, 1992) Community of Enquiry, widely known through Matthew Lipman's Philosophy for Children programme (Feuerstein, 1985; Lipman, 1985; Lipman *et al.*, 1980), suggest that these interventions can develop knowledge and social skills through interaction and collaborative learning. Pupils have the chance of expressing themselves and their opinions, accepting others' opinions, and at the same time, boosting self-esteem and self-respect as well as respect for others. Modelling is a powerful way of learning and through discussion and exchange of ideas, children's progress can be rapid (Fisher, 1995b).

Although there is good evidence showing that it is possible to become better thinkers, it is also true that those changes do not occur overnight. The development of effective thinking requires patience and perseverance. Halpern (1997) and other authors argue that the earlier the change process starts, the better, while children's individual physical, cognitive and social patterns are still being formed (Alexander, *et al.,* 1992; Brierley, 1987; Fisher, 1990; Gardner, 1983, 1993; Sternberg, 1985a, 1985b).

Thus, in recent years the idea that children must be taught how to think has been increasingly gaining more followers. Fisher (1990) argued that to teach thinking is an important area of educational research nowadays even though the Greek philosophers were the pioneers who first studied thinking and since then it has been a pivotal matter for educators. Past theories and research led to the development of curricula in which the basic skills (reading, writing, listening, speaking and arithmetic) have been regarded as fundamental. Today, the focus tends to be more directed to the *process* of learning, developing problem solving strategies, reading for meaning and making use of logical thinking in writing.

Although we live in an examination-driven educational system in which the focus is still concentrated on results achieved, increasing attention is being paid to the benefits children may gain from involving themselves actively with the learning process.

Nickerson (1987) suggested that "everyone should know *how to think* and evidence indicates that many people *do not*, so it is the responsibility of the educational system to do something about it" (p. 27). Higgins and Baumfield (1998) believe that teachers should teach general TS in schools (which include the expansion of *metacognition* or self-regulatory practices), to support the development of expert thinking in children.

2. 4 Thinking Skills and the teacher

> 'Making good thinking an educational goal affirms that growth in thinking is obtainable by all students. This goal also reflects confidence that all teachers can help students to become better thinkers.' (Swartz & Parks, 1994).

Several authors have defended the development of thinking in schools as a fundamental means to promote dynamic cognitive processing, stimulating critical attitudes and communication skills (Baumfield *et al.*, 1995; McGuinness, 1999). Consequently, pupils are more efficient in the processing of more elaborate data, dealing with new problems in a systematic and flexible way. Furthermore, the expansion of TS is supported by theories of cognition, which see learners as creators of their own knowledge and framework of interpretation. Learning is perceived as a way of finding meanings and demanding structure on thinking.

However, teachers may be unaware of numerous factors that contribute to the fact that children, despite the efforts and some improvements, still have learning difficulties. One important factor is the persistent use of the same methodology or approach, underestimating or ignoring children's individual skills, character and interests. This may give rise to new difficulties or further existing ones. Gardner (1983) made a significant contribution to the elucidation and understanding of certain educational discrepancies. He advocated the idea that there are different forms of information processing in the brain. The theory of *multiple intelligences* suggested that there are a number of distinct forms of intelligence that each individual possesses in various degrees.

Seven primary forms were presented: visual-spatial, musical, body-kinaesthetic, linguistic, logical-mathematical, intrapersonal (e.g., insight, metacognition) and interpersonal (e.g., social skills). According to Gardner, the implication of the theory is that learning and teaching approaches should focus on the specific intelligences of each person. Hence, all forms of a child's intelligence should be stimulated, taking into account the child's favoured or dominant learning style. For instance, if a pupil has strong spatial or musical intelligences, he/she should be encouraged to build up those skills. Gardner explained that the disparate intelligences represented different content areas but also different learning modalities. A further implication of this theory is that evaluation of abilities should judge all forms of intelligence, not just linguistic and logical-mathematical.

The focus of the theory of multiple intelligences has mainly been put on child development even though it applies to all ages. Thus, when teachers try to improve pupils' thinking, all the different forms of a child's intelligence should be stimulated, considering the child's preferred or dominant learning style. Hence, curricula should establish that children should be exposed to as much sensory stimuli and experiences as possible so that their patterns of learning can be activated, which also increases the brains' capacity to function intellectually. Nickerson (1987) suggested that better thinking would equip children with skills that would give them more chances to succeed. Besides, good thinking is a requirement for good citizenship and to develop critical thinking helps pupils to produce intelligent judgements on public matters and consequently, contributes to a more democratic solution of social problems.

Higgins and Baumfield (1998) argued that TS programmes develop processes of learning and if a programme or intervention can make learning and knowledge achievable to pupils, this should be sufficient evidence to justify their place within curricula. The advantages of the inclusion of teaching of *thinking* in the school curriculum are supported by evidence (Curry & Bromfield, 1994; Lawrence, 1996; Mosley, 1996; McGuinness, 1999; Sternberg, 1987c). How thinking can best be taught is however the subject of much debate. Some authors believe that teaching *thinking* in schools is absurd since thinking is part of all learning and is not separated from other human activities (Smith, 1996). Others see thinking as a set of transferable skills, such as problem solving and learning to learn, which schools should promote (Burden & Williams, 1998; DfE, 1995; Nutbrown, 1994a).

The teaching of thinking in the classroom has been a determinant step towards the improvement of education in England. The fact that the English NC acknowledges the importance of developing thinking, learners' autonomy and the urgency to invite children to think effectively and at a qualitatively higher level, regardless if they have or have not special educational needs (Burden & Williams, 1998; DfE, 1995; Dearing, 1993; DES, 1990; NCC, 1989; Rose *et al.*, 1994; Rouse, 1991), has had a tremendous impact in the manner teachers, pupils, parents and people in general regard education in England.

Nevertheless, time for discussion and reflection in the classroom is still limited in the normal subject areas. Different programmes have been developed and strategies explored for its effectiveness to raise individual levels of intelligence, accelerating cognitive development and enhancing children's capacity for thinking and learning (Adey, *et al.* 1994; Fisher, 1990).

Teachers have the responsibility, *inter alia,* to educate pupils to become good citizens, by promoting effective thinking about citizenship issues, through "democratic dialogue" and reflection, as well as empathic thinking, and respect for others' opinions. This can develop attitudes of tolerance, care and respect and also develop thinking, speaking and listening skills, within the NC guidelines. Education for citizenship to develop pupils' social and moral attitudes should begin in the crucial early years of their education (Rowe, 1995).

Some authors regard traditional schooling has an "antidote" to thinking and thinking has been seen as a threat to institutionalised education. Traditional education does not promote thinking and independent learners (Skuy *et al.*, 1996).

Nowadays principles for teacher certifications and ideas for reform in teacher education presume that teachers will have a profound and creative understanding of learning, development, motivation, and individual differences. Psychological knowledge is used to ground reforms in teaching and schooling, particularly the call for teaching for understanding (Hoy, 2000).

It is therefore pertinent to investigate experienced teachers' reactions to training and professional development in TS interventions, evaluating their personal experiences, identifying issues and problems, measuring their attitudes towards change in their own practice and examining possible barriers to change.

2. 5 Teacher development and change

Firstly, a word about the meaning of the expression "teacher development": on the one hand, it could refer to the sense individual teachers develop in the process of their careers. On the other hand, it could also apply to how the teaching profession as a whole has developed over the years.

It is also pertinent to distinguish between *development* and *change*. Teachers change in a number of ways during the process of their careers. They become more experienced since they have taught for a longer period of time. They learn new skills or do things better. They become more knowledgeable or grow in power, control and authority. They change fields, move from one grade or school to another. They may become more patient, wise and witty or the reverse, discouraged, exhausted, cynical, lethargic and lose enthusiasm for teaching. Some leave teaching while others stay to harvest the rewards of a lifetime spent doing a job they valued. Some of these changes can be put under the "development" label but only those that derive from the desirable and positive changes in quality such as increases of ability, skill, power, strength, wisdom or insight (Jackson, 1992).

Thus, while some people claim that schools are under constant change, others state that nothing new has been introduced in schools. Politicians argue that teachers resist changing while teachers protest against the changes politicians introduce, claiming policy-makers neither know what is necessary in schools nor understand the classroom. While some believe that restructuring schools is crucial, others reply that what needs urgent change is the core curriculum (Fullan, 1992).

There is also confusion between two terms frequently used in discussions of educational reform: *change* and *progress.* It can be alleged that resisting certain changes may be more progressive than adopting them. According to Fullan (1992), in order to be able to fully understand particular changes, or to achieve desired changes one needs to consider what he called "the problem of meaning".

This author argued that currently people do not have a coherent sense of *meaning* about what educational change is for, what it is and how it proceeds. This leads to superficiality and failure of change programmes, misdirected resistance and misunderstood reforms. Thus, what people involved in educational change need is a clearer picture that can be used to make *sense* of what they or others are doing. The neglect of change and the manner people in reality experienced it - separated from the way it may have been intended – is the main reason for the failure of most social reforms. Furthermore it is also relevant to consider a bigger picture, since educational change is nothing but a socio-political process.

It seems that there is a certain inconsistency between teachers' feelings and their impression that they have been through a lot of changes and the little evidence of change that classroom researchers claim to have observed in reality (Ruddock, 1990). Hargreaves (1996, p.1) highlighted this gap between educational researchers and practitioners: "if the defects in the way educational research is organised were remedied, research would play a more effective role in advancing the professional quality and standing of teachers." It was also noted that there is a perceived superiority of the "hard research knowledge of experts" to the "soft practical wisdom of teachers" (Hargreaves & Fullan, 1992, p.5). Other authors have suggested that schools have not changed fundamentally over the years, despite the efforts and numerous attempts for innovation and change. There is an inability of innovations to transform schools (House, 1979; Tangerud & Wallin, 1986).

So, what is *change* after all and *how* does it occur? Firstly, one needs to keep in mind the goals and the consequences associated with specific educational changes, as well as to comprehend the dynamics of educational changes as a socio-political process, which involves a number of individual, classroom, school, local, regional, and national factors that work together interactively. The problem of meaning is one of how people engaged in change can comprehend what it is that really should be changed and see the best direction to achieve it (Fullan, 1992).

Continuing professional development evolves around three main aspects (O'Neill, 1994):

- *training* for individuals or groups with similar needs about an externally identified subject and basically occurs to respond to immediate or short-term needs;
- *staff development* is often seen as training for whole staff on a subject identified by teachers or whole school as priority and is medium-term;
- *professional development* is for individuals or groups with similar needs identified by them or by the school, is career orientated or personal and is longer-term.

As for the term "professional" when applied to teachers, three fundamental dimensions have to be taken into account (Garrett, 1996):

- a professional will have submitted oneself to an extensive period of professional training in a body of abstract knowledge (Coulson, 1986) and will have experience in the important field, *i.e.*, teaching;
- a professional is restricted by a code of ethics and professional values (Hughes, 1985);
- a professional is committed to the core business of the organisation, *i.e.*, the quality of student learning (Coulton, 1986).

2. 5. 1 Models of change

Professional development involves professional change. Many researchers such as Fullan (1982) recognise that numerous professional development programmes have disregarded the process of teacher change.

Clarke & Hollingsworth (2002) presented a model (Figure 1), which describes the implicit purpose of many teacher in-service programmes and the underlying features on which those programmes are based:

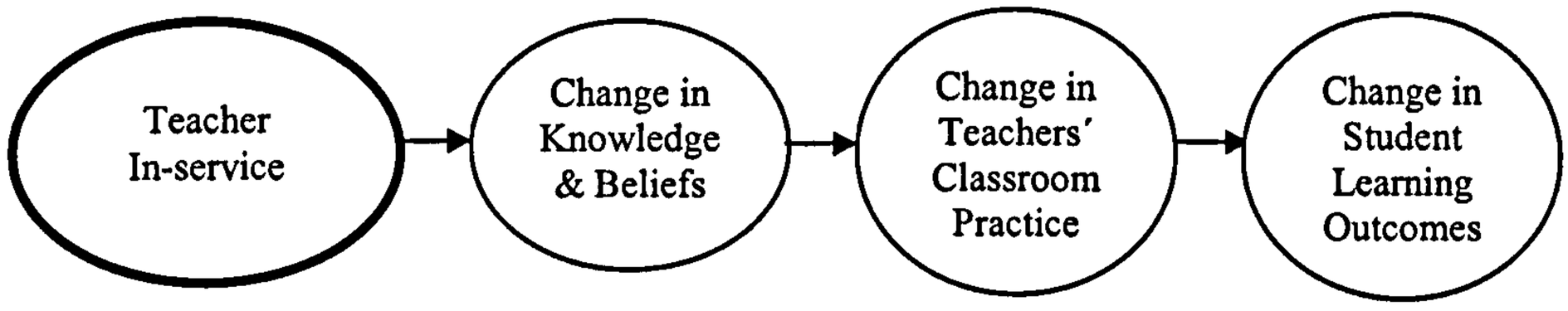

Figure 1. A model of the purpose of teacher professional development (Clarke & Hollingsworth, 2002: p. 949).

Guskey (1986) had previously challenged this notion of change, arguing that only when changes in student learning outcomes become evident and teachers experience those changes, are significant changes in beliefs and attitudes of teachers likely to occur. The alternative model (Figure 2) he presented described a different process of teacher change:

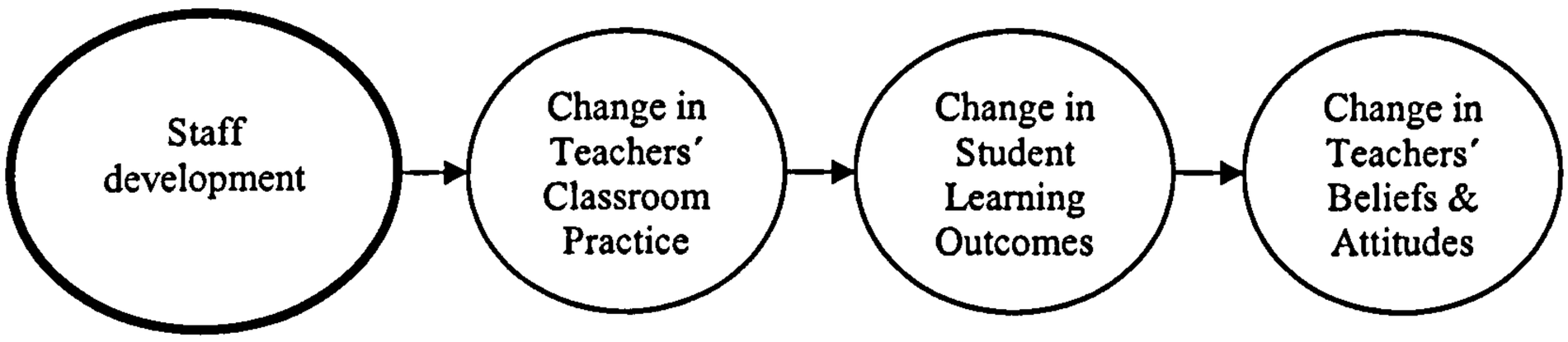

Figure 2. Guskey's model of the process of teacher change (Guskey, 1986, p. 7, in Clarke & Hollingsworth, 2002: p. 950).

Clarke and Peter (1993) designed a different model (Figure 3) of the teacher's change process, the Interconnected Model of Teacher Professional Growth, which was later revised by an international group known as the Teacher Professional Growth Consortium.

The Interconnected Model (Clarke & Hollingsworth, 2002) suggested that change takes place through the mediating processes of reflection and enactment, in four distinctive domains which include every aspect of the teacher's life:

- the personal domain (teacher's knowledge, beliefs and attitudes);
- the practice domain (professional experimentation);
- the domain of consequences (significant results);
- and the external domain (resources of information, stimulus or support).

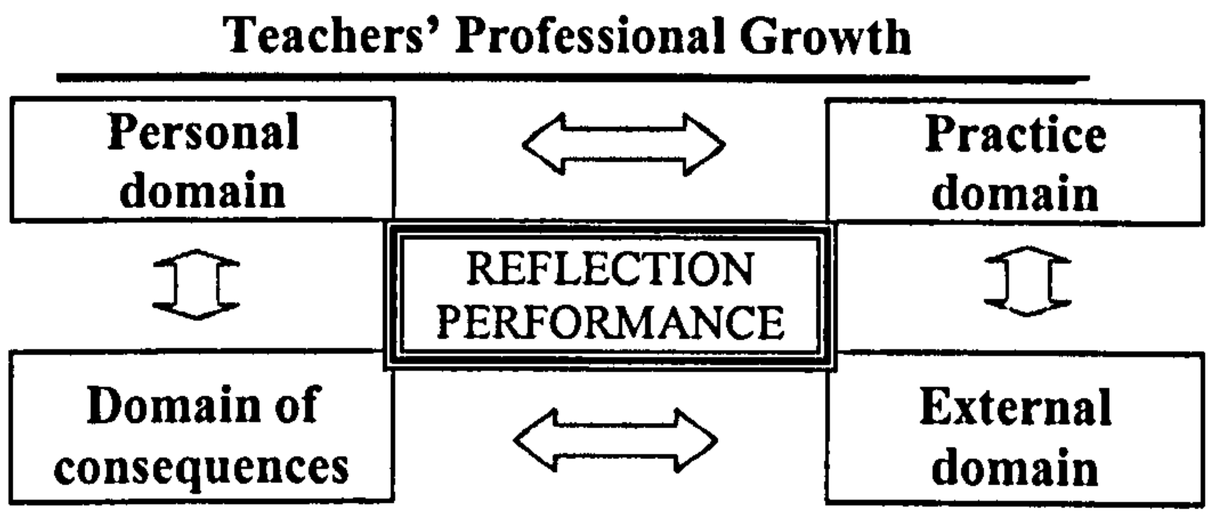

Figure 3. A model of the teacher's change process: author's adaptation of 'The Interconnected Model of Teacher Professional Growth' (Clarke and Peter, 1993).

This model recognised professional growth as an inevitable and systematic process of learning, and acknowledged this growth's complexity through the indication of various pathways between the different domains. In a way, it suggests that the processes of professional growth are constrained to the inclusive change environment (Hollingsworth, 1999). Furthermore, it pinpointed the mediating processes of reflection and enactment as the instruments by which change in one domain leads to a change in another.

2. 5. 2 Beliefs and practice

Taking into account the previously illustrated idea, it can be suggested that teachers' behaviour is strongly influenced by their personal belief system. This is intrinsically connected with professional growth, in the sense that, under different circumstances, a person will act according to what they intimately believe to be correct or adequate. It can be suggested that personal beliefs, values and principles can strongly influence the result of reflection on every aspect of a teacher's life, from practice and assessment of lesson outcomes to self-awareness of teaching capacities and limitations. Beliefs may have considerable impact on daily effectiveness, which can limit a person from taking full advantage of their natural resources and unconscious competences.

It is often conveyed that teachers' beliefs effectively influence their classroom performances. Beliefs have been defined as personal concepts that can provide an understanding of a teacher's practice (Fang, 1996; Pajares, 1992; Richardson, 1996). Harvey (1986) described belief systems as a series of conceptual representations, with particular meanings to its holder, which synthesizes a reality or circumstances of 'sufficient validity, truth and/or trustworthiness to warrant reliance upon it as a guide to personal thought and action' (p. 660).

Brophy and Good (1974, cited in Fang, 1996) suggested that a better understanding of teachers' belief systems or conceptual bases considerably contributes to the enhancement of educational effectiveness. For instance, there is an implicit assumption that what a teacher believes about a topic, and the way it is taught is essentially related to the quality of mathematics being taught in the classroom (Thompson, 1992).

Furthermore, teachers' attitudes towards a subject topic itself may affect teachers' attitudes towards the teaching of that subject, which, consequently, impacts on the atmosphere and ethos of that particular subject classroom (Ernest, 1989). Hence, teachers' reflectivity concerning the teaching and learning of a subject topic is imperative, also contributing to the implementation of change in the classroom.

Even if it is widely accepted that teachers' beliefs are related to their classroom practices, which consequently impacts on pupils' learning, an interesting 'chicken-and-egg riddle' may emerge: '*are the changes in beliefs followed by changes in practice or vice-versa?*' This should not however impede the normal progress towards professional development goals, particularly regarding processes of change. It should be borne in mind that changes in beliefs, ways of thinking and classroom performances are all key parts of the teacher-change process, which ultimately makes the order in which each occurs in the change process irrelevant.

2. 6 Thinking Skills programmes and change

Since the NC was introduced in the late 1980's, a lot has been said about educational change. Helsby and McCulloch (1997) pinpointed three key stages of implementation: *innovation* – introductory phase when curriculum documents are changed into teaching practice; *control* – when monitoring and compliance processes are checked according to statutory duties; and *settlement* – when teachers try to adapt the NC according to some of what they value in teaching.

The NC was designed to raise educational standards. However, classroom changes may not always occur serenely and some TS programmes are particularly struggling to make a lasting impact even though they have shown evidence of their effects.

TS interventions and other constructivist pedagogies are known for playing a substantial role in improving attainment, reducing disaffection and stimulating transfer of learning. Yet, similarly to previous curricula innovations, they have failed to last in some schools as well as to become established within some schools' systems. The atmosphere created by the imposition of the NC, the liability and loss of autonomy is aggressive terrain to any progressive innovation. Teachers tend to take no risks and once they feel the external priorities' pressure, their inquiries may possibly be dismissed. Thus, curriculum development implies more attention drawn into teacher development so that these programmes may succeed (Leat, 1999).

Furthermore, the implementation of TS interventions has been described as a complex process and some schools may find it challenging to deal with the changes that implementation inevitably yields. Hence, innovation requires different approaches to in-service education, which may facilitate teachers' process of change. These include exchange of experiences and knowledge between different groups of teachers and schools, exploration of evidence in relation to children's learning (Leat, 1999) and supportive coaching (Joyce & Showers, 1988).

2. 7 The reflective practitioner

Along the years, many arguments have arisen to contribute towards the debate around teachers' professional development since the lack of reflection in teacher education has generated divergent points of view. Dewey (1933) had argued that teachers needed to cultivate specific skills, *e.g.* observation and reasoning, so that they could reflect effectively, as should develop open-mindedness, wholeheartedness and responsibility. He also stressed the importance of the teacher as a leader, a guide and an artist, someone capable of changing and broadening pupils' knowledge and understanding.

Building on Dewey's ideas, Schön (1983, 1987) suggested that good quality practice was closely related with a 'reflective practitioner', which has linked teachers' commitment to critical thinking with their own experience of largely uncritical practice. Schön found that when effective practitioners were faced with problems in their practice, they solved them instinctively and, drawing on previous related experiences, they tried and analysed different solutions until they resolved the issues. They worked through the problem using a combination of *knowing* and *doing*.

He called this process *reflection-in-action* (thinking about what one is doing while one is doing it) and created the term 'theory-in-use' to describe the nature of the reflective activity engaged in. He suggested that this type of problem-solving action was an intuitive dismissal of the textbook approach that effective practitioners had been taught in their professional training. Schön called this formalised approach 'espoused theory'. He anticipated that by assessing this type of event afterwards – *reflecting-on-action* (thinking about one's actions before and after the fact) – professionals enhanced their learning and added to their 'repertoire' of experiences, from which they could draw in future problem situations. Schön believed that it was the ability to reflect both in, and on, action that identified the effective practitioner from less effective professionals.

He identified these as being crucial parts of professional teaching practice and encouraged such reflection on problems that came out of the practice. Also, rather than using past experiences or theories directly, teachers could use their own selection of patterns to restructure a situation or find new solutions altogether. He emphasized the importance of practical experience in the learning process; challenging the view that theory is a privileged form of knowledge. He also highlighted the value of action research that gives practitioners power to develop their practice and promote self-directed learning for both teachers and students. In essence, he brought theory and practice together in ways that enrich learning and inform change (Auth, 1991).

However, Schön's (1983) Practitioner Model falls short in a number of respects. Critiques of Schön's viewpoints suggested that reflection-in-action does not consider the social circumstances of workplace learning (Smylie, 1995), that it neglects the importance of time to comprehend professional conduct and that reflection may be instigated in many different ways, such as curiosity (Eraut, 1994). Because time for and depth of reflection may oscillate significantly, depending on a number of factors, *e.g.*, class size, teacher's temperament, it was further argued that reflection may only reinforce experience without truly re-evaluating teachers' conduct or promoting development. Additionally, intuition is behind reflection-in-action, which does not guarantee that classroom problems are reflected upon, which would enable the teacher to interpret and respond appropriately (Day, 1999).

It could be argued that Schön (1983) did not intend his model to be a perfect, unproblematic process, but one grounded in reality with all its problems and difficulties. These served to enhance learning and the acquisition of experience necessary for effective practice and were the inevitable price of pursuing relevance over rigor. He advocated a model of practice that was aimed at 'healing the splits between teaching and doing, school and life, research and practice, which have been so insidiously effective in deadening the experiences of school at all levels (Schön, 1987:15).

Despite some objections, Schön and others made an important contribution to the way educators engage teachers in reflective practices, even though the main approach to teacher development places reflective actions within individuals rather than within the communities of teachers in school settings (Crockett, 2002). Eraut (1997) stressed the fundamental need for teachers to reflect upon their own practice and to keep it under "critical control" (p. 20) as an important part of their responsibilities as well as professional accountability and quality control.

Reflective learning also embodies the notion of *experiential learning*. Coleman (1986) described experiential learning as inductive, where one goes from the particular to the general. In inductive learning, the sequence would begin with "action in a particular situation and the observance of the effects of that action, move to the understanding of these effects in a particular instance, then to understanding the general principle, and finally to application through action in a new circumstance within the range of generalization" (Coleman, 1986 in Auth, 1991: 21). Another learning theorist, Kolb (1984) has also described experiential learning as a way in which pragmatic knowledge may be learned and encompasses a four-stage process through which individuals proceed when engaged in learning:

- **concrete experience** – being involved in new experiences or introduced to new information
- **reflective observation** – thinking about or reflecting on those experiences or information to develop meaning and interpretations
- **abstract conceptualization** – formation of generalizations, concepts and theoretical explanations to decipher our observations, meanings and interpretations
- **active experimentation** – using our generalizations, concepts and theories to solve problems, make plans to take action and then to put those plans into effect, which generates a new concrete experience.

These frameworks should help locate the contribution of practitioners and suggest goals toward which "reflective" practitioners might aim: generalizable observations grounded in the concrete that meet the test of applicability in new situations. Reflective practice can be understood as the ability to form abstract principles based on practitioners' observations of their own concrete experiences and offer those observations for testing by others (Schall, 1997).

While the Government and employers may plan to train teachers in order to implement instrumental knowledge and skills, professional bodies may delegate greater importance to the knowledge and expertise of reflective learning and critical analysis (Taylor, 1997). The introduction of a NC for Initial Teacher Training (DfEE, 1998) caused discomfort in the UK since it was exceedingly prescriptive and had "the makings of a very useful detailed training manual for would-be technicians" (Richards *et al.*, 1997: 6). Stress was thus given to the need for teacher educators to preserve critical reflection at the core of their practice (McIntyre, 1999).

Since the early 1980's research in the UK is more focused on teacher education reforms and the extent to which these reflect a response to global economic pressures. Some authors disputed that such pressures determine educational policies and add that countries need to develop their own national approaches to modernising teacher education according to the global context and its specific conditions. And a reflexive modernisation of teacher education would involve (Young, 1998):

- the promotion of new concepts of learning;
- a deeper analysis of the teacher education curriculum;
- the enhancement of new types of partnership between schools and universities;
- a review of how the professional skills and knowledge of teachers are evaluated.

Numerous policies have attempted to improve and strengthen teachers' education in the past decades. But some studies have shown that researchers and policy-makers need to reassess the importance given to subject knowledge in initial teacher education and professional development. Instead, efforts should be made to develop a better understanding of the relationship between implicit and formal knowledge, of how teachers learn and the impact policies that are intended to change the nature of teachers' knowledge and expertise have on their practice (Poulson, 2001).

2. 8 Continuing Professional Development

Substantial references were made about key issues related to the professional development of teachers during the previous sections. It is therefore important to look at some of those issues in more detail, in order to understand pertinent underlying instances.

Research in education is an amalgam of ideas, beliefs, aims, methods and intellectual structures, which may divide it into various frameworks: educational research, sociological research in education, philosophical research in education, psychological research in education and historical research in education. By defining these components, educational research is provided with the value it needs to stand as a credible, distinct element of the social sciences (Bassey, 1995). In the 1980's British researchers argued that "educational research should result in generalisations which could coalesce into educational theory" and "that educational research should contribute in some way to the improvement of educational practice" (Bassey, 1995: 87). Yet, the viability of the first argument has been vehemently questioned and the strength of generalisation has declined. Keeves (1988) stated:

> ...it is now widely recognised that the scientific or positivistic approach, while highly successful in many areas of inquiry, cannot take into account all the many aspects of human behaviour and the influences of the social context on that behaviour (p. 3-4).

Traditionally, it is assumed that educational research provides useful generalisations to teachers such as "descriptions of schooling" (Eggleston, 1979). But a number of studies have claimed that, in fact, the generalisations useful to teachers are scarce (Cohen, 1976; Entwistle & Nisbet, 1972; Maccoby & Jacklin, 1974). Currently, educational research involves two major national contexts: educational policy-making and educational practice (Mortimore, 2000). Ultimately, the main goal of research in education is educational improvement, it is materialised through *change* and it can occur anywhere within the various educational fractions and instances. Educational reforms focussed on raising school performance have been distinctively proliferating in the UK for the past decade. This increase is followed by changes in the way schools are being administered and managed. Numerous government policies, designed to generate the impulsion towards development, have revealed this increasing pressure for change. The current Labour Government is indisputably seeking to raise standards. Notwithstanding this fact, many policies have often failed to innovate and change school performances (Reynolds, 1999).

At present schools face a critical dichotomy: they have to deal with a great central accountability and control and increased responsibility for self-management and development. It being thus, schools have not been capable of generating school improvement strategies, or to put into practice successful innovations without external assistance and support (Harris, 2000; Mortimore, 2000). It is therefore essential that the international research movement, focused on programmes and improvement projects, continues its efforts to extend and redefine strategies for school improvement. Indubitably, one major facet of school improvement is teachers' *continuing professional development* (CPD). The government of the UK has launched several initiatives to assist teachers to promote CPD in their careers. The General Teaching Council is responsible for the shaping of future policies on CPD and has been required by the Teaching and Higher Education Act of 1998 (Chapter 30 [online]) to provide the Secretary of State with suggestions on training, development and career progressions of teachers. The General Teaching Council is also developing a draft of a *Professional Code for Teachers* for the profession. In addition, attention is being drawn to inquire whether the Code addresses what teachers need to do to further their own development and growth (CPD Strategy, 2001 [online]).

It is therefore pertinent to ask "what is continuing professional development"? It can be "any activity that increases the skills, knowledge or understanding of teachers, and their effectiveness in schools". It is also regarded as "the enhancement of professional and educational practice throughout the duration of a teacher's career" (CPD Strategy, 2001 [online]).

A number of reasons for the promotion and recognition of the importance of CPD have been presented. When applied, CPD can help teachers and schools in the following aspects (CPD Strategy, 2001 [online]):

- help teachers to manage *change*
- enhance the performance of individuals and institutions altogether
- improve staff morale and sense of purpose
- lead the way to personal and professional teacher development
- encourage a sense of job satisfaction
- unite the school's vision for itself
- raise standards of attainment in pupils at all levels

In short, the government's CPD Strategy (2001) highlights:

- the need for raising expectations
- promotes a "learning from others" attitude
- supports research and evaluation
- encourages sharing good practice
- and creates vital funding opportunities in a number of different levels.

School change and school improvement are concepts that are essentially associated and innovations and implementations introduced into schools will change and hopefully improve them. Yet, literature reveals that the impact those changes have will depend a great deal on the people involved and their attitude towards change. A recent study undertaken in England, New Zealand and Australia has provided evidence on, *inter alia*, organizational change, career development, teacher satisfaction, motivation and commitment. This study, developed from a sample of 2,000 teaching staff from these three countries, obtained interesting results on career satisfaction, confirming that:

> … teachers and those holding promotion positions in schools are most satisfied by matters *intrinsic* to the role of teaching. Student achievement, helping students to modify their attitudes and behaviour, positive relationships with students and others, self-growth, mastery of professional skills, and feeling part of a collegial, supportive environment are powerful satisfiers across the three samples. This finding [...] revealed that teachers' strongest commitments are affiliation, altruism and personal growth values (Dinham *et al.*, 2000: 389).

On the other hand, the main causes for teacher dissatisfaction were matters *extrinsic* to the action of teaching or working with other staff. Most of these sources of dissatisfaction are not under schools or teachers' control and involve a broader field: society, governments or employers and conditions of work. Factors such as the characteristics and pace of the educational change, amplified expectations, responsibilities being allocated to schools, resulting in increases to teacher and administrative workloads, were partly responsible for the most vigorous dissatisfiers (Dinham & Scott, 2000):

Previous research confirmed that career satisfaction was not a conceptualised plain continuum or single level. Instead, it was shown that satisfaction and dissatisfaction were opposite ends of the same continuum, that they were intrinsically related and that any change in a teacher's work would affect his/her satisfaction in a positive (more satisfaction) or negative (less satisfaction) direction (Dinham & Scott, 1996; Herzberg *et al.*, 1959; Sergiovanni, 1967).

This survey (Dinham & Scott, 2000) also concluded that, in order to change, "educational systems, governments and society need to acknowledge their collective responsibility for the current extrinsic factors giving rise to worrying levels of teacher dissatisfaction and the erosion of teacher's intrinsic satisfaction" (p. 393). This would also ease the struggle to find solutions for problems they do not control and which only causes frustration. However, even though these changes are crucial for education improvement, this problem has been aggravated as educational changes progress rapidly. In many schools, the persistent demand for change has generated a feeble mentality, obstructing school-based change and inhibiting initiatives.

Consequently, one can imply that difficulties experienced while implementing changes in schools are caused by concerns of teachers but also by the organisational dynamics of the school. As a response to main policy changes, schools activate organizational issues that arouse particular concerns of teachers (Van der Vegt *et al.*, 2001).

In order to understand the dynamics of executing a new policy locally, two aspects need to be borne in mind: the perspective of the organization as an *implementing organization*, seen as an instrument for the implementation of a new educational programme; and the perspective of the *individual teacher* involved in implementation work, whose teaching competences are challenged by new demands and performance standards stemming from the new programme (Beyer *et al.*, 1983). The combination of organizational issues and individual concerns are inherently involved in the implementation of comprehensive educational change (Van der Vegt *et al.*, 2001).

Teachers perceive change differently and consequently their levels of receptivity also vary. Moreover, changes can be particularly complex in centrally controlled educational systems and researchers should help administrators to plan and implement changes more effectively (Waugh, 2000). Some authors claim that it is vital to redefine the role of the administrator, not only to draw attention to the multiplicity of perspectives of the different elements within an organization but also to analyse how those perspectives influence the individual thinking and action (Amatea *et al.*, 1996). Others authors advocate more power to school staff (Short *et al.*, 1994). They support empowerment since through this process school participants develop competences to control their own development and solve their own problems, becoming more confident to apply their skills on a problematical situation and improve it.

Simultaneously, empowered schools generate opportunities so that competence can be expanded and exhibit. The position of the change agent has also been underestimated. It is partially due to its diffused, poorly defined and inadequately recognised status, "a "hybrid" functional and change agency role rather than a specialist management position" (Buchanan *et al.*, 1998: 33).

School reform and restructuring policies also need to become more realistic and practical. Studies have concluded that *time* is a major barrier to the educational change process, *i.e.*, to teacher learning and school change efforts (Collinson & Cook, 2001; Fullan *et al.*, 1992b). Consequently, an increasing number of strategies for changing schools' schedules and practices have been suggested, so that teachers can be provided with more time to participate in school improvement efforts (Canaday & Rettig, 1995; National Educational Commission on Time and Learning, 1994).

Nevertheless, this does not mean teachers spend less time in school and often culminates in an increase of work within fixed schedules. Teachers frequently complain they "don't have enough time" and generally interpret time as a complex, dynamic and multifaceted concept. In order to promote individual learning and thus, significant organizational learning and school change, it is therefore crucial to reflect about time in terms of:

> ... more flexibility in teachers' schedules and employment contract, allows more teacher-directed time for learning and sharing, reconsiders expectations and needs of teachers as learners, and recognizes the dynamic interplay of factors that encourage or hinder teacher learning and dissemination of knowledge (Collinson & Cook, 2001: 279).

Governmental policies on educational reforms often appear to be too ambitious and farfetched. While schools face organisational problems, individual concerns and teachers' readiness to engage with new practices in their work environment often differ from what is expected in theory.

Further research is needed to analyse the impact of management on the classroom, teaching and learning (Campbell, 1999) since "professional development rests on the integration of theory and practice through the use of reflection" (Kydd, 1997: 7). It could be argued that research needs to concentrate on the link between the content of new educational programmes and the actual recipients or users and consequently observe its impact and effectiveness on the implementation of educational change.

2. 8. 1 The National Curriculum

Perhaps the most striking feature of the 1988 Education Reform Act, which is one of the most significant pieces of education legislation since the 1944 Education Act (Winch, 1996), was the institution for the first time of a National Curriculum (NC) for all State schools from the age of 5 upwards. Because it was made compulsory in the maintained sector, it may have increased the differentiation between the experience of children in maintained and independent schools (Aldrich & White, 1998; Maclure, 1989).

In the past, the curriculum had been under control of LEAs and schools. Generally speaking, it emerged that it was problematical for the LEAs to employ their legislative powers of managing the Curriculum within their own areas successfully, as well as coordinating efforts with other LEAs to guarantee that uniform requirements were achieved all over the country. Hence, control of the Curriculum was withdrawn from them, releasing teachers, pupils and parents from negative impositions of bad local management (ERA, 1988; Whitty & Power, 2000).

National assessment procedures started to take place, in order to ensure that the NC was well developed and to keep schools and LEAs under control. Testing occurs at ages 7, 11, 14 and 16, consisting of a mix of formal and informal methods, which measure what pupils can in reality carry out rather than their performance comparative to the rest of the children. The public also have the opportunity to analyse the results obtained by a school in all the different areas of the curriculum. The downfall of these procedures is that this may have adverse consequences for schools which in truth are effective but, all the same, achieve comparatively poor results. It may be safe to say that schools should be assessed on how they have changed the pupils under their supervision, rather than how they have 'performed' in comparison with other schools, which obviously have different children (Winch, 2003).

Another consequence of the 1988 Act is that school governing bodies have extended their structure to include local businessmen, workers and more parents. They also have widespread powers, principally with regards to hiring and firing staff and financial management. Schools receive funds, part of which is used to pay for staff considered necessary to teach in the school. However, a striking implication is that teachers do not receive the same salaries, varying according to experience and qualifications.

This means that less experienced, less qualified teachers receive less than more experienced, better qualified ones. In small primary schools where the flow of staff movement is limited, there is a possibility that growing staff costs could lead to restrictions in other areas. Consequently, schools find it hard to welcome or maintain well-qualified, experienced staff, preferring to hire younger, less experienced teachers (Winch, 2003; Whitty & Power, 2000).

Aldrich and White (1998) are two authors highly critical of the aims of the NC defined in the 1988 Education Reform Act, which they depicted as "excessively brief and thin in substance." White argued that the 1988 Education Reform Act replaced one form of sectionalism with another, i.e., replaced teacher control over the curriculum with central government control. In parallel, Aldrich contested that the aims of the Curriculum should indicate its content, which in his opinion are virtually unrelated to the sense of the Curriculum. He also suggested that successive governments have dealt with this matter, and new goals have been published, only suggesting that the aims of education and of the compulsory school curriculum have become an affair of political campaigning rather than of substance. Still, Aldrich highlighted the qualities and relevance of a NC, suggesting its inclusiveness was a major benefit while providing access to nearly the same leaning experiences to all children, creating a logical structure for progression and permitting comparisons between schools.

Many changes have occurred since the introduction of the NC. Some apparently disastrous proposals were removed, such as the knowledge base from subjects like geography and history, shifting the learning focus to field-work techniques, sustained development and the teaching of general skills. In 2002, former Secretary of State for Education Estelle Morris declared that a change in understanding was needed, 'away from the old model of teaching as transmission of facts and figures towards one which captures the teachers' role as expert practitioners in advanced pedagogy' (Estelle Morris in Woodhead, 2004). This also implied students taking 'ownership of the learning behaviour' (David Hopkins in Woodhead, 2004), transferring the control over learning from teachers to students.

In short, theoretically speaking, the creation of a NC means that all children have the opportunity to access the same level of education, regardless of the place where they live.

The task of the present Labour government is precisely to make sure this becomes a truly practical reality. It has been suggested that the NC is intrinsically challenging and ambitious, which requires more skilled and devoted staff to make it succeed, as well as more adequate resources (Whitty & Power, 2000). Hence, to invest in teachers' professional development seems to be a commendable endeavour, in the imperative quest to achieve a universal goal: a better education for all.

2. 9 In-service support through Action Research

Action research has often been used as a powerful resource development and staff training exercise, because of "its capacity to render what is so often implicit within a teacher's thinking and behaviour in the classroom explicit and thus open to scrutiny, improvement and communication to others" (Baumfield, 2000). For some, it is a quality means of encouraging *change*, one that reflects respect for practitioners' control of their own practice and learners' control of their own learning. Furthermore, the others' role in action research indicates the level of achievement obtained with which the researcher is able to focus on her own practice. Thus, it is crucial that she is also able to use democratic forms of leadership, to engage others as subjects rather than objects, to resist the impulse of retaining ownership of the project once it is in progress and to choose her collaborators carefully so that they can support and validate claims (Lomax, 1990).

The main reason for an Action Research study in a school is practice improvement, which can only be achieved if teachers change their attitudes and behaviour and it involves co-operative work as well as peer support (Cohen & Manion, 1994). However, teachers' reactions to educational change vary. Some respond to it with an open-minded attitude but others resist and are less favourable to change. Thus, it is crucial to encourage teachers to appreciate the importance of classroom-based research and to adopt a personal concept of themselves as researchers. They must accept the need to professionalize themselves in order to enhance the quality of education in schools, improving as professionals and as persons and becoming self accountable professionals. It is essential that besides being taught, teachers make an effort to accept the responsibility of understanding for themselves. Presently, teacher accountability means that education emphasises the production of increased knowledge rather than an understanding of individual development.

In-service education needs to be acknowledged and supported by teachers themselves so that educational change occurs. But the increase in teachers' responsibility for their own learning also involves an increase in the amount of in-service support they need (McNiff, 1988). Teachers ought to develop professional skills and teaching competences but also underlying principles to carry out their own form of enquiry, *i.e.*, to explain why they do as they do and to be prepared to give examples of their experiences (Stronach & McLure, 1997).

2. 10 School culture

A lot has been written about *school culture*. It is one of the most important and complex conceptions in education but is also often neglected as far as school improvement is concerned (Stoll, 1999). This concept is closely connected with the concept of school and both are constantly being modified and adjusted. A current idea that is generating new research suggests that schools should be seen as communities rather than mere educational institutions. The idea of community is here regarded as an expression of positive school culture based on past and current thinking and research about school culture (Prosser, 1999). Deal and Kennedy (1984) suggested that school culture had a fundamental positive or negative influence on teachers saying that 'when culture works against you, it's nearly impossible to get anything done' (in Day, 1999: 79).

Schools will always face a constant challenge: *change*. Traditions are not easily changed; they resist change until the "old ways" are no longer appropriate for the majority of people (Deal, 1990).

Schools change very slowly and it is very difficult to witness a total turn-around. Weak cultures are difficult to change but to change a strong culture is virtually impossible. Changing an organisation implies pulling away from precisely what provides constancy and leads to success: its own culture. The important symbiotic relation between schools and external community such as parents makes the problem even more difficult (Clark, 1975). Moreover, pupils are seen as "the actors within a school who help to shape its culture"; they are not simple passive recipients of the NC (Prosser, 1999: vii).

School culture covers significant ground and thus it is difficult to give a single definition, interpretation, application, or an exact concept to describe this subject. There is a wide range of perspectives and authors in the field give emphasis to a number of different aspects. In the last decade researchers have been exploring what constitutes school culture, how it is identified or changed and how it impacts on the quality of educational provision.

Extensive research (Deal & Kennedy, 1984; Hargreaves & Fullan, 1992; Nias *et al.*, 1989; Prosser, 1999) has provided significant insight into the different categories of school culture that have had different implications for teachers' work and professional development prospects. Hargreaves & Fullan (1992) distinguished four ample forms of school culture, namely *individualism, balkanisation, collaboration* (comfortable and fully collaborative culture) and *contrived collegiality.* Succinctly, they can be described as (Hargreaves, 1994):

- **Individualism** – Teachers usually work alone and isolated, which limits the possibilities of feedback and direct criticism and promotes unaccountable autonomy (Ashton and Webb, 1986; Hargreaves, 1993; Rosenholtz, 1989). The culture of individualism should be supported by professional development opportunities so that knowledge and expertise can be shared, and advocated impressions of good teaching can be experimented against individual teaching contexts.
- **Balkanisation** – Likewise, this form of culture also segregates, especially in schools where teachers tend to work in isolated departmental groups. Teachers will identify more with the group than with the whole school; hence collaboration will occur only in case it benefits the group. Teachers who wish to extend their knowledge of teaching and learning beyond the limits of their particular subject may encounter some problems.
- **Collaboration** – This is a key component of teacher development and school improvement (Hopkins *et al.*, 1996; Mortimore *et al.*, 1994; Reynolds, 1999; Rosenholtz, 1989). Even though some decisive studies have revealed the importance of collaborative cultures (Nias *et al.*, 1992), it may not go beyond classroom walls, and hence, may not threaten teachers' independence or broaden their teaching practice and personal views about it. Still, the main focus of cultures of *comfortable collaboration* is on practical, immediate matters and staff aim at maintaining comradeship on a personal level, resisting challenges on a professional plane.

People are likely to have spontaneous and voluntary relationships in a collaborative culture. Collaboration tends to go beyond formally established structures, since it can proceed into joint work, mutual observations or reflective inquiry that extends practice critically, 'building collective strength and confidence in communities of teachers who are able to interact knowledgeably and assertively with the bearers of innovation and reform' (Hargreaves, 1994: 195).

- **Contrived collegiality** – People are likely not to have spontaneous and voluntary relationships in this type of culture, and instead, relations that are fixed in time and space and can be predicted, making joint work a matter of obligation. Mandated collaboration has negative implications for teachers, which 'delays, distracts and demeans them' (Hargreaves, 1994: 208).

These four forms do not represent all dimensions of cultures but offer indications on how the school ethos can be viewed (Day, 1999). Stoll and Fink (1996) went further and analysed school cultures from two different perspectives: effective-ineffective and improving-declining. They proposed a classification of five types of cultures: *Moving school*, where people work together and keep developing; *Cruising school*, effective but could have improvements; *Strolling school*, which are average; *Struggling school* lack the expertise to improve by itself; and *Sinking school*, which lack the determination and the power to be successful.

Whichever category a school fits in, one aspect worth mentioning is that school cultures are bound to change, which implicates further changes in relationships and overall dynamics within a school. New proposals for educational restructuring are repeatedly put forward and schools and its staff need to rapidly accommodate those changes and readjust to a different stride. In order to understand the progression of the school culture research in the UK, one must briefly analyse the factors that contributed to determine the UK's evolutionary trajectory of school culture research.

Over the last 30 years, three major factors gave a crucial contribution to the application of research in this field in the UK (Prosser, 1999): trends in educational theory and practice; trends in research methodology; and a large amount of school culture meanings.

2. 10. 1 Trends in educational theory and practice

Fullan (1982) made a great contribution to school improvement by writing "The Meaning of Educational Change", bringing the importance of school culture back into the spotlight. At the same time, a school's guiding value system (values and beliefs are believed to underpin school culture) in enabling change and enhancing educational provision was created. Those involved in the school improvement movement were aware that school culture facilitated improvement, of the requirement to measure a school's potential to accept change, of the complexity of changing a school's culture; they were also aware that it was worthwhile identifying and determining the direction of change and of the impact of leadership in change and thus managing culture (Prosser, 1999).

The findings of large-scale surveys, which suggested that students' social background was more important than schooling in terms of their academic results, consequently reinforcing educational theories (Bernstein, 1970) that argued that schools could not compensate for the injustice of society, combined with the emphasis on exploring the consequences of restructuring schools reduced considerable holistic school-wide research, such as school culture, in the UK until the late 1970s.

Instead, educational research's scope was directed to issues such as "curriculum evaluation" or "pastoral care", which were at the centre of "comprehensivisation". However, a minority of researchers, influenced by school culture studies in the USA (Halpin and Crofts, 1963), understood comprehensive schools in holistic rather than fractional terms.

Brookover *et al.* (1978) and Edmonds (1979) suggested in their school effectiveness research studies that even though schools could not compensate for society, they represented an important influence and one that was predisposed to change and progress. But it was only when school effectiveness research in the UK was brought to light and the notion of school culture and effectiveness of secondary schools were linked that researchers' concern went back to focus on holistic features of schooling, particularly on school culture (Rutter *et al.*, 1979).

Mortimore (1980: 68) described the relationship between factors involved in school effectiveness and the *ethos* (or school culture) of a school as follows:

> Because schools are complex institutions, in which pupils influence teachers as well as the reverse, there are likely to be many determinants of behaviour. Further, different pupils may be influenced by quite different teacher actions. Because, however, of the stability of the performance measures, it is likely that an influence more powerful than that of any particular teacher, school policies or indeed behaviour of dominant pupils, is at work. This overall atmosphere which pervades the actions of the participants we call *ethos*.

By the early 1980s the terms school ethos, culture or atmosphere were common and widely used but ultimately school effectiveness research did not manage to clarify exactly how school ethos was constituted or improve the role of ethos/climate in determining a school's academic proficiency (Prosser, 1999).

Organisational theories (Peters and Waterman, 1982), organisational culture (Schein, 1985) and leadership and the relationship between them re-emerged during the 1980s as a central point of interest for researchers investigating, *inter alia,* school culture and effective management (Torrington *et al.*, 1989; Weick, 1988) and the relationship between school culture and change (Sarason, 1971).

2. 10. 2 Trends in research methodology

Generally speaking, school "climate" is the chosen terminology for quantitative researchers while qualitative researchers preferentially use terms such as "culture", "ethos" and "atmosphere". The usual methods applied to research school culture are lamentably poor and insufficient and have been regarded as being the opposite of the positivist-interpretative continuum and only a few studies, such as "Improving School Effectiveness" (MacBeath & Mortimore, 1993) combined strategies. In the 1960s researchers focused on the measurement of the school in-vogue "climate". In the 1970s the division between quantitative and qualitative approaches reached its utmost and the ontological and epistemological intrinsic worth of each was vehemently disputed, a period known as "the British sociology's war of religion" (Dey, 1993).

The interest in school ethos/climate and the enthusiasm for school effectiveness studies increased, following the work of Rutter *et al.* (1979) and by the mid-1980s, keenness for quantitative studies began to decline.

Nowadays, modern research is still being shaped and influenced by trends in educational theories and practices, meanings given to "school culture" and trends in research methodology. Current research is, however, more concerned with studies of "effectiveness", "improvement" or "change", instead of focusing on school culture alone (Prosser, 1999).

2. 10. 3 School culture's various meanings

School culture was initially seen as a valuable venture by trends of educational theory and practice but its evolution was entangled by confusing connotations. Some of the reasons behind this confusion are that assumptions and expectations of schools are based on personal ideology and collective suppositions about the community they are engaged with. Furthermore, one's beliefs and perceptions of schooling are determined by the roles one plays in society, whether it is as a pupil, parent, teacher or academic. Thus, not surprisingly, there is no agreement on the definition or meaning of the terms school culture, climate, ethos, atmosphere and character, which are used to refer to an occurrence that people assume do not need much explanation (Prosser, 1999).

Notwithstanding this fact, the use of certain terminology determined a certain evolution within school culture research, as well as revealing its weaknesses. For instance, the term "organisational climate", used in early studies of human and interpersonal dynamics in organisations (Argyris, 1958; Cornell, 1955; Lewin *et al.*, 1939), was seen as a clear and straightforward concept. However, this term was later borrowed and applied to educational contexts (Halpin *et al.*, 1963), making use of concepts transferred from studies of complex organisations without considering the dangers and limitations this represented (Meek, 1988).

Terms are frequently used in a free, unquestioning way that may lead to ambiguity. Researchers often omit what influenced them to choose one term to the detriment of another and often they wrongly assume that their choices and its definitions correspond to their interpretations of those terms. This is a weakness that has prevailed since the 1960s (Prosser, 1999). Since the late 1980s school culture research has enjoyed a productive period, filled with interesting changes and qualitative approaches to study school culture have gained a leading role in standard practice.

The term "culture" has become the predominant term used even though there is some inconstancy between agreed meaning and application, which mainly depends on the author's field (Prosser, 1999). Even though there seems to be no agreed meaning for the term "school culture", which is often assumed rather than verbalized, the literature conceals four not so systematically used meanings (Prosser, 1999):

♦ Schools are an important part of national and local cultures and subsequently these cultures are part of all schools and operate within schools. Thus, "culture" reveals universal human experiences and its local expressions as well as an extensive range of socio-cultural systems such as ethnic, political, professional, sexual, artistic and communicative systems. This term is usually seen as *wider culture*;

♦ Schools, hospitals, banks and prisons are institutions that, even though they are different from one another because of their distinctive organisational cultures, they converge as part of a specific institutional group by complying with the same implicit rules. This is often regarded as *generic culture* and is usually hard to identify: "It is in the nature of culture to be unperceived by those who share it and difficult to penetrate by those who do not" (Anthony, 1994: 52);

♦ School participants hold a certain level of autonomy to choose, which, together with the capacity to understand the *generic culture* of schools, allows the development of their own distinct and thus *unique culture.* In short, a school's *unique culture* underpinning characteristics are the main principles that the organisation adopts, which establish the guiding policies and give insiders distinct internal rules for them to handle every situation the best they can.

♦ The fourth category, *perceived culture*, is characterised in two ways:

- *on-site* perceived culture – describes the opinions of the staff and casual visitors about the school, which reflects aspects of its unique culture;
- *off-site* perceived culture – describes outsiders' views of a school, in which case parents and local communities establish their understanding of unique culture on a number of indicators such as: newsletters, school's prospectus, the uniform, pupil's behaviour outside school, gossip, or the type of graffiti seen on the surroundings. In brief, it reflects the culture emitted by a school and this impression may or may not represent the school's real atmosphere.

Despite the fact that the conceptualisation of school culture is still problematical, there have been substantial developments as far as theory is concerned since the 1980s. Schools had to learn to deal with change. Practice orientated research movements were mainly focused on school improvement, *i.e.*, the management of innovation that achieves targeted educational objectives, and the study of effective schools. The latter evolves around two main goals: to pinpoint disparities between school's results and differentiate factors that are typical of effective schools (Prosser, 1999).

School culture can be seen as a holistic entity that influences everyone inside a school, a position that implies that organisational culture can be manipulated to attain agreed educational purposes and that it affects in the same way all participants involved. Alternatively, school culture can be seen as the result of multiple interactions, *i.e.*, where people belonging to sub-cultures are powerful and there is a two-way interaction between school culture and sub-cultures. School culture is,

> ...an unseen and unobservable force behind school activities, a unifying theme that provides meaning, direction, and mobilisation for school members. It has both concrete representation in the form of artefacts and behavioural norms, and sustained implicitly jargon, metaphors and rites (Prosser 1999: 14).

In Schein's opinion (1985), the essence of school culture is "the deeper level of *basic assumptions* and *beliefs* that are shared by members of an organisation, that operate unconsciously, and that define in a basic "take-for-granted" fashion an organization's view of itself and its environment" (p. 6). And this is precisely what makes it so hard to understand and change.

2. 11 Teachers' professional development in Portugal

Teachers' education in Portugal has gone through complex phases along the years and in order to begin to understand it, one needs to consider a multitude of aspects behind it. These aspects are irreversibly intertwined and one has to take into account crucial political and social circumstances that occurred in Portugal during the 20th Century, which were to influence the course of events for many years, in order to fully comprehend today's political and social context. More in-depth information on the Portuguese society and political and social background was collected and provided in Appendix J.

2. 12 Present political and social instability

Portugal has gone through several periods of general instability due to increasing economic difficulties. Since this country started planning to join the European Union's economic market and adopt its currency, the Euro, in January 2002, economy has been unsteady and there has been a growing social and economic insecurity (Ministério da Educação Português, 2002).

The country has been under a serious recession while successive governments are working hard to balance the unstable finances and bring the country back to a steady economic ground. Hence, education does not seem to be the main priority since every effort is being channelled to clean up all public debts and recover economic stability (Mundo Português, 2002).

Notwithstanding the lack of major investments, recent governmental measures have introduced significant changes in the education sector. Education has been divided between two ministries: the Ministry of Education, which is responsible for pre-education, basic and secondary education and the Ministry of Science and Higher Education. Some politicians have argued that this institutional solution is common practice in other European countries such as France, where the Napoleonic model of higher education has caused the division between teaching and investigation, and hence could be extremely beneficial for Portugal. Furthermore, education is a very complex system, with a highly centralised administration. The division between basic/secondary education and higher education seems to be advantageous since it primarily facilitates its management (Jornal de Letras, Artes e Ideias, 2002b).

2. 13 Teaching in the 21st Century

A prospective question has arisen within the Portuguese educational context in the past few years: *who is going to be the "teacher" of the new millennium?* In an attempt to answer this question, a number of other interrogations emerged. To pose them in the first place is already a step towards a more effective solution of future problems.

Some academics speculate that teachers will continue being the same traditional state civil servants, implanted in a tradition that subsists since the 18th Century and the legendary *reforma pombalina.*

Other authors argue teachers will mainly be civil servants of the private sector, a division rapidly taking shape since the end of the 1990's and fully supported by the most radically liberal political and economic sectors.

Another point of view suggests teachers will be the servants of more humane pedagogical utopias, primarily embedded in old classical pedagogical philosophies. Or will teachers be, in a more realistic broad perspective, the ones responsible for answering questions before employers, family and community and simultaneously, be able to preserve their freedom, autonomy and dignity? Will he/she work full-time or part-time? Will it be a man or a woman, young or old? What type of education will he/she have? Will they all have the same level of professional development? How will they be recruited? (Patrício, 1997)

The enormous amount of challenges of the new millennium will certainly restrict and influence the way education progresses in the future, the way schools will function, the way the increasing students' needs will be dealt with and the way teachers are trained and teach (CNE, 1993). These challenges may involve the development and qualitative enhancement of the scientific mode of understanding reality, as well as the recovery of notions such as the meaning of life, reality and human activity, incorporated in scientific, philosophical, technological and theological knowledge. The principle of liberty will have to be enlarged and deepened, together with the notion of democracy as its political form, as well as the notion of equality amongst the human race and the right to achieve absolute individual and collective fulfilment. The construction of a global society free from imperialisms and dominant forces is imperative; a civilization ruled by mutual respect and an ethical universal will aiming at solidarity, dignity and freedom for every human being, taking into account every individual material and religious aspect as a fundamental human right.

Another crucial aspect is the integration of new information and communication technologies in education for all, established on a critical basis of construction of human knowledge. The list of big challenges and demands goes on and it is vital that teachers are aware of them so they are prepared to face them and, most importantly, they understand their own needs and their students' general needs (Patrício, 1997).

The promotion of educational quality is a complex process. The efforts made towards this promotion include some main aspects, which ambit includes (Patrício, 1997):

- **a quality society**, which is educated and civilized at the same time, concerned with the organisation and development of material aspects of life; the Portuguese society has a very high level of culture and educated people (despite the high level of illiteracy) but at the same time, a low level of civilization, which has been showing different equilibriums along the history;
- **a quality educational system,** which is still inexistent in Portugal. The *Lei de Bases do Sistema Educativo* (Comprehensive Law on the Educational System) supervises that system and draws the main lines from it but the implementation of this law has been poor and insufficient.

  A quality educational system includes a number of intertwined structural elements such as: a well-organised school network; appropriate / sufficient education material; well-qualified, motivated human resources; a functional system of school management and administration; well structured plans of professional development; good structures of medical, psychological and social support;
- **a quality educational policy.** It is vital that the Portuguese education political leadership is more informed, socially involved, culturally enriched and politically able to look into the future and make coherent, wise decisions;
- **a quality education.** Since the 1970's that there has been a struggle with the problematical issue of quantitative democratisation of education. A lot has to be done to solve this ambitious quest, despite the substantial previous continual efforts: between 1987 and 1994 the higher education attendance duplicated but the challenge goes on;
- **a quality school** is another ambitious and complex aspiration, a central magnet around which many efforts evolve. The quality of a school is an obvious *sine qua non* condition for the quality of education and consequently, a priority sector of investment. A minimal investment in schools means a minimal investment in people, *i.e.*, a minimal investment in what is really essential. This indignant, "economic " scenario can no longer be accepted in the future of education in Portugal;
- **a quality family.** Even though the new structuring of modern societies has weakened the traditional conception of family, this dimness has also demanded the reinforcement of the bonds between family and school.

The nature of society and family is too diverse and complex to be able to receive, understand and orientate a new generation in the process of growing into new people and new citizens without one another's support. However, the Portuguese society is suffering due to a severe lack of formation and quality in the family. A major problem emerges when the quality of the institutions does not have a correspondent quality family behind. Psychologists alert for the important educative role of the family and even suggest "the invention of new parents" (Daniel Sampaio, in Patrício, 1997).

- **a quality teacher.** The quantitative democratisation of education previously mentioned includes all structural actors: pupils/students, parents and teachers. There has been an important fight over the improvement of the teaching profession and the recovery of the dignity of a job that is vital for the development of human communities. Portuguese teachers feel asphyxiated and degraded and long for the recuperation of the concept of teacher-the intellectual, teacher-the man/woman of culture, no matter what their level of work or subject area is.

Initial teachers' formation can be provided in specific institutions, exclusively created to provide specific subjects, or at institutions of higher education providing a wide range of subject areas. The option between these two choices depends on the vocational area followed by the teacher: more specific institutions are normally directed to provide education to teachers and educators of the basic levels of schooling, whereas other university institutions concentrate on education of teachers of more advanced levels. In this case, the huge weight of tradition may determine people's choices, not excluding existing preconceptions about academic and economic status of certain institutions, which certainly reflects the quality of the education provided, even though there is no objection or disadvantage in the type of education offered at any other institution (Ribeiro, 1991).

The teacher of a new era is not going to appear by magic. He/she has to be "designed" and planed according to the constantly changing needs within our societies. In order to draw a possible model, four steps are being taken.

Teacher education in Portugal is now trying to focus on the development of different teacher profiles such as (Nóvoa & Popkewitz, 1995):

- **functional**: this involves changes in terms of their function in every level of education and intends to promote children's overall development, involvement with families, critical analysis of personal educational activities, etc;
- **professional development**: the model of professional development determined by the *Lei de Bases* and adopted in Portugal is an integrated one, more precisely, a simultaneous, or horizontal, integration of the different component of professional development. Some authors suggest it must be maintained but with some theoretical and practical developments added to it, and once well designed, it could be a very favourable model for teacher development.

  Another major aspect is the structural components for professional development: scientific speciality formation; pedagogical formation and pedagogical-didactic theory; pedagogical practical formation, including teaching practice in educational institutions; and, personal cultural formation. The integrated formation is deeply rooted within an institution and its functioning and the organic link between initial education and continuing professional development has major consequences in the professional preparation of teachers, since such links imply the notion that the initial formation is only the beginning of an educative process that has to be continuous;
- **social and professional status**: teachers' social and professional status has had an extraordinary decline in the last decades. Education seems to be a highly expensive social investment and politicians have been convinced they were saving money by cutting the education budget, when in fact, they were most certainly jeopardizing the future of a whole nation. Providing people with an education without quality generates a population without quality. Thus, the quality of teacher's professional development, their social, professional and economic status has been revised and is at the centre of important consideration.
- **civic and intellectual profile:** the teacher, the doctor and the priest were the main pillars of the Portuguese society at the beginning of the 20th Century, holding a great influence over small local communities. At the end of the century, they all lost a significant part of that influence, mainly the teacher. The dignity of the role of a teacher demands the re-instauration of the importance of that role as someone who is helping the construction of a better world.

The Portuguese society is deeply concentrated on economic matters. And economy is indeed an essential part of people's lives. But culture may as well be very important. Economy solves every day material problems but human beings need to feed other needs, interests, and values. Teachers need to have the necessary technical conditions to contribute for the adequate economic development of a country. Similarly, they have to be surrounded by cultural conditions to be able to contribute for the development of culture.

To reach a society ruled by liberty and equality it will take more than education "workers" (Nogueira *et al*, 1995). It will only be possible with teachers who have fully developed their intellectual status, men and women who have given such a great contribution to the development of a better world, in particular during the past 100 years and whose importance has to be claimed back and openly praised.

2. 14 Training to teach thinking in Portugal

A significant number of projects related to the development of thinking have been developed in Portuguese schools since the late 1980s', in order to investigate innovative teaching and learning strategies and promote school reform.

One of the most relevant studies conducted in Portugal in recent years is the *DIANOIA* Project "Learning to Think" that developed a number of educational research projects related to teaching and learning to think (Valente, 1987; Valente *et al.*, 1989a). It was planned as an intervention concentrating on teaching of thinking, and recommended strategies and mechanisms that promoted some level of modifiability for the efficiency of thinking. It was founded on theories of intelligence developed in cognitive psychology (Gardner, 1983; Perkins, 1981; Sternberg, 1987b) and converged on the use of metacognitive strategies in some curriculum teaching areas.

This project's main ambition was to create models of pedagogic intervention in the diverse curriculum areas, intended to improve learners' cognitive skills. It also provided teachers with pre-service and in-service instruction and training, offering them strategies and instruments to develop cognitive abilities of learning and citizenship.

However, the *DIANOIA* Project was developed at university level, and most of its research studies became part of Master and Doctorate awards, mainly in the fields of Psychology, Languages, Science, pre-service teacher training, curricula (Cruz, 1989; Gaspar, 1989; Morais, 1988; Novais, 1989; Salema, 1988, 1989; Valente *et al.*, 1987, 1989a, 1989b). Research was conducted with teachers and students from secondary schools.

Hence, a visible gap remains in terms of primary school teachers' training, as no research has been conducted at this basic level. More research is needed, not only to diffuse and divulge the interventions in Portugal but also to provide training and continuing support to primary school teachers so that implementation starts at an earlier stage. Moreover, this issue requires a more committed engagement from the Portuguese government so that all teachers have access to vital training and ongoing support in schools and all students can take advantage from the benefits of a new and more challenging teaching and learning approach, which promotes creative and critical thinking.

Chapter Three
Methodology

CHAPTER THREE

METHODOLOGY AND RESEARCH DESIGN

3. Introduction

In this chapter the author will focus on the theory and methodology used for collecting the data for this study. A multi-method qualitative research approach was used, which comprised interviews, questionnaires, observations and documentary analysis, completed with the correspondent underlying principles, which are described in this chapter. It offers a brief statement of the overall research epistemology, as well as a discussion of aspects such as the ethical guidelines, validity and reliability of this study, which included triangulation of data. It concludes with the discussion of methodological issues and problems that arose during the field research and reflections on the research process.

3. 1 Statement of the Research Problem

The main purpose of this research was to investigate the impact of training in TS approaches and innovative teaching methodologies on primary school teachers' attitudes and perceptions of training needs, and its pedagogical implications, in the Northeast of England, to a smaller extent, analyse the views Portuguese teachers have on teaching thinking in a primary school setting.

Ontologically speaking, the author offers a position which perceives individual attitudes and points of view as meaningful and pertinent components of this study. In an epistemological point of view, the author believes that it may be possible to generate knowledge from these components, collected during this study.

3. 1. 1 Research questions

✦ Main research question

What are the pedagogical implications and the impact of training in Thinking Skills interventions on English primary school teachers' attitudes and perceptions of their professional development?

✦ **Research sub-questions**

1. What are teachers' views on teaching through Thinking Skills approaches in a primary school setting in England?

2. What are Portuguese views on teaching thinking in a primary school setting?

3. To what extent do teachers identify reflection as part of their professional development and practice?

3. 2 Research design

3. 2. 1 The methods

This research was designed to use a multi-method qualitative research approach, comprising interviews, questionnaires, observations and documentary analysis. This choice was influenced by the strategies selected for the actual investigation, as well as practical considerations associated with the time scale of research, resources and access to the sources of data for this small-scale project. Furthermore, due to the different kinds of data the author wished to obtain, these seemed to be the most appropriate and flexible approach and methods of data collection *in practice*. Evidence was collected systematically and variables compared and analysed accordingly, in order to complete the crucial portrait of educative and working practice in England and Portugal.

3. 2. 2 The agenda

The study was organized in three distinct phases. Phase I, which was the main research field work, was launched in May 2003, and interviews were undertaken in primary schools in the Northeast of England until the end on June 2003. During Phase II, carried out from October until December 2003, questionnaires were sent out to teachers in Portugal via electronic mail and collected during the same period. During Phase III, research was conducted from January until February 2004, and further interviewing took place in some schools that had been already visited in Phase I, in the Northeast of England.

3. 2. 3 The sample

The main focus of this research was a group of 14 teachers and seven Head teachers from seven primary schools in the Northeast of England. The investigation was structured in three phases. In Phase I, as described in table 1, the sample was divided in two groups: one is Group N, which included four primary schools in Northumberland, and Group S, consisting of three schools in Sunderland. Group N was composed by eight female teachers, two teachers per school, and four female Head teachers, one per school, whilst Group S involved six teachers, five female and one male, two per school and three Head teachers, two female and one male, one per school.

Group	Northeast of England	Primary Schools involved	Sample		Data collection methods
			Teachers	Head Teachers	
N	Northumberland	4	8 (2 per school)	4 (1 per school)	interview document
S	Sunderland	3	6 (2 per school)	3 (1 per school)	

Table 1: Phase I - research carried out in May and June 2003 in the Northeast of England, the UK

In Phase II, the sample consisted of ten Portuguese primary school teachers (eight female and two male), which will be referred to as Group P (table 2).

Group	Portugal	Sample	Data collection method
		Primary School Teachers	
P	various regions	10	questionnaire

Table 2: Phase II - research carried out in Portugal between October and December 2003

In Phase III, the two most significant schools previously visited in the Northeast of England in Phase I were selected, *i.e.,* the most representative school in Northumberland and in Sunderland in terms of response to the interviews were selected (table 3). Two teachers and four pupils from each school were involved, in this phase of the research.

Group	Northeast of England	Primary Schools involved	Sample		Data collection methods
			Teachers	Pupils	
N	Northumberland	1	2	4	observation interview
S	Sunderland	1	2	4	

Table 3: Phase III - research carried out in January and February 2004 in the Northeast of England, the UK

3. 2. 3. 1 The sampling procedures

Due to the small-scale of this research project, a truly random selection of samples was somewhat a challenging task. Bearing in mind that 'sampling is a systematic way of choosing a group small enough to study and large enough to be representative' (Shipman, 1988: 52), the author acknowledged the importance of scrutinising samples carefully.

Thus, the selection of all schools involved and thereafter, the participating teachers in Phase I, was correspondingly made by one representant at the Northumberland LEA (Local Education Authority) and another one at the Sunderland LEA. These representatives agreed to discuss this research project and its purpose and each indicated the schools involved in this research: three schools in Sunderland and four schools in Northumberland.

In Phase II of the study, Portuguese teachers were invited to participate in this study, in two different ways:

➤ Some participants were former colleagues of the author: all graduated in 1999 at the same university in Portugal;

➤ Each teacher could invite another teacher, working or not in the same school at the time.

In Phase III, the two most significant schools previously visited in Phase I were selected, one in Northumberland and one in Sunderland. From the interviews, it was gathered that these school had had good progress and had achieved good results since the introduction of TS approaches in the daily teaching practice, which provided the necessary interest for further investigation. Two teachers and four pupils (two from each classroom teacher) were involved in each school, in this phase of the research.

3. 2. 3. 2 The rationale for the sample selection

The schools in Northumberland and Sunderland were selected by the correspondent LEA representative, who took into account two main aspects:

➤ *Time of involvement* with training in TS approaches: short-term, medium-term and long-term involvement;

➤ *Level of satisfaction* in relation to the training in TS approaches received: a 'satisfied', 'normal' and 'not so satisfied' school.

Time of involvement and level of satisfaction were not the main aspects under direct scrutiny during this research. However, the author decided that these were two valid and highly significant parameters for this particular selection since they allowed a wider range of viewpoints. The diversity of schools ultimately provided a more representative wealth of data, rather than if all schools had similar traits and thus, suited the purpose of this study.

The Portuguese sample consisted of a mixed gender group of teachers; all had approximately five years working experience, all working in different parts of Portugal, both urban and rural areas, privileged and more deprived areas. This resulted in a sample that was very significant for this research since it provided access to distinct environments and information from people with a wide range of experiences and attitudes.

As explained before, the sample of teachers used in Phase III consisted of two teachers in two schools previously visited in Phase I, one in Northumberland and one in Sunderland. These were the most representative in terms of response to the interviews in Phase I.

The children that participated in this last phase of the research project were selected by these teachers, each choosing two pupils from their classrooms. The selection criterion was one high and one low ability pupil from each class. The author decided to establish this academic parameter in an attempt to obtain a wider range of perspectives of classroom dynamics and teaching and learning procedures, which would probably not have occurred if all pupils had similar academic aptitudes.

The reason behind the overall reduced selection of people participating in this study was that it would have been problematic for the author to conduct this study with a sample of a greater magnitude, in a limited period of time and still be able to know and understand the facts, and take a broader view of the findings and the relation or interaction between them. As Nisbet and Watt (1980: 5) suggested 'sometimes, it is only by taking a practical instance that we can obtain a full picture of this interaction'.

3. 2. 4 The process

A fundamental trait of most qualitative research is its unpredictability, as the directions the investigation can take are not always predetermined or delimited. It is therefore crucial to describe in detail the specific phases that this research followed in addressing the research questions.

In Phase I, 14 interviews were conducted. Seven months later during Phase III, follow-up interviews with four of those teachers were conducted, to cross-check information. Interview schedules were produced in order to cover a number of fundamental issues. The purpose of these interviews was to collect teachers' views and attitudes regarding the underpinnings and implications of four major categories:

- **Training**: professional development and TS approaches;
- **Practice:** classroom experience using TS approaches;
- **Reflection:** considerations about attitude towards TS teaching and learning methodology, practice and lesson outcomes;
- **Change:** attitudes and response to educational change and new proposals introduced in primary schools in the past few years, in particular those related to TS approaches.

The author carried out individual semi-structured interviews since it seemed to be a feasible and appropriate method to collect fundamental data for this educational research project. Each interview took between 30 and 45 minutes and three interviews were carried out per day, on the same school, *i.e.*, two teachers and the Head teacher of the school.

In Phase II the study was carried out through questionnaires, sent to all participants in Portugal by electronic mail. Important explanations of this study and clear guidelines were also sent to participants, in an attempt to address and clarify potential misconceptions and to explain the purpose of this research. The questionnaires aimed at collecting a wide range of views concerning the aspects already under investigation by the author in England, mainly views about training available to English teachers on TS approaches.

In Phase III, the selected teachers were asked to organize a "TS lesson' to allow the author to observe the procedures teachers regarded as being related to TS interventions and to draw some conclusions from it. Follow-up interviews were carried out after each lesson to each teacher, in order to validate and reinforce the data collected during lesson observations and ultimately, suggestions made during Phase I of this research. Pupils were also interviewed through semi-structured interviews, so as to assess their understanding of classroom dynamics and to cross-check information collected from their teachers.

3. 3 Overall research methodological approach

As described by Bell (1993: 4),

> 'Researchers adopting a qualitative perspective are more concerned to understand individuals' perceptions of the world. They seek insight rather than statistical analysis. They doubt whether social 'facts' exist and question whether a 'scientific' approach can be used when dealing with human beings.'

Strauss *et al.* (1990: 17) suggested that qualitative research represents 'any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification', focusing on people's lives, behaviour and also organisation's functioning and interaction relationships. Thus, a qualitative approach was adopted to classify the nature of this study, which was particularly suitable for the kind of data the author intended to collect.

This type of approach is usually the most appropriate to reveal the complex details of phenomena and further its comprehension beyond what may already be known about it (Strauss *et al.*, 1990). A quantitative approach would not be appropriate for this research since individual views and conceptions vary from teacher to teacher, and thus require a qualitative analysis.

3. 3. 1 Case study

In a more specific instance, this study combined features of two different research strategies: case study and ethnographic approaches. Case studies are not exactly the same as ethnographic (interpretative) research, even though both involve a thorough study of a group, using interviews, reports and observation (Yin, 1994). It is an empirical investigation that makes use of a wide range of sources of evidence in order to investigate a phenomenon within its natural environment (Bouma *et al.*, 1995; Yin, 1993).

Case studies also differ from surveys. A survey is more limited since it restricts the amount of variables to be considered and questions to be raised, and consequently, has limited capability to analyse *the context* around phenomena (Robson, 2002).

The decision to use a case study approach was determined by the scale and scope of this research project. Furthermore, it allowed the use of a variety of sources, data and research methods, from which a major advantage emerged: all elements put together strengthened the validation of the data collected.

A *multiple case study* approach was used for this research as it provided better answers to the research questions. It also seemed to be the most appropriate procedure for an individual researcher, as it focused in greater depth on particular aspects of the issues being investigated within a limited period of time (Bell, 1993; David *et al.*, 2004), as well as allowing a closer look at the impact training (or lack of it) had on teachers. It converged on an investigation around particular instances, events, relationships, experiences and processes.

It went beyond its simple description, providing insights from observing individual cases that may have not come to light through the use of research methods that have a wider scope (Denscombe, 1998). Evidence was collected systematically and relationships between variables were established, since the interaction of factors is fundamental in a case study.

3. 3. 1. 1 Limitations of a case study

Case studies are not entirely unflawed. A limitation of this approach is that generalisation of findings is often difficult, especially in small scale studies as the present one. However, Bassey (1981: 85) argued that 'the *relatability* of a case study is more important than its *generalisability*', in a way that estimates the merit of a case study by looking at 'the extent to which the details are sufficient and appropriate for a teacher working in a similar situation to relate his decision making to that described in the case study'.

Another weakness consistently pointed out is that this approach is 'often *perceived as producing 'soft' data'* (Denscombe, 1998: 40) and it is described as lacking the right degree of rigour usually expected from social sciences research. This emerges from the fact that case studies focus on processes rather than measurable results, and they depend on qualitative data and interpretive methods rather than quantitative data and statistical procedures.

In order to dispute this perception, the present study was designed to attempt to challenge any preconceptions related to the kind of data obtained, by paying special attention to detail and accuracy in the use of the approach, without, however, disregard for its disadvantages.

Other aspects under debate are ethical issues, such as confidentiality, raised by the case study process when accessing people, institutions and documents (Denscombe, 1998). Thus, the *negotiation of access* to the participating schools was undertaken carefully, the whole process was thoroughly explained by letter and telephone, confidentiality of identities of those involved was guaranteed and permission was conceded unreservedly.

3. 3. 2 Ethnographic approach

As for the ethnographic fieldwork approach, this study is to some extent an ethnographic research. The author used ethnography as a form of an anthropological approach, to construct an account of scientific work. This was based on *direct observation* of teachers applying TS approaches *in situ*, interviewing them and collecting their views.

The anthropological perspective requires an observer that will retain information without interfering with the results, someone who takes on a posture of *anthropological strangeness*, by grouping experiences to guarantee that presupposed aspects of the lab come into sight as strange (Denscombe, 1998; Feldman, 1995). Participant observation is done in a particular naturally occurring location so that the scientist goes beyond his/her personal behaviour descriptions and thus is able to "see the craft nature of science" (Gephart, 1988: 22). For this particular study, the author opted for non-participant observations, which enabled her to have a clearer impression of teaching methodologies and actual classroom practice.

It has been suggested that ethnographic research aims at producing detailed pictures of events or cultures, assessed by the vigour of its representations and the complexity of its description, which stand in their own right without the need to analyse how representative the situation is or what the implications for other events or cultures might be. This procedure is often described as 'naturalism', a key concern of ethnography (Hammersley, 1983: 5), where the researcher avoid disrupting the situation in the field by their presence, in order to obtain unadulterated and detailed descriptions.

Hence, ethnography added further beneficial aspects to this research, which were:

- In essence, it was grounded in empirical (experiential) research, which required direct contact with the relevant people and places;
- It provided in-depth and detailed data;
- It facilitated the process of putting things in context and allowed holistic explanations to be drawn from the processes and relationships brought to light by the superficial events analysed;

➤ This approach was suitable to address and analyse perceptions of teachers and head teachers (members of a particular culture) regarding training and professional development – as seen from their particular point of view;

➤ It also has a robust 'ecological validity' (Denscombe, 1998: 79), essential in this kind of research, in a way that the actual research proceedings should have little impact on the setting of study, hence preserving things in their natural structure as much as possible.

3. 3. 2. 1 Limitations of an ethnographic approach

The downfall of this approach is that generalisation may be difficult as it might have to be relatable, enabling different groups to relate with and recognize similar problems and address solutions for them within the group, which may also affect its reliability.

Another aspect to take into account is that investigating a situation where it naturally occurs without causing any effect on the subject being observed is a considerable triumph. Observations inevitably graze the boundaries of this dangerous ground since there is a real possibility that the presence of the researcher may cause *the observer effect*, in which people, aware that they are being observed, alter their behaviour and act differently from normal (David *et al.*, 2004; Denscombe, 1998). This required careful consideration before the actual lesson non-participant observations took place, in order to avoid as much as possible a distorted and inaccurate data collection.

3. 4 Research theoretical underpinning

Since the present research project combined different methodological features, it would be a particularly exhausting task to fit this study in one grand theory. This would probably be enlightening, yet could prove hard to control and be indifferent to daily research requirements, blinding instead of guiding the researcher in the tangle of data in the field.

In essence, *ideational theories* were at the base of this study, whose main claim is that fundamental change is the result of mental activity, such as thoughts and ideas, rather than material conditions, highlighted by materialistic theories. It is a way of perceiving the human world from the perspective of its mental origins, *i.e.*, beliefs, ideas and knowledge (Fetterman, 1990).

Within ideational theories, some prominent theories are: cognitive theory, which suggests that what people think can be described by listening to what people say, and *symbolic interactionism* (Blumer, 1969), which focuses on the subjective aspects of social life, rather than on objective, macro-structural aspects of social systems.

The present study may overlap aspects from distinct theories but, in order to draw attention to the most significant facets, greater focus was put on this particular theoretical model to support this research.

Hence, an interactionist perspective provided the necessary theoretical impetus for this research, as it rests on a social science interpretive approach. This approach is concerned with the creation and change of symbolic orders via social interaction (Silverman, 1994) and the way people experience and comprehend the world (Gomm, 2004). This reflects this study's concern with social construction, which focused on meanings and 'individuals' and used qualitative hypothesis-generation methods rather than showing an interest in social structures, focusing on social facts and 'the society' or using quantitative hypothesis-testing methods as usually utilised by positivist approaches (Silverman, 1994).

For interactionists, identity and the symbolic order have major implications in terms of methodology, as it represents the specific behaviours researchers assume when acting on the environment of study. The importance of the methods cannot be disregarded since methods define how the topic will be symbolically represented and how the researcher will embrace a certain definition of *self* when confronted with the data (Denzin, 1970). For interactionists, humans are pragmatic actors who continually must adjust their behaviour to the actions of other actors. People can adjust to these actions only because one is able to interpret them, *i.e.*, to denote them symbolically and treat the actions and those who perform them as symbolic objects.

This process of adjustment is aided by one's ability to imaginatively rehearse alternative lines of action before action takes place, as well as the ability to think about and to react to our own actions and even one's *self* as symbolic objects. Thus, the interactionist theorist sees humans as active, creative participants who construct their social world, not as passive, conforming objects of socialization (Blumer, 1969; Erving, 1958; Harold, 1967).

This research followed the interpretive social science 'school' (Silverman, 1985; Bryman, 1988), which is concerned with observation, description and generating hypothesis, hence it is regarded as being *subjective,* as opposed to positivism, which is seen as *objective.* However, qualitative research involves seeing things through the eyes of the subject being studied, which implicates a subjective perspective. Bryman (1988: 72) suggested that 'the commitment to explicating the subject's interpretation of social reality is a sine qua non of qualitative research'.

Interactionism methodology involves the following principles (Denzin, 1970):

- Relating symbols and interaction, which involves clarifying how meanings emerge from the context of behaviour;
- Taking the actor's points of view, which implicates learning ordinary concepts of reality and interpret them using sociological premises;
- Examining the 'situated' individual of interaction, which means gathering data in naturally-occurring circumstances;
- Process and stability analysis, examining how symbols and behaviour diverge over time and setting;
- Generalising from descriptions to theories, in an attempt to establish universal interactive propositions.

Denzin's last principle proposes a description of content that operates only as prelude to analytical work. He underlined the fact that much ethnographic data should be a stepping stone towards the attempt to establish 'universal interactive propositions' (*ibid,* 1970: 19). Hence, sound ethnography should not limit itself to a set of descriptions about how people behave in different settings. On the contrary, it should be able to produce general statements about human social organisations.

To conclude, Blumer (1969) suggested that, in *symbolic interactionism* meaning emerges from the process of interaction between people, recognising the merit of social interaction in itself. This perspective provided an effective approach to the data collection and the fundamental state of mind for the analysis of meanings related to teachers' performance, responses and attitudes towards training in TS approaches and all the implications it involved.

3. 5 Overall research paradigm and epistemology

Epistemology or 'way of knowing' (David *et al.*, 2004: 30) is a paramount element of social scientific research. Mason (2002: 16) stated that it represents one's 'theory of knowledge',

> and "should therefore concern the principles and rules by which one decides whether and how social phenomena can be known, and how knowledge can be demonstrated.' (*ibid.*, 2002: 16)

Epistemological questions lead to philosophical reflections implicated in deciding precisely what can be accepted as evidence or knowledge of social things. This is inevitably intertwined with the suitability, advantages and limitations of all methods employed in the process of collecting data for analysis (Mason, 2002).

Distinct research approaches produce different types of knowledge assertions, and the principles used by each of them to indicate what counts as knowledge (Lincoln *et al.*, 1985) and the way each weighs qualitative evidence (Miller *et al.*, 1996) vary enormously. Evidence implies prior formulation of hypothesis, which in essence constitutes the prime drive force of many research projects. Miller *et al.* (1996: 21) suggested that one valid way of justifying qualitative research as a 'legitimate' form of inquiry in the human sciences is to claim that it can generate and 'test' hypotheses.

Mason (2002) furthered this idea by stating that, epistemologically speaking, different research topics suggest that different dimensions of the social world, such as attitudes and actions, are knowable, meaning that it is possible to generate knowledge about and evidence from them.

Yet, before deciding whether qualitative data can be considered or not qualitative evidence for confirming a hypothesis, it must be clear what exactly stands as qualitative data. Even though this is not a straightforward decision, some examples may be relatively illustrative (Miller *et al.,* 1996). This can be field notes, data obtain through semi-structured interviews (using an interview schedule), official documents, logs, journals, life-histories, either primary or secondary sources, literature works that may shed some light as to a time and place of an event and documentary materials classified as *evidence* in practice.

Hence, bearing in mind that a social science interpretive approach, reinforced by an interactionist perspective, composed the theoretical basis for this research, the author's epistemological core rests mainly on interpretive and social constructivist hypothesis. This position emerged from the data analysis, where the array of teachers' perspectives was critically compared and analysed and, most importantly, from the author's own experience as a teacher and all the implications involving acquisition and use of knowledge.

Essentially, the author could relate to both groups of teachers, English and Portuguese. On the one hand, English teachers have had access to training in TS approaches for a considerable number of years, and have built a wealth of experiences and viewpoints. On the other hand, Portuguese teachers have not had that kind of opportunity and presented interesting points of view about this matter. Since the author experienced both realities, she could highly appreciate the importance of acquisition and use of such knowledge and the impact it could ultimately have in a country's educational and subsequently, social milieu.

Lastly, similarly to the claims of analogous qualitative educational research projects, the present study intended to offer sound generalisations and to contribute to the expansion of the boundaries of existing educational theories (Bell, 1993) and, most importantly, educational practice. However, to claim that the findings collected contribute to such an achievement is a rather ambitious statement, given that the size of the samples was significantly modest and these particular groups of teachers may not be necessarily representative of other similar groups in other parts of the country, either in England or in Portugal.

Furthermore, the limited time scale of this study may have not allowed a more exhaustive analysis and a more substantiated understanding of the questions under scrutiny. Nevertheless, a great deal of effort was made to ensure the selection of samples was as representative as possible.

Yet, the author suggests that the essence of the findings may be *relatable* in a way that may allow similar groups to recognize issues pointed out in this study, and perhaps, may lead to the identification of solutions for similar problems within those groups.

3. 6 Instruments of data collection

A specific approach may depend greatly on a particular data-collecting method, but not exclusively (Bell, 1993). Thus, data was collected from different sources and through different methods, which is a valuable process described by Mertens (1998) as *triangulation of data.*

The instruments used included semi-structured interviews, non-participant observations, questionnaires and documentary analysis, which are often an important part of case studies, allowing a closer study of specific instances to ultimately attempt to identify the interactive processes in place and essential key issues.

3. 6. 1 Interviews

Interviewing is one of the most commonly used and recognised methods in qualitative research and it is highly advantageous due to its *adaptability* (Bell, 1993). Qualitative interviewing is a term that refers to a method that has a more in-depth, semi-structured or loosely structured form. Its main purpose is to 'elicit certain information from the respondent' (Moser and Kalton, 1971: 271) and hence, aims at gathering data for analysis. It also comprises a group of suppositions and conceptions about the circumstances under study that are not normally associated with spontaneous dialogues (Denscombe, 1998; Ely *et al.*, 1998; Silverman, 1985).

Generally speaking, "an interview is a conversation that has a structure and a purpose" (Kvale 1996: 6). Qualitative research interviews' rules and techniques ensure that the quality of data collected is as accurate, meaningful and worthy as possible. It goes beyond the spontaneous style of an informal conversation and acquires a more careful, less impulsive, premeditated questioning and answering format, an interaction that aims at the attainment of certain data or knowledge. Furthermore, the conversation in a research interview does not occur between equal parts, the researcher is in control of the situation and is able to direct the conversation towards the data he/she is trying to obtain, by introducing the topics he/she wants the answer to cover (Kvale, 1996).

There are two particular types of interview, explanatory and standardised (Oppenheim, 2000). Explanatory interviews are frequently used in group interviews due to its free-style, and do not differ much from a conversation, whilst standardised interviews are more formal and abide by rigid, pre-determined categories, designed to allow a mere data collection, which consequently facilitates its analysis.

As for the framework, there are three main styles of interviews (Bell, 1987):

- Structured interviews implicate a rigid control over the questions' and answers' format, it is very similar to a questionnaire, yet dispensed in person to the respondent;
- Semi-structured interviews include open-ended questions and a definite set of issues that are to be investigated but are more flexible about the way that topics are addressed and about the way respondents freely elaborate their responses;
- Unstructured interviews focus mainly on the respondent's ideas and points of view, without much interference from the interviewer.

Qualitative or semi-structured interviews follow a further number of characteristic features:

- An exchange of dialogue, whether it is a one-to-one or large group interviews, which facilitates a fairly informal approach, making interviewing more like a conversation rather than a typical formal question / answer procedure;

- The structure of most qualitative interviews is designed to be flexible and adaptable to the needs of both parts, the researcher and the interviewee, allowing the dialogue flow to expand to topics not initially contemplated in the interview schedule; the research will nonetheless have a set of themes, topics or issues that may be used as a starting point for the discussion the researcher wishes to cover;

- Taking into account the perception that knowledge is situated and contextual, the interview must ensure that the appropriate context is set up so that the situated knowledge can be created. There is also the assumption that data and knowledge are produced or reconstructed during an interview through the dialogue and interaction between people, rather than simply being reported.

If interviews are social interactions, regardless of how structured or unstructured they are, it is wrong to regard social interaction as a bias that is possible to eliminate. An interview cannot be separated from the social interaction within which it occurred, since facts cannot be separated from context (Ely *et al.*, 1998; Mason, 2002).

Semi-structured interviews were designed for the present study since this style of interview seemed to be particularly suitable for the production of data the author intended to obtain. Teachers and Head teachers were interviewed, which allowed the author to explore and clarify responses, tackle misinterpretations or antagonistic ideas, offer prompts to help structure responses, follow up ideas that emerged during the interview and scrutinize motives and feelings. This method provided information that written responses, as in a questionnaire, would not reproduce. Aspects such as hesitation, physical or facial expressions and tone of voice (Bell, 1993) complemented and refined responses.

The author conducted the interviews in a way that followed a framework set up beforehand, to ensure all topics which were considered vital to the present study were covered but, at the same time, allowed the interviewees to talk about what was of central importance to them, in their own time.

The design of the interviews was based on four major categories: TRAINING, PRACTICE, CHANGE, and REFLECTION as these were considered to be the core instances of interest for the present research.

Another aspect to take into account is open-ended questions. Some authors argue that open-ended questions in a structured interview schedule may not be part of a qualitative interview, since the logic, rationale and approach used in such interviews derive from survey, rather than qualitative methodology (Mason, 2002).

Yet, and despite the fact that this type of questions are difficult to analyse, the author believes open-ended questions were valuable for this study since they allowed the interviewee to respond more spontaneously, offering a chance for elaboration and validation of the findings.

Validity of interviews was also a major aspect taken into consideration. It was make possible by the direct contact with interviewees during interviews, which allowed a corroboration of data in terms of rigour and relevance as it was being collected.

3. 6. 1. 1 Limitations of interviews

Despite the advantages of interviews, the danger of bias is considerable and worth mentioning. This technique has a very subjective nature (Bell, 1993; Bynner *et al.*, 1988; Tuckman, 1999) since 'interviewers are human beings and not machines' and thus may have an effect on the interviewees (Selltiz *et al.,* 1966, in Bell, 1987: 73).

Furthermore, some researchers may sometimes be inclined to look for answers (Cohen & Manion, 1994) to support determined concepts, leading to a response effect in which the interviewee may give inaccurate or different responses.

Thus, the author made great efforts to avoid letting personal views or characteristics interfere or influence the interpretation of the findings, even though it is hard to maintain this posture.

As Woolgar (1988) and Latour (1997) explained, researchers already hold a significant quantity of knowledge that can be used to interpret the phenomena observed and analysed. Hence, it can hardly be said that bias can be avoided or eliminated completely but 'awareness of the problem plus constant self-control can help' (Gavron, 1966: 159). Furthermore, due to the nature of the data collected, its analysis can be very time-consuming and particularly laborious, when compared to surveys or questionnaires that are pre-coded and ready for analysis as soon as they are collected (Denscombe, 1998).

Another aspect worth mentioning is that during an interview the *interviewer effect* may occur. What people say may not correspond to what people indeed do and thus may not truthfully reflect real facts. This also has implications in terms of reliability: consistency and objectivity may be difficult to attain due to the impact the interviewer and the context involved has on the interviewee.

The fact that the author conducted interviews that were structured in five parts, based on four major categories previously explained in this chapter, may suggest that interviewees' answers may have been led to specific instances intended by the author, hence skewing the real weight of their words.

However, it would have been problematic to collect specific information concerning these four aspects, which are at the core of this study, without mentioning specific key words or phrases. Moreover, efforts were made in order to avoid encouraging replies or giving inducing prompts, hence avoiding affecting or shaping responses as much as possible.

3. 6. 2 Questionnaires

Questionnaires are important instruments of data collection and they can vary significantly depending on their purpose, dimension and layout. In essence, research questionnaires consist of a written list of questions, designed to collect information that can be used as data for analysis, gathered by direct request to people. The relevance of written questions is that all respondents are posed identical questions, reinforcing its consistency and precision and supplying standardized answers, which facilitates data analysis.

Even though unstructured answers can be obtained, answers can also fit into a range of options offered in the questionnaire, which encourages pre-coded answers and facilitates comparison and analysis of data. This can also facilitate the completion of the task, since respondents only need to choose one or more option already outlined in the paper, instead of having to consider how to express their ideas.

Collected data are very unlikely to be corrupted by the different wording and manners the questions can be posed. There is little room for 'interpersonal factors' (Denscombe, 1998: 105) to affect data since personal interaction can be eliminated, particularly in postal questionnaires, and the researcher's characteristics cannot influence the response, except by means of what is written on the questionnaire (Gomm, 2004). Furthermore, questionnaires operate on the premises that if specific information about people and their views and attitudes is required, it should be obtained directly from the source.

Other noteworthy aspects are that questionnaires have a wide coverage and are fairly economical, since they can gather a substantial amount of research data for a reasonably small cost in terms of money, materials and time. These three factors are all part of the same equation and must be taken into consideration, in particular when costs incurred are weighed against the time involved in the process.

3. 6. 2. 1 Limitations of questionnaires

Due to the nature of the actual enquiry, the problems questionnaires represent are inevitably intertwined with their strengths. Firstly, it may be advantageous and easy to 'tick' pre-coded questions but respondents may feel constrained and frustrated with the selection of answers offered to them, which may inhibit their cooperation in the research (Denscombe, 1998). Consequently, poor responses can reduce the accuracy of questionnaires, in the sense that answers cannot be checked for their truthfulness or precision and, thus, may lack robustness.

The nature of questionnaires may lead to another difficulty, involving the very structure of the questions setting. The way pre-coded questions are posed may interfere with the responses' natural course. The risk of bias is real, ultimately, in the way the researcher interprets the findings. There is always a possibility that answers are conducted from the respondent's viewpoints and culminate reflecting the researcher's thinking instead (Denscombe, 1998).

3. 6. 3 Observation

Contrary to interviews and questionnaires, observations do not depend exclusively on what people say they do or they think. 'It draws on the direct evidence of the eye to witness events first hand' (Denscombe, 1998: 139). Social sciences make use of two main types of observation: systematic and participant observation. The former type emerged from the social psychology field and is usually associated with quantitative research and statistical analyses. The latter, particularly linked with anthropology and sociology, produces qualitative data and intends to grasp the culture and processes of groups under examination.

However, common crucial features bring these two methods closer together. Both make use of direct observation and their fieldwork involves real life situations in their natural settings, as opposed to artificial situations in laboratory observations.

Most importantly, they both acknowledge the complexity of observation processes, addressing the fact that researcher's perceptions of situations may be influenced by personal factors, thus producing fallacious data.

According to Denscombe (1998), systematic observations are more rigorous data collection instruments since observations are elaborated through an *observation schedule,* which tackles the problems associated with the selective perceptions of observers, producing more objective observations.

At the same time, it allows the gathering of considerable amounts of data in a limited period of time. Observations schedules should also contribute to the reinforcement of reliability of findings since several observers should register and reveal fairly similar data after one particular observation.

Simpson and Tuson (1995) suggested that observation schedules may contribute to calculate the incidence of individual classroom aspects, to obtain relationships valid enough to be tested and analysed statistically, which may ultimately be generalised to corroborate similar cases.

In this study, semi-structured, systematic non-participant observations were undertaken in an attempt to identify and assess underlying discrepancies between teachers' perceptions and beliefs concerning teaching thinking and their classroom practices.

3. 6. 3. 1 Limitations of observation

One problematic issue concerning observations is that different observers may produce different accounts of the same situation. This may obviously depend on individual competences and experience but its implications need to be taken into account.

Systematic observations addressed this dilemma by designing an *observation schedule*, in an attempt to minimize or eradicate deviations that occur from data built on individual perceptions of events and situations (Denscombe, 1998).

Structured observations require the pre-establishment of observation parameters and pre-definition of categories, applied by all researchers involved so that consistency of data can be obtained. Observation schedules may not be polluted by personal bias providing the observer employs the appropriate procedures of its use (Simpson and Tuson, 1995). However, this procedure represents a major restriction since key observations may be disregarded as they do not fit any of the pre-determined parameters (Francis, 1990; Gomm, 2004).

3. 6. 4 Documents

In an attempt to establish a solid basis to support the present research, significant efforts were made to review the most relevant literature available concerning existing work in the field of this research. This review provided an opportunity to identify and address the key issues, the fundamental challenges and, most importantly, 'the obvious gaps in the current state of knowledge' (Denscombe, 1998: 158). Moreover, it also revealed the theories and principles influencing the approach underpinning this research.

Similarly, documentary sources were also an important, albeit small, part of this research, providing important data for analysis, and ultimately, evidence to support the findings. These sources can either be text-based documents or non-text-based forms of visual data, such as graphs, films or photographs (Mason, 2002).

During this research, the written documentary sources used were a school report, elaborated and provided by the Head teacher of a school that had undertaken action research projects and the data analysis chapter from a thesis on TS approaches applied in Nursery.

In part, the purpose of documentation stemming from the 'bureaucratization of industrial society' is to enhance accountability, in a sense that records of meetings, transactions, finances, research projects, *inter alia,* are normally kept so that people and institutions can be held responsible for their conduct (Denscombe, 1998: 161). Documents must be explicitly clear about the proceedings that took place and be accessible to public consideration.

This was the case for the documents accessed by the author. The validity and credibility of the documents relied on the fact that they had been based on action research undertaken by the teachers from the schools under consideration, which might grant it some authority and consequently enhance the representativeness of the schools' educational reality.

Finally, qualitative written data can further be subdivided in two distinct types: primary and secondary sources (Miller *et al.,* 1996). The former refers to accounts by reportedly knowledgeable people at the time or near the time the actions or episodes took place, whereas the latter represents accounts made by others after the actual instance took place, based or not on primary sources. In this study, data was provided through both sources, as explained before.

3. 6. 4. 1 Limitations of documents

In order to estimate and guarantee some level of credibility of the source, researchers must ensure that its legitimacy and authenticity and the procedures utilised to generate the initial data are adequately calculated (Denscombe, 1998; Bell, 1987). This can be achieved, for instance, through enquires made about the author's background, past experiences or political viewpoints, in order to reinforce the critical analysis of the documents (Silverman, 1994). Similarly, it is important to establish how reliable the author is as a person, to evaluate the extent he/she tends to augment, alter or neglect information (Travers, 1964).

3. 7 Data analysis procedures

In qualitative research, there are several established procedures for analysing data (Blaxter *et al.*, 2002; Miles *et al.,* 1994, 2002; Yin, 1994). Generally speaking, these procedures imply converting raw narrative data, such as audiotapes, into partly processed data, such as transcripts, which are later coded and subjected to analysis schemes, in which, for instance, key themes are highlighted and compared.

Hence, in the preliminary stage, two main processes were used in the data analysis process: coding and categorizing of data. These implicated organization of data into units for analysis and categorization of those units. This analytical coding, often called 'unitizing', simplifies and facilitates the task of analyzing different aspects of the raw data, besides selecting the parts that are relevant for analysis (Denscombe, 1998).

However, even though this primary sorting and coding is a practical requirement, it is not entirely distinct from the actual construction of analysis and interpretations (Mason, 2002). This means that, when categorization of data occurs, certain assumptions about the phenomena being labelled are already being made. Consequently, this gives rise to further assumptions, allowing space for analytical possibilities to emerge but inhibiting others.

Nevertheless, these processes were employed in this study with the interviews transcripts and questionnaires, in order to identify preliminary key phrases or themes appearing or being frequently used (Yin, 1994), so that the author could be aware of the occurrence of important elements, such as teachers' ideas and attitudes. This resulted in the coding of data under four major categories: TRAINING, PRACTICE, CHANGE and REFLECTION.

As part of the author's validation of her initial data interpretation, these categories were presented at a data workshop at the University of Newcastle Department Conference in June 2005. - It became clear that it was imperative to specify further details on each category, reclassifying them into more broad and inclusive categories, leading to additional, albeit more precise, key themes.

In order to do so, the content of one interview transcript from an English primary school teacher was examined in detail (Appendix C and D) and all key themes were scrutinized and colour-coded, giving rise to an expanded categories concept-map (Figure 11) presented at the end of Chapter Four. This interview transcript is solely offered as an example, even though it is highly representative in terms of significance of the findings from similar interviews that took place during this study.

Hence, two new categories arose during this process, which were LEARNING and POLICY, encompassing crucial elements that had not been properly tackled beforehand. It also allowed the identification of the major themes and ideas within each category, which were the backdrop against which the findings were presented in Chapter Four.

These processes also implicated some consideration about what findings could constitute data in the context of this research, not least because distinct forms of data are more or less compatible with distinct organizing procedures.

Furthermore, a systematic or constant comparative method was established (Strauss *et al.*, 1990), which employed the preliminary themes as the foundation for comparing, contrasting and integrating emerging insights about teachers' perceptions and general implications training on Thinking Skill approaches had on teachers.

These procedures can be summarised in what Fielding *et al.* (1993) described as a conventional approach to ethnographic data analysis, illustrated in table 4:

Field notes Transcripts	➧ Search for categories and patterns (key themes)	➧ Label and organize the data	➧ Construct outline (re-sequence)

Table 4: Model of an ethnographic data analysis approach (adapted from Fielding *et al.*, 1993: 163)

As the analysis progressed and convergent responses to the research questions emerged, new interpretations came to light, which required further deliberations.

These reflections attempted to identify 'patterns and processes, commonalities and differences' (Miles *et al.,* 1994: 9), refining the themes and associations that occurred between the units and categories that had emerged initially.

It might be worth emphasising that continual reflection during the analysis of data also sharpened up the explanation to which the researcher has worked (Creswell, 2003; Denscombe, 1998; Fielding *et al.*, 1986). As a consequence of reflection, a set of broad-spectrum generalizations should have emerged to explain the themes and relationships identified in the data.

Another important aspect taken into account in relation to analysis of qualitative data was that it is often related to *Grounded Theory* (Glaser *et al.,* 1967).

Some prominent premises are well established in the area of qualitative data analysis and are accepted practice across a variety of qualitative approaches. In short, here are some aspects of this theory that contributed to the analysis of data collected during this research, as described by Denscombe (1998):

- Grounded theory approach to the analysis of qualitative data is mainly pragmatic: it offers guidelines, not strict rules given that the standardization of methods could damage the quality of research and constrict researchers' efforts (different settings may be influenced by different qualities inherent to different researchers);

- Qualitative data analysis should be concerned with generating new concepts and theories (Miller *et al.*, 1996): "theory at various levels of generality is indispensable for deeper knowledge of social phenomena" (Strauss 1987: 6);

- Theories should be 'grounded' in empirical reality: this requires constant checking of the analysis involving theories and concepts against the findings, as well as incessant refinement of those theories during the research process.

It can hence be claimed that the strength of this qualitative research is significant since the descriptions and assumptions that emerged from it were 'grounded in reality'. This suggests that the data and its analysis were based on the conditions of social existence, and were not merely portraying reality. Qualitative analysis also provided a more thorough study of specific areas and generated 'thick descriptions', which was advantageous when dealing with the intricacies of different social instances (Denscombe, 1998: 220).

3. 8 Discussion of validity and reliability of this study

Establishing the validity and reliability of any piece of research is an important, albeit sometimes laborious, procedure. One of the recommended techniques to improve reliability and validity is *triangulation,* which implies the use of different strategies in research so they can be cross-checked (Shipman, 1988; Mertens, 1998).

In order to clarify this concept, the author adapted the following model of triangulation:

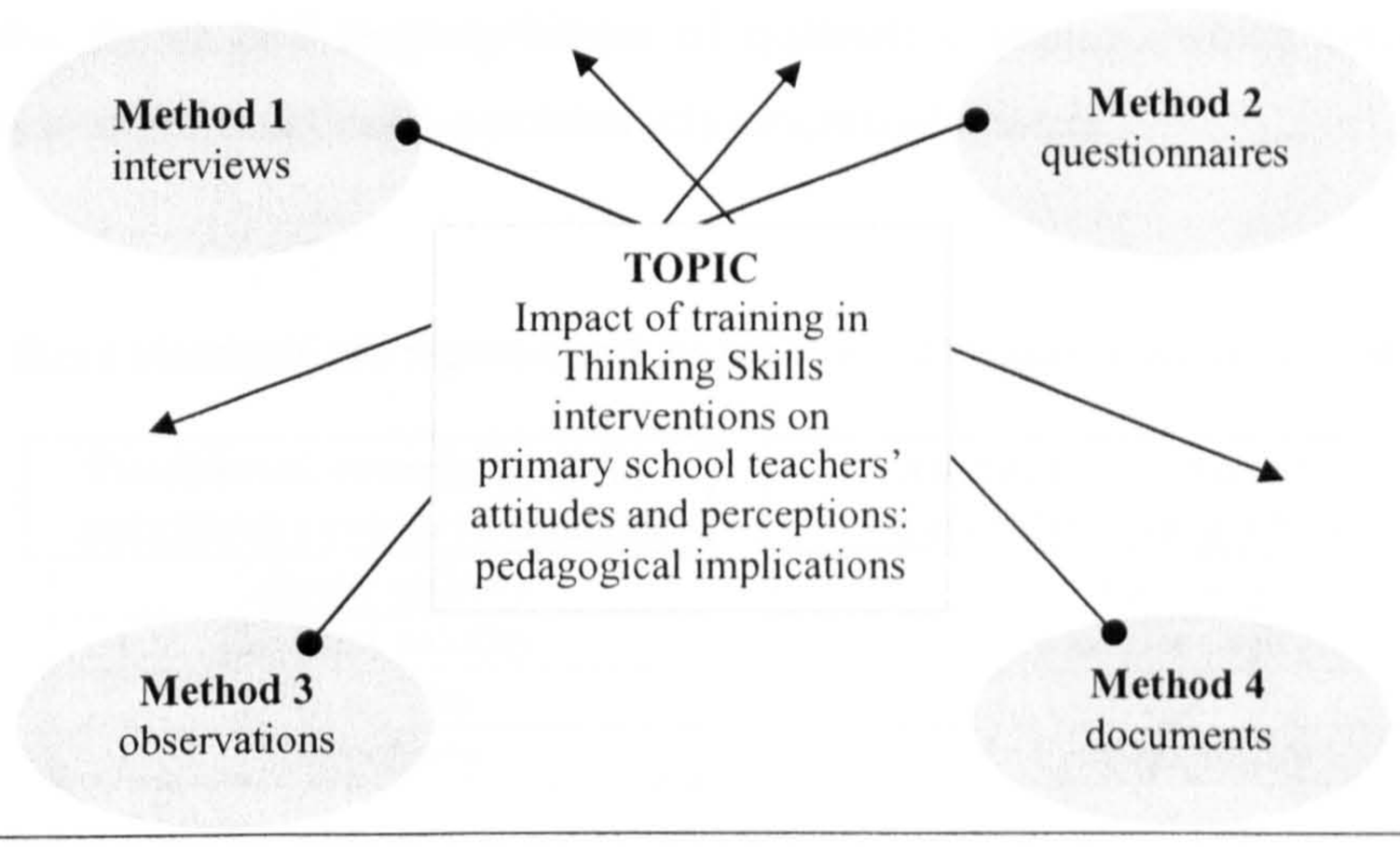

Table 5: Methodological triangulation of data (adapted from Denscombe, 1998: 85)

Looking at particular instances of this research through different perspectives provided a good opportunity for the author to corroborate and substantiate the emerging understandings, thus enhancing the validity of the data. It confirmed the consistency of the meaning of the findings, demonstrated through more than one method of data collection.

Nonetheless, there is some debate regarding the assumptions at the base of triangulation in social sciences (Denscombe, 1998). At one end of the spectrum, positivists argued that there are only one truth and one reality and expect the lines from each method to converge on a sole instant of truth. At the other end, constructivists proclaim the idea that any single reality exists, depending on the perspective from which the researcher looks at it.

However, in the context of this research, the author acknowledged the idea that a single reality may be controversial and was constantly alert in relation to the application of triangulation. It was also important to understand that all the different methods applied for data collection could probably indicate similar instances without, however, meeting at an indisputable point of reality. Equally, it was vital to avoid the supposition that by using methodological triangulation, all data gathered was absolutely accurate or irrefutable.

Moreover, there are other means of judging and establishing the accuracy and credibility of qualitative research. The author observed four principles suggested by Guba *et al.* (1994) to establish the rigour and trustworthiness of qualitative studies, which were presented as alternatives to more traditional quantitatively-orientated criteria.

In table 6, these elements are represented, as well as their equivalent quantitative criteria:

Traditional criteria used for quantitative research analysis	Alternative criteria used for qualitative research analysis
Internal validity	Credibility
External validity	Transferability
Reliability	Dependability
Objectivity	Confirmability

Table 6: criteria tables for analysis of research data (adapted from Guba *et al.*, 1994, in Denzin *et al.*, 1994)

Hence, the author concentrated on credibility, transferability, dependability and confirmability of data (Guba *et al.*, 1994), to verify if these parameters reflected the essential assumptions involved in this qualitative research in a more accurate manner.

◇ **Credibility** – This criterion was engaged in establishing the results of this qualitative research as plausible or reliable from the point of view of those participating in this research. This perspective implies that the purpose of qualitative research is to depict or comprehend phenomena from the participants' perspective, hence giving them legitimate power to estimate the credibility of the results.

According to Guba *et al.* (1994), credibility is warranted through prolonged involvement, persistent observation, use of multiple sources and methods (triangulation), peer briefing and member scrutiny. Due to the limited time-scale of this study, prolonged involvement and insistent observation was addressed in a very modest manner. The author visited some of the participant teachers twice, and could only observe them once, which may constitute a restriction for the credibility of the findings. Yet, interview transcripts, observation schedules, questionnaires and documents collected may have revealed similar traits, satisfying triangulation and strengthening data credibility.

◇ **Transferability** – This principle was concerned with the scale to which the results obtained could be generalised or relocated to other situations or locations. This attribute could be improved through a meticulous description of the research context and the pivotal suppositions of this research. Ultimately, the author is responsible for the 'transference' of results to a different context and for making judgements on how judicious the transfer was.

In this study, transferability was boosted by 'thick descriptions' (Geertz, 1973, Denscombe, 1998) of the research field. This implicated the clear identification of the details of the setting and context in which this investigation was conducted, which may designate how applicable the findings are to other researchers' contexts, thus determining if results are transferable. This involved not only the descriptions of phenomena but also the exposure of the social relationships that underlined it. Conceptualising a phenomenon in terms of its circumstances of existence and the social relations that surround it provide a more robust root for generalisations than just the pure description of the immediate façades. It was important for this study to produce findings that had relevance and significance of use beyond the immediate context of the study.

◇ **Dependability** – The assumption of replicability is at the base of traditional quantitative perspectives of reliability, which is concerned with whether similar results could be obtain if the same situation was observed twice. However, it is assumed that by measuring something twice, two different things are measured. The concept of dependability accentuates the necessity to take into consideration the fact that contexts within which research occurred are in continuous transformation.

◇ **Confirmability** – This criterion refers to the degree to which results can be verified or substantiated by others, bearing in mind that each person has distinctive perspectives. In order to augment confirmability, researchers may record procedures for examining and re-examining data used during the study, they can identify aspects that occurred and which challenge initial observations and can, at the end, conduct a data review, examining data collected, analysing procedures and evaluating the probability for bias or alteration. Dependability and confirmability were sustained by careful records of data collection and data analysis conclusions, which could be used by others to verify the accuracy of data.

All these aspects were taken into account in order to enhance the trustworthiness and credibility of this study. This encompasses the idea that the results of this research epitomized as closely as possible the occurrences and feelings of all the parties involved in the research. Trustworthiness represents the particular system of values that moulded the procedures in course, rather than being a mere process.

3. 9 Ethical issues

Ethical principles were behind all efforts made throughout this study, right from the manner in which data was collected and analyzed, how the author's assumptions and conclusions were verified, and the way participants were involved, to the manner results are being presented. Whenever appropriate, some references about ethical issues were made along this chapter, especially concerning the author's personal procedures, responsibilities and perspectives.

The author's ethical conduct was strongly based on the British Educational Research Association's (BERA, 2004) Revised Ethical Guidelines for Educational Research (Appendix L).

In short, and following the sustaining principles of the guidelines, this research was conducted within an ethic of respect for the Person, Knowledge, Democratic Values, the quality of Educational Research and Academic freedom (BERA, 2004: 5).

The British Educational Research Association also established specific guiding principles of conduct for researchers, who should take into consideration the following: Responsibilities to Participants, Responsibilities to Sponsors of Research and Responsibilities to the Community of Educational Researchers (BERA, 2004). In the context of this research, the author will focus on the most significant aspects involving these three headlines.

- **Responsibilities to Participants** – Participants were all the teachers, head teachers and pupils who, passively or actively, engaged with the processes of this study, regardless of sex, age, race, religion, beliefs, etc. In this ethic of respect, it is implicit that the author had the responsibility to ensure that all participants in the research understood the process in which they were going to be engaged, explaining the importance of their participations, how the information disclosed would be used and reported, hence obtaining the participants' *voluntary informed consent* (BERA, 2004: 6; Bower *et al.*, 1978: 7).

The author also acknowledged the participants' right to withdraw from the investigation at any time and for any reason. The exact procedures and implications of this research were explicitly substantiated by letter, addressed to the Head teacher of all participating schools, in which permission to access the school and individuals was also requested, and later confirmed by telephone. All interviews were authorized to be tape recorded.

Because this research required a small, albeit valuable, participation of children, the author had to take into consideration deliberations in Article 14 of the Revised Ethical Guidelines for Educational Research. It refers to Articles 3 and 12 of the United Nations Convention on the Rights of the Children, which state that, all actions concerning children must primarily consider the best interests of the child, as well as indicating that the right to freely express one's views must be granted to children who are able to form their own views.

Hence, the author recognized the need to explain the children's teachers the procedures and motivations of the work with the pupils, requesting permission from them and the parents (in case it was necessary) to interview and tape record the answers from the children selected for this study. Later, children were asked openly if they were disposed to participate and another teacher remained in the classroom with the author, witnessing the interviews as they took place.

Another major aspect acknowledged during this research was privacy of participants' data. None of the participants expected to be identified or exposed in a public report. Hence, all data was accessed with explicit permission from people involved in the research, yet it was carefully treated to ensure that confidentiality and anonymity was assured. This resulted in the coding of all names of schools and people involved. This procedure was clearly explained beforehand, in the first letter sent to all schools explaining the purpose and procedures of this research.

In an attempt to demonstrate good will and good practice, the author intends to provide all participating schools with a copy of the results of this research project, so that all people involved in this study can be informed of its outcomes and conclusions.

■ **Responsibilities to Sponsors of Research** – The Portuguese institution *Fundação para a Ciência e Tecnologia* (Science and Technology Foundation) sponsored this research project for four years.

Respective responsibilities and entitlements were agreed in writing with this institution at the beginning of this research, in order to determine the conditions and conventions adopted to guarantee the integrity of this research.

■ **Responsibilities to the Community of Educational Researchers** – Educational researchers must preserve the integrity and reputation of educational research, by ensuring their research is constantly managed at the highest professional level. This involved serious considerations about misconduct and forgery of evidence. To demean this menace, the author made every effort to:

- truthfully present the research data, avoiding augmenting or distorting aspects of it;
- avoid criticizing other researchers in a derogatory or unprofessional manner;
- use other researchers' work as the basis of this research without their clear consent;
- acknowledge the authorship of all academic materials used in this research, hence avoiding *plagiarism*.

The adoption of an ethical stance is paramount in qualitative research and thus, it is essential to be honest and conscientious about procedures and outcomes. These were intrinsically entwined with almost every aspect of the research, from the manner access to schools was negotiated, to the analysis and presentation of the findings.

Ethical principles are relevant to all those undertaking research with human beings (Bouma *et al.,* 1995; Gomm, 2004) and thus, provided the author with vital parameters of conduct. This implied the author adopted a considerate, respectful demeanour, not to harm, injure or perturb the subjects involved in this study and ensured private data collected in schools was kept confidential and was treated according to strict professional standards. Efforts to keep information records as accurate as possible were also persistently put together. Ultimately, the author's truthful and professional posture acted as guarantor, vouching for the *bona fide* status of this researcher.

3. 10 Discussion of limitations and methodological issues

Even when research projects are impeccably planned, some things still do not quite follow the initial plan. This may be a consequence of a number of aspects inherent to a specific research project, such as constraints of time or money, refusal of access to institutions or individuals, low response rate, illness of the researcher or a key individual, *inter alia.* Fortunately, all incidents that occurred during this research had little effect on the actual research process, only requiring minor rearrangements.

The initial problems involved the contact with the schools selected by the LEA representatives of Northumberland and Sunderland. One school in Northumberland could not be contacted and two of the teachers initially indicated by the Sunderland LEA advisor could not participate in this research, one because of illness and the other because the initial participation agreement was withdrawn. This required further contacts with the LEA representatives in order to have a different school identified, and teachers who would possibly want to get involved in this research.

In Phase II of this study, the author had initially intended to personally interview the participating Portuguese teachers. However, due to particular physical constraints, questionnaires were sent to all participants in Portugal from England, by electronic mail instead.

In an attempt to address and clarify potential misconceptions and to explain the purpose of this research, key explanations of this study and clear guidelines were also sent to all participants. In short, the purpose of the questionnaires was to collect a wide scope of viewpoints mainly about training available to English teachers on TS approaches and its implications, which was in effect accomplished in the end. The only setback worth mentioning was that a larger number of responses was expected, but only ten questionnaires were sent back, which was, nevertheless, substantially meaningful and noteworthy.

Another aspect to take into account was that no pilot tests for the different methods used for data collection were fully conducted. This may have contributed to some extent to some flaws in the interview and observation schedules. However, in order to test the robustness of the interview schedules, the author presented them to the two LEA representatives involved in this research. They were asked to judge the accuracy and relevance of the questions, as well as to offer suggestions for improvement.

This seemed to be a legitimate procedure, since these two people were in a privileged position in terms of knowledge about schools and people involved in training on TS interventions. They had been responsible for the training provided to most of the schools in the corresponding regions, besides delivering training themselves to the majority of schools selected for this research. As for the questionnaires, they were largely based on the interview schedule, since the author intended to collect data on the particular instances addressed in the interviews.

A substantial amount of effort was taken in order to respect the respective 'interview and observational *protocol*' (Creswell, 2003: 188), *i.e.*, the most adequate forms of recording information were used. However, some potentially serious mistakes may have still been made during this research project. Nevertheless, the overall results the author intended to obtain were gathered. Efforts were made to avoid damaging the data collection process, in order to minimize the impact some defects may have had on the validity and reliability of this study. Despite all efforts to supersede partial judgements and procedures, there are biases associated with any piece of research that cannot be eliminated.

3. 11. Summary

On the whole, the process of analysing the methodological procedures in detail provided a substantial contribution to the understanding of the overall intention of this work. Moreover, this analysis highlighted the strengths of this research and its real viability but, at the same time, identified and acknowledged potential weaknesses, which sometimes punctuate research projects as the present one.

This analytical process provided an opportunity for the author to identify and address the basic principles of qualitative research. Thus, it might be safe to conclude that it contributed to the improvement of the author's research skills, which have 'ripened' during this long course of action. The critical analysis of this research, through various different angles, proved to be an enlightening exercise, giving rise to a vast array of perspectives, which will certainly reinforce the potential and the quality of future studies.

This qualitative study revealed salient features of the training provided to schools in the Northeast of England and offered a valuable insight into the Portuguese educational system, highlighting important components that should be provided in order to enhance the success of teaching and learning processes in that country.

In conclusion, this chapter presented an overview of the methodological issues involved in this research, which sets the necessary basis for evaluation and discussion of the findings. The review of procedures and the discussion of advantages and limitations of the methods used emphasized the importance of applying the most adequate methods regarding specific research instances, hence contributing to a more accurate and relevant data collection.

After the review of the most relevant literature available about the topic of this research and the critical and thorough analysis of the methodological procedures adopted for gathering data to support this study, the author believes that the *sine qua non* conditions for an adequate data analysis have been established.

In an attempt to clarify the overall research inspiration and its fundamental aspirations, a concept-map was elaborated (Figure 4), which indicates the extent to which this study has gone to identify key concepts and themes for examination and analysis. The purpose of this concept-map is to clarify the overall research structure, organize the data and, consequently, simplify its analysis. A more illustrative description of the different aspects represented in Figure 4 is offered in the next chapter.

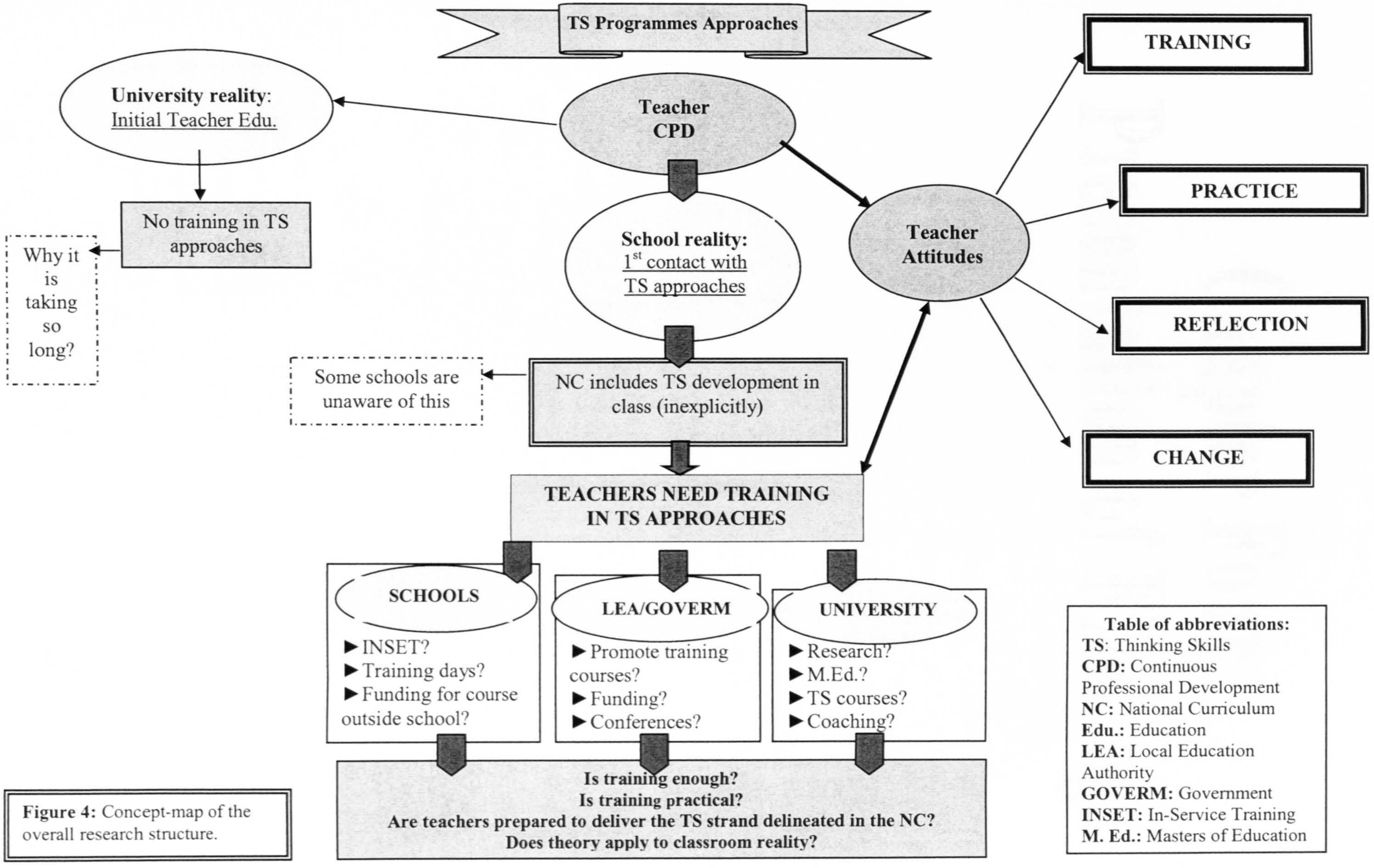

Figure 4: Concept-map of the overall research structure.

Chapter Four
Presentation of Findings

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF THE FINDINGS

4. Introduction

This chapter presents a description of the data collected for the purpose of the present study through interviews, questionnaires, non-participant observations and document analysis. The purpose of the study was to analyse the impact of training in TS interventions on primary school teachers' attitudes and perceptions of training needs, and its professional and pedagogical implications, in selected schools around the Northeast of England, in the United Kingdom. It also aimed at analysing the views of Portuguese teachers on teaching thinking in a primary school setting.

Due to the fact that this was a small-scale study and the size of the samples was rather limited, data is not presented statistically, instead, a qualitative analysis is offered. And due to the reduced time scale of this research, there was not an intervention period, during which specific research procedures would take place. This is not a longitudinal study, hence, there is no *pre* and *post* evaluation of the research subjects over a period of time but a mere evaluation of the instances as they were encountered, without any interference from the researcher. For this reason, it is unrealistic to present a description and comparison of results before and after all people involved had training in TS interventions. Nevertheless, facts regarding training prior to this study were gathered, provided by the participants and were included in this chapter whenever appropriate.

4. 1 Selection and coding of research data

As previously indicated on Chapter Three, four major categories informed the interviews and questionnaires design, which were TRAINING, PRACTICE, CHANGE and REFLECTION. The concept-map presented at the end of Chapter Three illustrates these categories as a fundamental part of the research structure, as well as other central elements, which were deeply embedded in this data analysis.

At a later stage of this research, two new categories emerged during the data coding and analysis process. As part of the validation of initial data interpretations, findings from this research were presented at a data workshop at the University of Newcastle Department Conference in June 2005, where it became evident that it was necessary to probe data under two further categories, LEARNING and POLICY, which implicated a more substantial examination of the findings.

These six categories were considered to be the vital instances of interest for this research. Once these categories were determined, raw data was selected, summarize, coded and subsequently sorted into each category to facilitate its presentation and the subsequent drawing of conclusions. It was also possible to identify the major themes and key ideas within each category (Figure 11), presented at the end of this chapter, which were the backdrop against which the findings were presented in this chapter.

4. 2 Data presentation

Research field work was organized in three phases; hence, it seems pertinent to present the findings according to the phases of the research process, which were:

- Phase I, from May until June 2003 in the Northeast of England, the United Kingdom;
- Phase II, from October until December 2003 in Portugal;
- Phase III, from January until February 2004, once again in the Northeast of England.

The findings were interpreted following the key themes that emerged from the six categories concept-map (Figure 11). This map was further subdivided into its distinct category parts, which are presented individually to illuminate the text in this chapter, as findings from each section are being presented, reinforcing its understanding and pertinence.

However, it must be underlined that these subdivisions presented at the beginning of each section are mere illustrations of some of the key themes of each category, providing the reader with a more vivid overview of the intrinsic ideas behind each one of them. It does not contain all elements that are being presented and described on each section.

Even though findings from each phase were analysed and presented separately, in order to facilitate the data analysis process, aspects related to each specific category from all three phases were presented together in the same section, which clearly highlighted the differences and similarities between the distinct phases of the research regarding the same category.

As explained in Chapter Three, in order to guarantee confidentiality and anonymity of participants' data, all personal information related to the schools and participants in this research was coded.

All three phases were summarily presented first, to give an overview of each phase of the research.

4. 3 Phase I of the research

4. 3. 1 Background information

Between May and June 2003, research was conduct in primary schools around the Northeast of England, the United Kingdom, more specifically in three schools located in Sunderland city and four in the Northumberland County (Table 1). Schools had been previously selected by two representatives of these locations' LEAs, according to time of involvement with training on TS interventions (long-term, medium-term and more recent involvement) and three different levels of satisfaction about training and its application within the school.

Group	Northeast of England	Primary Schools involved	Sample		Data collection methods
			Teachers	Head Teachers	
N	Northumberland	4	8 (2 per school)	4 (1 per school)	interview document
S	Sunderland	3	6 (2 per school)	3 (1 per school)	

Table 1: Phase I - research carried out in May and June 2003 in the Northeast of England, the UK

The sample was subdivided in **Group N**, a consortium of eight teachers and four head teachers from Northumberland schools, and **Group S**, consisting of six teachers and three head teachers from schools in Sunderland city.

During Phase I the author interviewed all 14 teachers and seven head teachers in order to obtain their perceptions about the strengths and flaws of training on TS interventions and its effect on attitudes and perceptions of training and professional needs, as well as training pedagogical implications.

One teacher and one head teacher from two schools also provided the author with some relevant documentation, which shed some light across the data collected through the interviews in those particular schools.

- **Participants' teaching experience**

Teaching experiences varied enormously amongst all 14 teachers that participated in this phase of the research, varying from three years working experience to 34 years-long teaching careers. As for the seven head teachers, experience as heads varied from 3 to 10 years.

- **Participants' professional profile**

Similarly, qualifications and professional expertise was also contrasting, and the author gathered information from teachers who held Bachelor of Education (7), Bachelor of Arts (3) or Bachelor of Philosophy (1) degrees, Advanced Education Diploma (1), National Professional Qualification for Head Teachers (NPQHT) (2), as well as from those who had been teaching for more than 27 years without what is nowadays regarded as a university teaching degree (Certificate of Education (2)). Two teachers held a further Master of Education degree, whilst two other indicated they had recently been awarded the Qualified Teacher Status.

Some head teachers were naturally better qualified than others but there was not a significant discrepancy between their qualifications and the teachers'. As a matter of fact, two teachers were better qualified than the majority of head teachers, since none held a NPQHT at the time this research took place. Qualifications included Bachelor of Education (4) and Bachelor of Arts (1) degrees, Master of Education degrees (2), Post Graduate Certificate of Education (1) and Advanced Education Diplomas (4).

As for training on TS interventions all participant teachers and head teachers had had training, which only varied in terms of time of involvement with training and expertise in classroom practice. Most head teachers confirmed having had training but complained that, due to lack of time and a regular class, they did not have many opportunities to explore and further develop their teaching skills on the interventions, adding that 'their' teachers were much better prepared to carry out that task.

- **Participants' gender and age**

The sample consisted of a mixed gender group of teachers and head teachers, even though there was a predominance of female teachers and head teachers. As for the age, teachers' age varied between 24 and 55 and head teachers age ranged between 42 and 56 years old.

4. 4 Phase II of the research

4. 4. 1 Background information

Between October and December 2003, research was conducted in Portugal, where 10 primary school teachers were invited to participate in this research. These teachers were part of **Group P** as shown in table 2:

Group	Portugal	Sample	Data collection method
		Primary School Teachers	
P	various regions	10	questionnaire

Table 2: Phase II - research carried out in Portugal between October and December 2003

Initially, the author intended to interview all participant teachers but that was not possible due to particular physical constraints of the author at the time. Hence, questionnaires were devised based on the English interview schedules in order to collect the soundest piece of evidence concerning the same aspects of those in the interviews.

During Phase II questionnaires were sent to all Portuguese teachers via electronic mail, together with explanatory notes on TS interventions and a summary of the results obtained during Phase I of this study in the English interviews, in order to enlighten all participants and clarify their views on the subjects under investigation, since nobody was familiar with the content of this study and the reality it represented in England.

■ **Participants' teaching experience**

Teaching experiences did not differ greatly between teachers. Seven teachers had studied with the author at the University in Portugal and all had graduated in 1999, meaning that they all had four years working experience approximately. Three others were invited by three of these teachers in their then current school, and had similar professional experiences.

Another relevant aspect is that all teachers worked in different areas around Portugal, both rural and urban areas, as well as privileged and deprived areas, which reinforced the wealth of experiences from each participant.

■ **Participants' professional profile**

Qualifications were also very similar amongst all teachers. All 10 held Bachelor of Education degrees; two were undertaking Master of Education degrees and one had a second degree in Science of Education.

As for training on TS interventions none of the 10 teachers had training in any of the programmes. Seven teachers added that they had never heard about it before and all agreed that training on these interventions was not available.

■ **Participants' gender and age**

The sample consisted of eight female and two male teachers, and ages ranged from 24 and 35 years old.

4. 5 Phase III of the research

4. 5. 1 Background information

From January until February 2004, research was once again undertaken in the Northeast of England. Two of the 10 schools involved during Phase I were selected and revisited.

Two teachers and four pupils were involved in each school, one in Northumberland and one in Sunderland city, as outlined in table 3:

Group	Northeast of England	Primary Schools involved	Sample		Data collection methods
			Teachers	Pupils	
N	Northumberland	1	2	4	interview observation
S	Sunderland	1	2	4	

Table 3: Phase III - research carried out in January and February 2004 in the Northeast of England, the UK

In Phase III, the author intended to observe a 'TS lesson', which all revisited teachers agreed to organize. The purpose of these lesson observations was to find out whether what teachers perceived as good practice of innovative teaching approaches was evident in the classroom.

Follow-up interviews were carried out after each lesson, so that further information about teachers' perceptions of the lesson and the interventions' procedures could be collected, ultimately validating data collected during Phase I of this study.

Pupils were also interviewed through semi-structured interviews, in order to determine their views on innovative teaching interventions in their classroom and to cross-examine information collected from their teachers.

- **Participants' professional profile**

All four teachers had very similar teaching experiences, on average all had been involved with TS interventions for 4 years. Beside the teachers' qualifications already explained previously, one major aspect is that all four teachers had had a great deal of training on TS interventions and thus, were very well prepared to demonstrate it. Two were often involved in training on these interventions to other teachers and one had participated in a Conference on Thinking in Northumberland.

- **Participants' gender and age**

The sample consisted of four female teachers, aged between 29 and 42 years old.

■ **Participating children**

Pupils that participated in this phase of the research were selected by their teachers according to different parameters. Each observed teacher was solicited to indicate two pupils from her class, one with high and one with low classroom attainment.

Children's age varied according to the year group of the correspondent observed teacher, which were:

- **1st observed teacher (Northumberland):** 2 Reception pupils (4-5 year-olds)
- **2nd observed teacher 2 (Northumberland):** 2 Year 1 pupils (5-6 year-olds)
- **3rd observed teacher 3 (Sunderland):** 2 Year 5 pupils (9 year-olds)
- **4th observed teacher 4 (Sunderland):** 2 Year 6 pupils (10-11 year-olds)

The choice of the teachers involved in Phase III did not take into account the teacher's year group. Hence, the difference between year groups that occurred was accidental and had not been planned but proved advantageous since a wider range of views was obtained during the semi-structured interviews with the children. It was also interesting to understand how children from different ages regarded the topics presented by the author, concerning the innovative teaching methods their teachers were using in their lessons.

The four higher and four lower ability pupils were all asked the same questions and they were requested to answer according to four options, which were extended throughout the interviews as they were being tape recorded. The selection offered was: 'very much', 'a bit', 'not very' and 'not really', after which children could elaborate their answers further.

4. 6 Overview of the research inspiration

The concept-map presented at the end of the previous chapter (Figure 4), outlined the overall structure of this study, which intended to clarify the research's underpinning motivation as well as the impetus behind research procedures. The main key themes concerning teacher's professional development were identified. In terms of specific training in TS interventions in England, two factors were taken into account: realities at initial teacher education's level and at primary schools' level.

In a way, these two fundamental aspects represented valuable starting points for this research and they were seriously taken into account whilst this research was being prepared. The implications that evolved around these two instances were further examined in section **4. 15** (*policy* section) later in this chapter.

This research looked at teachers' attitudes and feelings in relation to six major instances: training, practice, learning, reflection, change and policy. These categories were further analysed in order to bring to light the core themes, which were at the base of the findings presentation and discussion.

4. 7 Training

4. 7. 1 Overview: Group N and Group S

Training is one of the central aspects taken into account during this study. It was therefore imperative to analyse participants' feelings and perceptions in relation to the standards of training received and its impact in practice and professional development.

All participants from Northumberland (N) and Sunderland (S), both teachers (T) and head teachers (HT) had voluntary training in TS interventions and applied it in the classroom whenever appropriate. Besides being a major necessity for the reasons explained earlier, a number of motivations impelled people to look for further training. People were in fact excited and interested about TS and wanted to learn more about it (4 ST)(6 NT). One head teacher was enthused by its impact in other schools and introduced it in her school, whereas another inherited a 'TS school' and continued the work that was already in place. Training was also sought in order to improve pupils' attainment and raise schools' aspirations (1 SHT)(1 NHT).

4. 7. 1. 1 Main course providers and training courses

Northumberland Local Education Authority (LEA) is one of the main course providers in the region, together with the University of Newcastle and N-RAIS, an education and training project that operates across Northumberland and offers support and training to teachers and the wider community. The Northumberland LEA, in partnership with the University of Newcastle and N-RAIS, provides mentoring and support for teachers, as well as school-based and central courses across the regions, which are:

• **Teaching Thinking Certificate Level 1 – Introductory** - This course is available to all educators and aims to provide teachers with a number of practical teaching approaches that were developed to facilitate the development of teaching thinking in the classroom. It offers an opportunity for people to reflect upon their attitudes to teaching and learning and explains how the brain works, so that people may understand the impact teaching thinking might have on teaching and learning processes.

[Level 2 and 3 Certificates are associated with the University of Newcastle's Master of Education (MEd) TS modules].

• **Teaching Thinking Certificate Level 2 –** This course looks into the theory behind TS strategies and asks participants to carry out a small-scale action research project in their own classrooms, with the support of an on-site mentor.

• **Teaching Thinking Certificate Level 3 –** This is a more practical course, which involves joint action research projects usually developed by two teachers and development of skills to coach other people. It also requires the MEd module 'Teaching Thinking'.

• **Level 4 Coaching Thinking Skills –** This is the more advanced course and is mainly aimed at providing teachers with the necessary knowledge to enable them to coach their peers or provide training to schools.

• **Philosophy for Children Level 1 –** This course is an introduction to the theory and practice of using Philosophy for Children for the promotion of TS, confidence, thoughtfulness and inter-personal skills with students of all ages.

• **Philosophy for Children Level 2 –** This course further develops the theory and practice of Philosophical Enquiry. After its conclusion, participants are qualified to assist course providers to deliver Philosophy for Children Level 1. Both levels are accredited by *SAPERE* (The Society for Advancing Philosophical Enquiry and Reflection in Education), they are supported by the Northumberland LEA and they are provided by N-RAIS.

• **BPRS - Best Practice Research Scholarships –** This £2,500 grant offered an opportunity for teachers to investigate how TS strategies were affected by cognitive development. Teachers could research an area of practice of their interest within their own classroom context, which had direct benefits to their pupils. It was also an opportunity for schools to raise teaching and learning standards.

As for the kind of specific training courses participants in this research had received, it was found that all teachers in Northumberland had Teaching Thinking Certificate Level 1 and two had Level 2; two Sunderland teachers had Level 1, and another one had a Level 4 Coaching TS course and had taken a sabbatical on TS. One school in Sunderland had provided its entire staff with courses on Philosophy for Children Level 1.

Most training was administered at the schools as In-Service courses (INSETs), delivered by teachers or people specifically trained in the different approaches, from both Northumberland and Sunderland LEAs. However, people also attended conferences, (1 ST)(1 NT) and TS combined courses at the University of Newcastle (2 NT)(2 NHT), one to develop TS through Maths or ICT, and the other as a Master degree that included a TS module. Northumberland LEA developed a number of popular initiatives which were well attended by teachers and head teachers from the region, whereas funding from Sunderland LEA was available for staff to become involved in sabbatical.

In Sunderland, two participants also took advantage of Government initiatives, such as the BPRS and the NOFT (New Opportunity Fund Training), by which teachers were granted £450 each to do a training course to improve their ICT skills.

4. 7. 2 Overview: Group P

As explained earlier, none of the 10 teachers involved in Phase II of this research had training in any of the TS programmes. Nonetheless, inquisitive comments made by all 10 teachers suggested that they would certainly welcome training or further information about these interventions, which were completely new to the majority of them.

4. 8 Categories breakdown

All findings from the three phases of the research are presented next according to each one of the seven categories that underpinned this study. Differences and similarities between phases about the same category were hence highlighted, which facilitated the data discussion process in the next chapter.

Once again it should be noted that the diagrams offered at the beginning of each category section are merely offered to illustrate and illuminate the text, highlighting some of the core ideas embedded within each category, and do not contain all elements that are being presented and described throughout each section.

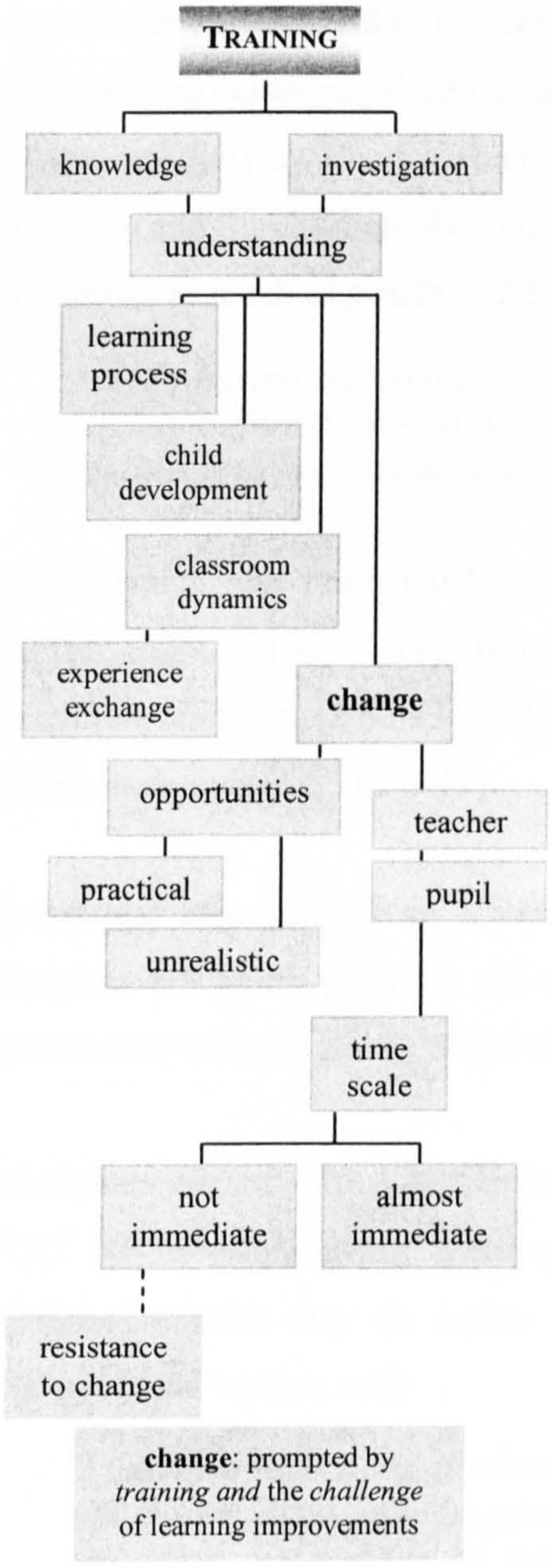

Figure 5: Illustration of TRAINING key ideas

4. 9 Training - Perceptions and Impact

♦ Phase I

With respect to the impact of training on professional experience, what was found was that training had a great effect on people's confidence (2 ST)(2 NT), enthusiasm (2 ST)(2 NT), and motivation (1 ST)(2 NT)(2 SHT)(2 NHT). The knowledge acquired was also seen by some as very interesting and useful for teachers (1 ST)(2 NT) (2 SHT)(4 NHT): '*it's another tool in the armoury.*'

Some teachers also enjoyed seeing children's reactions to innovative approaches applied in the classroom (2 ST)(1 NT) in a safe environment (1 ST)(1 NT) and suggested training made them feel rewarded and that teaching was more enjoyable through TS interventions (3 ST)(4 NT).

As for changes, the greatest improvement promoted by training was on teaching strategies and planning (6 ST)(8 NT). People felt that they acquired a different attitude after training (2 ST) (5 NT)(1 SHT)(4 NHT), and that it had changed and boosted teachers' mindset (1 ST)(2 NT).

Once again, it was noted that people admitted they were more confident and motivated (3 ST)(3 NT)(1 SHT)(1 NHT) and that they felt more informed (3 ST)(2 NT)(1 SHT) (1 NHT) and more aware of the TS theory (2 ST)(1 NT)(2 SHT)(1 NHT). Training also changed the way people viewed the learning process (2 NHT).

It was further suggested that teachers with little training experience were, at first, more inclined to *resist* changing their habitual teaching practices significantly, possibly because they were not fully aware of its benefits, but once they realised it was advantageous both for teachers and for children, they embraced training enthusiastically and tried to apply TS interventions as much as possible (2 ST):

> *'... it's having the courage and energy to change things, to do things in a slightly different way, to have the courage to go out of your comfort zone, really... and you only do that if you see it's a benefit for the children.'* (1 ST)

Training, which was promoted by some head teachers, in order to maintain motivation levels (1 ST)(1 NT)(2 NHT), offered a deeper understanding and awareness of the interventions' benefits (2 ST)(3 NT)(2 SHT), as well as providing teachers with important teaching guidelines (1 ST)(2 SHT).

Training was also seen as an effective way of reassessing teaching (1 SHT)(2 NHT). Participants felt better prepared and equipped to deliver the NC because they could see links between TS strategies (3 ST)(2 NT)(2 SHT)(2 NHT).

It was further suggested that participants felt more confident and motivated (3 ST)(4 NT)(2 SHT)(2 NHT) after having training. One head teacher added that '*teachers need confidence in what they do before taking training onboard*' (1 SHT). Similarly, a Northumberland teacher said:

> *'I think we've had the fundamental training, it's how far does it now go... and it's as far as your imagination wants you to go... I feel very confident and others teachers feel as strongly as I do...* ***it's so powerful you just want to do it*** *!'* (1 NT)

Yet, teachers affirmed they needed more *time* to have further training and to plan lessons accordingly (4 ST)(3 NT): '*... it's just time, trying to fit everything in, as a busy teacher, but certainly worth continuing training*' (1 ST).

However, according to some participants, training could take a financial toll on the school, a concern that echoed through several schools. Apparently, it was expensive to send teachers on training courses (1 ST)(2 NT)(1 SHT) but an interesting suggestion was made:

> *'... a) it's very expensive to attend Conferences, not just from the point of view of paying for people to go on Conferences, but to cover people in the classroom... b) they tend not to have so much in the Northeast... it's like a one-day event, as opposed to something it's integral of training... for instance, if someone is going on a Mathematical training, perhaps TS should be incorporated into that... I think that's where the gap is, you either go on TS training OR you go on Curriculum training, **where it needs to be matched together** now...'* (1 SHT)

Hence, access to more *practical* and *realistic* training was necessary and imperative (4 ST) (6 NT)(2 SHT)(2 NHT) to avoid overloading people's busy work schedules and wasting schools' financial resources:

> *'...people's time is so pressing, it's not always easy... and if it's not something that particularly grabs them, they might not want to do that... it's all this thing about the work load...'* (1 ST)
>
> '[...] *training needs to link closely with what you teach, to develop what's already there.'* (1 SHT)

♦ Phase II

None of the 10 Portuguese teachers involved with this research had training on TS interventions. However, after analysing the initial results that emerged from this research during Phase I, teachers comprehended the benefits of English teachers' training and its future educational, social and economic advantages.

The general opinion was that training on TS interventions would be extremely important for their professional development and for the children:

> *'It's seems very important, I'd love to try it.'*
> *'It would be great if we could apply it here.'*

Participants argued that TS interventions' implementation in their classrooms would only be possible after being '*adequately trained*' (7 PT), if they were given '*practical training on how to use TS in the classroom'* (5 PT), ultimately, if they felt they were well prepared (2 PT). This would boost their confidence levels and amplify their chances of succeeding (3 PT). Rejuvenated teaching strategies would result in an enhanced set of teaching tools, perhaps more appealing and beneficial to all children, who sometimes resisted schooling. Teachers believed that renewed strategies implemented in the classroom would make children more interested and motivated to learn (2 PT): '*a receptive child learns better'*.

However, all indicated that training was not available to them as such, and others complained that the options were limited (8 PT). Three teachers believed it would be beneficial to acquire new teaching techniques and suggested that it was vital to let children be more dynamic and to have more control of their own learning.

Seven teachers were also eager to combine new teaching methods to develop children's autonomy, communication, critical thinking and overall learning competences. Two teachers expressed their wish to share information with English teachers and to learn more about their experiences.

All teachers confessed to be surprised with the results the present study had obtained in England during Phase I, since they were not aware of these innovative teaching approaches: '*I'm surprised since I didn't know about this reality.'*

They argued that initiatives such as Philosophy for Children and Community of Enquiry, as infused approaches, would '*give a tremendous contribution towards the improvement of teachers' professional development in Portugal'* (3 PT). Furthermore, these TS approaches would provoke big changes inside Portuguese classrooms and in teachers' attitudes and views about teaching styles and learning processes (2 PT).

One teacher argued that children's lack of motivation could sometimes be the result of the limited, uninspiring and less stimulating teaching strategies Portuguese teachers used in the classroom, hence the importance of having a wider variety of activities to tackle the same problem in a lesson.

Ideally, training could be offered in:

> '*... training workshops, first we had some theory, then we would practice the knowledge given to us, under supervision of someone who had tried it before.*'

Further references about training were dealt with in **4. 15** (*policy* section) later in this chapter.

♦ **Phase III**

In order to be able to deliver a 'Thinking lesson' adequately, three teachers revealed that the training they had on TS interventions was vastly constructive and useful. All felt prepared after having training and believed they were more confident when they taught children through these interventions. However, one teacher suggested that it was important to practice and have some experience after having the training, to gain expertise and understanding of the procedures put into practice.

According to one teacher, the instances presented in her 'Thinking lesson' about concept-maps were strongly based on specific input obtained during training sessions she had as part of her research with BPRS. This facilitated the whole process of putting it into practice in the classroom and to deliver it in the easiest way for children.

Two other teachers suggested training helped them to think more about the teaching and learning processes, elucidating them in terms of selection and design of class materials. Hence, specific knowledge obtained at training courses made a huge difference to some teachers.

One teacher started asking more open-ended questions in class, instead of the usual closed-questions that led to 'yes / no answers' and gave children more time to *think*, whereas another had a clearer idea about the type of learners children were.

This teacher was able to offer a wider mixture of materials, more adequate to children's learning styles and she concluded that these were beneficial changes for the children but also for herself.

As part of the follow-up interviews, a grid containing a list of statements about teachers' profile was organized and presented to the teachers that participated in this phase of the research (Appendix H). This grid also contained a 1 to 5 scale, 1 being the highest (or equivalent to 'very much') and 5 the lowest (equivalent to 'not much'), which helped the teachers to choose and tick the statements they most related to.

Findings related to TRAINING from this grid showed that all teachers indicated their need for training was between grade 3 and 4, suggesting that they probably felt quite confident and secure about their professional knowledge on TS approaches. Four teachers indicated grade 1 for their autonomy profile.

One teacher suggested that her *dependence* on training and need for ongoing professional guidance was quite considerable, grade 1, while the other three teachers indicated grade 3 and grade 4.

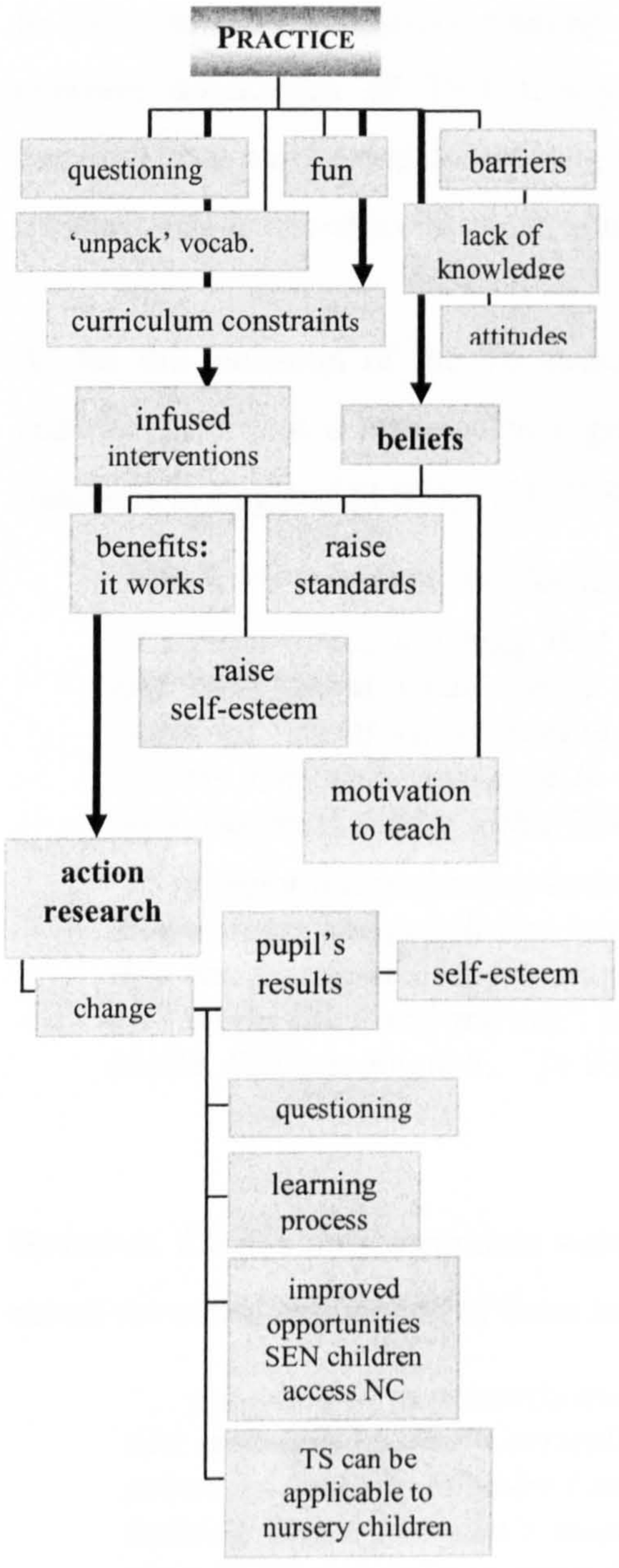

Figure 6: Illustration of PRACTICE key ideas

4. 10 Practice - Perceptions and Impact

♦ Phase I

With respect to the perceptions of the actual application of TS interventions in the classroom, what was found was that teachers were indeed applying and developing what they had acquired during training courses, mainly because there were no significant barriers to the application of the TS strategies in the classroom (3 ST)(5 NT)(1 SHT) (4 NHT).

In order to successfully apply these strategies, full support from the schools' head teachers was crucial (2 NT), as well as to have adequate training (3 SHT) (4 NHT) and a positive attitude towards the application of these innovative teaching approaches (3 ST)(4 NT), both from teachers and children.

Negative attitudes, lack of training, time and resources were pointed out as some of the major barriers, along with the isolated teaching of TS (2 SHT)(2 NHT) and the fact that some activities and material construction was time consuming (3 ST)(4 NT)(2 SHT)(2 NHT).

Another aspect pointed out as a potential barrier was the young *age* of some children, since some activities were said to be better suited to older children, whose mental development was perhaps at a more adequate stage, to fully engage and further expand with these particular activities (2 NT).

In terms of the implications training had on teachers' professional development and the concrete application of TS's theory into practice, participants indicated that it was beneficial but more *practical* training was definitely needed before attempting to apply the interventions in specific classroom contexts (4 ST)(3 NT)(3 SHT)(2 NHT).

As for the inclusion of the TS strand in the NC, it was found that people felt it was important and that it represented a great step towards further improvements of education standards in England (4 ST)(6 NT)(2 SHT)(2 NHT):

> *'I think it's a* ***must*** *in the Curriculum!"* (1 ST)
>
> *'It's important... anything that makes children question what they're doing and think about what they're doing, must be good for teaching and for learning... and if we get them to start thinking about* ***why*** *they're doing things, and the reasons... and even to consider things from other people's point of view, you must end up with children who are better learners.'* (1 NT)
>
> *'TS is important in the Curriculum because it can be interpreted in so many diverse ways and people can interpret it in the way it appeals to them... and they can find something that they particularly like and can always make use of... things like "odd one out", you can use that right across the Curriculum, Maths, Science, English...'* (1 ST)

However, Curriculum constraints were pointed out as key factors that restrained to some extent the actual application of these interventions in the classroom (2 ST)(3 NT):

> *'... you couldn't necessarily use all the Thinking strands all of the time because* ***you are led*** *by the Curriculum demands, and use TS methods wherever possible... but I'm not sure I use it every day, in every single lesson... I've had training but I just can't manage to meet the demands of the Curriculum through TS strategies in every lesson, have to use other things as well.'* (1 NT)

Participants suggested that an infused application of the interventions was paramount, as it saved time and allowed a more steady delivery of the NC (3 ST)(2 NT) (2 SHT).

Some teachers also enjoyed teaching through TS strategies more than by using more conventional approaches (3 ST)(4 NT), saying lessons were more fun for all:

> '*I love teaching TS and to challenge them* [children] *to think, not to just take what I say as gospel.'* (1 ST)
>
> *'...P4C, I think it's absolutely brilliant!* [...] *it's just an absolutely fabulous tool for working with children; I just think everybody should do it...'* (1 NT)
>
> *'They* [children] *absolutely love it. I have a "Think Club" on a lunch time, for children and that's always well attended...my class love it when we do "mysteries" and "odd one out"... they just love the different approach because they know that they don't have to be right as long as they can give reasons for their answers.'* (1 ST)

Moreover, teachers learned to take the 'back seat' more, and made every effort to avoid directing children to an answer (2 ST). It was also suggested that teachers were more confident and better at their new role as 'a facilitator' (1 SHT)(4 NHT).

Questioned about TS interventions' advantages and disadvantages when compared to more traditional teaching styles, the number of advantages referred to clearly outweighed the number of disadvantages.

Participants suggested that teachers' questioning skills improved significantly after training (2 ST)(5 NT), and that their ability to unpack and further explore vocabulary was enhanced. A mix of both teaching approaches was also indispensable (3 ST)(4 NT), to allow children to benefit from a wider range of teaching approaches.

Another advantage was that more emphasis was put on getting children to *think* for themselves and about different possibilities (2 ST)(4 NT)(1 SHT)(1 NHT), rather than being mere recipients of the Curriculum contents, as in more conventional approaches.

It was suggested that TS interventions represented a more '*effective style of teaching*', which teachers enjoyed more and that they were more child centred and motivated to teach (2 ST)(2 NT). As a consequence, teachers believed children were more interested and autonomous and were given more time to *think* (3 ST)(2 NT).

It was also implied that TS interventions highlighted the mismatch between teaching and learning, providing teachers with a chance for reflection about practice (2 ST)(2 NT).

> *'... the mismatch between the teaching and learning is what's highlighted very often... although it's not a great mismatch, it does give you pause for thought, and make you think "How could I've avoided that child or children thinking that that was the case?!"... things like "Where did Henry VIII live? In China" and the group who answered that question, after two weeks of studying that topic, still didn't change that... this gives you the opportunity to reflect more on what you're doing...'* (1 ST)

It was also found that people believed interventions raised self-esteem and confidence, primarily children's but also teachers' (1 ST)(4 NT), and that behaviour improved substantially (4 NT).

As for the disadvantages of the application of TS approaches when compared to traditional teaching, what was found was that, according to some participants, TS interventions could lose its appeal if applied daily (2 ST), once the 'novelty' factor was surpassed.

Suggestions also indicated that these interventions were harder to apply to Mathematics lessons and that children needed quite some time to understand and follow the rules, first time they did the activities (2 ST)(2 NT).

Perhaps the most prominent critiques indicated that TS interventions application was time consuming, requiring a lot of material preparation, which was *per se* time consuming as well (2 ST)(2 SHT)(2 NHT).

Moreover, participants revealed that one of the problems, *'not a disadvantage'* (1 SHT), was that there were rarely tangible outcomes and that it was hard to evaluate children's progress. The main reason behind this was that work produced was mainly oral and there was little written evidence, teachers only got '*a good feeling children make progress but cannot measure it*' (3 SHT)(2 NHT). Participants believed it worked and that it raised standards (3 ST)(5 NT)(3 NHT), which consequently led to a continued and persistent application of the interventions in the classroom.

When asked about the kind of contribution people thought they were giving to the improvement of education, by engaging with and applying TS approaches, main suggestions implied that teachers were teaching children to think for themselves, at a higher order thinking level (4 ST)(4 NT)(2 NHT), to be more independent thinkers, *'free thinkers'*, and to be more confident individuals (3 ST)(4 NT)(2 NHT).

Some participants hoped that they were producing learners for life (1 ST)(1 NT)(1 NHT), whereas others hinted they were developing children's thinking so that they could be more self-critical (1 ST)(2 NT).

Teachers also aimed at developing children's communication (to infer and deduct) and social skills (2 ST)(1 NT)(1 NHT), as well as reasoning and justification skills, the ability to argue and discuss different opinions, and still respect and accept different views, also identified as *'life skills'* (2 ST)(2 NT). Other participants believed they were widening children's horizons, giving them opportunities to express themselves (2 NHT), and boosting children's self-esteem, self-confidence and motivation to learn (2 NT).

Head teachers suggested TS interventions had benefits in children's academic work, and that they could transfer and apply gained knowledge, as they were more aware of the learning process (3 SHT).

♦ Phase II

Findings from this phase of the research indicated that all Portuguese teachers (PT) agreed that teaching through TS alternative teaching methods would benefit Portuguese children, introducing diversity in the classroom and improving teaching and learning processes. Despite the differences between the Portuguese and the English educational systems (6 PT) teachers believed it was possible to apply TS interventions in their classrooms (4 PT), even though it would be a long, complex task (4 PT) and some time was necessary to change initial attitudes and reservations (2 PT).

Due to the differences between these two educational systems, suggestions showed that a '*copy / paste*' procedure would not be successful. It would require some modifications and adjustments, in order to allow teachers and children to take full advantage of all strategies and to come closer to the Portuguese educational, social and cultural realities (4 PT).

Three teachers suggested implementation would be very unlikely to occur because these countries' educational views are exceedingly divergent, it was even insinuated that Portuguese teachers '*have little time for democracy*'. Besides, it would be fundamental to have support on this implementation from the government and universities that provide teaching degrees (2 PT), a reality that seemed remote and improbable (3 PT).

In spite of the differences between Portuguese and British attitudes regarding education, five teachers recognized that some of the elements developed through TS interventions were actually developed in Portuguese classrooms, but by making use of daily experience and shared knowledge from other teachers.

Two people believed that some teachers would offer resistance at first but, if results were indeed positive and if there were obvious benefits for the children, teachers would increasingly adhere to the implementation of the TS interventions in their classrooms.

The best way to start pulling away from more traditional teaching methods and to implement TS approaches was '*to start talking about it, discuss it, we are open-minded*', one teacher suggested. It was also suggested that it would be easier if interventions were introduced in higher education first degree's programmes (4 PT).

In order to ascertain whether implementation was viable or otherwise, one teacher pointed out that a major change *at all levels* had to occur, what she called *an Educational Revolution.* It was suggested that, prior to any implementation or significant change, the first step was to have access to more information about TS interventions, mainly training courses. It was recommended that people engaged with education, such as teachers, parents, governing bodies, even the children, should be made aware of the benefits of the implementation of these innovative teaching approaches in Portuguese classrooms.

It would be vital to recognize and comprehend the advantages of a rejuvenated educational system, one that is more challenging, child centred and inclusive or *'democratic'*, and its future impact in terms of social, cultural and economic improvements (2 PT).

Other teachers implied that the application of new strategies and methods would enrich teachers' teaching style and improve Portuguese educational standards, providing children with more didactic benefits and opportunities for the future (3 PT): *'It would surely improve my teaching style.'*

It was further suggested that it was crucial to teach children how to reason, to justify their answers and to question things further, which was not happening in Portuguese classrooms (2 PT). A combination of strategies was hence indispensable, to develop children's autonomy and critical thinking, as well as to teach them to become more independent learners, (3 PT): '*this means help for life!'*

As for barriers to the implementation of TS interventions in Portuguese schools, a few key aspects were pointed out. Parents' and course providers' mentality could epitomize a serious concern, since more traditional views of education are deeply rooted in the Portuguese society (4 PT).

This also included the opposition from some more conservative teachers and children's attitudes towards a different approach to teaching and learning, which would be completely new to them (3 PT). One teacher argued that the majority of the Portuguese children were not intellectually prepared to develop through these alternative interventions, whereas other suggested that some would not collaborate initially as they were not independent enough nor prepared to take control over their own learning process.

It was also found that the flexibility of the present Portuguese primary school's curriculum is limited. Teachers need to follow the national programme scrupulously (7 PT). Yet, as long as the programme is completed, they have freedom to choose their teaching methods and deliver lessons at their will (3 PT).

Notwithstanding this incentive, one teacher explained that the complete delivery of the long programme was the main barrier to the implementation of TS interventions in Portuguese schools, should this be an option, because it inhibited the development of other skills, '*which would probably be very beneficial for children.*'

Six teachers suggested that the programme was very extensive and that their major concern was to complete it by the end of each academic year. Because of this curriculum constraint, time to implement TS approaches in the classroom was hardly available, in case it was offered to them as a concrete opportunity.

Further indications suggested that these two factors could lead to some scepticism and increase some teachers' resistance to the introduction of alternative teaching strategies in their classrooms (3 PT). Their preoccupation about curriculum delivery and children results would probably overwhelm the necessity for innovation and challenging of the children beyond the traditional boundaries.

Finally, some suggestions indicated that the isolated implementation of TS strategies in the classroom would not be successful (3 PT). Instead, its infusion in the normal programme seemed to be a viable alternative (5 PT). Either way, one teacher believed implementation of TS approaches would be rather drastic and possibly unlikely, especially in poorer areas of the country, due to strict and more traditional mentalities and preparation children were bringing from nurseries and their own homes.

♦ Phase III

In this phase of the research, teachers that were revisited by the author kindly prepared a 'TS lesson' so that it could be observed and later analysed. A few interesting findings were drawn from those observations.

A number of features that are regarded by most authors as distinctive components of a good TS lesson (for a detailed summary of these characteristics, see Higgins, 2001) were detected during the TS lesson observations and are described next.

From the four TS lesson's observations and respective follow-up interviews, it was clear that teaching was organized in a highly child centred manner, as all teachers pointed at the large number of benefits children got from the TS lesson, as well as giving children more time to verbalize their ideas.

From the four teachers, only one said the lesson did not go according to plan. However, she later concluded it had been a good TS lesson indeed, because children had explained the reasons why they had made a particular statement.

Lesson observations showed that all teachers appeared to possess high levels of confidence and motivation, and delivered contents in an agreeable manner. They all started lessons with an overview of previous learning contents and the explanation of the day's learning objectives, such as: '*to explain our thinking (to put thinking into words), to consider views of others and to reach a conclusion using evidence.*'

They all prompted children to answer questions and gave them plenty of time to *think*, as well as offering them vague, albeit important, clues. For instance, one teacher prompted one child, asking '*Only adults can work?* [...] *Why do children need to work?*' Meanwhile, she showed the child a picture of children working, reinforcing the child's thinking process with this visual aid.

Two teachers indicated that when an activity was successful for children, they would apply it again in future lessons. Another said that she did not avoid '*this* (TS interventions) *kind of activity*' but confessed that she kept it as tight as she could, otherwise some children would misbehave.

All teachers made use of a wide range of material resources, including pictures, small cards with words, overhead projector, statements to consider or to complete, and soft music played in the background, making children stay quiet while one teacher did the register.

Children were also organised in circles, in groups and in pairs. They were grouped according to their abilities, a combination of higher and lower abilities and mixed personalities, *e.g.* groupings of withdrawn and extroverted children. This careful selection facilitated and promoted cooperative work between children, visual contact and respect for *the difference* within each child. Materials were also prepared by each teacher taking into account the needs of the respective groups.

All teachers managed to create a very comfortable, relaxed atmosphere in their classrooms and children seemed to enjoy the lesson, participated and were quiet whenever necessary. At the end of the lesson, two teachers helped children to summarize the main ideas of the lesson, reflection upon their learning processes and the reasons behind their opinions.

Findings related to LEARNING from the grid containing a list of statements about teachers' profile that was presented to the teachers in this phase of the research, revealed that all four teachers were highly committed to their jobs. In a 1 to 5 scale, 1 being the highest (or equivalent to 'very much') and 5 the lowest (equivalent to 'not much'), all teachers ticked grade 1 for the statement 'commitment to your job'.

As for 'ability to judge professionally', three teachers indicated grade 1 and one teacher ticked grade 2. At the same time, two teachers indicated grade 2 for 'faith in your professional judgement', whereas the other two ticked grade 1, suggesting they probably had complete trust in their own professional judgement. Three teachers ticked grade 1 for all these statements: 'ability to transfer and adapt ideas', 'ability to expand own teaching' and 'ability to take risks', whereas one teacher indicated grade 2 and 3 for these statements.

Finally, when asked about 'need for evidence in the classroom', two teachers ticked grade 1, another ticked grade 3 and the fourth teacher indicated grade 5. This teacher added outside the grid that '*we have been trained in the past to have evidence but we should be interested in the process*', underlining this word to highlight what should be in reality the main focus of teaching and leaning procedures in a classroom.

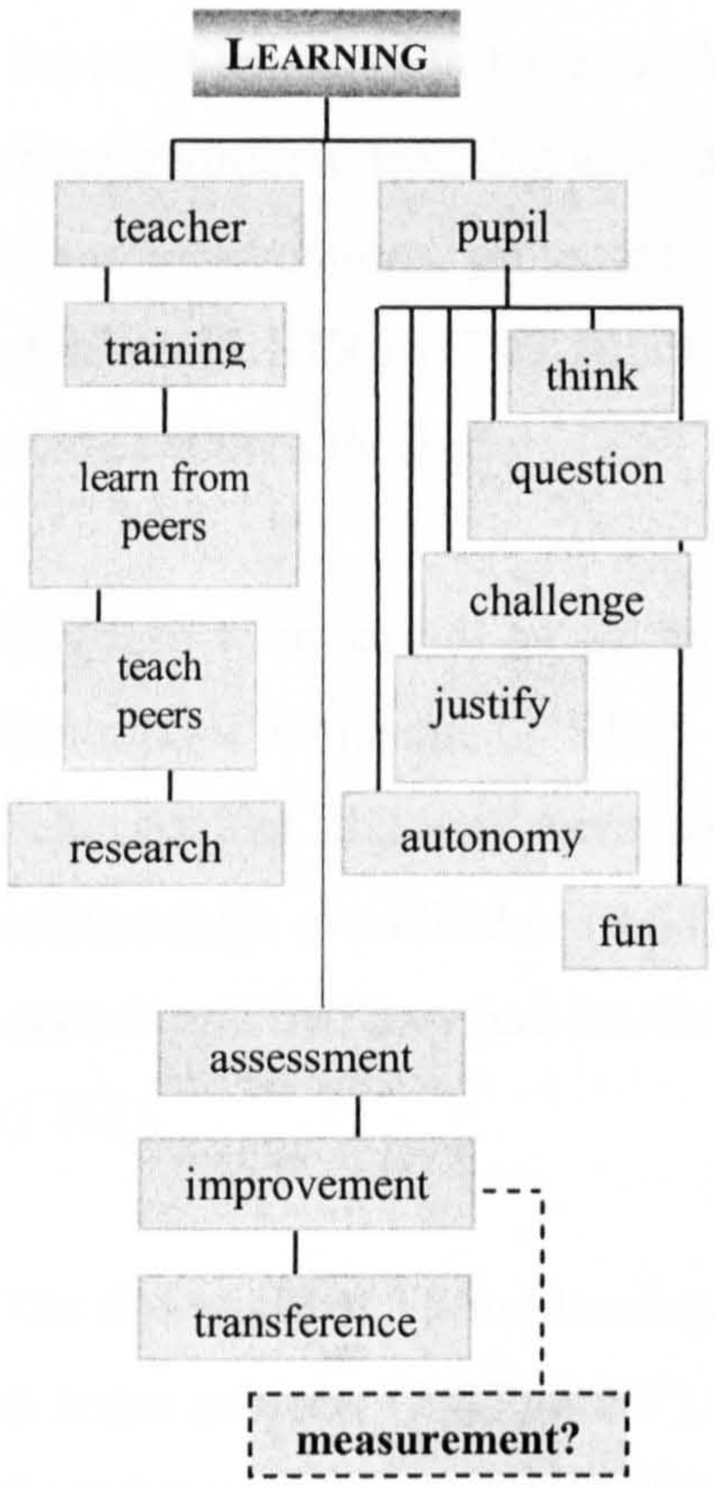

Figure 7: Illustration of LEARNING key ideas

4. 11 Learning - Perceptions and Impact

♦ Phase I

During this phase, what was found with respect to the perceptions of the learning process after the implementation of TS interventions occurred was that two distinct instances should be taken into account: impact training and implementation had on teachers and on children.

Training was the first aspect looked at earlier in this chapter. However, there is another side to teachers' learning besides training they received. Teachers also provided other teachers, headteachers and teaching assistants with training sessions (4 ST)(5 NT)(1 NHT), as well as researching topics related to the implementation of TS interventions in their schools (2 ST)(2 NT).

For instance, one teacher explained how important previous research was, when she looked at the impact TS interventions had on Nursery children's use of reasoning vocabulary in her own school (1 ST). This experience equipped her with valuable knowledge that enabled her to help a sceptical Nursery teacher, new in her school, who was apprehensive about the use of P4C with children as young as 4. The participant teacher said: '*then, I've shown her and she's realised 'yes, it* ***does*** *work with little ones' and she's now alright about it.'*

It was suggested that the level of involvement with further training or research opportunities depended on the individual's personality and personal interests. Some people suggested this may explain why some teachers wanted to learn more, '*I feel prepared but I'm not complacent'* (1 ST), were more proactive and actively engaged with numerous courses (4 ST)(4 NT), whilst others appeared to be fulfilled with the basic knowledge on TS interventions they acquired (2 ST)(2 NT)(2 SHT)(1 NHT).

Indications showed that the implementation of TS interventions was reinforced by the impact it appeared to have on children (5 ST)(7 NT)(2 SHT)(2 NHT). When compared to more traditional teaching approaches, participants implied that classes that put into practice these interventions promoted more discussion, collaboration and interaction between children (3 ST)(6 NT)(3 SHT)(2 NHT), which encouraged team work (3 ST)(3 NT) and made children *think* more (3 ST)(3 NT)(1 SHT).

Children were said to be far more engaged, motivated, valued and respected, heightening feelings of inclusion (2 ST)(5 NT)(2 SHT)(4 NHT) and trust (2 ST)(3 NHT). It was believed that children were more responsible and tolerant, which improved children's relationships even further (5 ST)(8 NT). Suggestions also indicated that it was the *child's agenda* and that they had freedom to answer and ask questions to teachers and peers (2 ST) (1 NT).

The downside of TS implementation was said to be the reduced or total absence of writing in some subjects (2 ST)(4 NT) and lack of discipline when children were first exposed to these interventions (1 ST)(2 NT).

However, according to some teachers, self-respect and for other people's views improved (2 ST)(3 NT), as well as participation and behaviour. It was suggested that children knew that it was a safe environment, which made them feel more secure and inspired to participate (3 ST)(3 NT):

> *'During TS activities, they're always very enthusiastic and, apart from one particular child who doesn't like to be in a group situation, the behaviour is good and they cooperate with each other.'* (1 NT)

It was suggested that the fact that there was no right or wrong answers in lessons that applied TS approaches was extremely positive for children (2ST)(3 NT), in particular for those with low self-esteem, since '*the focus is on the process of working things through*' (1 NT). Hence, most people believed that children were more confident and that their had better self-esteem (6 ST)(7 NT)(3 SHT)(2 NHT), and some suggested classes were more interesting, fun, challenging and rewarding for the children (5 ST)(7 NT)(1 SHT)(3 NHT).

Classes were described as all-inclusive, where all children had an equal opportunity to participate, which was particularly beneficial to children with Special Educational Needs (6 ST)(6 NT):

> *'... I've got some SEN children in my class and they quite enjoy having a chance to voice their opinions and they are quite confident when they do it.'* (1 NT)

Some participants believed pupils were more autonomous and independent learners (2 ST) (4 NT)(1 SHT)(3 NHT). Others felt that children's attitudes had changed (2 ST)(3 NT) (2 SHT), that they could sit still for longer and had enhanced concentration span (1 ST) (3 NT). One head teacher said: *'They can be calmer and more rational... and they do have different approaches to work and for solving work'* (1 SHT).

Other head teachers added that TS interventions would improve pupils' results tremendously in the long run (2 SHT)(1 NHT) and it would impact on behaviour because '*it raises self-esteem and children understand the point of their learning*' (3 SHT)(2 NHT). Likewise, teachers said children were more aware and responsible for their own learning process (4 ST)(2 NT): *'Children are on task and know they don't have to be right, just give reasons to justify their views'* (1 NT):

However, divergent opinions suggested that children were not aware of their learning process (1 ST)(2 NT)(1 SHT). It was argued that since the amount of written work was extremely reduced, children did not regard TS activities as real school work:

> *'It's not work, it's a game!'* (1 ST)
>
> *'... they'll say they are not working, they tell you they had great fun all afternoon, and ask you when are they going to do some work... they don't realize they are really working very hard and they've learned an awful lot, but that's fine, as long as they work and have fun.'* (1 NHT)

Other ideas suggested that children's questioning skills changed from closed to open-ended, hence becoming '*more philosophical*' (2 ST)(2 NT), and that they could justify ideas, reason more and that they produced more rational and reflective work (2 SHT) (2 NHT).

♦ Phase II

As previously explained, the findings from Phase I of this research were presented to all Portuguese teachers participating in the second phase of this research. Subsequently, they were able to decide whether or not they believed TS interventions had any substantial benefits and whether its introduction and implementation in Portuguese primary schools would in reality have an impact on them and on the children. Three teachers said that they did not have enough knowledge about this subject to determine the extent of TS benefits.

Results showed that people believed there would be obvious advantages to apply these approaches in Portuguese classrooms, with a vast number of benefits, namely for children's learning process (9 PT). All teachers believed TS interventions could probably help pupils to gain a more positive attitude about education and personal lifelong achievement. One teacher suggested TS methods allowed children to look at education '*as a discovery and enrichment space, not restricted to school alone... learning by this methods may be a powerful tool for lifelong learning.*'

However, suggestions indicated TS implementation had to be a gradual process (2 PT) and children should be able to enjoy a combination of innovative strategies and methods already used by teachers (5 PT). One teacher suggested that it would bring a fundamental recompense to the Portuguese educational system as it '*... doesn't **traditionally** promote a symmetric relationship between children and teachers and it doesn't allow an equal participation amongst children.*'

Another idea that seemed to entice most teachers was that TS interventions appeared to be more enjoyable for children (4 PT), and at the same time, children seemed to be more engaged with their learning process and enjoyed being in control of its progress (3 PT). One teacher added that traditional teaching was boring precisely because children were not actively involved in their learning process. Teachers suggested that for these reasons and because of a more creative and innovative teaching style, children could probably become more motivated to learn and could perhaps '*see the actual point of their learning*' (2 PT).

It was also assumed that TS interventions would probably be more beneficial to introverted, insecure or less autonomous children, who may have more serious learning difficulties and who were traditionally relegated to second plan (3 PT). These children would probably get raised aspirations, feel more confident and valued, as they would have access to equal opportunities to participate and develop vital competences to improve their learning (2 PT). Fun, all-inclusive activities also seemed to be more stimulating for children (3 PT). It was also implied that activities could be advantageous to more extroverted children, who might feel superior to their peers, helping them to develop respect for others and accept different viewpoints and ideas (2 PT).

One teacher suggested that it was imperative that children brought '*that kind of mentality from home, taught by their parents*', so that these innovative approaches could have some impact on their aspirations and attitudes.

Some previous indications showed that TS approaches would probably stimulate lower attendance pupils but people also felt it could possibly provide mischievous children with an opportunity to destabilize lessons, as they would not be prepared to handle the '*unusual level of freedom*' TS lessons seemed to advocate (2 PT).

Other teachers suggested that, after the initial apprehension, insecurity and perhaps some inaptitude to respond to the new teaching methodology, children would accept those methods unreservedly (3 PT) and adapt to it without major problems (4 PT).

People believed children would love to have these approaches in the classroom (7 PT) and would probably feel enthused (6 PT) because of the nature of these interventions, which allows valorisations of children's skills and knowledge that goes beyond the compulsory contents stated in the Curriculum (2 PT), as well as being more challenging than more traditional approaches (2 PT).

♦ Phase III

During this phase, a significant wealth of information was collected with respect to perceptions of the learning process after TS interventions were implemented in schools. All four teachers suggested children took a great deal out of their TS lessons. Two added that they made an effort to include a combination of strategies to cover the distinct learning styles in their classrooms, which consequently augmented children's learning probabilities. They argued that this was taken into consideration when they planned their TS lessons.

Three teachers suggested children '*did a lot of thinking*' and discussed with each other. All agreed that children's participation was outstanding, and three teachers added children offered their views on the topics studied and reasons '*why one thing linked with another*'. This was also noted during all lessons' observations.

Two teachers explained that their lessons were 'good TS lessons' because children had a chance to *think,* they could consolidate their thinking, it was challenging and provided them with an opportunity to know that there was not one exclusive correct answer. One teacher added that this boosted children's confidence, including having the courage to change their own initial opinion. During lesson observations, it was noted that most children seemed to be confident and were apparently happy to complete the activities presented to them.

Two other teachers suggested that some children '*came up with background knowledge, things they've seen or read before*', which was said to be valuable to help making new connections and was imprescindable for the formation of new ideas and concepts.

When asked for evidence for a good TS lesson, one teacher said that the insight into children's thinking and the depth of their thinking showed that children made obvious connections first, *e.g.*, '*apples are found on trees*', and later moved on to deeper connections, *e.g.* '*the castle and the little cottage are both houses*', which perhaps meant children moved away from the story and transferred their ideas into other concepts.

Since no written work was produced, two teachers suggested that the only evidence that proved it was indeed a good TS lesson was that children talked to each other, they had time to *think* and were able to give their opinions. One teacher explained: '*I wasn't after any written evidence, I was after facts, opinions and we certainly got that.*' The other expanded this idea: '*I went round, noted how children were suggesting things... later they say 'yes, it's made me think of this and in the future I'll do this... yes, that's evidence because there's nothing written down.*'

Other valuable material was collected during Phase III, through the children's semi-structured interviews (Appendix I). The author intended to gather, as thoroughly as possible, children's ideas about TS lessons that were provided to them in their schools.

Children were asked whether they liked Thinking lessons and two of the four higher ability pupils said they liked it very much '*... because I think they're good for you*' (Year 5). One said he liked it a bit '*because they give you a little bit of time to think, and I like thinking*' (Reception), whereas the other child confessed she did not like it very much '*because I find it boring... well, it's just that I don't really like working in a group, I like working by myself*' (Year 6).

As for the lower ability pupils, one said she liked it a lot (Year 1), whereas two other said they did not like it very much. One pupil said: '*I don't like answering questions... it makes me think a lot and I don't like it*' (Year 6) and other child added '*you have to think really hard and sometimes I forget things and I don't really know some things...*' (Year 5).

As for *talking* about personal ideas and feelings in front of a class, three higher ability pupils indicated that this did not represent a problem to them: '*I like when people listen to me*' (Year 6); '*I like talking with my friends in the class and share how I feel*' (Year 1). All lower ability children also suggested they liked talking about their ideas in front of their peers: '*... sometimes I like it because it help us to remember things and some of my own ideas... or the way I think about the thinking stuff*' (Year 5).

Despite the fact that all children from the lower ability group affirmed they liked to talk to their classes, two appeared to be rather uncomfortable when facing their peers: *'I get embarrassed, don't like it'* (Year 6); *'...sometimes I feel nervous and people will laugh sometimes... disgusting... and when they're laughing at me, you can't remember what to say, like, if you want to say something'* (Year 5). On the other hand, all high ability children appeared to feel confident enough to speak in front of other children: *'I really like it... I'm not fully confident but I'm not frightened... in front of the class I don't feel shy'* (Year 6); *'I don't mind standing up in front of the class'* (Year 1).

All children from the higher ability revealed they enjoyed *listening* to the opinions of their classmates. One child said *'I like to compare them with my opinion'* (Year 6), whereas another child said *'they always have interesting ideas'* (Year 1). As for the lower ability children, one child said *'I like to hear new ideas... I find out new stuff from what they're saying, I ask for other things and ideas and they are alright'* (Year 5), while another indicated that *'I like to see how they* [peers] *think'* (Year 1).

Two high ability children believed TS lessons were very easy, whereas the other two felt they were hard: *'no, they are very hard... but **I wouldn't want them to be easier**, I want them to be harder'* (Year 1). The child's teacher was present in the room and added *'He likes a challenge.'*

Two children from the lower ability group indicated that classes were very hard: *'I find it hard because I'm not good at it... sometimes I talk with people in the middle of the lesson and I don't really learn very much'* (Year 5). The other two children believed classes were very easy: *'sometimes difficult and sometimes too easy'* (Reception).

When children were asked whether or not they felt they *worked* hard on TS lessons, three children suggested they worked hard on those lessons: *'... but that doesn't bother me, I enjoy working hard'* (Reception); *'I work hard because I like thinking lessons... **I think they are good for your brain** because it gets you thinking about different kinds of things... it's hard but I like good challenges'* (Year 5).

As for the lower ability group of children, two children believed they worked very hard on these lessons, whereas one child said he did not work hard on TS lessons '*because I can't think, it's difficult'* (Year 5). Another child gave a similar answer but a different reason: '*the lessons are easy'* (Reception).

Three higher ability children enjoyed working in groups: '*they get very, very good ideas and I listen to their ideas... and I tell them my ideas... I like that; I like to know how they feel about things'* (Year 1); '*they are friendly and kind to us and they don't usually just shout at you, we discuss things in a nice way when we work in groups'* (Year 5) '*I like working with them because it makes me happy'* (Reception). One child preferred to work on her own.

All lower ability children indicated they liked team work: '*I like working in a group of children because they're nice to me'* (Reception); *'... because you get more help and you don't have to do all the work... just do a bit and the others do a bit... we share the task, we all think of bits of the problem'* (Year 6); '*I like sharing ideas in a group and work is easy that way'* (Year 5).

All high ability children believed they were good students, whereas only two lower ability children felt that way, one of which made an interesting observation: '*when I first started Year 6 I was bad but now I'm good'* (Year 6). It should be noted that approximately six months had passed since this child had started Year 6.

As for the quality of the work produced in TS lessons, all children on the higher ability group indicated that their work was very good. Similarly, all children from the lower ability group also believed that their work was good.

All higher ability children said they liked thinking about the contents learned in the lessons: '*I like it and I think... and I talk about what I learn'* (Year 6); '*I like it... I think about what I learn'* (Reception); '*I like learning new things so, I go home and tell me mum and then she'll be pleased... I tell her what I've learned'* (Year 5).

On the other hand, lower ability children also seemed to enjoy reflecting or talking about the work produced in class: *'I like thinking about what I learn in the class because sometimes they* [peers] *help me'* (Reception); *'I think about what I learn... I go home and tell mum about work... I like discussing it with her'* (Year 5).

All high ability children suggested they enjoyed using their imagination during TS lessons: *'I like to imagine things, what you can do with them... I have good imagination'* (Year 1). Likewise, all lower ability children made similar suggestions: *'it helps you to remember and think... if Miss said 'think for your head' so, I know straightway what it looks like'* (Year 5).

All high ability children agreed that TS lessons were *fun*: '*...because you have different opinions, then when you tell it to the others, things start to be a bit better'* (Year 5); *'yes, it's fun but I don't play a lot'* (Year 1). As for the other group of children, opinions were unanimously similar: *'it's fun because some people help me when I get stuck'* (Reception); 'it's *fun but I work more than I play'* (Year 1).

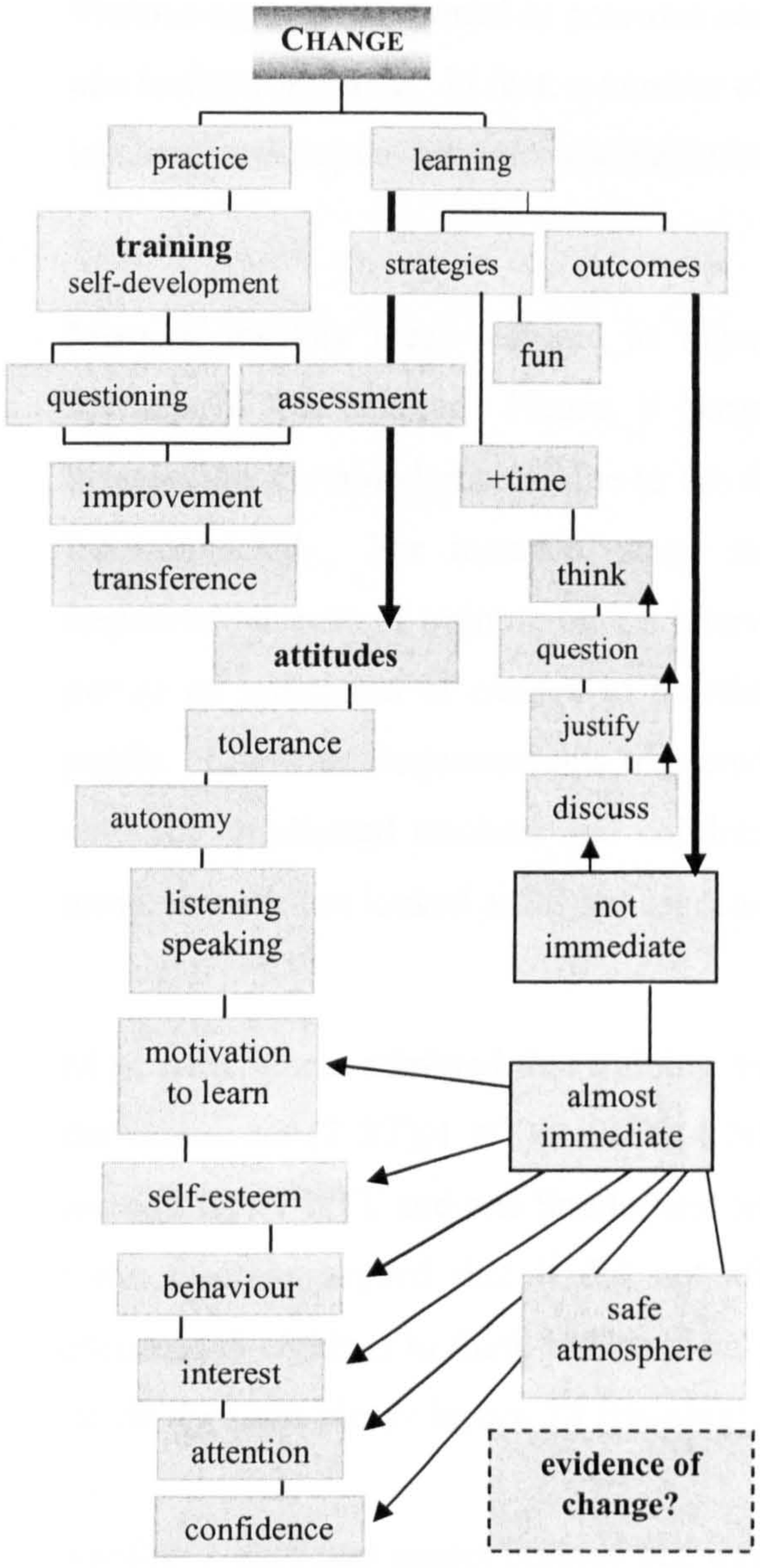

Figure 8: Illustration of CHANGE key ideas

4. 12 Change - Perceptions and Impact

♦ Phase I

By now, it may be safe to suggest that the majority of people involved in this phase of the research believed changes had occurred after the implementation of TS interventions in their schools.

By *change* it is meant an alteration in behaviour, attitudes or results, by which people adopt or adapt different postures and results improve, as well as a revision, transformation or adjustment of personal and professional beliefs, values and perceptions. Ideally, this alteration is a constructive and advantageous process, where improvements are often visible.

The logic behind this particular enquiry about change was to investigate the impact training in TS interventions had on people's judgment about their professional practice, taking into account that the majority taught for many years before having training in these interventions.

It was also an attempt to comprehend to what extent participants felt change was valuable to their careers or whether or not it impacted on pupils and on their professional development.

Hence, practice and learning processes were at the centre of this particular investigation, as these appeared to be the aspects that were primarily and most evidently exposed to the impact of TS interventions. It was important to understand the extent of its benefits and potential difficulties people faced whilst dealing with change, both as a teacher and as a pupil.

Various aspects mentioned in previous sections indicated that changes were not caused by one isolated instance. In fact, a number of interrelated aspects may have had an impact on teachers' and pupils' attitudes and behaviour.

Most of the key ideas featured in Figure 9 have already been mentioned in previous sections of this chapter. Hence, it became apparent that it was virtually impossible to disassociate certain elements, due to the fact that some categories' key ideas were closely interconnected. For instance, some teachers indicated that their questioning skills improved because of training on TS interventions (*practice* section), which ultimately was *per se* an indication of *change* in practice, as well as in the overall learning process of pupils. Likewise, improvements triggered by *training* were also regarded as *change* that naturally implicated teachers and children (*training* section). Hence, bearing all this in mind, this section looked at further aspects of *change.*

Most participants admitted that training on TS interventions changed their performance in the classroom (2 ST)(4 NT)(2 SHT)(4 NHT), others suggested it had a great impact on them (1 ST)(1 NT), and one Sunderland teacher added '*it changed me for life!*'. However, some teachers argued that it did not affect them significantly since they had always encouraged children to think independently (1 ST)(1 NT), whilst others claimed they used '*to do the same things before TS* [training]' (1 ST)(2 NT).

Another significant aspect pointed out was that training seemed to prompt changes within the teacher, but these were also provoked by the challenge of learning improvements and children's obvious progress (1 ST)(2 NT).

Change appeared to be welcomed by most participants (3 ST)(3 NT)(3 SHT)(3 NHT): *'I embrace and encourage change'* (1 NHT). Further suggestions indicated that a number of participants affirmed they did not offer resistance to change (2 ST)(2 NT)(2 SHT)(2 NHT) when they were confronted by it: '... *we* [teachers] *need to be adaptable people'* (1 ST).

Others suggested that:

> *'... the world is a changing place, got to move with it... you must be prepared to try new things... to resist it causes troubles to oneself.'* (1 ST)
>
> *'I don't mind change... particularly in a primary school, if you can't cope with change, then you shouldn't be here because there's been so much change in education, you've got to be a very adaptable person...'* (1 NT)

Some teachers confessed they were somewhat apprehensive at the prospect of training on new educational initiatives as the TS interventions (2 ST)(1 NT). One Sunderland teacher revealed she thought '*Oh, no! Not another initiative'*. However, attitudes seemed to change once people realized that, in practice, it was indeed remarkably beneficial for pupils.

Some of the participants regarded change as a natural, continual and gradual process (3 ST) (6 NT)(2 SHT)(3 NHT) while others suggested changes were not immediate (2 ST)(6 NT) (3 SHT)(3 NHT):

> '*It may take a year for them* [children] *to transfer skills.'* (1 ST)
>
> '*It takes time to introduce new things to the children, to build up teachers' expertise and children's broad base to build on.'* (1 SHT)
>
> '*... you begin to see the impact after 3-4 months and over a year.'* (1 NHT)
>
> '*I wouldn't say results were clear, there's no visible change from one lesson to the next but you can see over a process of time what's happening.'* (1 NT)

Some participants suggested teaching and learning processes would gradually improve, as well as '*results and standardized tests'* (1 ST)(2 NT).

Other suggestions indicated that some participants believed some changes were '*fairly immediate'* but that it needed to be ongoing (1 ST)(2 NT)(1 SHT): '*teachers' questioning and way children respond and justify answers'*. One teacher claimed that for her *'change was overnight'* (1 ST) while some head teachers felt that the introduction of TS interventions had caused major changes initially but then its progression stabilized (1 SHT) (1 NHT). Some teachers believed changes could be immediate once '*a safe environment is established'* promoting changes in self-esteem and motivation (2 ST)(2 NT).

Other immediate changes noted in children were: discussion and justification skills, questioning skills, cooperation, and ability to express oneself (2 ST). Two teachers believed behaviour and attitudes '*take longer to change'* (1 ST)(1 NT)

In short, suggestions were unanimous and indicated that once training was carried out and TS interventions introduced in the classroom, substantial improvements occurred in terms of practice and learning processes (4 ST)(8 NT)(3 SHT)(4 NHT), which resulted in a change of attitudes and behaviour both from teachers and pupils (2 NT).

Nonetheless, it was found that some people felt that '*no major changes'* occurred since the implementation of TS interventions in their schools took place (1 ST)(3 NT)(2 NHT). Some Northumberland participants argued that children had been exposed to these approaches for such a long time that '*they are used to that way of thinking'* (1 NT)(1 NHT). Other suggestions indicated that exams' results did not improve, '*only the quality of writing'* (1 NT). Another head teacher argued that no changes were noticed because it was hard to assess whether or not TS approaches were the real responsible factor for classroom improvements (1 NHT). Two teachers also claimed that it was difficult '*to get a long-term effect and measure change or improvements'* (1 ST)(1 NT). Moreover, it was claimed that children were still very young and saw lessons as '*big blocks*' not linked together, and hence could not make connections between subjects (1 ST) (2 NT).

However, two Sunderland teachers believed that the results of the Standard Attainment Tests (SATs) as a matter of fact had improved. In the UK, pupils are assessed by national SATs at the end of Key Stage 1 (age 7), Key Stage 2 (age 11) and Key Stage 3 (age 14). These tests help teachers to evaluate pupils' strengths and weaknesses and to determine pupils' understanding of a specific subject. It was found that participants believed that not only children's questioning and writing skills were better but also it was argued that inference and deduction questions had higher marks and '*poorer children could think beyond the obvious*'. One head teacher argued that it was difficult '*to measure improvements but tests results improved over the past years'* (1 NHT).

Even though some teachers argued children could not transfer knowledge and experiences to other areas of the Curriculum (2 NT), some head teachers believed children were indeed able to transfer skills between subject areas (2 SHT)(2 NHT).

Other major changes pointed out referred to changes and improvements in classroom practice and the way teachers addressed learning in the classroom, *'more awareness of how children learn'*, showing a more child centred attitude and that activities were differentiated to accommodate all learning styles (3 ST)(8 NT)(2 SHT)(3 NHT).

It was further suggested that some teachers planned TS into the term (1 SHT)(2 NHT) and that they had a different attitude (1 SHT)(3 NHT):

> '*... some were cynical at first but put it into practice and saw its success and now they like it.'* (1 SHT)
>
> *'They are more confident and reflective.'* (1 NHT)

Some teachers suggested they challenged pupils more and they gave them '*more time to think, reason and justify their answers'* (3 ST)(2 NT). Others argued their questioning skills improved significantly and that it was important because '*it allows thought diversion'* (2 ST)(3 NT). It was also found that participants felt that '*more practice gives more confidence to do it'* (1 ST)(3 NT), whilst others learned '*to take the back seat more'* (1 ST) (1 NT).

Two teachers said they had a clearer idea of *why* they used TS in the classroom because they had '*knowledge to back it up'* (1 ST)(1 NT), whereas two others claimed they did more TS activities in different aspects of the NC (1 ST)(1 NT). It was also found that people believed they provided children with strategies to think for themselves and to be more independent (1 ST)(1 NT), and that children were '*more advanced and able to answer questions beyond the literal'* (1 SHT)(1 NHT).

As for the causes that may have motivated these changes, specific training on TS and TS theory were pointed out as the most influential factors behind changes (4 ST)(6 NT) (2 SHT)(2 NHT).

Other factors not slow to follow suit were '*practice and classroom experience*' (3 NT), as well as the fact that people were enthusiastic and '*could see successful work'* and the feedback it was given from children and other staff had a big impact on teachers (1 ST)(2 NT)(2 SHT)(2 NHT).

It was further suggested that changes could have also be prompted by '*the challenge of helping children to get better*', to think for themselves and to listen to their peers (1 ST) (1 NT). Moreover, the fact that teachers reflected more, and from general observations, they could see '*the huge impact it has on children, which is motivating'* was also indicated as a significant factor behind changes (2 NHT).

All participants believed changes were significant and long-lasting. It was suggested that '*universities expect thinking people... and it should start here* [in primary schools]' (1 ST) and that '*enthusiasm makes changes last... and I believe in it'* (1 NT). Furthermore, some head teachers argued that '*TS teachers won't change, they develop and they get more confident and greater expertise'* (1 NHT), and that '*teachers create a different mind-set that makes children more involved and motivated'* (1 SHT).

Perhaps the most striking element related to *change* pointed out was the lack of consistent physical evidence. Some participants suggested it was very difficult to measure improvements, claiming that they did not have '*concrete statistical evidence'* or that they did not *'know how to measure that'*, since they felt that '*evidence is hard to obtain'* (3 ST) (7 NT)(3 SHT)(4 NHT).

Participants believed that:

> *'... it's more a gut feeling that children are improving and classes are better.'*(1 ST)
>
> *'...it's mostly oral work, it's hard to record it and to have solid evidence from TS activities.'* (1 NT)
>
> *'... I don't know exactly what to look for and how to measure whether children have improved'* (1 NHT)
>
> *'I see progression but I can't measure it'* (1 SHT)

However, and despite an apparent lack of physical evidence, teachers believed *it worked* and indeed raised standards (5 ST)(5 NT)(1 NHT) and some said they relied on their own professional judgement (1 ST)(2 NT).

> *'... we see that it works... one option is to trust my professional judgement and to believe it's worth continuing the work that I'm doing.'* (1 NT)
>
> *'...I think it does work, yes... throw away the tests and let's just go back to trusting teachers' professional judgements and then we could go back to a much better Curriculum and you could encourage things a lot more.'* (1 NHT)

It was also found that some participants believed there was indeed evidence to support changes and improvements. Some pointed at '*clear improvements of the SATs results*' as evidence, as well as concrete formal assessments in Maths and writing, in particular improvements related to boys' attainment (3 ST)(2 SHT)(2 NHT).

Others alleged they had gathered physical evidence through videos, photos, questioning (as in research), worksheets, outcomes teachers got from TS activities, or that they had registered and compared activities' responses at the beginning and at the end of the year, '*but not a test*' (2 ST)(3 NT)(1 SHT)(1 NHT), suggesting '*it speaks for itself.*' Some claimed they had '*evidence of how children's thinking has progressed*'.

Participants also claimed changes had a substantial impact on their confidence and motivation and well as on children's (4 ST)(6 NT)(1 SHT)(1 NHT):

> *'If something works well, it's motivating and boosts your confidence.'* (1 NT)
>
> *'I knew it in my heart things would go well... I believe in it, it's my philosophy.'* (1 ST)

As for the hardest aspects to deal with during the process of change, most participants indicated that they did not encounter major problems (3 ST)(5 NT)(1 NHT). Others suggested it was difficult to make children understand there was '*no right / wrong answer, it's a process*' (2 ST) whereas some others said they needed more confidence and training (1 ST)(1 NT).

Suggestions also indicated that, at first, Nursery teachers appeared to be the most sceptical about the application of TS interventions in their classrooms, as they argued '*young children can't talk to each other'* (2 ST)(2 NHT). However, after having training and putting it into practice, they could see '*it worked'* and they were able to apply it unreservedly. It was further suggested that '*it was doable'* as long as teachers were provided with activities and strategies that were adequate to their specific age group.

Other aspects pointed out indicated that people felt it was hard '*to try something new for the first time'* (1 ST)(2 NT)(1 SHT)(1NHT), and because the preparation of new materials was time-consuming, it posed a problem to some teachers, who were said to be constantly pushed for time (2 ST)(1 NT)(1 SHT)(2NHT).

♦ Phase II

During this phase, Portuguese participants were asked about their feelings on the introduction of new educational proposals in their schools and about the manner wherein they normally dealt with *change*. It was found that people believed teachers every so often resisted change mainly because it meant more work for them (2 PT): '*... teachers may resist change because it means more work for them, the Curriculum is long and there's no time for everything'*.

It was also suggested that teachers lacked adequate training and continuing support in their schools (7 PT), which may lead to some apprehension when they attempt to apply interventions that are unfamiliar to the majority of teachers. Lack of adequate materials (4 PT) and of physical conditions (3 PT) to perform changes could also represent a problem, as schools may not have the physical classroom conditions to allow the application of some interventions.

Other suggestions indicated that '*administrative and bureaucratic aspects'*, which tend to influence the teaching and learning processes, may also increase teachers' apprehension and resilience to apply new interventions in their classrooms (3 PT).

One teacher said there was natural opposition from teachers if there were indications that innovative educational proposals did not involve everybody in the school or that it was a mere political initiative. This required not only a serious debate and clarification of the aims and advantageous of these measures for those affected by it, but also to understand how they were best applicable within the school's context.

Notwithstanding these objections, it was found that teachers would on the whole accept changes easily, as long as they felt these were beneficial to all, especially to children (6 PT). Hence, it was paramount for teachers to access clear information on the benefits and improvements the introduction of new measures would produce.

Most teachers believed TS interventions would change their performance in the classroom (8 PT) but they also argued they needed more information about these approaches in order to understand the extent of those changes (5 PT). Some teachers indicated that firstly they needed to '*experiment*' TS approaches with their group of children to see their reactions (2 PT), whilst other participants believed changes would depend on the group of children and their attitudes (4 PT).

It was also evident that a '*transition phase*' was important, between the use of different teaching methods or the combination of innovative and more traditional methods (2 PT). Four teachers also indicated they were ready to change their practice as long as they had the necessary material conditions, more information about TS interventions and adequate training to deliver their lessons successfully.

Another major change pointed out would involve pupil-pupil and pupil-teacher relationships (4 PT), which also implicated a change in attitudes and individual expectations about educational outcomes (3 PT).

Participants also believed changes in behaviour and motivation would occur (3 PT). Incidentally, one teacher suggested she would probably need to be more tolerant about the level of noise in the classroom, as TS approaches seemed to involve more debate and discussion and children frequently work in groups, which may not occur so regularly in a more traditional lesson.

Suggestions indicated that further classroom components that would experience some modifications were the lesson planning (2 PT) and attitudes regarding children's learning process (4 PT). This could lead to a more child centred learning approach (3 PT) and the way children were considered to be at the same level, which '*traditionally that doesn't happen*' (1 PT) would possibly direct teachers to '*more democratic lessons, where children would have equal opportunities to express their ideas*'. Consequently, this changes would '*promote participation of all children, especially the quiet ones*' (2 PT), which was said to be '*great for children with more difficulties*' (3 PT). It was also suggested that changes would promote '*more respect for oneself and others*' (3 PT) and would encourage them to think as they would have *'more time to think'* (3 PT), something seen as '*vital to generate 'wiser citizens' for the future'* (1 PT).

♦ Phase III

During this phase, some references were made about change. As explained before in the *training* section, participants indicated that changes had indeed occurred after they had training on TS interventions, which may imply that they progressed towards a different attitude and perception of the teaching and learning processes.

This involved the use of different questioning skills with the pupils, moving from closed to more philosophical, open-ended questions, as suggested by two teachers. It also resulted in allowing children to have more time to think about their answers and one teacher added 'I'm trying to get where they don't put their hands up all the time'.

Three teachers also revealed that with adequate material and training they felt more confident and motivated to teach. One teacher said that, at first, '*I didn't know where to start*' but then it was easier to deliver a TS lesson after training as it was clearer in her mind how to do it.

As for the children involved in this phase of the research, some changes were also noted. However, it may be worth pointing out that no information about the children's background prior to this investigation was obtained.

It was unfeasible to gather information, *inter alia,* on pupils' behaviour patterns, attainment, motivation, self-esteem, hence, it was only possible to present participants' points of view as they were collected.

Some aspects gathered during the pupils' semi-structured interviews indicated that the eight children were on the whole pleased with the TS lessons that were delivered in their schools. Three high ability children indicated that they did not want their lessons to be different from what they were at the time, *i.e.,* to be more similar to traditional lessons. One pupil suggested that '*it might be really hard... **this way, lessons are easy***' (Reception). One child implied she wanted lessons to be different '*to have more talking...*' (Year 6).

As for lower ability children, one Year 1 child suggested classes should be '*a little bit more fun*' whereas a Reception pupil said classes should not be different '*because we do a lot of connections.*' The remaining two children would like lessons to be different and to have more talking: '*more talking and less writing*' (Year 5).

As for *concentration span*, when compared to more traditional lesson, all the children from the higher ability group suggested it was easy to pay attention during TS lessons, for a number of reasons: '*because everyone is concentrating and I think people find it more fun **than ordinary lessons***' (Year 6); '*...because I like listening and then I learn what to do and I read better*' (Year 5). On the other hand, lower ability children felt that it was not always easy to pay attention in the class: '*most of the times it's really hard because there might be other boys talking and I can't hear the teacher... but it's easy when it's silent*' (Year 6).

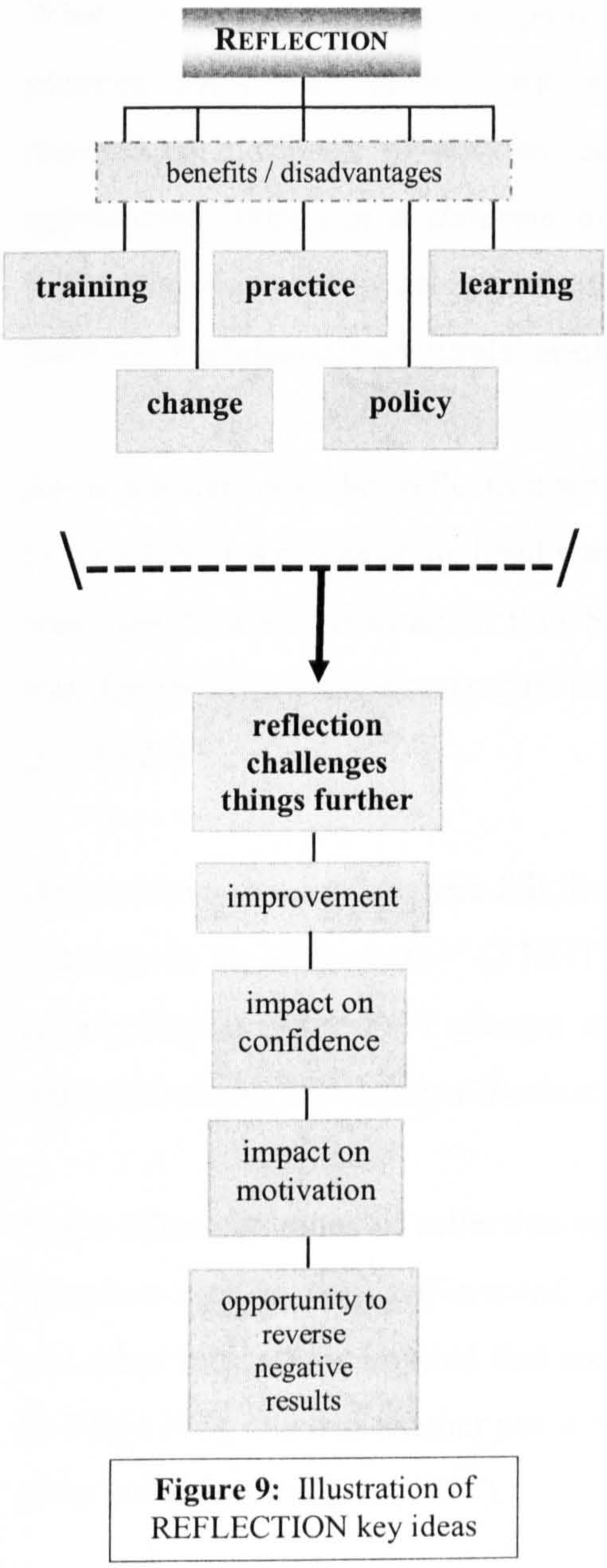

Figure 9: Illustration of REFLECTION key ideas

4. 13 Reflection - Perceptions and Impact

♦ Phase I

Reflection is perhaps the broadest category of the six. Inevitably, comments unveiling traces of reflection were found across all categories.

Good quality practice is closely related with a 'reflective practitioner', which links teachers' commitment to critical thinking with their own experience of largely uncritical practice. *Reflection-in-action* and *reflection-on-action* have been regarded as crucial parts of professional teaching practice as teachers can use their own selection of patterns to restructure a situation or find new solutions to problems that emerge from their practice (Schön, 1983). Primarily, reflection provides opportunities for professional and personal development (Winkler, 2001).

It could be argued that participants executed a constant reflection exercise when they collaborated with this research.

It was evident that it required certain considerations related to the categories under investigation, which enabled participants to form their views whilst analysing particular instances. All categories are naturally interrelated and reflection on key ideas contributed to the clarification of the issues presented to participants and the elaboration of answers.

On the other hand, the prime intention of the enquiry on reflection was to determine whether or not teachers normally reflected on two crucial matters: inputs and outcomes of their practice and its impact on children's learning process.

What was found was that all participants said they did habitually reflect on their own practice, some even added it was a constant procedure (4 ST)(2 NT). This sometimes resulted in a change of attitude, seeing that some participants suggested they usually approached '*things in a different or in the same way next time'* (3 ST)(6 NT)(2NHT). Reflection was seen as an opportunity to repeal less effective teaching strategies or adjust them more adequately to pupils' aptitudes and needs (3 ST)(2 NT).

Some teachers said that reflection was important because it '*challenges things further'* (1 ST)(1 NT) whereas some head teachers believed teachers improved by practice hence, it was important to reflect about it (1 SHT)(1 NHT). It was also suggested that people often transferred successful elements or techniques that worked well from one lesson to another (3 ST)(2 NT).

However, some head teachers felt they needed more classroom practice and wanted '*to find out ways to do things better'* (2 NHT). Others suggested reflection provided them with '*an understanding there isn't always a right / wrong answer*' and that '*the stereotypical approach doesn't always get the best results, it's 'thinking outside the box*'' (2 NHT).

Some other outcomes of reflection were pointed out. For instance, some people suggested '*teachers can be very self-critical, self-analytical and self-destructive... it's our nature!'* and other indications implied that some teachers often '*think nothing is ever good enough'* (2 ST)(4 NT). As one teacher put it '*we do it all on our own, and sometimes we don't know if we are doing it right'* (1 NT).

Sometimes, reflection also resulted in frustration and dissatisfaction, as it exposed teachers' weaknesses and difficulties (2 ST)(1 NT)(2 SHT)(1 NHT). But it could also provide a better understanding of misconceptions, and some teachers claimed they did not take anything for granted (3 ST)(1 NT).

Nearly all participants claimed they analysed their lessons' outcomes (4 ST)(4 NT)(3 SHT) (2 NHT) or discussed results with colleagues (3 ST)(6 NT), whereas some other suggested they did not formally do it, '*except in chatting with colleagues'* (1 ST)(1 NT)(1 NHT).

For the majority, to exchange experiences, share ideas and learn from each other were valuable procedures (3 ST)(6 NT).

Some head teachers explained how their schools had a *'formal system of monitoring'*, which focused on observations and lesson outcomes (2 SHT) whereas others believed outcomes' examination was positive criticism, whereby '*good things raise self-esteem and bad aspects are discussed not to be repeated again.'* (1 SHT)(1 NHT).

It was also revealed that same Year Group teachers, who deliver the same topic lesson, frequently discussed strategies, activities and, at a later stage, lessons outcomes (2 ST) (6 NT)(1 SHT)(1 NHT) as some found it interesting and useful to see different approaches to the same topic (1 ST)(3 NT). It was further suggested that there was a good collaboration between teachers (1 ST)(3 NT) and these often analysed what could be improved for the benefit of the pupils (1 ST)(2 NT).

In short, most participants believe reflection made a positive contribution towards their professional development, since it improved teachers' confidence, motivation and made them '*look at the wider picture all the time*' (4 ST)(5 NT)(2 SHT)(1 NHT).

♦ Phase II

Unsurprisingly, all Portuguese teachers admitted they reflected about their own practice. One teacher explained: '*... of course I do, I'm a reflective practitioner, a transforming intellectual (Aronowitz, 1983)... the main objective is to always be a better teacher and to help children to become better learners, to build up their 'beings', to improve.'*

Most teachers agreed that it was very important to share and discuss ideas with colleagues (7 PT) because it '*enriches our strategies and teaching materials repertoires and contributes to the improvement of the whole teaching and learning process.'* It was further suggested that it was crucial to have constant reinforcement of ideas and strategies (4 PT).

Indications also showed that reflection was vital for personal and professional development (3 PT) and for the '*continuous improvement of learning*', as teachers frequently share positive and negative experiences (5 PT).

Teachers also stated that collaboration was more frequent amongst same Year Group teachers, as they valued the opportunity to bounce ideas from one another in relation to the same topic (6 PT). This also encouraged teachers to experiment new strategies so that activities' results could be compared at a later stage (2 PT), as well as avoid repeating '*the same mistakes and make use only of the good ideas'* (2 PT).

Teachers also reflected on educational policies (2 PT), and one teacher added: '*we discuss the Portuguese educational system, which seems to be always changing, but that doesn't change at all... and our ideas never reach those with the power to change!'*

♦ Phase III

No significant facts concerning this specific category were gathered during this phase of the research.

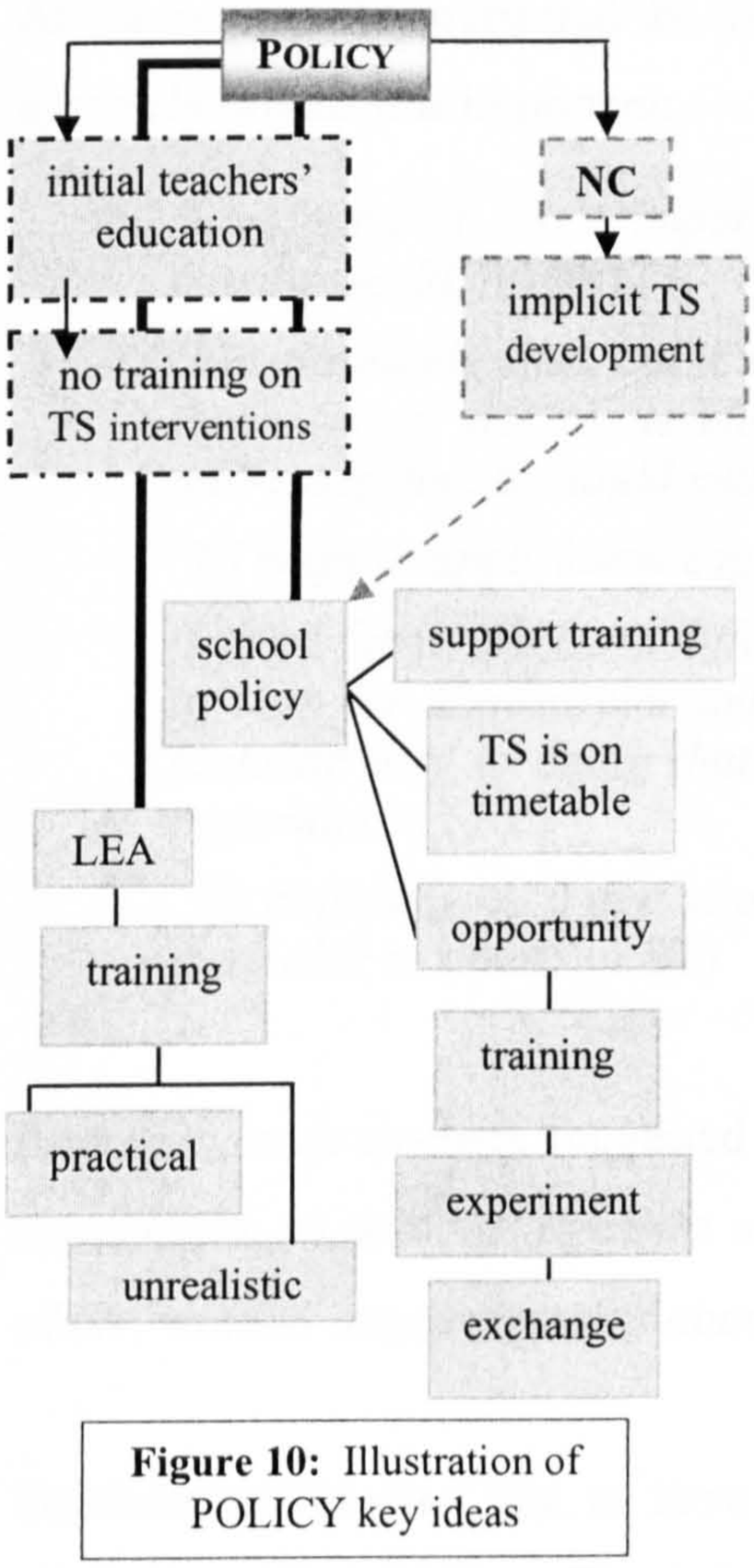

Figure 10: Illustration of POLICY key ideas

4. 14 Policy - Perceptions and Impact

♦ Phase I

During this phase, some references were made by the participants in relation to educational policies and its fundamental implications.

As previously explained in section **4. 7** earlier in this chapter, realities at two distinct levels were borne in mind when taking into account training on TS interventions: **initial teacher education degrees** and **primary schools' procedures.** In the first instance, it is worth pointing out that specific training on TS interventions is not part of the majority of undergraduate degrees' programme, which are offered at universities to all of those studying to become primary school teachers.

Notwithstanding this lacuna, the NC rightfully refers to the importance of the TS interventions and implicitly addresses the necessity to develop children's TS in the classroom, for which specific training of all teachers is required. Even though it is not explicitly outlined, only one teacher and one head teacher interviewed during this phase of the research in Northumberland were unaware of the TS strand delineated in the NC.

Unsurprisingly, the first contact with a school is often also the first contact with TS interventions for the vast majority of newly-qualified teachers. As for experienced teachers, the problem arising from the lack of adequate training remains unsolved until specific training courses are put together and offered to all schools around England. None of the 21 participants in this phase of the research had training on TS interventions during their initial teacher training courses, including those with less lengthy teaching careers. Five teachers (3 ST)(2 NT) also suggested that they had applied elements of TS interventions in their lessons in the past but under a different 'label'.

All participants believed that the inclusion of measures in the NC to develop children's TS in the classroom was important:

> *'I welcome it... it's important and necessary to prepare children for the outside world.'* (1 NHT)
>
> *'It's absolutely vital, but it's been pushed out by emphasis on tests... teachers teach for it, not to develop their all-round ability... but TS does it and addresses that, it should make them better learners.'* (1 NHT)
>
> *'TS helps to apply knowledge, it's linked in all subjects'* (1 ST)
>
> *'I'm all for it! We learn different ways of fitting things in, and I'm always keen to look for Curriculum links, it helps children to learn more and TS is a fantastic way of doing that... children and staff are motivated by it, so it's important.'* (1 ST)
>
> *'We definitely need that strand in... it's very important because children need to be able to think.'* (1 ST)

However, some teachers suggested that the TS strand should be made more explicit in the Curriculum, so that '*all teachers understood its importance and developed children as a whole, without major concerns about test results'* (4 ST)(3NT)(1 SHT)(1 NHT).

Teachers would also like to have more enlightening examples of TS activities (2 ST)(3NT)(1 SHT)(1 NHT): '*The NC is good at giving examples, especially Numeracy, but there are few TS activities, I'd be happier if it was more explicit in all NC areas'* (1 NT).

Suggestions also revealed that it was important to have the support from the school's senior management team to have opportunities to develop professionally and implement TS interventions in the classroom (2 ST)(2NT)(2 SHT)(1 NHT): '*from the management team, I have to say that's part of the vision of the school, this is the way forward, so people know that TS is alright to do in the classroom... to give them a chance to try it and see for themselves that it works'* (1 ST).

As for the adequacy and quality of the training provided to participants and organized by the main course providers, in general terms, teachers and head teachers agreed that training was sound and useful (3 NT)(1 NHT) but more was needed (1 ST)(1 NT) and a number of them indicated they felt *well* or *better* prepared to apply it in the classroom (6 ST)(6 NT)(2 SHT)(2 NHT).

Yet, some teachers (3 ST)(1 NT) showed their frustration with respect to the quality of some training courses, arguing that some course providers had no practical understanding of the classroom reality and were often dissatisfied when teachers could not cooperate with them more or did not dispense more time to work as requested:

> *'After a long day, you are tired and to have all that theory... it's a waste of time, you just switch off... TS theoretical understanding frightens the everyday teacher to the point he's reluctant to use TS.'* (1 NT)

> *'I don't think it's good to bombard them* [teachers] *with a lot of things at once, but certainly, for their own development they need to do some training.'* (1 ST)

Teachers suggested that courses needed to be better planned so that feasible, practical and more realistic courses were provided to them. Another objection was that more *time* to have training was needed (3 ST)(4 NT)(3 NHT), besides *time* to develop activities in the classroom with the children.

♦ Phase II

The Portuguese Education Legislation (*Lei de Base do Sistema Educativo*) states that teachers need to undertake training, in the form of courses, seminars and conferences, a minimum of 20 to 30 hours per year, correspondent to 'one credit point'. In order to obtain career progression, it is compulsory to accumulate these points but not all training courses available offer them (6 PT). Flexibility is limited to the choice of the course topic, which is also '*limited and repetitive*' (2 PT).

As already explained in the *training* section of this chapter, training on TS interventions *per se* is not available to Portuguese primary school teachers. It was also concluded that they all felt it would be important and useful to them to receive this specific training. In terms of economic and social benefits emanating from training on TS interventions, teachers felt that it would indeed make a difference and educational changes would be produced (7 PT) in the long run (4 PT). Nonetheless, the Government should acknowledge and understand the importance of a greater investment in education in Portugal, in order to achieve economic development (2 PT).

One teacher believed educational changes could be more evident and occur swiftly since this is a level more susceptible to adapt new knowledge and mentalities. Even so, educational changes depends on economic possibilities (4 PT), but there are few resources to implement and introduce new teaching approaches (3 PT) and '*little is invested in education in Portugal'* (1 PT).

As no other funds are available, one possible solution put forward was to eliminate existing courses, regarded by the majority as less relevant or useful, and channel its resources to subsidize new training courses that introduced and implemented innovative teaching approaches as TS interventions (3 PT). Most significantly, all teachers emphasised the importance of the explicit inclusion of the development of TS in the Portuguese Curriculum and to have a more child centred education policy.

Another interesting aspect that emerged in this phase of the research was related to one particular political / educational measure called '*Programa Boa Esperança, Boas Práticas*' (Good Hope, Good Practices Programme). Since its creation, this programme was an integrant part of the international project "Schooling for Tomorrow'. Supposedly, this programme was set up by the Ministry of Education in collaboration with educators in 1998, in order to promote quality in education by recognizing, studying and supporting existing cases of good practice. It also aimed at consolidating and developing successful good practice procedures and to divulge them in order to inspire further quality practices.

However, all participating teachers who were asked about this matter in this phase of the research were completely unaware of this programme and its objectives. It was suggested that even if this programme had been put in practice, none of the schools they had worked at had divulged it or seemed to have participated in it. This does not necessarily mean the programme was not put into practice in some Portuguese schools, judging by the debate that took place at a National Meeting in Lisbon in 2002, which had the participation *inter alia* of a prominent Secretary of the Ministry of Education and the Coordinator of Regional Education Directors. This two-day meeting also benefited from the contribution of a number of schools that were involved with the 'Good Hope, Good Practices Programme' and was organized to evaluate results of a more reflective practice and the impact of this programme in schools.

♦ **Phase III**

In this phase of the research, participants referred to the importance of the inclusion of the development of children's TS in the classroom. One teacher added that it had become harder to differentiate Thinking lessons from 'normal' lessons since TS interventions were so frequently used that the whole idea was deeply embedded in the school's *ethos*. Two teachers agreed that TS was more infused into the NC and one confessed that '*that's how I put up with lots of it.*'

4. 15 Summary

The most substantial findings that emerged during the present research were presented in this chapter. In order to organize this presentation, data was selected and distributed in six categories, which are presented next in a categories concept-map (Figure 11).

In the next chapter, the main conclusions drawn from the findings were raised and discussed, taking into account the main question and sub-questions that were behind the initial intentions of this research, the author's viewpoints and the literature available on the issues under debate.

CATEGORIES THAT EMERGED DURING THE RESEARCH PROCESS

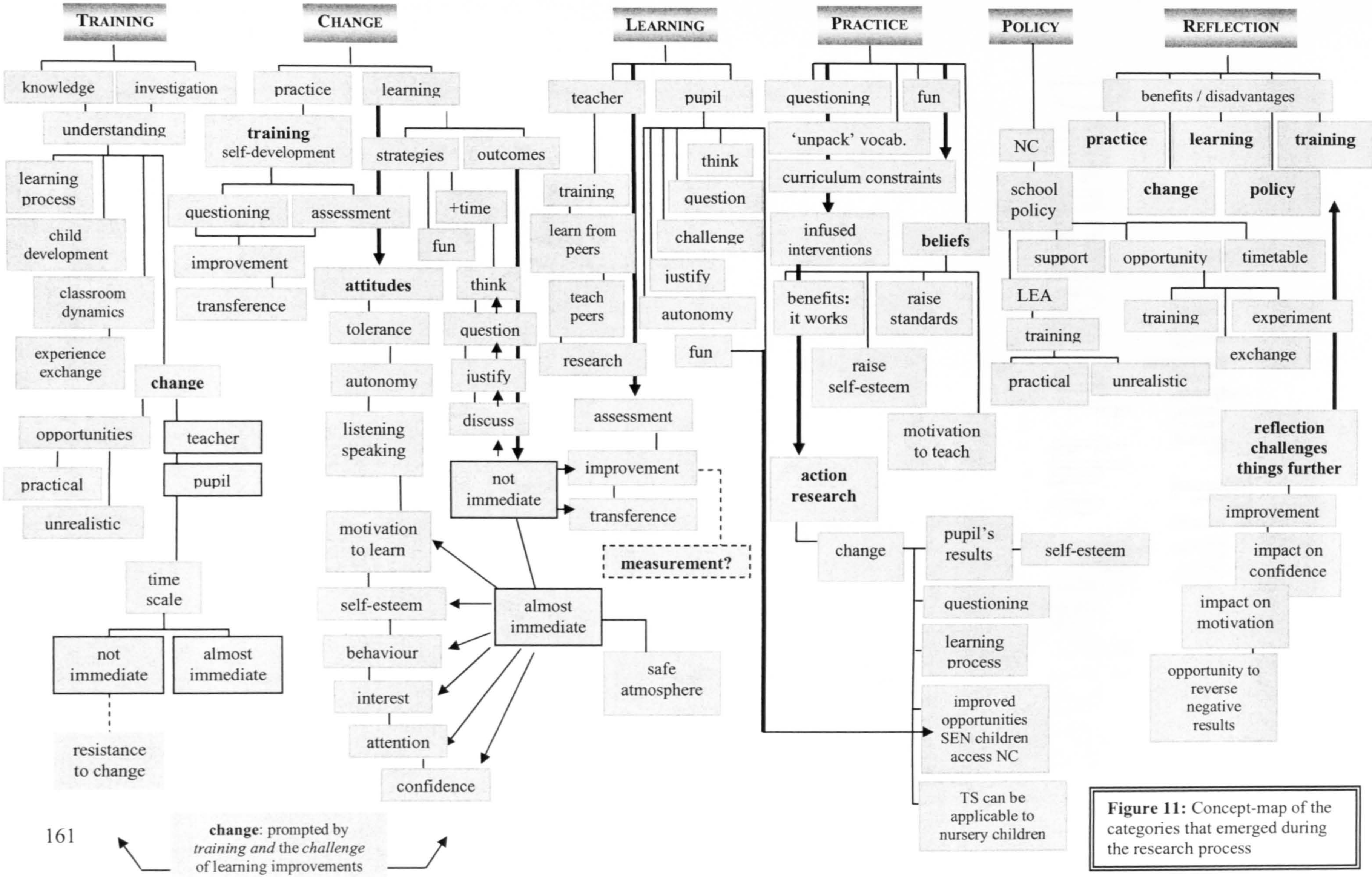

Figure 11: Concept-map of the categories that emerged during the research process

Chapter Five
Discussion of the Findings

CHAPTER FIVE

DISCUSSION AND ANALYSIS OF THE FINDINGS

5. Introduction

The previous chapter outlined the most significant findings registered during this research. A high level of consistency was noticed amongst the responses given by participants in the three phases of the study, which proved vital for the present debate.

This chapter moved on to offer a critical analysis of those results. It demonstrates the author's understanding of the findings obtained by this research with reference to both the research questions and the broader literature. This chapter considered the implications results might have for the matters, problems and background facts that prompted this research, in an attempt to understand what significance the data collected might have in the context of the overall aspirations of this study.

Findings were evaluated and discussed with reference to the theories and ideas represented in current literature suppositions, which had initially supplied the impetus for the research to evolve in a number of different directions. It was also important to understand the robustness of the findings by considering their implications beyond the precincts of the current research.

In order to provide a helpful framework for the discussion of the findings, data was interpreted in relation to existing literature but also taking into account the main research question and sub-questions, allowing further considerations on how the findings affected current knowledge of the subject.

The main research question was:

> What are the pedagogical implications and the impact of training in Thinking Skills interventions on English primary school teachers' attitudes and perceptions of their professional development?

The key research sub-questions were:

1. What are teachers' views on teaching through Thinking Skills approaches in a primary school setting in England?

2. What are Portuguese views on teaching thinking in a primary school setting?

3. To what extent do teachers identify reflection as part of their professional development and practice?

In brief, part of this study was conducted in selected primary schools in the Northeast of England and it aimed at investigating the impact of training in TS interventions on teachers' attitudes and perceptions of their training needs, and the professional and pedagogical implications it represented. It also aimed at analysing Portuguese teachers' viewpoints in relation to teaching thinking in a primary school setting.

On account of the reduced time scale of this research and the limited size of the sample, findings illustrated two distinct realities experienced by a group of teachers in England and a group of teachers in Portugal. However, the author believes that the underlying rationale of the findings is substantially representative of these particular contexts and may reflect feelings and experiences of other similar groups in these two countries.

In order to facilitate the discussion of particular results presented in Chapter Four, the most substantial patterns and trends that emerged from each category were identified and synthesized in tables that contain the main findings of the three phases of this study. These tables accentuated key similarities and discrepancies between phases and served as supporting frameworks for discussion (Appendix M).

5. 1 Summary of the research findings gathered during Phases I, II and III

The synthesised tables (Appendix M) of findings informed a succinct outline of the overall results of the three phases of this research. The author selected what she believed were the most prominent and valuable findings from each table, which incorporated and substantiated this debate in light of current literature, in an attempt to answer the research questions posed at the beginning of this investigation.

- **Training in TS interventions**

During this study it was found that all English participants had training in these interventions, which was described as valuable, constructive and useful for teachers' professional development. Portuguese teachers not only were unaware of the existence of these innovative teaching approaches but also did not have access to this type of training.

Adequate training contributed towards generalized feelings of confidence, motivation and enthusiasm and to a more accurate preparation to deliver the TS strand delineated in the NC. It meliorated teachers' mindset as they acquired a new idea about the learning process, making teaching a more enjoyable and rewarding profession.

Portuguese teachers believed training in TS interventions would bring substantial improvements to the country's educational system and would have a great impact on their professional development as well as on the pupils' learning process.

- **Practice through TS interventions**

English participants concurred that the inclusion of the TS strand in the NC was paramount. They believed that TS approaches were an effective teaching style, that their overall teaching practice, confidence and motivation improved and that its continued application raised standards, helped pupils to become independent thinkers and confident individuals.

Teaching through these approaches was more fun and satisfying but teachers preferred an infused application of the interventions as they felt activities and material elaboration was time consuming and they were pressed for time to deliver the NC. Lessons observed during this study corresponded to typical 'good TS lessons'.

Teachers argued that the continuing, successful application of the interventions required constant school support, and time to apply the interventions and attend practical, ongoing training. They added that the interventions rarely had tangible, physical outcomes, which made it difficult to assess pupils' improvements. Nonetheless, they suggested that they '*got a good feeling*' pupils made progress and continued to apply the interventions. It was also found teachers were highly committed to their jobs and that they trusted their own professional judgment of classroom matters.

It was found that Portuguese teachers believed that it would not be possible to implement TS interventions in their classrooms, unless they were properly trained, monitored and supported. Besides, implementation would only be viable after major changes in attitudes and beliefs, from policy makers, teachers, parents and pupils. However, interventions would ignite educational improvements even though changes would not occur immediately. A more flexible, less extensive national programme would also contribute towards a more successful implementation of the interventions.

- **Learning through training and TS interventions**

Evidence from this study showed that teachers not only learnt from training courses they attended but also from training provided in school by colleagues, and its impact reinforced the implementation of TS interventions. Teachers learnt to promote a safe learning environment in their classrooms and to organize all-inclusive lessons. They offered a wider combination of activities to cover distinct learning styles, which augmented learning probabilities. Stronger feelings of inclusion, respect, trust and autonomy were noticed.

Pupils became more engaged, tolerant, responsible and autonomous and showed an improved concentration span in the classroom. TS lessons were more fun, challenging, rewarding and were particularly beneficial to pupils with Special Educational Needs. High ability pupils felt lessons were easy but they enjoyed when classes offered them harder challenges, whereas low ability pupils were less keen and felt classes were hard as it was difficult for them *to think.* They also showed signs of lower levels of confidence and self-esteem, compared to higher ability pupils.

The greatest improvements occurred in pupils' attainment, behaviour, reasoning, listening and questioning skills (more rational and philosophical). Pupils were given more time to think, to discuss and to elaborate their answers and became more confident, participative and motivated to learn. They also enjoyed working collaboratively in groups and helping others. For lower ability pupils, this meant they could have extra help from their peers.

Portuguese teachers believed TS interventions would greatly benefit and improve their educational system, in all aspects mentioned by the English participants.

➢ **Change during and after involvement with TS interventions**

It was found that change was mainly prompted by training, TS theory, the challenge and feedback from learning improvements, pupils' progress, practice and classroom experience. Training changed and improved teachers' performance, which subsequently changed pupils' learning process, attitudes and behaviour. Initial apprehension about training in TS initiatives was dissolved by classroom improvements, even though more time was needed to apply and prepare TS lessons. Teachers' confidence and motivation was boosted by adequate training and materials.

Changes were gradual and continual. Behaviour and attitudes could take longer to change, whereas other aspects improved almost immediately: teachers' questioning skills, creation of a safe environment, pupils' discussions, justification skills, cooperation, motivation and participation. Other changes indicated that teachers were more aware of pupils' learning process, challenged them more and were more confident and motivated. TS activities were also more infused in to the NC and teachers reflected more, which enabled them to assess the impact interventions had on pupils, motivating them even further.

According to the findings, progression was observed in the classroom but it was hard to measure as there was a lack of consistent, statistical evidence to support change. Nonetheless, teachers trusted their professional judgment and applied TS interventions, mainly because they believed it could raise standards. Still, some potential evidence for change was offered: improvements in tests results, deduction / inference answers, boys' attainment, Maths' results, writing, videos and pre/post tests to measure impact of TS approaches.

Portuguese participants believed teachers often resisted change or were apprehensive about it because it meant extra work or they lacked adequate training, materials or physical classroom conditions. Teachers embraced change whenever it was evidently beneficial to all but a 'transition phase' was necessary before a thorough implementation of TS interventions in Portuguese schools. Teachers and pupils would need to adapt to new teaching and learning styles, which were regarded as extremely advantageous and valuable.

➢ **Reflection**

It was found that reflection challenged things further. All participants in this research claimed they reflected on their practice and lessons outcomes. Reflection could foment changes: it improved practice, confidence and motivation; it enhanced understanding of teaching and learning processes, less effective strategies were repealed or adjusted to pupils' needs and aptitudes and positive aspects replicated in future lessons. However, it was found that it could also exacerbate self-critical analysis, leading to frustration and dissatisfaction as teaching and learning weaknesses and difficulties were exposed.

Lesson outcomes were often discussed with other teachers, especially in same Year Groups and the majority of participants from both countries felt that sharing ideas and experiences with colleagues was important and useful. Some English schools even had a formal system of monitoring teachers that focused on observations and lesson outcomes, which was seen as positive criticism: positive aspects raised self-esteem and negative aspects were discussed to be avoided in future performances.

➢ **Policy**

All English participants felt that the inclusion of the TS strand in the NC was very important to the development of pupils' overall education. Yet, it should be made more explicit and offer more enlightening examples of TS activities. Some teachers felt that they had previously used approaches similar to TS interventions but under a different 'label'.

None of the participants had training in TS interventions during their initial teacher training degrees. It was subsequently obtained as part of professional development and was regarded as good and useful. Schools' support was paramount so that teachers could pursue training opportunities and further implement TS in their classrooms. TS activities were more embedded in the school's *ethos*.

However, people felt that training providers needed to organize more practical and realistic courses so that teachers could take the most out of it. They claimed more time for training and implementation of the interventions should be provided.

The Portuguese curriculum does not address the development of TS in the classroom as such, and specific training in TS interventions is not available. Teachers emphasised the importance of its explicit inclusion in the Portuguese Curriculum and suggested Portugal should have a more child centred educational policy.

The reduced amount of funding available for education in Portugal did not allow a wider variety of training courses. Teachers suggested funding should be transferred from less useful courses to subsidize training opportunities that could introduce and implement innovative teaching approaches such as TS interventions. Participants were also unaware of a national educational initiative known as the 'Good Hope, Good Practices Programme', which was put in place to promote quality in education by recognizing, supporting and divulging cases of good practice in schools.

5. 2. Educational initiatives – impact on teachers' professional development

Findings from this study showed that training is paramount for teachers to acquire knowledge about the application of TS interventions. Understanding comes full circle as teachers put theory into practice, as they recognize the potential of innovative approaches and as they are able to see the positive results that come out of its continued application.

Such aspects reflect a country's standpoint in relation to educational issues and policies. Despite the fact that Portuguese teachers feel that the implementation of TS interventions in primary schools would represent an important educational breakthrough, this seems unlikely to happen in the near future as educational matters are not always major priorities for the Portuguese government. The magnitude of the country's social, nay, economic problems clearly overshadows fundamental national issues in areas such as education.

Contrastingly in England, the unprecedented attempt to move away from more traditional, perhaps less successful approaches and to proceed towards innovative, more inspirational and revitalizing approaches to teaching and learning has proved itself to be a positive and judicious shift.

The fact that since 2000 the English NC acknowledges the importance of developing pupils' TS in the classroom clearly demonstrates the government's commitment to synchronize efforts with educationalists in order to improve educational standards in England.

In the past few years, a number of educational reforms focusing on raising school performance have been flourishing in the UK, and the current Labour Government has undeniably sought to raise standards (Mortimore, 2000).

Even though many policies have often failed to innovate and change school performances, it seems clear that the implementation of TS interventions has gained momentum across the NE of England. On the one hand, this national endeavour revealed underlying educational needs, in particular matters related to teachers' specific training in TS interventions. On the other hand, it paved the way for new educational research into possible new methods of training teachers for a better teaching competence to develop pupils' TS as outlined in the English NC. This outstanding initiative has achieved substantial results, especially in the NE of England, where this type of training is widely available to teachers and where it has been successfully delivered for a number of years.

During this research, it was found that most English participants held a Teaching Thinking Certificate Level 1 and Level 2 and a few teachers had a Level 4 Coaching TS course and had taken a sabbatical on TS. All staff in one of the Sunderland schools had training in Philosophy for Children Level 1, one of the interventions most employed in the class to develop pupils' thinking.

All English participants, both teachers and head teachers, had voluntary training in TS interventions. Besides being a major necessity as it is part of the NC, other motivations impelled people to pursue further training. Teachers were excited and interested about the interventions' innovative nature and wanted to learn more about it. Head teachers felt that interventions could improve pupils' attainment, behaviour and overall skills and that it could raise schools' aspirations.

Most training was administered at the schools as In-Service courses (INSETs), delivered by the school's teaching staff or LEAs advisors. People also attended conferences and TS combined courses at the University of Newcastle. Northumberland LEA developed a number of training courses that were well attended by teachers and head teachers from the region, whereas funding from Sunderland LEA was available for teachers to take a sabbatical. However, this opportunity no longer exists because of changes in national policies for continuing professional development of teachers.

In England, in-service education and training for teachers has increasingly gained impetus over the years, which reflect the fast pace of adjustments in school organisation, management and curricula (Williams, 1991). Because those rapid changes expose the need to gain new knowledge, it has been described as a "refreshing", "updating" or "awareness raising" vital element in teacher education (Glover & Law, 1996: 11).

Morant (1981) succinctly described in-service education as "the education intended to support and assist the professional development that teachers ought to experience throughout their lives" (p. 1). Teachers should start it off on the first day of teaching and terminate it with retirement, as it is regarded as a continuous and ceaseless process.

This concept of ongoing and life-long professional learning for teachers has been fervently highlighted by many authors. Jackson (1992) argued that "the motive for learning more about teaching is not to repair a personal inadequacy as a teacher, but to seek greater fulfilment as a practitioner of the art" (p. 26). Likewise, Schön (1983) underlined the implications of ongoing, analytical reflection in teaching and suggested teachers should be "reflective practitioners".

In-service education needs to be adequately addressed and supported by teachers themselves in order to allow educational change to occur. Coincidently, the increase in teachers' responsibility for their own learning also entails an increase in the amount of in-service support they need (McNiff, 1988).

In 1984, the Advisory Committee on the Supply and Education of Teachers (ACSET) Report laid emphasis on the importance of in-service training to the career development of teachers (DES/Welsh Office, 1983). It accentuated the need for "a closer and clearer relationship between training (including in-service training), experience and qualifications on the one hand and deployment – including promotion – on the other" (para. 91).

Indubitably, one of the main components of school improvement is teachers' continuing professional development (CPD Strategy, 2001 [online]). The current government has introduced a number of initiatives to raise standards and to promote teachers CPD, who should be committed to further development professionally throughout their careers.

The Department for Education and Skills (DfES) revised CPD Strategy aims to promote the benefits of CPD and to support teachers to make the most out of the opportunities and choices available to them. It also aims to build schools' capacity for effective professional development so that individuals make informed use of the allocated funding (Teachernet, 2004 [online]).

The CPD Strategy is focused and integrated with performance management and school improvement to raise teaching and learning standards and explicitly suggests that teachers should engage in continuing professional development and in supporting the development of colleagues.

It goes on to recommend that head teachers and teachers should be well-informed about the available choices of experiences and opportunities that are conducive to the reinforcement of informed professional practice and the conditions in which professional development has stronger impact on performance. It is also made clear that schools should work collaboratively with LEAs and other CPD providers to ensure their staff have access to adequate professional development, in line with local needs and teachers' aspirations. To invest in teachers' training is certainly a wise managerial decision, particularly taking into account the educational, social and economic benefits it promotes. The melioration of professional and educational practice in English schools, by enhancing the skills, expertise and awareness of teachers and their efficiency in schools, has had substantial results and the implementation of TS interventions is one good example of that.

This study showed that adequate training in TS interventions was provided to English teachers, which had a positive impact on them since teachers improved their practice, confidence and motivation to teach. They also developed a greater understanding of the teaching and learning processes, which ultimately enabled them to make the most adequate decisions in relation to issues that arose from their practice through these approaches.

A number of successive developments require continuous upgrading of teaching skills. Good quality training ensures that teachers and other educationalists have the necessary skills and knowledge to carry out their job, in a highly professional and competent way.

The quality and characteristics of the training provided to teachers raise two key considerations:

- Does training *per se* foment changes regardless of the topic under investigation?
- Does training elicit changes because of the nature of TS interventions?

The present study was mainly concerned with gathering information about training in TS interventions and did not investigate the impact of training in other topics. Nevertheless, all participants were very positive about training and suggestions indicated it was a vital part of teachers' continuous professional development. Good quality training is paramount and it can help teachers and schools in the following aspects (CPD Strategy, 2001 [online]):

- help teachers to manage *change*
- enhance the performance of individuals and institutions altogether
- improve staff morale and sense of purpose
- lead the way to personal and professional teacher development
- encourage a sense of job satisfaction
- unite the school's vision for itself
- raise standards of attainment in pupils at all levels

As for the training in TS interventions, although no data regarding its specific content was collected, this study revealed that most English participants believed training was valuable and useful. It provided them with important guidelines on how to apply the interventions in the classroom and on how to further develop them with the pupils.

It could be suggested that particular characteristics of the training in TS interventions contributed to its success and great impact. The fact that teachers had access to training courses that were provided continuously was a major aspect, as this represented an opportunity for them to receive continuing reinforcement, guidance and support. Furthermore, courses were organised in different stages, starting with basic information about the interventions and its impact and moving on into more complex levels of involvement, practice and action research.

As a result, teachers had the opportunity to implement the interventions in their classroom at their own pace, to reflect on its impact and to conduct research in accordance with their particular interests. They could go back to the following training course with a wealth of positive and negative experiences and a number of different results that were discussed and analysed together with colleagues and experts. At a later stage, having gathered a number of experiences and having gained expertise, teachers could provide their peers in school with training on the interventions, as well as conducting and supporting further research.

However, some participants believed some training courses comprised less positive features that should be avoided or eliminated. Some courses were described as exceedingly theoretical or unrealistic. Instead, people suggested all courses should be shaped in a practical, feasible and supple manner, taking into account daily classroom experiences and the overall educational context, rather than draw upon a string of prescribed procedures.

Besides avoiding overloading teachers with unnecessary or unrealistic procedures, good quality training features another aspect. Training in TS interventions is closely connected with training in other subjects of the NC. During this research it emerged that some schools felt it was difficult to finance both types of training and the schools' budget was often channelled to sponsor courses that developed teachers' general skills rather than specific training in TS interventions.

Hence, training in TS interventions must be well planned and well designed in order to save teachers' time and schools' resources. Courses could combine training in TS interventions applied to other subjects in the NC with more practical and feasible guidelines.

In Portugal, however, teachers are in the midst of a problematic state of affairs: in the one hand, they have to attend training courses in order to have important professional development and to progress in their teaching careers. It is compulsory to obtain points in order to progress. Teachers can choose the courses they want to attend but the quantity was said to be limited and the quality of topics available was inadequate and often repetitive. Hence, the main concern might sometimes be to attain the compulsory points, regardless of the courses' content, which not only may represent a time and financial loss, but may also lead to poor or deficient training of teachers, who should receive valuable and feasible teaching guidelines to promote educational improvements.

Considering the impact training in TS interventions had on the English participants of this study, significant changes had occurred since the beginning of its implementation in the classroom. However, suggestions from this study revealed that the actual nature of the interventions was *per se* vital. Not only did it allow immediate changes in pupils' participation, motivation to learn, collaboration, but it also produced changes in self-esteem, mutual respect and confidence, which consequently contributed to a visible change in pupils' attainment and overall thinking style.

Similarly, the application of these programmes after adequate training also produced changes within teachers, who preferred this innovative teaching style to more traditional approaches. It also increased teachers' confidence and motivation to teach, as they realised the impact positive results had in the classroom.

On the one hand, the NC was designed to raise educational standards. On the other hand, TS interventions have been widely implemented in English schools to raise pupils' attainment, to reduce behavioural problems and stimulate transfer of skills. However, curriculum development may be an adverse terrain to the implementation of innovative teaching styles. Yet, teacher development and training in TS interventions is paramount so that its implementation can be successful (Leat, 1999).

5. 3. Training: professional implications for teacher development

♦ Teachers' professional needs

The importance and the impact of good quality education of young children are overwhelming and produce long-lasting effects. Mahatma Gandhi believed '*A man is but the product of his thoughts, what he thinks, he becomes.*' Hence, it is vital to prepare children for the challenges the future will bring, to gain the necessary knowledge and skill to function as citizens, parents and workers in a changing and increasingly demanding society. Teachers play a major role in improving children' preparation and in enhancing the success of their future undertakings. Their own professional preparation and the impact of their teaching style may be greater than most people realize.

The journal *Child Development* published results of an investigation that showed that the preparation of a primary school teacher is a determinative matter as it influences children's behaviour (Hamre, B. & Pianta, R., 2005). According to this American study, the quality of daily experiences provided by a good teacher may drastically reduce, in the early school years, pupils' social and educational problems. It was found that good educative experiences could also bring children with different origins and experiences closer.

This evidence reinforces the importance of adequate, practical and ongoing training for teachers and the impact it has, not only on their professional development but also on children's learning process, which, if adequately enhanced, may expand children's competences beyond the immediate learning instances within a classroom.

By engaging with TS interventions, the present research found that teachers believed children would be better prepared for the future, to think independently, to be able to analyse situations critically and more effectively, to be a more conscientious citizen, in a society that is gradually demanding more competitive and responsible individuals.

This American study also suggests that teachers promote feelings of mutual respect and empathy, which ultimately impacts on pupils' self-esteem, confidence and behaviour patterns, when they allow a child at risk of school failure to perform at the same level of his/her peers.

Coincidently, perhaps one of the most substantial advantages of the TS interventions is that they allow a more democratic and egalitarian participation of pupils, they comprise sets of activities that are regarded as being more inclusive and adaptable to pupils' needs than more traditional activities, which is particularly beneficial to pupils with Special Educational Needs.

In 1999, Carol McGuinness presented a review and assessment of the current research into TS programmes that had been commissioned by The Department for Education and Employment. This review concluded *inter alia* that teachers' preparation and teacher support for the successful implementation of TS approaches in the classroom was vital. In order to be able to teach thinking, teachers must have specific training, which also requires adjustments from pupils and appropriate materials and equipment. Hence, in-service training, peer coaching and a thorough examination of evidence related to children's learning are *sine qua non* conditions for good practice (McGuiness, 1999).

As a fundamental part of professional development teachers have been continuously encouraged to carry out research projects within their schools, which will equip them with adequate expertise to interpret a great quantity of information within their classrooms and use evidence gathered from the research findings more adequately (Baumfield, 2000). Some authors believe that teacher development implies the notion of teachers investigating their own practice to form their own theories of teaching (Keiny, 1994).

During this research, it was found that teachers conducted research as part of their professional development and they valued the outcomes it produced, as it yielded fundamental insight into the dynamics of the teaching and learning processes. Hence, it was a key component of the INSET experiences of the participants in this study.

Teachers that engage with action research within their school aim primary at practice improvement, which can only be achieved if teachers change their attitudes and behaviour (Cohen & Manion, 1994). However, in-service education requires acknowledgement and support from teachers themselves so that educational change occurs (McNiff, 1988).

Teachers must develop their professional skills and teaching competences but also fundamental principles so that they can perform their own form of enquiry, *i.e.*, to clarify the reasons why they act in a certain manner and to be able to give examples of their experiences (Stronach & McLure, 1997).

This implies an involvement with action research studies in school. The main purpose of this particular piece of research is practice improvement, which can only be achieved if teachers change their attitudes and behaviour, which involves co-operative work as well as support from other teachers and the school's head teacher (Cohen & Manion, 1994).

On the one hand, action research has often been used as a powerful resource development and staff training exercise. For some, it is a quality means of encouraging *change*, one that reflects respect for practitioners' control of their own practice and learners' control of their own learning. Furthermore, the role of others in action research indicates the level of achievement obtained with which the researcher is able to focus on her own practice (Lomax, 1990).

On the other hand, educational reforms have been increasingly focussing on raising school performance. A number of government policies, introduced in schools to generate the adequate impetus towards development, have revealed an increasing pressure for change in schools (Harris, 2000; Mortimore, 2000).

Consequently, a greater investment in teachers' training is implied, so that their heightened performance and competence can produce better results. During the present study, a number of references indicated that head teachers were seriously engaged in the quest of raising standards within their schools, particularly through TS interventions. The evident interest in these interventions was justified by the fact that people genuinely believed they could change, improve or overturn pupils' attainment and the overall school's *ethos*.

The present research suggests that teachers feel that to research their own practice is valuable, mainly because it provides them with a deeper insight into educational problems, as well as greater expertise in classroom problematic situations as they find potentially useful and practical solutions.

Most headteachers encouraged their staff to attend further training courses as a means to enable them to perform at their best potential and to make use of their competences to raise overall standards within their schools.

Darling-Hammond (1994b) suggested professional development was 'a process of enhancing teaching's professional status by expanding the knowledge base upon which the profession draws and increasing teachers' epistemological awareness' (p. 10). Thence, it could be suggested that adequate training in TS interventions is a vital cornerstone, which teachers use as fundaments to inform and to establish their teaching conduct, beliefs and expectations.

During this research, it was found that teachers believed that without adequate, practical training, they could not feel sufficiently prepared to deliver the NC through TS approaches and activities. Hence, it became evident that teachers' level of confidence, enthusiasm and motivation to teach through these interventions was closely related to the amount and quality of training received, as well as classroom experience. Some head teachers, who confirmed they had good quality training, admitted they did not feel well prepared to deliver a TS lessons confidently, simply because they had not gained the amount of classroom experience their teachers possessed.

- **Teachers' learning, practice and reflection**

Professional learning and development are both an entitlement and a responsibility for all teachers (Harrison *et al*, 2005). Teachers are expected to develop their professional skills, competences and strategies to facilitate and improve their teaching style and the pupils' learning process.

Some assumptions about how teachers learn could be made. Bell and Gilbert (1994) argued that teachers' development was teachers' learning. They claimed that in learning, teachers developed their beliefs and ideas; they developed their classroom practice and focused on their feelings associated with change.

These authors delineated the key characteristics of the teacher development process: the input of new theoretical ideas and new teaching suggestions and the implementation, evaluation and practice of these teaching ideas over a period of time whilst teachers receive support and feedback, and reflect critically.

These are essential parts of the teacher's learning process, which allow fundamental aspects of teacher development to occur: *personal, professional* and *social development*. Bell and Gilbert (1994) believed that the development of one element implicated the development of the others, as the intrinsic influence of its principles overlaps.

Evidence gathered during this research suggests that teachers who had access to practical, adequate training had indeed changed or improved as individuals and professionals. Good-quality training made them feel more confident and motivated as teachers; they were more aware of the TS theory and were able to understand the intrinsic benefits and consequences of the implementation of TS interventions in their schools. Some admitted they became more aware of the teaching and learning processes, which impacted on their professional attitude in the classroom.

After the acquisition of information about TS intervention in training sessions and the concrete application of those interventions in the classroom, reflection was pointed out as a major element of the teacher's learning process.

All English participants evaluated the positive and negative outcomes of their teaching practice in regard to the application of TS approaches in the context of their classrooms. This reflective process provided them with information on the positive procedures that most benefited children, and with valuable indications from less positive results, which prompted new directions and strategies for future applications of the same intervention.

The General Teaching Council for England (GTC, 2003) has shaped policies to enhance teachers' CPD and provided the government with suggestions on training, development and career progression of teachers. It perceives professional learning as a process of enquiry that supports teachers in developing their pupils' learning, contributes to the understanding of processes and outcomes of teaching and learning and engages them in its improvements.

The Council established the *Statement of Professional Values and Practice for Teachers*, which displays the beliefs, values and attitudes that constitute teacher professionalism. Two extracts are highly representative of what teachers' professional conduct should be (GTC, 2003a [online]):

> Teachers continually reflect on their practice, improve their skills and deepen their knowledge. They want to adapt their teaching appropriately to take account of new findings, ideas and technologies [...]
>
> Teachers support their colleagues in achieving the highest professional standards. They are fully committed to sharing their own expertise and insights in the interests of the people they teach and are always open to learning from the effective practice of their colleagues [...]

Coincidently, this research study found that all teachers actively engaged in reflection on their practice and lesson outcomes, which promoted positive changes in attitudes and practice. Reflection challenged everything further and improved practice, confidence and motivation and it enhanced understanding of teaching and learning processes. The importance and impact of shared professional experiences is *per se* substantial and may most likely encourage the development of teachers' practice even further.

Participants from both countries often discussed lesson outcomes with other teachers, in particular within the same Year Group and it was felt that to share ideas and experiences with colleagues was important and useful. Some English schools had a formal system of monitoring teachers that focused on observations and lesson outcomes, which represented positive criticism.

Findings also indicate that, as part of teachers' learning process, English participants not only learnt from training sessions offered to them as professional development but also from training provided in school by colleagues, who, most of the time, had carried out research on a given matter that had major relevance for other teachers.

The impact of this particular style of training reinforced the implementation of TS interventions. The investigation of a topic, *e.g.*, the impact TS interventions had on Nursery pupils' use of reasoning vocabulary, had a remarkable repercussion on Nursery teachers, who initially felt apprehensive about the use of TS interventions with children as young as 4.

Eventually, it became evident that it was indeed possible to apply the interventions, from evidence previously collected by the teacher who investigated this matter.

The sharing of such vital evidence and teacher expertise is paramount. Not only it corresponds to the highest standards of professional conduct, as outlined in the *Code of Values and Practice* (GTC, 2003b [online]), but it also reflects a deeper notion of professional respect, trust and collaboration within school elements that is certainly a benefit to all.

Evidence from this study also showed that training allowed teachers to learn how to promote a safe learning environment in their classrooms and to organize all-inclusive lessons. They offered a wider combination of activities to cover distinct learning styles, which augmented learning probabilities.

Stronger feelings of inclusion, respect, trust and autonomy were also noticed. This was also facilitated by evidence collected from other teachers, who shared valuable experiences and lesson outcomes with colleagues.

The author concluded that teachers' professional learning (training, theory, beliefs), professional practice (positive and negative classroom experience), and reflection (personal and professional interpretations and evaluations) are all part of a wider notion of educational, social and economic achievement. These elements integrate a quest that starts with an ability to identify and correctly address pupils' competences, needs and interests, in order to provide them with high quality learning experiences, to promote long-lasting improvements and lifelong benefits.

- **Practice and beliefs**

The unique circumstances within which improvements were noticed and positive results were achieved by teachers and by pupils are matters of much debate. It became clear that TS lessons mostly produced oral work and a limited amount of written evidence could be displayed by teachers.

Most teachers revealed that, despite this fact, they continued to apply TS interventions because they genuinely believed it was an effective teaching style that produced positive results and that multiplied pupils' possibilities to learn and benefit from their teaching.

Teachers' experiences and action research projects that evaluated changes and progress in the classroom greatly contributed towards a successful implementation of TS interventions. Teachers' beliefs and their trust on their professional judgement played a major role in the evaluation of children's progress, *i.e.* participants believed it worked and raised standards, which 'snowballed' into greater instances, leading to the continual application of the interventions in the classroom.

This attitude confirms the fact that teachers' behaviour is strongly influenced by their personal belief system, which is intrinsically linked with professional maturity and growth. Under distinct circumstances, teachers will act according to what they intimately believe to be correct or adequate (Richardson, 1996). Teachers own a number of conceptual representations that integrate a reality or circumstances of 'sufficient validity, truth and/or trustworthiness to warrant reliance upon it as a guide to personal thought and action' (Harvey, 1986: 66).

It has been suggested that teachers' beliefs efficaciously influence their classroom functioning, as these personal accounts can provide an understanding of a teacher's practice (Fang, 1996, Pajares, 1992, Richardson, 1996).

Other authors argue that teachers' beliefs, values and principles can strongly influence the result of reflection on all aspects of their lives, such as practice and evaluation of lesson outcomes to self-awareness of teaching aptitudes and limitations. Beliefs can also limit teachers' daily effectiveness as they may refrain from taking full advantage of their natural resources and unconscious competences (Fang, 1996).

This research gathered evidence that confirms that some teachers felt apprehensive about the application of TS approaches in their classrooms. Their initial assessment of lesson outcomes made them feel unsure about the actual effectiveness and advantages of the approaches.

The reason behind this was that some teachers required more substantial, physical evidence to corroborate signs of change in their classrooms, or because more adequate training was necessary to help teachers to deliver more successful lessons.

Initial hesitation and scepticism gradually dissolved as people understood the specifics of training in TS interventions and as the application of the interventions became more realistic, uncomplicated and viable. The need for professional knowledge acquisition represents an ongoing process that requires continual information, updating and investigation. The skills acquisition process that ranges from novice to teacher expert requires classroom experience (Harrison *et al.*, 2005), which inevitably implicates further training.

Professional knowledge can be described as 'the knowledge possessed by professionals which enables them to perform professional work with quality' and can include the following parameters (Eraut, 1994: 262):

- **Propositional knowledge**: includes knowledge obtained from personal, private or public sources ['knowing that'];
- **Process**: implies attainment of information, proficient behaviour, excogitative processes (planning, problem-solving, assessment) and personal behaviour dominance ['knowing how'];
- **Personal knowledge**: ideas that generate experimental learning;
- **Moral principles or knowledge**

Teaching requires employment of knowledge, interpretation of evidence and its application to concrete situations, while making use of critical TS and previous experiences (Harrison *et al.*, 2005). It merges theoretical and practical knowledge into a set of teaching concepts and guidelines that teachers apply to their daily experiences.

Epistemologically, practical knowledge is produced and developed through concepts that are acquired during the course of daily activities. The structure and gist of teachers' understanding about learning are acquired spontaneously while teaching. As the function of those concepts is to help resolve immediate or important practical problems, they usually linger unspecified and oblivious (Winkler, 2001).

Thus, teachers' practical knowledge is usually described as tacit knowledge that concentrates on the practice and decision-oriented character of the teachers' situation and interprets their knowledge in function of their reply to that situation (Elbaz, 1991).

Teachers often know *how to do it* but, because this knowledge is obtained amid unpredictable daily classroom experiences, they cannot easily *explain how they come to know what to do* (Hubermann, 1983).

This study revealed that teachers often felt insecure about their competences to teach the NC through TS interventions. Once again it was noted that adequate training, either inside or outside their schools, provided them with a wealth of knowledge that enabled them to feel well prepared to implement the interventions in their classrooms. They also relied on their professional judgement of classroom improvements to make decisions, whenever confronted with the lack of physical evidence to support classroom improvements and pupils' progression.

- **Professional judgement and expertise empowerment**

The continuing application of TS approaches implied another major factor: trust in one's professional judgement to measure and evaluate the 'invisible' circumstances that prompted changes in the classroom. This evaluation goes beyond the confines of training *per se* and are strongly based in teachers' beliefs of good practice.

According to the findings, progression was observed in the classroom after the implementation of the TS interventions but it was hard to measure as there was a lack of consistent, statistical evidence to support change. Nonetheless, teachers trusted their professional judgment and applied TS interventions, mainly because they believed it could raise standards.

Sometimes teachers are expected to take action in specific situations that require immediate consideration, without having concrete elements to support an adroit, nay, accurate evaluation.

This is what happens when, for instance, a doctor makes a diagnosis and identifies a disease by its signs without the aid of more accurate test results of laboratory analysis that will later confirm or refute the doctor's initial interpretation of the symptoms.

Understanding decision making in terms of teachers' professional judgement is a complex task, particularly because in terms of TS interventions most teachers claimed that they had no physical evidence to support pupils' improvements as TS lessons mostly produced oral work, which was not recorded most of the times.

Nevertheless, teachers argued they did observe improvements in the classroom and they continued to use TS approaches. Regardless of having evidence or not to corroborate the impact of TS interventions, teachers applied them because they '*had a feeling*' it worked. Intuitively they believed it was an effective teaching approach and that it was beneficial to pupils.

Teaching prescribed policies and procedures do not always provide teachers with detailed solutions or decisions for all possible aspects teachers encounter in a classroom, let alone a TS lesson. Hence, decisions are strongly based on their trust on their professional interpretation of educative circumstances in the classroom, which is *per se* based on their personal beliefs systems. This is a vital element in teaching practice, as it is in medical practice. It relies on professional intuition, knowledge and experience to assess a situation without the support of congruent evidence. Teachers are expected to develop the ability to interpret appropriate professional principles and make the right choices according to their needs and the pupils', taking into account that choices must be advantageous for all.

During this research it was found that both English and Portuguese teachers often shared teaching experiences, either positive or negative, with other members of staff. This indicates that people valued their counterparts' professional opinion on a given matter. In a way, one's experience is a limited source of development (Winkler, 2001).

Hence, to seek a wealth of interpretations of applicable professional standards from people with equivalent professional skills and knowledge, who had possibly experienced similar problems or achievements, is nothing but an intelligent and constructive stance.

Professional judgement is a complex ability but one that proves vital for teachers' professional development, combining theoretical and practical knowledge (Winkler, 2001).

Teaching is a somewhat isolated activity, where teachers seem to work alone and hence, the cognitive process of selecting a course of action from among multiple alternatives is a constant concern and a heavy responsibility. Teachers need to cultivate a wider view of themselves as educators who work on a collaborative basis with other members of their schools and local community, not isolated or detached from an ample educational and social context (Lindle, 1996).

During this research some of the English participants admitted they felt teaching was an isolated profession. Naturally, people feel apprehensive when they have to make decisions with deeper impact, such as to determine whether or not the TS interventions are producing improvements, regardless of the evidence they can gather and to continue applying the interventions because they intuitively believe it is advantageous for pupils. It also implicates that teachers' actions and decision-making are made bearing in mind the best interest of pupils.

The decision-making process depends to a substantial degree on teachers' expertise. Expertise can be defined as a characteristic of a person who is widely recognized as a reliable source of knowledge, technique and skills, whose professional judgement is regarded as authority and status by the public or their peers (Wikipedia encyclopedia, 2005). In general, this person holds a great deal of knowledge and experience acquired through practice and specific education or training in their field.

Through training on TS interventions, teachers acquire and develop important competencies, which are clusters of skills, abilities and knowledge needed to perform their jobs professionally and effectively. Expertise empowers teachers through the knowledge obtained, for instance, in training sessions in TS interventions. Knowledge provides them with vital skills to take action wisely and confidently whenever required. Kimball *et al.* (2004) put forward evidence that shows that decisions based on teacher expertise are positively associated with students' achievement.

This may suggest that some teachers respond to changes in pupils' behaviour when exposed to TS interventions and interpret it as representative signs of progression and improvement; hence the continual application of TS approaches in the classroom.

During the 'TS lesson' observation, some interesting findings were drawn in the subsequent follow-up interviews. All lessons observed presented features that correspond to 'good TS lessons' as described by Higgins (2001).

It was noted that professional judgement was heightened. Teachers who were asked about their opinion on 'what made a good TS lesson', pointed at their own lessons' outcomes to illustrate their viewpoint. Teachers believed they prepared useful learning lessons and that they knew where children were standing, what they had learned and what needed to be modified. They felt TS lessons were a space where children could consolidate their thinking, where they knew there was no right or wrong answer, and where children felt confident enough to change their opinions.

- **Confidence, motivation, self-esteem and change**

As a consequence of adequate training, it was found that English teachers felt better prepared to deliver the TS element outlined in the NC, which naturally impacted on their confidence and motivation to teach.

The fact that teachers observed improvements after the implementation of TS interventions in their classrooms had a great effect on their professional development. They also believed their self-esteem and enthusiasm had been improved. These improvements are important parts of teachers' professional development and change in teaching practice. An increase in confidence and motivation derive from a number of changes teachers experience during their working years. Moreover, teachers change in many different ways during their careers as they become more experienced after teaching for a number of years. They become more knowledgeable and grow in power, control and authority and they may become more tolerant, judicious and skilful.

Or they may become discouraged, drained, and cynical and lose enthusiasm for teaching. Some may stop teaching while others wait to gather lifetime rewards of a job they valued. Some of these changes can be regarded as professional development of teachers but only those that emerge from the positive changes in quality such as increases of skill, power, wisdom or insight (Jackson, 1992).

There is an apparent inconsistency between teachers' feelings about being involved in a number of successive changes and the little evidence of change that classroom researchers claim to have gathered in reality (Ruddock, 1990). Hargreaves (1996, p.1) pointed out the discrepancy between educational researchers and practitioners: "if the defects in the way educational research is organised were remedied, research would play a more effective role in advancing the professional quality and standing of teachers." It was also suggested that there is a noticeable supremacy of the "hard research knowledge of experts" to the "soft practical wisdom of teachers" (Hargreaves & Fullan, 1992: 5). Other authors argued that schools have not changed profoundly over the years, despite a number of attempts to innovate and change. Suggestions indicate that there is an inability of innovations to transform schools (House, 1979; Tangerud & Wallin, 1986).

Hence, it must be borne in mind that the implementation of innovative teaching approaches may not produce the desired immediate changes in schools, namely test results. It is important to understand that the goals and consequences associated with specific educational changes, and the dynamics of educational changes that are seen as a socio-political process, involve a series of individual, classroom, local, regional, etc, factors that work together and are interrelated. The main problem is to understand how people engaged in change can realize what it is that should be changed and to identify the best direction to achieve it (Fullan, 1992).

It emerged from this study that after the implementation of TS interventions in English schools, some changes were almost immediate, such as pupils' motivation and participation. However, major changes and improvements were only noted after a greater period of time, between 6 and 12 months, which included behaviour and test results.

While some politicians argue that teachers resist changing their performance, some teachers contest the changes politicians introduce, claiming policy-makers neither know what is indispensable in schools nor understand the classroom. Some believe that schools' reform is imperative, while others argue that what needs urgent change is the core Curriculum (Fullan, 1992).

There is also debate about two terms habitually linked with educational reform: *change* and *progress*. It has been argued that resisting certain changes may be more progressive than adopting them. According to Fullan (1992), in order to be able to fully understand particular changes, or to achieve desired changes, one needs to consider what he called "the problem of meaning", as people do not have a sound notion of meaning about what educational change is for, what it is and how it progresses.

This results in failure of change programmes, misdirected resistance and misunderstood reforms. Hence, people involved in educational change need to obtain a clearer idea that can be used to make sense of what they or others are doing. The disregard of change and the manner people in reality experienced it is the main reason for the failure of most social reforms. Moreover, it is also crucial to consider a bigger picture, since educational change is regarded as a socio-political process (Fullan, 1992).

This research revealed that teachers were highly motivated and felt confident to apply the TS interventions in their classroom, which reflected their level of commitment to their jobs. It was also patent that they understood the intrinsic advantages change could generate and did not offer resistance once it was necessary to change some aspects of their professional conduct. They appreciated the fact that in order to progress, change was required and paramount, and hence they embraced it as an opportunity to improve and further develop their overall professional stance and aptitude. As Reuven Feuerstein suggested: *Change is the most stable characteristic of human beings.*

5. 4. Training: pedagogical implications

♦ Effectiveness of TS interventions

In the past few years, a number of authors have defended the development of TS in schools as a fundamental means to promote dynamic cognitive processing, stimulating critical attitudes and communication skills (Baumfield *et al.,* 1995; McGuinness, 1999). Pupils are expected to process elaborate data more efficiently and dealing with new problems in a more logical and adjustable way.

Furthermore, the expansion of TS is supported by theories of cognition, which perceive learners as architects of their own knowledge and interpretation. Learning is understood as a way of finding meanings and demanding structure on thinking (Adey & Shayer, 1994; Burden, 1987; Feuerstein *et al.,* 1981; Fisher, 1995a; Flavell, 1976; Garner, 1987; Lipman *et al.,* 1980; Sternberg, 1987c; Vygotsky, 1978).

This has become a prime concern since the explicit introduction of teaching of thinking in the English NC in 2000 and its infused implementation across the primary Curriculum (Wallace, 2001). The advantages of the inclusion of teaching of thinking in the school Curriculum are supported by evidence (Curry & Bromfield, 1994; Lawrence, 1996; Mosley, 1996; McGuinness, 1999; Sternberg, 1987c). However, how thinking can best be taught is another matter of debate.

On the one hand, some authors defend that teaching *thinking* in schools is incongruous since thinking is part of all learning and is not separated from other human activities (Smith, 1996). On the other hand, others see thinking as a set of transferable skills, such as problem solving and learning to learn, which schools should promote (Burden & Williams, 1998; DfE, 1995; Nutbrown, 1994a).

Higgins and Baumfield (1998) argued that TS interventions develop processes of learning and if a programme or intervention is capable of making learning and knowledge accessible to pupils, this should be sufficient evidence to justify their place within curricula. They believed that teachers should teach general TS in schools to support the development of expert thinking in children.

The teaching of thinking in the classroom represents an important step towards the improvement of education in England. The fact that the English NC acknowledges the importance to develop TS and invites all children to think effectively, regardless of their educational needs (Burden & Williams, 1998; Dearing, 1993; DES, 1990; Rose *et al.*, 1994), has had a great impact in the way society regards education in England. One particular initiative of the DfES, 'Teaching and learning in the Foundation subject's at Key Stage 3', investigated the impact of TS interventions on teaching and learning, highlighting the importance of TS approaches for the promotion of effective questioning and extending pupils' oral responses in classrooms and the potential contribution to assessment for learning (DfES, 2000).

Reuven Feuerstein's (1990b) theories of learning and cognitive modifiability suggested it was possible to change the way children think. He claimed that humans are capable of altering their "natural" developmental course through modifying their cognitive system. Humans are identified as open systems and their future cannot be predicted based on biological, medical or psychometric data (Kozulin & Rand, 2000). Hence, if a child presents low cognitive abilities, it could be argued that those abilities could be enhanced. The fundamental claim is that TS programmes aim to help pupils to become better thinkers, by supporting them to expand their strengths and to improve their weaknesses in thinking. This assists them to recognise and develop their potential (Sternberg, 1987c).

The present study gathered considerable evidence that shows English participants believed the implementation of TS interventions in their classrooms reflected significant improvements and marked benefits for teachers and pupils. Most participants noted changes in pupils' behaviour, confidence and motivation, whereas others believed pupils' attainments and test results had also improved significantly.

Although evidence from past studies indicates that it is possible to become better thinkers, it is also a fact that those changes do not occur immediately. The development of effective TS requires perseverance. Furthermore, some authors argued that the change process should start as early as possible, while children's individual physical, cognitive and social patterns are still being formed (Brierley, 1987; Fisher, 1990; Gardner, 1983, 1993; Halpern, 1997; McGuiness, 1999; Sternberg, 1985a, 1985b).

This was another major aspect revealed during this research. Most English participants argued that children displayed substantial changes between three to six months after being exposed to the interventions. It was found that pupils appeared to be more confident and had better self-esteem, in particular pupils with Special Educational Needs, and all pupils questioning and reasoning skills had improved significantly. Most importantly, SATs results had improved and deduction and inference questions had more elaborate answers.

Some initial, almost immediate, changes were also noted, namely pupils' participation and motivation, as they were aware of the 'safe environment' offered to them in class. Pupils appreciated the fact that there was not 'one correct answer', and, as long as they were able to think about and justify their opinions, all viewpoints were acceptable.

Some authors argue traditional education does not promote thinking and independent learners as it limits the freedom of thinking and self-expression (Skuy *et al.*, 1996). In modern times, society is increasingly demanding more creative and competitive individuals and schools must accommodate that type of appeal, adjust and adapt in order to provide children with enhanced skills.

Besides, teachers also have the responsibility to educate pupils to become good citizens, by promoting effective thinking about citizenship issues, through "democratic dialogue" and reflection, as well as empathic thinking and respect for others' opinions. This will develop attitudes of tolerance, care and respect and also develop thinking, speaking and listening skills, within the NC guidelines. Education for citizenship to develop pupils' social and moral attitudes should begin in the crucial early years of their education (Rowe, 1995).

During the present study it emerged that teachers were contributing to the overall development of the pupils, when they implemented TS interventions in the classroom and engaged pupils' with that type of activity. It was found that teachers believed they were teaching children to think for themselves, at a higher order thinking level, to be more independent thinkers, and to be more confident individuals. Some hoped that they were producing learners for life, whereas others argued they were developing children's thinking so that they could be more self-critical.

Suggestions also indicated that teachers aimed at developing children's communication and social skills, as well as reasoning and justification skills, the ability to argue and accept different opinions with the adequate level of respect it deserves, aspects regarded as '*life skills*'. Other participants believed they were widening children's horizons, giving them opportunities to express themselves, and boosting children's self-esteem, self-confidence and motivation to learn.

5. 5 Final considerations about training in TS interventions

One of the central motivations of this research was to analyse the pedagogical implications and the impact training on TS interventions had on primary school teachers around the Northeast of England, possibly one of the pioneering regions in the country and certainly one with considerable levels of involvement with this type of training. It was concluded that the training available to teachers in the region was valuable and very important for all, as it provided adequate teaching guidelines to facilitate the application of TS intervention in the classroom.

It could be suggested that because this is a less privileged area of England, the introduction of these interventions in schools would have a greater impact in terms of social and educational outcomes. Nevertheless, to share and extend the benefits and improvements already observed in the region is paramount and is a success that should be experienced by all, in other parts of the country.

One fundamental question to pose to the Government and education bodies is 'why is it taking so long to include a module with TS programmes in initial teacher education courses/degrees'? It would probably reduce current problems with teachers' training availability and eventually uniform expertise and understanding about the advantages of developing children's TS in the short and long run, across all regions of the country. Most importantly, it is part of the NC since 2000 and thus all teachers must be prepared to deliver it, whether they are already able to see the benefits of it or not.

5. 6 Portuguese overall instability

In Portugal, an unfortunate conjunction of economic, social, political and cultural circumstances appear to contribute to a general climate of instability and dissatisfaction amongst educators. Repeated ill-advised political moves have put great pressure on teachers and the educational system, instead of reinstalling teachers' confidence and trust on government initiatives. This may be a fundamental factor when taking into account the importance, necessity and even urgency to implement innovative teaching interventions in Portuguese schools.

Education in Portugal appears to be constantly involved in problematic, reoccurring circumstances and its consequences have a much deeper impact than it would appear at a first glance. Substantial problems lay on the fact that every year, thousands of teachers are left unemployed by a national system that allocates all teaching positions available in the country. After the lists of allocated teachers were published in August 2005, 40 thousand teachers were reportedly left unemployed (SIC notícias, 2005).

The National Teachers' Federation (*Federação Nacional de Professores* - FENPROF), the most representative national teachers' organization, which coordinates and reinforces the actions of teachers' Unions, considered it to be '*absurd to have 40 thousand unemployed teachers when Portugal is the European Union country with the highest rate of illiteracy'.*

Augusto Pascoal, from the FENPROF national bureau, criticized the fact that teachers were allocated to schools randomly, which '*causes teachers' professional instability and affects the educational system, because deep pedagogical problems are not solved'.* This syndicalist lamented the fact that 40 thousand teachers were left unemployed, 10 thousand more than in 2004, which '*reflects the economizing nature of the measures introduced by the Minister of Education.'* He explained that some measures, instituted in an attempt to reduce the educational deficit, resulted in a modification of the Teaching Career Status (*Estatuto da Carreira Docente*) and the organization of the academic year, which consequently had implications in the allocation of teachers.

These are clear illustrations of the instability teachers have been facing in recent years. During this research, Portuguese teachers expressed their desire to engage with training in TS interventions. They believed its implementation would foment important changes and improvements in the national educational system. However, this type of training is not available nor are there conditions to facilitate its implementation in their classrooms. Evidently, there are other issues with greater magnitude to concern teachers and the government in Portugal.

Teachers regretted the fact that a number of problematic circumstances would hamper or would not facilitate the development of pupils' TS. The lack of material and financial resources, together with a political and social traditionalistic vision of education, represented crucial obstacles to the introduction of TS in Portuguese schools.

This study concluded that teachers were interested in having training in pioneering initiatives. They believed teaching thinking in a primary school setting was imperative as it would allow improvements in pupils' learning process and would have major future implications, in terms of social and financial individual potential.

However, adequate and continual training and support are *sine qua non* conditions for the successful implementation of TS interventions. Furthermore, attitudes from policy makers to schools' senior management team must undergo vital changes, in order to be able to understand the advantages that can be gained from a greater investment in teachers' continuous training and support, as well as in innovative teaching and learning approaches.

Chapter Six
Conclusions and Recommendations

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6. Introduction

The previous chapter presented a critical analysis of the findings of the present study, taking into account the author's understanding of those results in the light of both the research questions and the broader literature.

This chapter offers the main conclusions of this study as well as recommendations for future research, based on important instances that emerged during this research. The topics presented are potentially interesting grounds for new research that may shed some light on issues that have not been overly investigated fully.

6. 1 Conclusions and recommendations for educational improvement

This study revealed interesting findings with regard to training in TS interventions and its impact on the professional development of the English primary teachers interviewed. It also highlighted the viewpoints of Portuguese teachers regarding the teaching of thinking in a primary school setting.

After the analysis of the findings produced by the present research, two major aspects came to light and were synthesised in Figure 12. On the one hand, in England, there is an increasing emphasis and investment in education. There is a visible proliferation of educational policies and a significant implementation of TS interventions in schools and the consequential training of teachers. Governing bodies are making considerable efforts to promote educational change and learning improvements, for the benefit of teachers, pupils and the wider community, which may consequently foment economic growth.

Even though some specific professional needs of teachers still need to be acknowledged and addressed more effectively, the promotion and investment in teachers' professional development is visibly higher than in Portugal by a large margin.

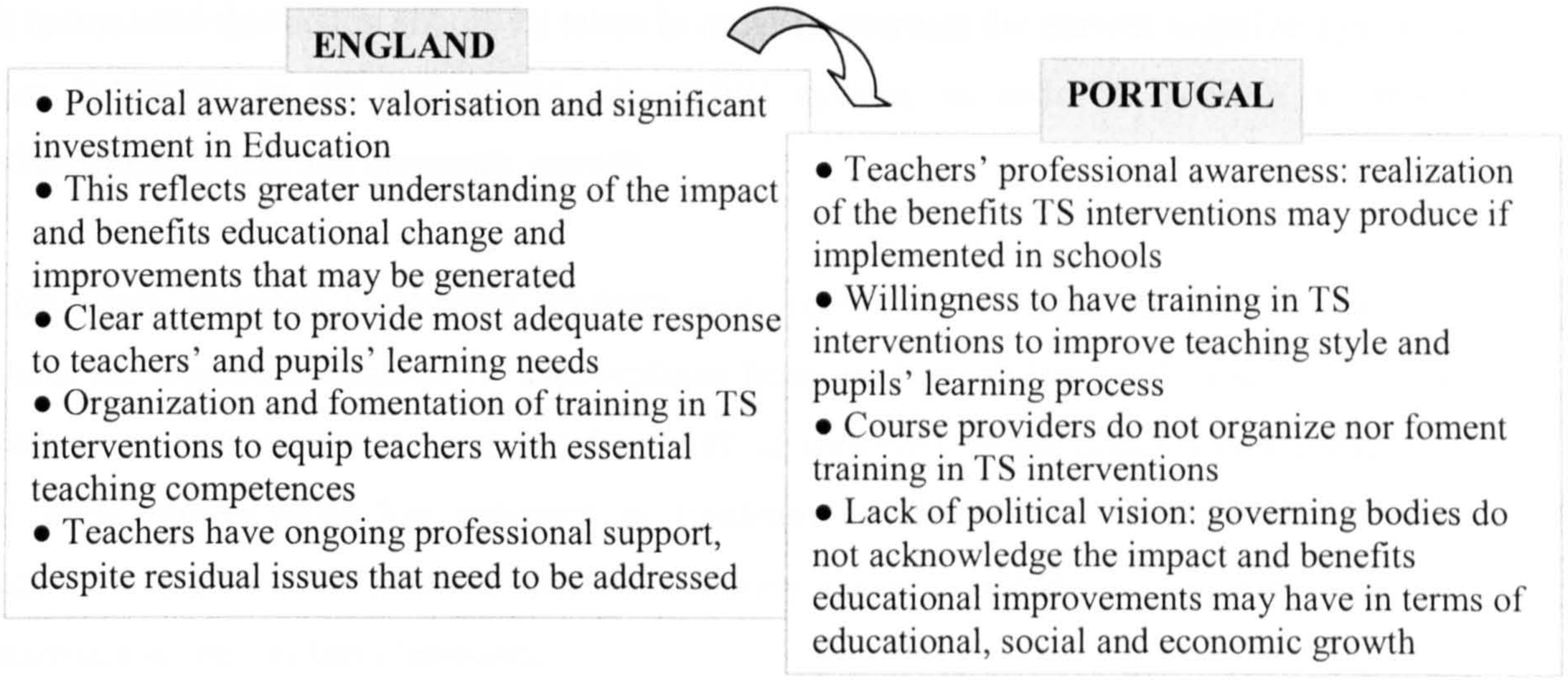

Figure 12: Differences in political educational stances and dynamics between England and Portugal

On the other hand, Portuguese teachers did not seem oblivious to the fact TS interventions have been promoting important changes in the English educational system and that it had a substantial impact on teachers' professional development, taking into account that English participants suggested the interventions prompted significant improvements in schools.

It emerged from the Portuguese teachers' contributions that there was a substantial interest in the TS interventions, particularly in the impact it had after its implementation in schools in England. Teachers believed important changes and improvements would also occur if interventions were introduced in Portuguese schools.

Nonetheless, references made in relation to educational initiatives suggested some policies were often inappropriate and unsuccessful and partially detached from schools' context and concrete classroom needs. They also reflected a substantial disregard for teachers' professional needs and, most importantly, did not represent or introduce major benefits for pupils' educational needs. The implementation of TS interventions in Portuguese schools would certainly represent an educational investment without parallel in recent policy-making history.

The idea illustrated in Figure 12 reveals a discrepancy between these two countries in terms of investment in professional development and understanding its benefits on the one hand, and educational policies and its impact on the other.

It seems vital that action should be taken in order to overturn the current negative dynamics that is visible in the Portuguese educational system, in order to achieve a greater educational, social and economic growth.

This study revealed Portuguese teachers were interested in acquiring more knowledge about the implementation of TS interventions from the English teachers' experience. This exercise would not only provide teachers with an overview of the benefits implementation of these interventions has achieved in England, but also with valuable indicators in relations to problematic issues that arose during implementation and application of TS activities in the English classroom.

However, this type of training was not available in Portugal and the quality and quantity of training courses offered to them was limited and contentious. Suggestions indicated the reduced amount of financial, human and material resources could be channelled from less useful or less practical courses to sponsor training in TS interventions and other innovative teaching and learning strategies.

Notwithstanding this generalised feeling amidst Portuguese participants, a major change of mentalities and attitudes towards educational issues is necessary before the implementation of innovative teaching approaches can take place, not only from policy-makers, but also teachers, parents and pupils. Hence, adequate training of teachers in TS interventions is vital but a number of factors need to be present before its successful implementation and application in Portuguese schools.

People in England and Portugal are being affected by growing pressures to go on developing skills and knowledge throughout their professional lives, as their jobs' complexity increases and professional responsibilities demand individuals endowed with the capacity to be more competitive, rational, versatile and ingenious.

Improvements in education represent benefits not only for teachers but also students and consequently, the society and the economy of a country. It was found during this study that English participants believed that the investment in the implementation of TS interventions in their schools had resulted in substantial improvements of schools' standards and overall pupils' attainment and skills.

To invest in people is certainly a judicious step towards a brighter future for all, a society composed by individuals who are able to give a greater contribution to the recovery and progress of a country and who are able to reach personal and professional equilibrium, which will subsequently have a positive impact in future generations. Hence, it is vital to take into account how investments in education translate into student learning conditions, teachers working conditions and future working possibilities of today's students. A country that has a blinkered vision of the importance of investing in education more sagaciously, may fail to ensure a brighter future for its young citizens by limiting the development of their potential.

Such a crass misinterpretation of one of the fundamental elements that characterize an advanced society, *i.e.*, a strong and effective educational system, is a clear disregard for a gradually more demanding and skilled labour market. Primarily, this puts children's future job prospects into jeopardy, as these may leave school with qualifications that are not truthfully representative of their potential. Poorer educational standards and underachievement may reduce chances of having high salary jobs, hence increasing possibilities of economical and social problems. As Albert Einstein once suggested '*You have to learn the rules of the game. And then you have to play better than anyone else.*'

The professional development of teachers has an evident and positive impact in pupils' learning, and it is hence paramount to reflect upon their practice and competences to build on their professional potential and pupils' learning opportunities. A less skilled population will possibly have a negative impact in the national economy, hence the vital importance of investing in education. The Portuguese government needs to address this issue more seriously and commit itself to raise educational standards so that the Portuguese society can justly be at the same level as its European counterparts.

In the past few years, the teaching of thinking has given a vital contribution not only to the professional development of teachers, who have received invaluable training, but also to prepare pupils for an increasingly demanding society, by equipping them with enhanced TS. This emerged from the fact that traditional schooling is not having the fundamental and much desired impact on pupils' thinking most people expect from schools (Nickerson, 1987). Besides, children's learning is closely intertwined with teachers' professional development and their improved performance, and will consequently reflect what they have received in the classroom. The development of children's thinking also foments reflection on practice, which subsequently promotes teacher improvement.

Today's rapid pace of change is prompting continual educational changes, which consequently requires the continuing teachers' re-training and 're-skilling', who need to be able to forge individuals in control of their own thinking. As De Bono (1997) explained:

> In a stable world, knowledge of standard situations and the routine ways of dealing with then is sufficient. Not so in a changing world. Routines and category judgments from the past may be inadequate, misleading and dangerous. Instead of analysis and judgment, we need design. We need to be able to "design" ways forward.

Hence, schools must undergo changes in order to accommodate fresh knowledge and information that will provide a solid and fruitful educational foundation. The role of schools has suffered changes and needs to go beyond a mere source of facts (Dean 1991). Children require knowledge but also the skills to know how to apply it to new situations and expand it throughout their adult lives. Schools' curricula need to address these issues and provide teachers and pupils with adequate theoretical and material frameworks so that this can be accomplished.

This study concluded English teachers felt the application of TS interventions was time consuming. Hence, an infused approach may be more advantageous, with the application of the interventions and the teaching of thinking combined with the delivery of the NC. Besides, this would also avoid the use of the TS interventions as a rigid model that can be built and transferred into a number of contexts, which may conduct to the teaching of thinking in a constrained way, one that fails to trigger intellectual and intuitive autonomy (Haynes, 2002).

In recent years England and Portugal have made significant efforts to improve their educational systems. Portugal remains at a lower level for a number of reasons, whereas England has progressed into higher levels of economical and social development, and is harvesting benefits of efforts fomented in the past.

Portugal has only been an egalitarian, uncensored society for the past 30 years but the progress noted in all sectors has been remarkable. Yet, consecutive economical periods of recession that have prevailed mainly due to deficient political resolutions, have maintained substantial discrepancies between Portugal and other European Union members.

There are evident differences between the English and the Portuguese education systems, which are clear illustrations of these countries' economic growth as well as their overall social and cultural stances. That might explain the advances achieved by England and the economical stability that allow room for progress in areas such as education, whereas in Portugal, society's basic needs are still being addressed as priorities. Many educational measures have been put forward but have failed to overturn fundamental problems.

It is unrealistic to believe there is a quick and easy answer to problems that are deeply rooted in a more traditionalistic society as the Portuguese but valuable lessons can be learned from others' experiences and enterprises. Perhaps a change in attitudes and mentalities would provide the necessary impetus to allow educational reforms to succeed in Portugal. Regardless of the quality of educational initiatives, it seems clear that people must be willing to participate and get involved with it, for which adequate training is paramount. People require a deeper understanding of the benefits and economical advantages of educational reforms such as the introduction of TS interventions in Portuguese classrooms, a process that cannot happen overnight.

A change in teachers' and pupils' attitudes, beliefs and expectations can be a long, gradual process but it can be facilitated by the fact improvements can be observed after the implementation of TS interventions and that it impacts not only in their overall teaching practice but also in the overall pupils' learning process.

It is necessary to join extra efforts so that higher quality parameters can be reached and all Portuguese can experience a well-deserved feeling of equilibrium and success, ignited by a fairer and wiser educational system.

6. 2 Recommendations for future research

Scientific research can be described as a process by which questions are continuously perfected and readjusted, and where pieces of data are put together to answer those questions. Frequently, the conclusion of a research project, may give rise to further questions for future research, which emphasizes the idea of research as a continuous, incessant course of action (Bouma & Atkinson, 1995).

Future research should extend the present work by considering other variables. Inevitably, this research project generated new research topics and hence, some recommendations for future research may be put forward, which are:

- Compare different approaches to training and professional development in the teaching of thinking.
- Investigate processes of measuring improvement in a classroom exposed to TS approaches.
- Evaluate the merit of training on TS approaches when compared with daily classroom experience.
- Training of Portuguese primary school teachers on TS approaches and analysis of its impact on professional development and its pedagogical implications.
- Study of the impact TS approaches have on Portuguese pupils over the course of one academic year.

Irrespective of cultural and social differences between England and Portugal, the last two topics would certainly have enormous impact and relevance since it would cover new, unexplored ground in Portugal.

Evaluating from the responses provided by the questionnaires completed in Portugal, such pioneering experiences would offer Portuguese primary teachers an opportunity to have much desired training and insight into a field that appears to be fascinating and challenging at the same time, both for teachers and pupils.

6. 3 Final considerations

The author considered this research project a valuable study, which implemented her professional expertise. It also contributed to a clearer understanding of the impact training in TS interventions had in primary school teachers in the NE of England. It provided a wealth of information on the importance of practical and feasible training in enabling teachers to deliver these interventions successfully. The findings also suggested that adequate training could trigger classroom improvements, as well as rewards in terms of teachers' professional achievement and pupils' attainment.

TS programmes are a faint reality at present in Portugal and hence, it is crucial to divulge its beneficial impact amongst policy-makers, teachers, parents and pupils, in order to promote awareness and clarify the importance of *teaching thinking*. A society that is better able to *think* will certainly go farther and will be able to accomplish more.

In short, the ablest citizens have more chances to succeed and ultimately, are more fulfilled, positive and happy. As someone once said (Anonymous) "*the positive thinker sees the invisible, feels the intangible, and achieves the impossible'*. Thousands of years earlier, Plato had illustrated this idea superbly: '*The direction in which education starts a man will determine his future in life*'.

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Appendices

APPENDIX A

INTERVIEW SCHEDULE FOR PRIMARY SCHOOL TEACHERS IN NORTHUMBERLAND AND SUNDERLAND ENGLAND

INTERVIEW SCHEDULE FOR PRIMARY SCHOOL TEACHERS IN NORTHUMBERLAND AND SUNDERLAND, ENGLAND, UK

This interview schedule is designed to collect information on teachers' perceptions of training in Thinking Skills programmes. It is aimed at understanding which aspects of Thinking Skills strategies/approaches have a more powerful impact on teachers' professional development and their educative autonomy, what the sources of change are and how those elements are related.

Private data identifying the school or the subjects involved in this research will not be reported (names and identifying features will be changed if necessary). All interviews will be treated confidentially, only accessed by the interviewer.

INTERVIEWEE'S PERSONAL PROFILE

Before getting to the specific aspects of this interview, could I ask you some general background questions first?

1. Name: _____ Age:_____ Gender: M _____ F _____
2. What higher education qualifications do you hold?

B.A. ____ B.Sc. ____ B.Ed. ____ Cert.Ed. ____ Other (please specify) _____

3. How long have you been qualified for? _____
4. How long have you been involved with Thinking Skills programmes/strategies? ___
5. How did you come to be involved with TS programmes? _____

ABOUT THINKING SKILLS PROGRAMMES

1 // TRAINING

1. Did you have any kind of training in TS programmes during your first degree at University / College? If not, do you feel it had been relevant if you had had?

2. Have you had training in TS programmes?

3. Why did you get involved in TS training? (was it imposed or voluntary?)

4. Do you think there are some teachers who are more proactive and enthusiastic about TS programmes / strategies than others, which may or may not lead to further training in TS programmes? How would you categorize yourself? Why?

5. Did you know that the National Curriculum implies *(not very explicitly)* the development of TS in the classroom, which requires specific training?

6. Do you feel prepared to deliver the TS strand outlined in the National Curriculum? Is the extra training enough? What is missing?

2 // ATTITUDES TO TEACHING AND LEARNING

1. How do you feel about the inclusion of thinking skills development in the National Curriculum? (Is it important or not and why?)

2. Are there any barriers to the application of TS strategies in your classroom?

3. How would you describe your lessons? Are they more rewarding, motivating, successful, do you feel you have more/ less / the same control over the class, or instead, they are less accessible, harder to control, etc? [*element of trust, pupils are more autonomous* (less control needed)].

4. When compared to traditional teaching strategies, which are the main advantages and/or disadvantages for applying thinking skills strategies and technique within the classroom?

5. Is the theory realistically applicable and feasible within the context of your classroom? Is the application into practice easy / difficult / impossible?

6. What have been pupils' main reactions to a different approach to teaching in the classroom?

7. What kind of contribution do you believe you are giving to the improvement of Education when you engage with and apply thinking skills strategies?

3 // IMPACT ON PUPILS

1. Has anything changed in pupils since they were first exposed to TS programmes in the classroom?

2. When compared to traditional methods, do you feel that teaching through a different approach (using TS techniques) can facilitate or promote changes in pupils' results, thinking, behaviour and general individual features?

3. Are there improvements and do they reflect across all areas and aspects of the individuals (both teacher and pupil)?

4. Are the changes immediate / slow / clear / indistinct?

5. What are the most evident features in pupils' attention, behaviour, participation, confidence, and ability?

4 // IMPACT ON TEACHERS' PROFESSIONAL DEVELOPMENT

1. In your opinion, what are the main implications for teachers' professional development when applying TS approaches and strategies in the classroom? (theory → practice)

2. How did it affect your individual professional experience?

3. Would you say there were improvements and how big / significant / relevant were those improvements in terms of professional development?

4. Do you reflect about your own practice? What are the major outcomes of that reflection? What kind of contribution does it provide towards the improvement of your practice? (is it a positive contribution?)

5. Do you analyse evidence and lesson outcomes and share it with other teachers? Do you access and discuss other teachers' evidence?

6. Is there a particular TS programme that you have a preference? Why?

5 // RESPONSE TO CHANGE

1. Do you believe TS programmes have changed your practice/performance in the classroom? Was there an evolution or a major change? What has changed? What has influenced those changes? Do you believe the changes are significant and long lasting?

2. What hard, visible evidence have you gathered to support the suggestion of improvement or change in your classroom? And how long did it take to emerge? Did these improvements and changes have any impact on you confidence and motivation?

3. How do you deal with change? Is it a smooth and enthusiastic process or would you say there are some traces of resistance and why? What aspects of change were most difficult to deal with and why?

APPENDIX B

INTERVIEW SCHEDULE FOR PRIMARY SCHOOL HEADTEACHERS IN NORTHUMBERLAND AND SUNDERLAND ENGLAND

INTERVIEW SCHEDULE FOR PRIMARY SCHOOL HEADTEACHERS IN NORTHUMBERLAND AND SUNDERLAND, ENGLAND

This interview schedule is designed to collect information on teachers' perceptions of training in Thinking Skills programmes. It is aimed at understanding which aspects of Thinking Skills strategies/approaches have a more powerful impact on teachers' professional development and their educative autonomy, what the sources of change are and how those elements are related.

Private data identifying the school or the subjects involved in this research will not be reported (names and identifying features will be changed if necessary). All interviews will be treated confidentially, only accessed by the interviewer.

INTERVIEWEE'S PERSONAL PROFILE

Before getting to the specific aspects of this interview, could I ask you some personal background questions first?

1. Name: _____ Age:_____ Gender: M ____ F ____
2. What higher education qualifications do you hold?

B.A. ___ B.Sc. ___ B.Ed. ___ Cert.Ed. ___ Other (please specify) _____

3. How long have you been qualified for? _____
4. How long have you been the Headteacher of this school? _____
5. How long have you been involved with Thinking Skills programmes/strategies? ___
6. How did you come to be involved with TS programmes? _____
7. Did you have any training in this area before getting involved with TS programmes?

_____

8. What was the motivation of this school to get involved with TS programmes?

_____

ABOUT THINKING SKILLS PROGRAMMES

1 // TRAINING

1. Did you have any kind of training in TS programmes at University / College? If not, do you feel it had been relevant if you had had?

2. Have you had training in TS programmes?

3. Why did you get involved in TS training? [imposed or voluntary]

4. Do you think there are some teachers who are more proactive and enthusiastic about TS programmes / strategies than others, which may or may not lead to further training in TS programmes? How would you categorize yourself? Why?

5. Did you know that the National Curriculum implies *inexplicitly* the development of TS in the classroom and thus requires specific training?

6. How do you feel about delivering the TS strand delineated in the National Curriculum? Is the extra training enough? What is missing?

2 // ATTITUDES TO TEACHING AND LEARNING

1. How do you feel about the inclusion of thinking skills development in the National Curriculum?

2. Are there any barriers to the application of TS strategies in the classroom?

3. How would you describe your lessons? [more/less rewarding, motivating, successful; more/less control of the class]

4. When compared to traditional teaching strategies, which are the main advantages and/or disadvantages for applying thinking skills strategies and technique within the classroom?

5. Is the theory realistically applicable and feasible within the context of your classroom? How is the application of theory into practice?

6. What have been pupils' main reactions to a different approach to teaching in the classroom?

7. What kind of contribution do you believe you are giving to the improvement of Education when you engage with and apply thinking skills strategies?

3 // IMPACT ON PUPILS

1. Has anything changed in pupils since they were first exposed to TS programmes?

2. When compared to traditional methods, do you feel that teaching through a different approach (using TS techniques) can facilitate / promote changes in pupils' results, thinking, behaviour and general individual features?

3. Are there improvements and do they reflect across all areas and aspects of the individuals (both teacher and pupil)?

4. Are the results immediate / slow / clear / indistinct?

5. What are the most evident features in pupils' attention, behaviour, participation, confidence, and ability?

4 // IMPACT ON TEACHERS' PROFESSIONAL DEVELOPMENT

1. In your opinion, what are the main implications for teachers' professional development when applying those approaches and strategies in the classroom? (theory → practice)

2. How did it affect your individual professional experience?

3. Would you say there were improvements and how big / significant / relevant were those improvements in terms of professional development?

4. Would you say there are common characteristics across TS teachers, in terms of reactions and the impact TS programmes have on them?

5. Do you reflect about your own practice? What are the major outcomes of that reflection? Does it provide a positive contribution towards the improvement of your practice?

6. Do you analyse evidence and lesson outcomes and share it with other teachers? Do you access and discuss each other's evidence?

7. Is there a particular TS programme that you have a preference? Why?

5 // RESPONSE TO CHANGE

1. Do you believe TS programmes have changed your practice/performance in the classroom? Was there an evolution or major change? What has changed? What has influenced those changes? Do you believe the changes are significant and long lasting?

2. What hard, visible evidence have you gathered to support the evidence of improvement or change in your classroom? And how long did it take to emerge? Did these improvements and changes have any impact on you confidence and motivation?

3. How do you deal with change? Is it a smooth and enthusiastic process or would you say there are some traces of resistance and why? What aspects of change were most difficult to deal with and why?

APPENDIX C

COLOUR-CODED INTERVIEW TRANSCRIPTION FROM A PRIMARY SCHOOL TEACHER IN SUNDERLAND ENGLAND

Friday, 20th June 2004 – 17th interview - Sunderland

Researcher	**The first question on *training* is this: did you have any training at university or college on TS programmes? If not, do you feel it had been relevant, if you had had?**
Teacher 11	No… it wasn't important at the time because it wasn't applicable… I had my training before TS was an approach, as it is now.
Researcher	**Have you had training on TS programmes?**
Teacher 11	I have, yes.
Researcher	**Why did you get involved in TS programmes / training?**
Teacher 11	When I started the M.Ed., the 1st module I looked at (we were at the time in school, trying to raise standards) and the 1st module said "Raising Standards – The TS Approach"… I didn't really know much about TS at that time, but it was more than raising the standards, and it got me wanting to learn more about that… so, that module was the 1st one that Newcastle University had done at the time on TS… and it obviously led me into lots of different types of TS and from that, I did a bit of research of my own in the classroom… initially, that's how I got into TS…
Researcher	**So, do you think there are some teachers who are more proactive and enthusiastic about TS programmes and strategies than others, which may/may not lead to further training?**
Teacher 11	I think so, yes… the teachers that are more interested, want to know more about it, those that don't, they don't really want to know… (**R.: categorize yourself?**)... me?.. I'm *thoroughly* enthusiastic about TS and want to know even more!... because, I've now taught it for quite a while and I see the impact it's had on children's learning… I've also seen the impact on my teaching, that's changed… I see that children improve, enjoy it… I *don't see any negatives* at all… I've seen that children who are SEN can access it… the approach we use specifically, I like it, I've gone further into a different curriculum area with it and seen how they've brought their own attitudes into the classroom and we've talked about attitudes and prejudices, in a safe environment… I just think it's important for children to be able to think, rather than just passively carry on their education… you need to be able to discuss things and use higher order TS…
Researcher	**Did you know that the National Curriculum implies, not explicitly, the development of TS in the classroom? And that requires more training?**
Teacher 11	Yes, I do, it's one of the key skills… even though it's not explicit, you can just look at specific skills within your curriculum area… you've got to look at further skills for children to develop…

Researcher	**With all the training you've had, how prepared do you feel to deliver the TS strand in the curriculum? Is that extra training enough, is there anything missing?**
Teacher 11	Personally, I feel prepared but I'm not complacent (satisfied), I know I still need to know more and would like to know more and how we can actually implement it as a whole school … I still think I need more training, possibly more of infused in different TS approaches, more for delivery for staff, not for my own personal development, but more for staff's development to take it on further themselves.
Researcher	**Ok. Now, the second part is about *attitudes to teaching and learning.* How do you feel about the inclusion of TS development in the National Curriculum?**
Teacher 11	I think it's a *must*… I think that we definitely need that strand in… it's very important, because children need to be able *to think*, they need to be able to have time where they put their thoughts together… they need to be able to question things that are being taught, to find out more or to even challenge their own assumptions or their own opinions, they need to have those skills, justify their opinions, *justification,* that's one of the things we are doing with the P4C approach…
Researcher	**Are there any barriers to the application of TS strategies in the classroom?**
Teacher 11	I don't think there is, in my classroom… but I could see where, if a teacher has a negative attitude towards TS, I would see that as a barrier… we could overcome that barrier because sometimes is lack of knowledge and understanding that children actually benefit from it… so, whether that's a barrier or not, because you could actually get around it… there's been cases like that in this school, in the past, but not at the moment…
Researcher	**How do you describe your lessons? Are they more or less motivating… is there more or less control of the class, or none at all?...**
Teacher 11	Me, as the teacher, I use more open-ended questions now and I'm more aware of unpacking vocabulary with children, so, if we find vocabulary in some text, I try and expand that further and bring in "What do you think about it?"… but also, the way I question children, I try and find a deeper understanding and always ask them to justify they answers, so they're not just giving me recall all the time… and even if it's a recall question, I still ask even more… so, as a teacher, *I'm always asking questions* with children, I'm getting them to think about what they're saying because sometimes they give you an answer but haven't thought about it so I say "Why do you think that?"… so, unfortunately for them, my lessons are a bit more… trouble… (laughs)… well, they have to think for themselves and give me justifications but, on the other hand as well, they have fun activities, so they're TS activities that children enjoy doing, at least they tell me they enjoy doing it, that's why we put more in, because they enjoy doing that… that makes *me* enjoy teaching as well, *I love teaching TS*…

Researcher	**Are children more autonomous/independent or do you still have a lot of control?**
Teacher 11	It depends on what stage the children are at, I had one class which I introduced to TS in Reception, I had them again in Year 2 and found that in Year 2 they wanted to know more about a text, they weren't just happy with reading the text… and sometimes, it lead down to different paths and you had to keep bringing them back… they were more motivated, interested, enjoyed what they were doing, enjoyed the fact we could debate things… sometimes they go off on a tangent and don't really go the way I want… how do I deal with that?... sometimes, I went with them, if they wanted to go down that avenue and explore what we were doing that, I used to do that… and, sometimes, I couldn't with constraints (restrictions) with the curriculum… but we would come back to that later on… before you'd have a set answer that you wanted the children to get over… a lot of the time now, I'm more open minded about some things… obviously there are questions that there is only one answer… but a lot of the time, they will challenge them, in a way, because they know I haven't got a set answer and they aren't getting any clues from me… and because you've built up a safe environment, they will give opinions and will discuss their opinions… so they know sometimes that there isn't an answer I'm looking for, it's the process, more than the answer, and they're happy to go down that line…
Researcher	**When compared to traditional teaching strategies, which are the main advantages or disadvantages for applying TS strategies within the classroom?**
Teacher 11	If I focus on the P4C approach, advantages with that is that *it's the children's* agenda, I prepare a stimulus but the children pose the agenda (programme)… and it's their topic that they want to discuss… so, yes, you've got the motivation and the children are interested because it's what they want to discuss… I don't see many disadvantages… I suppose there is a disadvantage, if you wanted to use it for a specific purpose, if I had the stimulus for say, PSHI, and wanted them to go down that particular route, they might not choose that route so, I might have to lead them a little bit into that… so, that might be a disadvantage… the other TS approaches, depending on how they've been infused in the curriculum… if the children are used to the TS approach, like the "odd one out", you get more from them… but if it is a new approach, at the beginning, when you 1st show them the "odd one out", I think they find it difficult, so it takes a little bit of rehearsal (practice) over a few times, to understand the rules and that they're *allowed* to think and *have time* to think… the Nursery, when I tried "odd one out" there, that took quite a lot of time to get them to understand what we were trying to do but, eventually, they did….
Researcher	**So, is TS theory realistically applicable and feasible within the context of your classroom? How is the application of theory into practice?**
Teacher 11	I don't think I've come across any TS Theory!... I mean, I've adapted some, to suit the age of the children and the context of my classroom… and I never found any problems…

Researcher	**So, what have been pupil's main reactions to a different approach to teaching in the classroom?**
Teacher 11	They've enjoyed it… in fact, is laughable, because sometimes I go in the classroom and they'll say "are we doing our P4C now?" and I'll say "not today!"… there's the expectation… they do look forward to the sessions… (a little anecdote/story) I always ask them how they feel about the P4C and one girl said "I like it because I can disagree with my friend but still be her friend"… so, they *all* enjoy it, some children are quiet when you're doing it, but at the end, they still want to talk about it with you, so they've actually listened but not being prepared, at that time, to talk about it in a group, but wanted to discuss it later and could tell you everything that's happened in the group… they enjoy "mysteries" because they're engaged with it, they're talking to each other, they're cooperating with each other, which, sometimes, they don't normally do… they are more engaged with the activities, *they're on task,* certainly... I think they know that in that type of activity (odd one out, mysteries, mind map, etc) they're *allowed time to think* about it, discuss it with a friend, they *understand*, even though it's not explicit to them "this is a TS activity"… NO, they are not aware that they're learning!... because they're not writing, or doing boring exercises, they don't think it's work, because, afterwards, the little ones will say "*when* are we doing our work?!" so, they don't realize that they *have been* doing work…
Researcher	**So, what kind of contribution do you believe you are giving to the improvement of Education, when you engage with TS strategies and apply them?**
Teacher 11	I think we're developing children to be more responsive and creative, to *think,* obviously, but not just be passive learners, to be active learners… my contribution?... I *believe it works*, I believe that it *will* raise standards, I believe it will raise children's self-esteem and motivation to learn… so, with that, my contribution is that *I will teach* TS to educate… but it's not just to my children, I teach the TS approaches to the staff in the school, to people in the Authority, to people wider than that, I just think *everybody* should *know* about it and be able to infuse it into their curriculum…
Researcher	**OK. So, let's look at *the impact on pupils* now. Has anything changed in pupils since they were first exposed to TS programmes?**
Teacher 11	Questioning has changed, they moved away from the closed questions to more open-ended, philosophical questions and this is throughout the school, this is from Nursery right through to Year 6… the speaking and listening has developed… the actual rapport (relationship/empathy/affinity) with each other, as we develop the Community of Enquiry, that's developed as well, so, they're more tolerant of each other and each other's ideas and opinions… looking at the crude figures in English and Maths, it's hard to judge/say whether that's had an impact on that… but I look at Citizenship in RE and all the other areas of the curriculum and see that, *that has had* a benefit to the children, more their questioning skills, that's definitely improved…

Researcher	**Right. So, when compared to traditional methods, do you feel that teaching through a different approach, using TS techniques, can facilitate or promote changes in pupils' results, thinking, behaviour, motivation and general individual features?**
Teacher 11	I think so… I think it's a *must* in the curriculum…
Researcher	**So, are there improvements and do they reflect across other areas and aspect of the individuals, like confidence, social and communication skills?...**
Teacher 11	I would say my class did improved… and it was difficult at 1st, to transfer the skills over to other areas but, after a while, they are able to transfer them… I'm looking more at the *debate* and *discussion* and their *questioning*, they *do* take that into other areas… *classification*, yes, in Science, but I'm not sure if that can be transferred into another area… but the *justification* for things, like in Maths, they have to give justification of why they've chosen a particular question… and they do that better, they're better at doing that…
Researcher	**When do the results emerge?**
Teacher 11	I don't think they are immediate… I don't think they transfer the skills immediately… after a short period of time… no, I think within the year, you can actually see them transferring the skills… the initial changes (questioning, discussion, justification, etc) that happens relatively quickly, so that will take a couple of weeks… motivation, self-esteem, behaviour… almost immediately!... within a few weeks, once you've established a *safe environment*, self-esteem and things like that, happen straightway… once that the children understand all their opinions are valued, that *does* happen quite quickly…
Researcher	**What are the most evident features on children's attention, behaviour, participation, confidence?...**
Teacher 11	Certainly attention and confidence improved, especially with children who don't normally speak in the class, but in the P4C approach, they'll bring their own opinions into it… and they are more motivated, definitely… and feel confident to speak to a whole group…
Researcher	**Good. So, now let's look at the impact on *teacher's professional development*. In your opinion, what are the main implications for teacher's professional development, when applying TS approaches and strategies in the classroom?**
Teacher 11	The main implication is that they find the benefit of it… I found benefit to do the research but I think they need training first, you have to have training before you can actually implement it in the classroom… from the management team, I have to say that's part of the vision of this school, this is the way forward as well, so that people know that TS is alright to do in your classroom… teachers need training but also, they need to want to do it themselves, they want to actually put it in the curriculum… well, that's hard, if they haven't seen the benefit of it, but then, just having a go and they can see the benefit, it's like a spiral, then they want to know more… but it's giving them enough food… to give them a chance to try it and see for

themselves, that it works and then evaluate it, and say "Has it worked? If not, how can we make it better?" I don't think it's good to bombard them with a lot of things at once, but certainly, for their own development they need to do some training…

Researcher	**How did this training affect you individual professional experience?**
Teacher 11	Well, after having the training, I had a little go as well... I was having a go and training at the same time, so they both went hand in hand, I could see the benefit of it myself… and also the training helped me to know that "No, it won't go smooth straightway"… it gave me *parameters* and also gave me *stages of the growth* of the community, so I knew that the children *wouldn't develop overnight*, I knew it would be a little bit of a process… so actually knowing the knowledge about it but also the background information, I needed to look at the justifications, open questions, all these gave me a better understanding of the class… and through doing my own research, that was a huge benefit, because it was the children in our school, so we could see the benefits of it…in our research, we looked at the *questioning* in the whole school, only with the P4C approach, from Reception up to Year 6… we had base lines at the beginning, we took videos at the beginning and at the end, we had interviews with children and student logs, interviews with teachers… the results showed that children's questions *changed*… they 1st ask lots and lots of closed questions, start a few little bits of open-ended questions but at the end you can actually see that their questioning is good… and we looked at the SEN children and they showed that they had accessed and they had good questioning skills as well, and that they had something to bring into the P4C approach, yes, they're not academic, but they have their own little opinions and a lot of them are street-wise, so they've got more opinions than somebody who's very good at Maths or English… so, for their self-esteem, that was better… I also did some more research in the Nursery, and that was on TS approaches with children as young as three… I looked at the reasoning language that they used, justification, classification… I looked at traditional Nursery activities and TS activities – "odd one out", "mystery" and P4C – looked at all of them to see the reasoning language that the Nursery children had/used… again I had videos, transcripts… the results showed that, in the traditional Nursery activities, *there was no reasoning* language… and the three TS activities, all had different reasoning language so, P4C might have been justification, "odd one out" was classification… but I found that each activity had distinctive vocabulary - reasoning language…
Researcher	**Were there improvements and how big and significant were those improvements, in terms of your professional development?**
Teacher 11	Yes, there were improvements… how relevant were they in terms of my professional development?... well, everything I tell people became true!!...(laughs)… I could then preach people and say "You see?! It does work!!"… gave me more confidence!... certainly the Nursery because, obviously I've done a few workshops for people, who can actually say "Well, it doesn't work for Nursery children!" and, of course, I can actually say "Yes, it does work! And if you want, I'll come and demonstrate it"… yes, I've got the confidence now to be able to talk to people about it… I've researched it in my own school, the catchment area, children don't come from very good backgrounds so, in a poor area like this, TS works in our school, so, it should work everywhere… so, really, I've got the knowledge and understanding,

and I've done some more training with *SAPERE* with James Nottingham, Level 1 and Level 2 and I put courses on for teachers here…

Researcher | **So, do you reflect about your own practice? And what are the major outcomes of that reflection? What kind of contribution does it provide towards the improvement of your own practice and professional development?**

Teacher 11 All the time… a lot of the outcomes are positive… a lot that I reflect on makes me challenge things even further… at the moment, we've been looking at P4C across the board but what I'd like to do is focus now on the TS approaches and get that into the curriculum, bettering (improving) the school… but on my practice, I never make assumptions about children, I reflect on whether my approach, the TS approach, still is working with children… I reflect on whether there's any child who won't access it, if there is any child who doesn't, I haven't found that yet… the impact, because I'm so enthusiastic about it, is it my enthusiasm – that the P4C works, or would it work without my enthusiasm?!... that's something I reflect on… reflecting about my practice, has a positive contribution/impact on my confidence and motivation, definitely… I see it work and I want to do more… but even if it didn't work, I would still reflect about it because there's been so much good practice in this school… even if it was negative, but I would reflect "why was it negative? what can we do better to change?"…

Researcher | **So, do you analyse evidence and lesson outcomes and share it with other teachers? And do you discuss and have access to other teachers' evidence?**

Teacher 11 Yes… there was a teacher new to Nursery this year, and at 1st she was a little apprehensive about the P4C, and felt she couldn't do this with little ones… and I've shown her and she's realised yes, it does work with little ones and she's now alright about it…

Researcher | **Is there a particular TS programme you prefer?**

Teacher 11 Yes, at the moment, the P4C, I think it's absolutely brilliant… it can be used on its own or you can adapt it to any area of the curriculum, I'm now using it for RE, I'm using that approach to infuse into the RE scheme… it's just an *absolutely fabulous tool* for working with children, I just think *everybody* should do it (laughs)… I like other TS strategies but the P4C approach + Community of Enquiry, it's brilliant…

Researcher | **Ok, this final part is about *responses to change.* So, do you believe TS programmes have changed your practice and your performance in the classroom? And, if there was an evolution, were there major changes?**

Teacher 11 It certainly has, definitely, hugely… I always thought that I questioned children really well before, but now I know I didn't, and the sorts of questions I ask them is actually *challenging them to think* and *not* to just take what I say as gospel, but to question… my change was *overnight*… as soon as I saw *the impact* it had and getting children to question… I mean, I had little Reception children and by the end of the year I saw such a *huge* change in their

	abilities… it's changed me for life!, I don't think I'll even go back to what I was before… it was a major change, what specifically changed was the *questioning*, getting children to justify their answers and also, the vocabulary, not assuming they know all the vocabulary, ask "what does that vocabulary mean?" and get them to think about it…
Researcher	**What influenced those changes?**
	It wasn't just the training, I think it's *the challenge* as well, of children *getting even better*, it's not just their academic ability, but also getting them to *think for themselves*, to have an opinion, not to just take somebody else's opinion, like their mum's… listening to other people as well, how their approach is changing, how they feel has benefited other people so, it's <u>not just my own practice</u>… I've seen other people's practice that has changed and benefited children… it's the children's benefit and their enjoyment of it… I enjoy it, *I love it*!
Researcher	**So, what hard, visible evidence have you gathered to support the evidence of improvement or changes in your classroom?**
Teacher 11	Definitely the questioning because of the research, we've got physical evidence… the children's own opinion about it, that they enjoy it, that they can feel that they can talk about sensitive issues within a safe environment… their success of it, now, how you measure that, I don't know…
Researcher	**How long did the improvement / those changes take to emerge?**
Teacher 11	It was progressive, it wasn't an overnight change… at least two terms, within two terms I saw a marked difference… it's quite quickly I would say…
Researcher	**Did these improvements have any impact on your confidence and motivation?**
Teacher 11	At 1st, I was thinking "This isn't going very well at all!"… after the 1st few weeks, eventually, you could see the children developing and progressing… but initially I thought "This is NOT going to work!"… and I persevered "It WILL work!" and it DID…
Researcher	**And the last question is about *change.* How do you deal with change (with the TS coming in)? What kind of process was it? Any traces of resistance?**
Teacher 11	For me, I just went with the change, it was a progression, there was no restrictions… in this school, there were some teachers, at the time, who were a little bit *resistant* to change, even though they've been on the training… because of *their personality*... because everything that changes, "she" finds it difficult so, it's not just the TS… at the beginning was "oh not *another* initiative!", she resisted at the beginning but not now… she's had lots of training and did some research herself and found benefits so now it's fine… the others, once they found the benefit of it, there wasn't any problem, when they actually trialled it… there wasn't anything in particular hard to deal with, because we took it on as a whole school approach, I think it might have been different if it was one teacher doing it and then another teacher… and because we could put it into a particular a time slot in the timetable, for speaking and listening, so that's

when you can do it… so everybody took it on board… some people were less confident than others, new staff need more training and I've gone in to do demonstration lessons, to boost their confidence up so that they know that "this is how you do it"… because it is a new approach (to this country), people are worried in case they aren't doing it right, they have to overcome that and say "look, you are doing it right, you have to be confident"… that's a big thing to change "is it right?! Am I doing it right?!"…

APPENDIX D

INTERVIEW'S COLOUR CODE

UNIVERSITY OF NEWCASTLE-UPON-TYNE

SCHOOL OF EDUCATION, COMMUNICATION AND LANGUAGE SCIENCES

Categories refined during a data workshop at the Postgraduate Research Students Conference 2005 - University of Newcastle

CATEGORY	COLOUR CODE
Training	orange
Practice	yellow
Learning	blue
Reflection	pink
Change	green
Policy	red

APPENDIX E

SUMMARY OF THE ANSWERS TO THE INTERVIEWS ABOUT TRAINING IN THINKING SKILL INTERVENTIONS FROM ENGLISH PRIMARY SCHOOL TEACHERS (SENT TO PORTUGUESE PRIMARY SCHOOL TEACHERS)

ANSWERS TO THE INTERVIEWS ABOUT THINKING SKILLS INTERVENTIONS

The following is a summary of the main answers given by the teachers interviewed in the UK.

1. TRAINING

Did you have any kind of training in TS programmes during your first degree at University / College? If not, do you feel it had been relevant if you had had?

Most of teachers completed their 1st degree 15-20 years ago; TS was not practised but some aspect of it, under other "labels", were already acknowledged; it would have been important to have had training longer ago.

Have you had training in TS programmes?

All teachers had already had training (1-5 years of practice) on different programmes: TS level 1and 2, Philosophy for Children, sabbatical leave and training, conferences and seminars on Thinking, etc.

Why did you get involved in TS training? (was it imposed or voluntary?)

It was not imposed, all teachers in school undertook training voluntary; learning is not all about tests and standard answers, it is about thoughts and thinking for life; thinking should be developed in children as soon as possible; there is no right or wrong answers; there is not one way only of learning; teachers are interested about "how pupils learn" and "how I learn", if they understand how they learn, it helps to understand how pupils learn.

Do you think there are some teachers who are more proactive and enthusiastic about TS programmes / strategies than others, which may or may not lead to further training in TS programmes? How would you categorize yourself?

All teachers interviewed were enthusiastic about learning about TS right from the beginning (because it was not imposed); some teachers felt some colleagues were sceptical about it, specially nursery teachers since they did not believe it would work with such young children; others managed to help colleagues to overcome initial fears, by proposing different strategies and approaches; there is a try/error pattern shared by most teachers until a better approach is found for a particular group of children; progress was always a factor that kept teachers motivated; there is not a teachers that does not like it, there are only teachers with more or less difficulties; pupils have more control of the class, classes are more verbal, therefore pupils ask more questions and that may be difficult to deal with at first for some teachers; the point is not so much the teacher to be in control, if there are no risks or dangers for the pupils, "that is the best way to learn"; some teachers are happy to continue doing just the basic aspects of TS they have learned while others seek more information; it is important that no one is pushed to do something they do not feel confident and comfortable with; some teachers like taking risks, some feel they are still learning and that there is still a lot to learn.

Did you know that since 2000 the National Curriculum implies (not explicitly) the development of TS in the classroom, which requires specific training?

All teachers, except two, knew about it and used it on their lesson planning.

Do you feel (well) prepared to deliver the TS strand outlined in the National Curriculum? Is the extra training enough? What is missing?

Some teachers felt well prepared or prepared enough to develop their pupils' TS; others said "you are never well prepared, you are more prepared" and are still looking for more things to learn and improve their teaching, "I'm always learning"; some felt the extra training they had had was enough while others needed more; some teachers had more training than others, and admitted one needed a lot of training to feel confident and some had had more opportunities and support than others.

2. ATTITUDES TO TEACHING AND LEARNING	*How do you feel about the inclusion of Thinking Skills development in the National Curriculum? (Is it important or not and why?)*

"Excellent" and "very important"; no one is a straightforward thinker, we need to make connections, apply knowledge and skills acquired along the years and that the pupils already have but need to develop; this is connected with all subjects (some teachers feel that more work must be done by the Government to see how it links with other subjects); most of the teachers believe "thinking for learning" should be applied to all subjects.

Are there any barriers to the application of TS strategies in your classroom?

The main barrier to some teachers is the lack of support of the school's headteacher; others felt fully supported by their headteachers; other problem was the lack of frequent training courses or financial support to attend them.

How would you describe your lessons? Are they more rewarding, motivating, successful, do you feel you have more/ less / the same control over the class, or instead, they are less accessible, harder to control, etc? [element of trust, pupils are more autonomous (less control needed)].

Stimulating, collaborative (pupils do not learn alone, they share and discuss their ideas with one another); pupils talk more; sometimes there is not a final product at the end of a lesson; it is a constant challenge; pupils are "enriched" by a TS lesson, which are more rewarding and captivating; some teachers do not think in terms of having more or less control, it is not so important if the lesson does not go according to the initial plan, as long as pupils learn and enjoy the activities; it is important that the lesson is safe for the children and therefore there is not a big necessity for control; children know what kind of learners they are and speak when they need; there is a relationship of trust and pupils know the teacher only wants the best for them and will not be upset if they interrupt the class to say "I don't understand", thus they will not take over the class.

When compared to traditional teaching strategies, which are the main advantages and/or disadvantages for applying thinking skills strategies and technique within the classroom?

If one believes a lot of written work is necessary, some classes hardly have anything written down; practical work and discussion are the main differences from traditional teaching, which are not seen as a disadvantage (the only downside is that in most schools pupils are not used to discussing and co-operating with each other, so it is important that the whole school adopt this approach).

Is the theory realistically applicable and feasible within the context of your classroom? Is the application into practice easy / difficult / impossible?

Most teachers answered "yes" to the first question; as for the second question, teachers believe pupils must know how to apply what they learn to future learning, to relate what they do today with their aspirations for the future; learn to do connections in their learning and understand the point why they do it; emotional learning is also important, children support each other and learn a lot from one another.

What have been pupils' main reactions to a different approach to teaching in the classroom?

"They love it!"; some pupils have never been thought in any other way so TS lessons are the only reality they know and they enjoy it; those who have had traditional teaching enjoy a different approach; because there is no right or wrong answer, they just need to justify their answers; this approach is also very *inclusive* so Special Education Needs (SEN) pupils can participate and enjoy learning as well; pupils understand their process of learning more than before and they will continue learning after school; as the teachers, they are "learners for life" and go on to exchange knowledge with their peers as well as with the teacher.

What kind of contribution do you believe you are giving to the improvement of Education when you engage with and apply thinking skills strategies?

Most teachers want to get "learners for life" and to give people to society who can came up with solutions and are able to *think*, citizens who can think of different strategies and approached to tackle life's vicissitudes.

3. IMPACT ON PUPILS	*Has anything changed in pupils since they were first exposed to TS programmes in the classroom?*
	SEN pupils became more confident because they realise they have got a valid contribution to give; they fail more in written work thus, in TS lessons, which put more emphasis on oral participation, they learn to reason and verbalise their points of view; pupils are more motivated when lessons are more stimulating and less boring; a TS lesson also challenges pupils more; it also makes the best pupils think more since most of them are used to give correct answers without thinking too much about it.
	When compared to traditional methods, do you feel that teaching through a different approach (using TS techniques) can facilitate or promote changes in pupils' results, thinking, behaviour and general individual features?
	Some teachers believe that pupils are achieving better SATS (end of the year test) results, while others say there are no tangible tests results; however, they are all able to see improvements in pupils' questioning skills, oral and writing responses; some teachers interpret higher marks achieved on deduction and inference questions as the result of their TS lessons; they also believe poor students are starting to infer and deduct more and think beyond the obvious; when pupils are first exposed to TS approaches there is a major impact right from reception years, specially when the whole school is involved, which makes a big difference;
	Are there improvements and do they reflect across all areas and aspects of the individuals (both teacher and pupil)?
	Pupils are more collaborative, they are encouraged to co-operate in group and are more able to do it; better participation, attention, behaviour, confidence and ability are the most evident features; generally speaking, everything improves; it is very positive.
	Are the changes immediate / slow / clear / indistinct?
	Pupils motivation and satisfaction are immediate / clear results; tests results will gradually improve.

4. IMPACT ON TEACHERS' PROFESSIONAL DEVELOPMENT	*In your opinion, what are the main implications for teachers' professional development when applying TS approaches and strategies in the classroom? (theory → practice)*

Teachers pay more attention to the group dynamics and physical nature of classroom organisation (*i.e.,* a community of enquiry activity requires moving tables and sitting pupils on chairs in a circle, and there may be a physical restraint with a big group); most teachers feel they are still learning and developing but most of them know how to apply more techniques in the classroom and need to deal with minor classroom management issues.

How did it affect your individual professional experience?

Most teachers feel extremely rewarded and enthusiastic about their teaching; they enjoy seeing pupils' reactions to their lessons, which motivates them a lot and helps them to see if what they manage to do in school matches what they believe (teachers' philosophy)

Would you say there were improvements and how big / significant / relevant were those improvements in terms of professional development?

Most teachers feel more aware of the theory behind TS approaches and more informed and have developed their own knowledge of the theories; they are also trying to get in perspective of all training they have had to understand which they can deliver to other people, teaching other members of staff and offer support to teachers in other schools

Do you reflect about your own practice? What are the major outcomes of that reflection? What kind of contribution does it provide towards the improvement of your practice? (is it a positive contribution?)

All teachers reflect a lot about their practice; some of them admitted that this reflection could sometimes be quite self-destructive since they read into things too much; most of the times teachers reflect mostly about what techniques worked particularly well, ideas they will gladly share with other members of staff; reflection provides a positive contribution towards the improvement of teachers' practice.

Do you analyse evidence and lesson outcomes and share it with other teachers? Do you access and discuss other teachers' evidence?

All teachers worked closely together with other colleagues and shared the outcomes of their classes; the main evaluation is via the staff, who exchange and discuss results and experiences.

5. RESPONSE TO CHANGE	*Do you believe TS programmes have changed your practice/performance in the classroom? Was there an evolution or a major change? What has changed? What has influenced those changes? Do you believe the changes are significant and long lasting?*
	Most teachers are in favour of collaboration; knowing the techniques has made lessons more interesting; the impact obtained by most teachers was great since they were able to get some theory over into the practice and children were aware of where they were going; there was a major change for all teachers: they felt they took more the back sit instead of controlling and dominating the lessons; before they felt they were giving too much and not give pupils the time to think as much; teachers give more time to answer questions (not just a few seconds as traditionally teachers do); the main factor to influence those changes was the theory behind TS strategies; giving children more time to think is only reasonable, adults don't respond immediately either.
	What hard, visible evidence have you gathered to support the suggestion of improvement or change in your classroom? And how long did it take to emerge? Did these improvements and changes have any impact on you confidence and motivation?
	Some teachers indicated better SATS results as evidence to support improvements in their classes; others suggested the researcher should also interview some pupils to register their point of views and feelings about TS lessons and to prove there is a change, to give them a chance to talk about their learning, about what they have been doing, understand general ethos of the school (see if it is a learning school) and to see if children make connections between things; all the improvements pointed out had a great impact on teachers; when one sees something is working well, one feels more motivated; if it did not work well, one would feel disappointed and frustrated, feeling it was not worth the effort; "I knew in my heart things would go well, it's common sense"; "I believe in it"; "It is my philosophy".
	How do you deal with change? Is it a smooth and enthusiastic process or would you say there are some traces of resistance and why? What aspects of change were most difficult to deal with and why?
	One of the most difficult aspects to deal with was to make some children realise and understand they did not need a right answer, some children find it hard to accept that; some teachers, specially in nursery and reception, did not believe it would work initially with young children and thus, offered some resistance at first; this was because they felt young children would not be able to talk to each other and would not understand how to do some activities such as "odd one out"; afterwards, it was evident children could use it; initially, teachers felt that, unless one try, one could not know if it would work; most changes were made with support; all teachers took things on board easily, know more and wanted it to be a "thinking school".

APPENDIX F

QUESTIONNAIRE FOR PORTUGUESE PRIMARY SCHOOL TEACHERS

Questionnaire

1. TRAINING	Does teacher's initial training (licenciatura) include preparation to apply Thinking Skills approaches in the classroom?
	Does the Portuguese National Curriculum contemplate the development of pupils' Thinking Skills in the classroom?
	Is there training in Thinking Skills programmes available and are the opportunities frequent and accessible? What are the results of that training (positive, significant)?
	In case training in Thinking Skills strategies is unavailable, do you feel it would be important to promote training in this area? Why?
	What kind of continuing professional development do teachers have in the current model of teachers' professional development? How flexible are the elements and conditions offered in the existing model?
	What are the conditions and the quality of the courses available?
	Are there barriers to professional development?
	Is there any similarity between the British and the Portuguese models of teacher professional development?

2. ATTITUDES TO TEACHING AND LEARNING	How would you feel about the inclusion of Thinking Skills development in the Portuguese National Curriculum? Would it be important or not and why?
	In your opinion, are there severe cultural differences between England and Portugal? Would it be possible to apply similar Thinking Skills training programmes in Portugal or would it be difficult to implement due to drastic differences in attitude towards teaching and learning?
	If there were favourable conditions to deliver this training, would there be economic chances and educational changes?
	Would the theory behind Thinking Skills approaches be easily applicable to the Portuguese context or would it encounter serious barriers, resistance and be hard or impossible to put into practice?
	From what you have heard about the English experience and comparing Thinking Skills methods to traditional teaching, how do you feel about the Thinking Skills approaches to teaching and learning and its use in the classroom? Are there advantages / disadvantages?
	In your opinion, what would be the main reactions of pupils to a different approach to teaching in the classroom? Do you thing it would be more beneficial than traditional methods of teaching?
	Do Portuguese teachers feel they have something to learn from other teachers' experiences?

3. Impact on pupils	When compared to traditional methods, do you feel that teaching through a different approach (using Thinking Skills programmes/strategies) could facilitate, promote or raise aspirations and achievement of all pupils involved?
	Do you think Thinking Skills programmes help pupils to gain a more positive attitude and mind set to education and personal lifelong achievement?

4. Impact on teachers' professional development	How relevant do you think instruction and training in this area would be for your professional development?
	How do you feel about the British educational reality and the findings collected?
	Which approaches and initiatives would give a greater contribution to teachers' professional development in Portugal?
	Do you reflect about your own practice? What are the major outcomes of that reflection and do you share them with other colleagues? What kind of contribution does it provide towards the improvement of your practice? (is it a positive contribution?)

5. Response to change	When a new educational proposal is introduced in schools, how do you deal with change? Is it a smooth and enthusiastic process or would you say there are some traces of resistance and why? What aspects of change are most difficult to deal with and why?
	Do you believe Thinking Skills programmes would change your practice/performance in the classroom? In your opinion, what would influence those changes?
	Which components would have a greater impact in the classroom?

APPENDIX G

TEACHER'S "THINKING SKILLS LESSON" OBSERVATION MAP

Lesson observation map

EVIDENCE NEED OF EVIDENCE PROFESSIONAL JUDGEMENT STATUS	
Identify what motivates the teacher in class, *e.g.*, response from pupils.	
Understand what makes the teacher carry on teaching using TS approaches when he/she succeed and why (*e.g.*, belief it is beneficial for pupils).	
Understand what the teacher considers evidence.	
See if the teacher feels insecure about lack of evidence in the classroom.	
See if the teacher makes *professional judgements*, whether it is emotional or subjective, based on pupils responses, and see if he/she thinks it is nevertheless valid.	
See how the teacher validates his/her professional judgement and if he/she needs empirical evidence to substantiate it.	
Understand what the teacher thinks a good TS lesson is.	
Understand what the teacher says is a good TS lesson, is indeed a good lesson.	
See if the teacher has knowledge and understanding of effective teaching and learning.	
See how TS programmes/approaches impact on teacher's perceptions of teaching and learning.	

TEACHER´S CONFIDENCE AUTHORITY AUTONOMY	
Identify what gives the teacher confidence in the TS lesson, *e.g.,* experience.	
See if the teacher lacks the confidence in his/her own professional judgement.	
See if the teacher thinks he/she is authoritative enough to make professional judgements (like lawyers and doctors do).	
Analyse emotional state of the teacher (experience) and see if it is valued or not and why	

DEPENDENCE AND INDEPENDENCE ON TRAINING RISK TAKING	
See if the teacher needs more training in order to be more confident / authoritative / autonomous (and consequently have more competence and be more able to judge).	
See if the teacher is independent or dependant on training and guidance to help him/her to decide what he/she needs to do in a TS lessons.	
See how far is the teacher ready to go for the benefit of pupils´ attainment.	
See how comfortable /uncomfortable the teacher feels when stepping out of a *comfort zone*.	

COMMITMENT TO THE JOB	
See how committed the teacher is to his/her job.	
See main reasons behind the teacher's commitment, *e.g.,* enjoy teaching.	

NB:

Everything that is shaded will be observed in class, as well as registered during the interview.

Interviews: 1st - I will ask all the questions to the teacher after his/her TS lesson.

2nd - I will go back to the shaded questions and say: "during the lesson, I noticed that…" – discuss the lesson and see how the teacher feels about it.

APPENDIX H

TEACHER'S FOLLOW UP INTERVIEW SCHEDULE

Teacher's follow up interview

1. How did that TS lesson go?

2. Did it go according to plan?

3. What do you think makes a **good** TS lesson? (evidence)

4. How has the training you've had in TS helped in the classroom?

Teacher's profile

1 being the highest grade (or equivalent to 'very much') and 5 the lowest grade (equivalent to 'not much'), during a lesson and as a professional, how do you rate your…

(please tick appropriately)

Teacher's profile	1	2	3	4	5
Need for evidence in the class					
Ability to judge (professionally)					
Faith in your professional judgment					
Authority					
Confidence					
Autonomy					
Ability to transfer / adapt ideas					
Ability to expand own teaching					
Ability to take risks					
Need for training					
Dependence on training					
Need for ongoing professional guidance					
Commitment to your job					

Thank you very much for your co-operation.

APPENDIX I

PUPIL'S INTERVIEW SCHEDULE

Pupil's semi-structured interview

This questionnaire is for me to see how you feel about 'Thinking lessons' in your school. Please listen carefully, think and give me an answer to each part, in the best way you can.

Statement	very much	a bit	not very	not really
1. I like Thinking lessons.				
2. I would like my lessons to be different. *How would you like your lessons to be?* *For example: more/less talking, more/less writing, have a different teacher...*				
3. I like talking about my ideas/feelings with the other boys and girls in my class.				
4. Thinking lessons are easy.				
5. I like working with the other boys and girls in the class. (Why? Why not?)				
6. I work hard on Thinking lessons.				
7. My work at school is good.				
8. I like thinking about what I learn in the class. (*process* vs *content*) *Do you think about what you do in the class?* *For instance, when you go home in the afternoon, do you tell your mum, dad, brother or nana about the things you did in the class?*				
9. I like listening to what the other boys and girls have to say in class.				
10. I am a good pupil.				
11. I enjoy working alone (on your own).				
12. I enjoy using my imagination during Thinking lessons.				
13. It is easy to pay attention to the teacher during Thinking lessons.				
14. Thinking lessons are fun.				
15. I like speaking in front of the other boys and girls in my class.				

APPENDIX J

THE PORTUGUESE SOCIETY

POLITICAL AND SOCIAL BACKGROUND

The Portuguese society - political and social background

"Não é porque sejamos invisíveis, é porque o mundo é cego!"
(*It's not because we are invisible, it's because the world is blind!*)
(Saramago in Tyson-Ward, 2002)

This is what José Saramago, the Portuguese 1998 Nobel Prize of Literature laureate concluded if Portugal were to be ignored. He argued the world could not simply ignore a country with such a long, important history as Portugal, with such an impressive culture and language – the 3rd European language most spoken in the world. Portugal is one of the oldest countries in the world, with almost 900 years of independence as a nation, but it has only been a Republic for less than 100 years. This country was a dominant and crucial front force in the opening-up of the world, 500 years ago, when famous navigators first "*gave the world to the world*".

But a lot has happened in Portugal since the old days of the Discoveries, many moments of glory and many moments of desolation. Nowadays, Portuguese have their own Constitution and are free to elect their representatives across a range of political parties. Portugal joined the European Union (EU) in 1986 and since then it has had an increased role in the EU matters, including the presidency of the Union during 2000.

However, despite being a modern democratic Republic, headed by an elected president, the way to such type of society has been long, slow and difficult. People have the benefit of a life of equal rights and live relatively restriction-free but it has not always been like that. Portuguese lived under a strict dictatorship for nearly 50 years – a regime from which they are still recovering in some ways.

In 1928, António de Oliveira Salazar was firstly appointed by the then President Carmona as his Finance Minister, thanks to his reputation as a talented and respected economics academic. He managed to set straight Portugal's financial chaos. Between 1932 and 1968, Salazar was the Prime Minister of Portugal, period during which he created a regime modelled on that of Mussolini. His *Estado Novo* (New State) had the features of a Fascist regime, even though under a republican government.

He had extreme views on religion and the nation, which he imposed on people during his regime and his *motto* reflected well his strong convictions: "*Nothing against the Nation, all for the Nation*" (Tyson-Ward, 2002). For four decades, Communist views overruled before playing its part in the overthrown of the regime. No one dared to dispute Salazar's ideals, there was total censorship of the press and only one political party was allowed – The National Union. Due to this oppression, many artists, liberal thinkers and intellectuals had to flee to France, the UK or Brazil, where they continued to express their democratic, intellectual and artistic ideals (Soares, 1975). Still, some argue that there were also positive aspects in the regime, such as more security, greater respect in the society and a feeling of strong leadership for the total benefit of the nation (Figueiredo, 1975).

Whatever the viewpoint, people had no other choice but to accept the regime and Salazar promised to *protect* the Portuguese from the rapid progression of the technological era, afraid that this would dissolve their traditions and values. In truth, what he really meant was something totally different. To achieve full command of the society, censorship controlled more than the press. In fact, any piece of music and literature created at the time had to be revised and approved by the system before being published. Needless to say Education was another aspect completely manipulated by the regime and access to it was denied or difficult, as it was the easiest and more efficient way to avoid the proliferation of knowledge and, consequently, restrain any kind of opposition. Thus, during the dictatorship, Education was mostly provided for a chosen group of people, *i.e.*, the loyal supporters of the *Estado Novo* (Política, 2003).

Due to political, economic and social instability and general dissatisfaction, in 1974 conditions were propitious to a major change in the Portuguese society and political and military settings indicated a revolution was near. On 25 April 1974, the *Revolução dos Cravos* (The Carnation Revolution) took place, putting an end to an era of total political control, a day still celebrated as The Day of Liberty. In the chaotic aftermath of the Revolution, there was governmental turmoil and the return of people and troops from Africa - after the rapid (and disastrous) Portuguese withdrawal from its African colonies – was a tragic contribution to the increase of unemployment and general feeling of instability in the country (Harvey, 1978).

The way the Portuguese society has progressed, since the days of Western Europe's most lasting dictatorship 31 years ago, has been continual, albeit slow and unsteady at times. The impact of such a long regime had long-lasting penalties and, unfortunately, one could argue that the price Portuguese are still paying for that is a general delay in relation to the rest of the European Union, in particular England, France and Germany. Nonetheless, joining the European Union was extremely beneficial to Portugal.

Since the beginning of the 1990's, Portugal has progressed rapidly and has given great steps towards a significant improvement of people's living standards, which, according to the statistics, increased from around 30% of the European average in 1965 to an impressive 70% at present (Tyson-Ward, 2002).

Education

Education has been a pivotal issue in Portugal since the 1974 Revolution given that the results of the oppressive regime were disastrous. Fewer than 40% of 14-year-olds attended school and nearly 4,000 students attended higher education, evidence that is representative of the calamitous state the country was left in. To reverse this situation, many educational reforms have been brought forward and statistics show that by the 1990s between 57 and 91 per cent of 14-year-olds were obtaining education of some kind and by 1992, more than 70,000 attended higher education (Tyson-Ward, 2002).

In 1986 the *Lei de Bases do Sistema Educativo* (Comprehensive Law on the Educational System) set up a concrete, broad agenda to restructure the educational system. This Decree determined that everyone has the right to education and equal access to school, as well as guaranteeing success at school. The State no longer uses education to manipulate people nor does it direct the Portuguese society in a particular political, religious, philosophical or aesthetic route. But it does ensure the democratisation of education, so much so that a substantial part of the national budget has been applied to implement education. The outcomes of this governmental resolution are positive and evident. One of the fundamental aims was to reduce illiteracy amongst young people, even though it is still a persistent trait amid older generations. Numbers are significant: in 2000, 87% of the population over 15 were considered literate (Tyson-Ward, 2002).

Current Education state of affairs

On the one hand, one could argue that these results indicate a notable accomplishment, but on the other hand, they reveal the real state of a country that is still struggling to "catch up" with the rest of Western Europe. Hence, and according to more accurate figures gathered during the last Census in 2001, shown in Table 1 (*Educare*, 2003):

- 10% of the Portuguese over 10 years old are (still) illiterate, only 1% less than the figure revealed on the previous Census ten years earlier;
- only a third, about 37.8% of the Portuguese, completed the *1.º Ciclo do Ensino Básico* (1st cycle is the first four years of Primary Education) (in Table 2);
- 18.8% concluded the 2nd and 3rd cycle of Basic Education (the three cycles together represent the compulsory education in Portugal) (in Table 2);
- isolated and more deprived areas, such as Alentejo and Madeira Island, are on the top of the illiteracy list with 15.9% and 12.7% respectively, also due to a greater incidence of older people (who grew up under the regime and were given little chances); in addition, younger generations move to bigger towns to look for a better life; Lisbon, is on the opposite end, showing 5.7% and an insignificant oscillation in relation to the previous Census;
- the 1991 Census revealed that women were more illiterate than men; in 2001 the number declined but still confirmed the previous results and 11.5% of women compared to 6.3% of men were illiterate;
- in 1991, 4% of students attending higher education concluded their degrees and in 2001 that number was 8.6%; these results seem to demonstrate that, in ten years, Portugal duplicated the number of people with superior qualifications.

	1991	2001
Total percentage of illiterate Portuguese	11	10
More affected areas: Alentejo	20	15.9
Madeira	15	12.7
Area with less illiterate people: Lisbon	5.8	5.7
Men	7.7	6.3
Women	14.1	11.5
Ensino Básico (Basic Education) - % of people who concluded:		
1st Cycle:	-	37.8
2nd Cycle	-	18.8
3rd Cycle	-	18.8
Ensino Secundário (Secondary Education)	-	15
Ensino Superior (Higher Education)	4	8.6
Degrees / areas of study:		
Commerce and Administration	-	13
Health/Medicine	-	12.8
Teaching /Science of Education degrees	-	12.1
Literature/Languages/Religion	-	12

Table 1: Results concerning Education from the 1991 and 2001 Portuguese national Census

The 2001 Census also concluded that not only the number of women attending university or higher education in general was higher than the number of men but also they mostly attended and concluded degrees in Education Sciences, Arts, Social and Behavioural Sciences, Journalism and IT, Physics, Mathematics and Statistics, Social Services and Environment Protection. This data confirmed a recent tendency that showed an increasing number of women in the teaching sector (*Educare*, 2003).

Primary Schools

Even though the Ministry of Education holds ultimate responsibility for education, particularly in terms of funding and legislation improvements, schools are practically managed by local authorities, the *municípios* (municipalities). They are responsible for the construction of schools, their maintenance, equipment and operational costs and are expected to provide funding for extra-curriculum activities and school transport.

The table 2 is an outline of the Portuguese Education System. Portuguese basic education is divided in three sections or cycles: primary (four year in primary school), preparatory (two years in a secondary school) and secondary (up to the age of 15). *Educação Básica* (Basic Education) is compulsory and free and starts around six years of age.

Normally it is a 9-year period of studies, after which pupils should grasp basic skills and in case they feel ready, they can leave school and initiate their complex journey into the world of work.

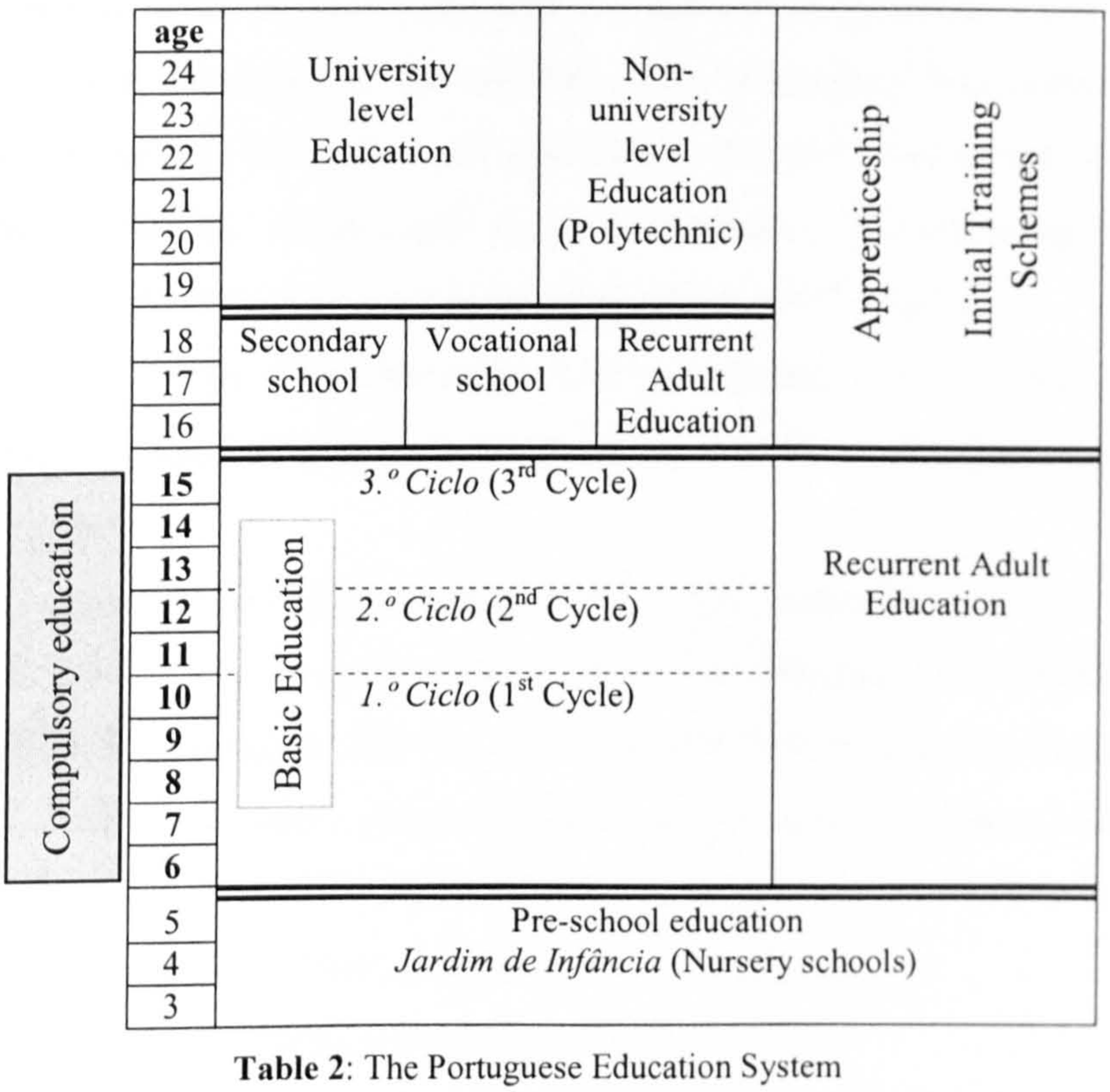

Table 2: The Portuguese Education System

The increasing number of international schools in Portugal, the large number of foreigners and the influence of the EU, the American or British curricula has introduced a number of changes in schools. Yet, the most common teaching method in Portugal is still the traditional "chalk and talk" but transformations and new ideas are underway. During this stage children are taught many different subjects, personal and social education and in some schools, one or two foreign languages. Those pupils with economic difficulties may receive free meals, books, transport and even accommodation (Tyson-Ward, 2002).

Children under six have the option to attend *Jardins de Infância* (Nursery schools) since it is not compulsory, even though they are free of charge in schools under the Ministry of Education. Parents can share costs according to their income if they choose schools under the Ministry of Employment, which also provide their children with social assistance in addition to educational training (Tyson-Ward, 2002).

Secondary Education

Recent political changes, namely the premature change of the government in 2002, have triggered a serious of changes in all sectors, including education. The new government initiated their mandate in April 2002 with a controversial proposal, when it determined the suspension (later removed) of the revision of the Secondary Education curriculum. But before discussing that, the author will give a brief outline of the current system still in place in Portuguese schools. Once pupils move to Secondary Education (up to the age of 18), they have two major types of courses to choose from (see Table 2):

- general courses, which habitually lead on to further higher studies;
- technical-type courses, such as computing, which provide more practical skills.

Similarly, they have the option to follow the regular secondary system, to move on to a vocational school, first set up in 1989 as a practical alternative, or attend an art education course. Vocational schools offer three-year courses, which grant vocational qualifications, whereas specialist art schools provide instruction for courses in dance, music or visual arts. Numbers showed that in 1993 (Tyson-Ward, 2002):

- 313,000 pupils – attended general secondary courses;
- 31,000 pupils – attended technical courses;
- 22,100 pupils – attended vocational schools;
- 31,000 pupils – attended evening classes.

Whatever the choice made, tuition fees and school material, including books, have to be paid. Either in state schools or private institutions, pupils follow the same national curriculum. All pupils attend lessons in general subjects and the main ones are:

- *Português* (Portuguese)
- *filosofia* (philosophy)
- *educação fisica* (physical education)
- *línguas estrangeiras* (one or more foreign languages)

Notwithstanding some initial vacillation, the secondary curriculum has been revised and presented for public discussion, which has caused great debate and divergences.

The main alterations proposed by this revision were (*Educare*, 2003):

- introduction of an "IT and Communication" discipline in the 10th year; the government argues students need to be better prepared in this area since it seems to be a valuable tool for their future as students and professionals;
- reduction of the weekly school timetable even though this has negative consequences for teachers, which will have even less work;
- the end of some exams and the reduction of others at the end of the 12th year;
- the extension of the compulsory education to the 12th year and last of Secondary Education (instead of the current 9), something that has been under increasing discussion for the last years.

Higher Education

In order to have access to any higher education establishment, students need to complete the 12th year of the secondary school successfully and pass a number of aptitude and course-specific exams. The final average mark obtained in those exams, together with the *numerus clauses* - available places at a university - determine the admission of a student to the intended course. When students reach the level of *ensino superior* (higher education), they can follow two ways to further their studies (see Table 2):

- *universidade,* traditional universities that provide instruction embedded in critical analysis and thinking; the most prestigious universities are in Coimbra (almost 800 years of tradition), Lisbon, Porto and Évora; there are also about four main private universities;
- *escolas politécnicas,* polytechnic schools, first launched in 1979 but only fully developed in the mid-1980s; about 70 private higher education colleges, *escolas superiores*, are also certified to offer instruction.

Since the early 1990s that Portugal has been developing and investing in a distinct area of training, an apprenticeship system and initial training schemes for young people (see Table 2). These courses have a strong practical facet and are mostly funded by EU subsidies. In 1993, the Institute of Employment and Vocational Training, which has a vast network of training and career advice centres, enrolled 20,320 youngsters on apprenticeship schemes.

These schemes are strongly supported and encouraged by the Portuguese government since they enable and prepare less academically orientated students for the world of work (Tyson-Ward, 2002).

Teachers' initial education

All teachers in state schools are regarded as *funcionários públicos* (civil servants). They have to attend and complete higher education courses: five-year courses (at universities) and four-year courses (at polytechnic schools), with the exception for nursery teachers, who attend a three-year training course.

Basic and secondary school teachers are subject specialist and undergo particular training depending on the level (*ciclo)* they will be teaching:

- to teach at the 1st cycle: requires a three-year degree (*Bacharelato*); this degree no longer applies on its own; future teachers already have a complementary 4th year before leaving university; experienced teachers need to go back to higher institutions to complement their degree with, at least, an extra year of studies to have a *Licenciatura;*
- to teach at the 2nd cycle: requires a three-year degree, plus another one or two higher diplomas or a *Licenciatura* degree at the university;
- to teach at the 3rd cycle: five or six years of studies leading to a *Licenciatura.*

In general comparative terms between Portugal and England, a *Bacharelato* degree corresponds to a Bachelors First Degree course and a *Licenciatura* to a Bachelors First Degree plus a Masters Degree award. Both are regarded as undergraduate courses though. In Portugal, teachers wishing to have additional qualification (either a Master and Doctorate degree or a simple post-graduation course) may continue their studies but only after finishing their four, five or six year first-degree course. The duration of a full-time Masters Degree course varies between two to three years, three to six years for a Doctorate and one to two years for a normal post-graduate course.

The Government has tried to implement school attendance at pre-school age and in the 13-23 age groups. The latter has gone up from 56% in the 1980's to 66% 10 years later and is still increasing.

Over the past few years, the EU community has granted generous subsidies to Portugal, and the country has taken advantage of a number of programmes to develop, *inter alia*, Education, in particular in the area of *formação profissional* (vocational and technical training/professional development). In 1999, Portugal's spending on Education was 5.8% of GPD (Gross Domestic Product), while France's was 6%, in the UK 5.3% and in the USA 5.4% (Tyson-Ward, 2002).

France	Portugal	USA	UK
6%	5.8%	5.4%	5.3%

Table 3: Spending on education in **1999** / percentage of GDP

People involved in the progress of the Portuguese Education have to deal with quite a number of issues and difficulties (Tyson-Ward, 2002):

- besides increasing the number of young people in schools, they have to make sure students leave school prepared with the necessary qualifications and training to face the labour market;
- not only many school buildings need repair but also schools require essential equipment and books so it is fundamental to upgrade and improve resources;
- and an universal appeal: improved working conditions and better pay for teachers (average salaries vary between 1000 and 1250 euros a month – approximately £640 - £780 per month).

APPENDIX L

BRITISH EDUCATIONAL RESEARCH ASSOCIATION (BERA)

REVISED ETHICAL GUIDELINES FOR EDUCATIONAL RESEARCH

REVISED ETHICAL GUIDELINES FOR EDUCATIONAL RESEARCH (2004)

REVISED ETHICAL GUIDELINES FOR EDUCATIONAL RESEARCH (2004)

April 2004

Dear Member

On behalf of the Council of the British Education Research Association, I am very pleased to present the Association's Revised Ethical Guidelines for Educational Research to you. As you know we have been engaged in a comprehensive updating of our original 1992 guidelines. We have done this partly to take account of changes in the legislation but mainly to recognize the diversity of our members' research and the ethical concerns we all share about the relationships between our work and those who participate in it, those who commission it and those who look to it for new knowledge, understanding and practical support.

You may wonder why we have kept the word 'Revised' in the Guidelines. We have decided to do this firstly for reference purposes to distinguish between them and the original 1992 set and secondly to recognize that these too are not cut in stone. As time goes on, the Council will review and continuously update the Guidelines to ensure that, as circumstances change, we provide the most up-to-date support for our members.

I hope that you will find the Guidelines of assistance to you in your work and that you will commend them to everyone who carries out, participates in or makes use of educational research.

With best wishes

John Furlong
(President)

Historical Note

The provenance of these guidelines can be traced back to a BERA invitational seminar convened by John Elliott and held at Homerton College, Cambridge in March, 1988. The seminar led to a report published in *Research Intelligence 31* (Feb, 1989), which called for a code of practice to be drawn up. In 1991, BERA council invited Caroline Gipps and Helen Simons to formulate a set of guidelines, drawing with permission on the Elliott report and the then recently published American Educational Research Association's ethical guidelines. They drew up guidelines, published in *Research Intelligence 43* (Summer 1992), for members to comment upon and were formally adopted as the **'BERA Ethical Guidelines'** at the Association's Annual General Meeting in August 1992.

As a code of practice the guidelines were universally welcomed but also attracted a degree of criticism in relation to their scope and application. An example of this was the critique presented by Peter Foster at the 1996 BERA conference. Following Peter Foster's death in 1999, his paper was reproduced in *Research Intelligence 67* as a tribute to his work. Michael Bassey, the then Academic Secretary of BERA, used the paper to promote debate in the BERA Council and at the beginning of her presidency in September 2001, Anne Edwards announced her intention to update the 1992 Guidelines.

In the Spring of 2002 a working group comprising John Gardner (Chair), Ann Lewis and Richard Pring began the task of revising the guidelines. Over the next 18 months, several consultative exercises were carried out with the entire membership of the Association, using *Research Intelligence* and e-mail communications. A consultative draft of the **BERA Revised Ethical Guidelines for Educational Research** came before the Association's Annual General Meeting of September 2003 and was endorsed, subject to minor amendments. In the Spring of 2004, the new guidelines were moved by John Furlong (President) and formally adopted by Council.

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REVISED ETHICAL GUIDELINES

FOR EDUCATIONAL RESEARCH (2004)

PREAMBLE

1. This revision of the Association's *Ethical Guidelines* (for Educational Research) builds on the 1992 statement in two significant ways. First it seeks more fully to recognize the academic tensions that a multi-disciplinary community generates when dealing with the complex research issues that characterize education contexts. Secondly it seeks to include the field of action research.

2. It is intended that deliberation on these guidelines, and compliance where appropriate, will be a binding responsibility on all members of the Association in their research activities. Although they can only be advisory for others engaged in carrying out, sponsoring or using educational research, it is the hope of the Association that they will attract widespread consultation and adherence. In the particular case of groups of educational researchers (e.g. in university departments or private agencies), the Association recommends the setting up of local ethics committees that endorse and employ these guidelines in support of their own work.

3. The underpinning aim of the guidelines is to enable educational researchers to weigh up all aspects of the process of conducting educational research within any given context (from student research projects to large-scale funded projects) and to reach an ethically acceptable position in which their actions are considered justifiable and sound. For the vast majority of educational research activity this basic tenet may be non-problematic but dilemmas will arise for others and these guidelines will provide a basis for deliberation and perhaps resolution or compromise.

Aspirations of Educational Researchers

4. Educational researchers aim to extend knowledge and understanding in all areas of educational activity and from all perspectives including learners, educators, policymakers and the public. The Association recognizes that the community of educational researchers is multi-disciplinary and that within the paradigms and methodologies espoused by the various disciplines, and often

variously by their sub-disciplines, a variety of concepts may be problematic. Examples among these are the concepts of 'data', 'reliability', 'validity', 'subjectivity' and 'objectivity'. Debates abound, for example, on the relativity or otherwise of 'truth' and 'reality' and such debates are symptomatic of a community undertaking critical analysis of its basic tenets and enjoying the enhancement of its intellectual capital through the creative tension it produces.

5. The Association therefore recognizes the legitimacy of the diverse educational research philosophies, theories and methodologies that exist and seeks to ensure that its guidelines do not selectively judge or constrain, directly or indirectly, the methodological distinctions or the research processes that emanate from them. These guidelines, then, are offered as set of principles and advice that will be subject to continuing review as our knowledge, understanding and practice of educational research continues to evolve.

Principles Underpinning the Guidelines

6. The Association considers that all educational research should be conducted within an ethic of respect for:
   - The Person
   - Knowledge
   - Democratic Values
   - The Quality of Educational Research
   - Academic Freedom

7. In guiding researchers on their conduct within this framework the Association sets out its guidelines under the following headings:
   - Responsibilities to Participants
   - Responsibilities to Sponsors of Research
   - Responsibilities to the Community of Educational Researchers

GUIDELINES

Responsibilities to Participants

8. The participants in research may be the active or passive subjects of such processes as observation, inquiry, experiment or test. They may be collaborators or colleagues in the research process or they may simply be part of the context e.g. where students are part of the context but not the subjects of a teacher's research into his or her own professional practice.

9. The Association considers that educational researchers should operate within an ethic of respect for any persons involved directly or indirectly in the research they are undertaking, regardless of age, sex, race, religion, political beliefs and lifestyle or any other significant difference between such persons and the researchers themselves or other participants in the research. This ethic of respect implies the following responsibilities on the part of researchers.

Voluntary Informed Consent

10. The Association takes voluntary informed consent to be the condition in which participants understand and agree to their participation without any duress, prior to the research getting underway.

11. Researchers must take the steps necessary to ensure that all participants in the research understand the process in which they are to be engaged, including why their participation is necessary, how it will be used and how and to whom it will be reported. Researchers engaged in action research must consider the extent to which their own reflective research impinges on others, for example in the case of the dual role of teacher and researcher and the impact on students and colleagues. Dual roles may also introduce explicit tensions in areas such as confidentiality and must be addressed accordingly.

Deception

12. The securing of participants' voluntary informed consent, before research gets underway, is considered the norm for the conduct of research. Researchers must therefore avoid deception or subterfuge unless their research design specifically requires it to ensure that the appropriate data is collected or that the welfare of the researchers is not put in jeopardy. Decisions to use deception or subterfuge in research must be the subject of full deliberation and subsequent disclosure in reporting. The Association recommends that approval for this course of action should be obtained from a local or institutional ethics committee. In any event, if it possible to do so, researchers must seek consent on a post-hoc basis in cases where it was not desirable to seek it before undertaking the research.

Right to Withdraw

13. Researchers must recognize the right of any participant to withdraw from the research for any or no reason, and at any time, and they must inform them of this right. In all such circumstances researchers must examine their own

actions to assess whether they have contributed to the decision to withdraw and whether a change of approach might persuade the participants to re-engage. In most cases the appropriate course of action will be for the researchers to accept the participants' decision to withdraw. Decisions to persuade them to re-engage must be taken with care. Researchers must not use coercion or duress of any form to persuade participants to re-engage with the work. In cases where participants are required by a contractual obligation to participate e.g. when mandated as part of their employment to facilitate an evaluation study, researchers may, however, have proper recourse to a third party (e.g. the employing authority) to request compliance with a contract.

Children, Vulnerable Young People and Vulnerable Adults

14. The Association requires researchers to comply with Articles 3 and 12 of the United Nations Convention on the Rights of the Child. Article 3 requires that in all actions concerning children, the best interests of the child must be the primary consideration. Article 12 requires that children who are capable of forming their own views should be granted the right to express their views freely in all matters affecting them, commensurate with their age and maturity. Children should therefore be facilitated to give fully informed consent.

15. The Association considers that the spirit of Articles 3 and 12 above should also apply in research contexts involving young people and vulnerable adults.

16. In the case of participants whose age, intellectual capability or other vulnerable circumstance may limit the extent to which they can be expected to understand or agree voluntarily to undertake their role, researchers must fully explore alternative ways in which they can be enabled to make authentic responses. In such circumstances, researchers must also seek the collaboration and approval of those who act in guardianship (e.g. parents) or as 'responsible others' (i.e. those who have responsibility for the welfare and well-being of the participants e.g. social workers).

17. Researchers must ensure that they themselves, and any collaborators or research assistants and students under their supervision, comply with legal requirements in relation to working with school children or vulnerable young people and adults.

18. Researchers must recognize that participants may experience distress or discomfort in the research process and must take all necessary steps to reduce the sense of intrusion and to put them at their ease. They must desist

immediately from any actions, ensuing from the research process, that cause emotional or other harm.

19. Researchers must recognize concerns relating to the 'bureaucratic burden' of much research, especially survey research, and must seek to minimize the impact of their research on the normal working and workloads of participants.

Incentives

20. Researchers' use of incentives to encourage participation must be commensurate with good sense and must avoid choices which in themselves have undesirable effects (e.g. the health aspects of offering cigarettes to young offenders or sweets to school-children). They must also acknowledge that the use of incentives in the design and reporting of the research may be problematic; for example where their use has the potential to create a bias in sampling or in participant responses.

Detriment Arising from Participation in Research

21. Researchers must make known to the participants (or their guardians or responsible others) any predictable detriment arising from the process or findings of the research. Any unexpected detriment to participants, which arises during the research, must be brought immediately to their attention or to the attention of their guardians or responsible others as appropriate.

22. Researchers must take steps to minimize the effects of designs that advantage or are perceived to advantage one group of participants over others e.g. in an experimental or quasi-experimental study in which the treatment is viewed as a desirable intervention and which by definition is not available to the control or comparison group respectively.

Privacy

23. The confidential and anonymous treatment of participants' data is considered the norm for the conduct of research. Researchers must recognize the participants' entitlement to privacy and must accord them their rights to confidentiality and anonymity, unless they or their guardians or responsible others, specifically and willingly waive that right. In such circumstances it is in the researchers' interests to have such a waiver in writing. Conversely, researchers must also recognize participants' rights to be identified with any

publication of their original works or other inputs, if they so wish. In some contexts it will be the expectation of participants to be so identified.

24. Researchers must comply with the legal requirements in relation to the storage and use of personal data as set down by the Data Protection Act (1998) and any subsequent similar acts. In essence people are entitled to know how and why their personal data is being stored, to what uses it is being put and to whom it may be made available. Researchers must have participants' permission to disclose personal information to third parties and are required to ensure that such parties are permitted to have access to the information. They are also required independently to confirm the identity of such persons and must keep a record of any disclosures. Disclosure may be written, electronic, verbal or any visual means.

25. The Data Protection Act also confers the right to private citizens to have access to any personal data that is stored in relation to them. Researchers seeking to exploit legal exclusions to these rights must have a clear justification for so doing.

26. Researchers must ensure that data is kept securely and that the form of any publication, including publication on the Internet, does not directly or indirectly lead to a breach of agreed confidentiality and anonymity.

Disclosure

27. Researchers who judge that the effect of the agreements they have made with participants, on confidentiality and anonymity, will allow the continuation of illegal behaviour, which has come to light in the course of the research, must carefully consider making disclosure to the appropriate authorities. If the behaviour is likely to be harmful to the participants or to others, the researchers must also consider disclosure. Insofar as it does not undermine or obviate the disclosure, researchers must apprise the participants or their guardians or responsible others of their intentions and reasons for disclosure.

28. At all times the decision to override agreements on confidentiality and anonymity must be taken after careful and thorough deliberation. In such circumstances it is in the researchers' interests to make contemporaneous notes on decisions and the reasoning behind them, in case a misconduct complaint or other serious consequence arises.

29. The Association considers it good practice for researchers to debrief participants at the conclusion of the research and to provide them with copies of any reports or other publications arising from their participation. Where the scale of the research makes such a consideration impractical, alternative means such as a website should be used to ensure participants are informed of the outcomes.

Responsibilities to Sponsors of Research

30. A sponsor of research is considered to be any person or body that funds research (e.g. a research charity or government body) or facilitates it by allowing and enabling access to data and participants (e.g. an examinations body).

31. The Association expects researchers to bring its Ethical Guidelines to the attention of all sponsors of research.

32. Written agreements are considered the norm for funded or commissioned research. Such agreement should minimally cover the purpose of the research, the research methods to be used, any conditions of access to data or participants, ownership of data, the researchers' right to publish, requirements for reporting and dissemination, deadlines for completion of the work and the accounting for the use of funds. In recognition of the dynamics of research, agreements should also include provision for negotiating changes sought by either the researchers or the sponsors.

33. Researchers must avoid agreeing to any sponsor's conditions that could lead to serious contravention of any aspect of these guidelines or that undermine the integrity of the research by imposing unjustifiable conditions on the methods to be used or the reporting of outcomes. Attempts by sponsors or funding agencies to use any questionable influence should be reported to the Association.

34. Researchers must fulfil their responsibilities to sponsors to the highest possible standards. It is in the researchers' interest that respective responsibilities and entitlements should be agreed with the sponsors at the outset of the research. Where the sponsor acts essentially as a host or facilitator for research, researchers must, out of courtesy, inform them of the work they propose to undertake e.g. a group of teachers engaging in a process of action research as part of curriculum renewal should inform the school management of their intentions.

35. In negotiating sponsored research, researchers must provide honest and complete details of their competence and capacity to undertake the research that is proposed. Researchers will normally take a disinterested approach to research design, analysis and interpretation and where they feel they must take other than a disinterested position this should be made clear and amenable to scrutiny.

Methods

36. Researchers must employ methods that are fit for the purpose of the research they are undertaking. Those researchers who prefer or promote specific methods, theories or philosophies of research must have knowledge of alternative approaches sufficient to assure sponsors that they have considered these and that the research needs are being properly addressed. Sponsors should be offered a full, honest and amenable justification on the final choice of methods.

37. Researchers must, within the context and boundaries of their chosen methods, theories and philosophies of research, communicate the extent to which their data collection and analysis techniques, and the inferences to be drawn from their findings, are reliable, valid and generalizable.

Publication

38. The Association recommends that all members should make themselves familiar with the BERA research writing guidelines: *Good Practice on Educational Research Writing.*

39. The right of researchers to publish the findings of their research under their own names is considered the norm for sponsored research. The Association recognizes, however, that there are conditions under which this right might not hold including circumstances in which:
    - Researchers have waived this right in writing;
    - Publication would contravene the law (e.g. in the area of libel or race relations);
    - The work that has been commissioned specifically to produce a confidential report e.g. consultancy reports that are based on research activity;
    - Undertakings have been given to participants concerning confidentiality and the intention to avoid causing unnecessary harm to those affected by the research findings;
    - The researchers have failed to comply with contractual obligations;

- The researchers have failed, without reasonable justification, to report findings in a manner consistent with these ethical guidelines e.g. failure to report findings honestly and accurately.

40. Researchers have the right to dissociate themselves publicly from accounts of the research that they consider misleading or unduly selective. Sponsors enjoy a similar right. It is in the interests of researchers and sponsors alike to prevent this situation arising by agreements on publication or, if necessary, through arbitration.

41. Educational researchers must endeavour to communicate their findings, and the practical significance of their research, in a clear, straightforward fashion and in language judged appropriate to the intended audience.

Responsibilities to the Community of Educational Researchers

42. The community of educational researchers is considered to mean all those engaged in educational research including academics, professionals (from private or public bodies), teachers and students.

Misconduct

43. All educational researchers must protect the integrity and reputation of educational research by ensuring they conduct their research to the highest standards. Researchers must therefore not bring research into disrepute by, for example:

- Falsifying research evidence or findings;
- 'Sensationalizing' findings in a manner that sacrifices intellectual capital for maximum public exposure;
- Distorting findings by selectively publishing some aspects and not others;
- Criticizing other researchers in a defamatory or unprofessional manner;
- Exploiting the conditions of work and roles of contract research staff;
- Undertaking work for which they are perceived to have a conflict of interest or where self-interest or commercial gain might be perceived to compromise the objectivity of the research;
- Undertaking work for which they are not competent;
- Using work carried out with co-researchers as the basis of individual outputs without the agreement of the co-researchers concerned;
- Using research for fraudulent or illegal purposes.

44. Where researchers become aware of examples of malpractice or potential malpractice they must present their concerns, in the first instance, to the researchers involved. If their concerns are proven correct and if the researchers in question do not move to correct the situation, the matter must be reported to the Association. With due consideration to the important principle of the public's right to know, researchers should avoid bringing the community into disrepute through public accusations or allegations.

45. Subject to any limitations imposed by agreements to protect confidentiality and anonymity, researchers must make their data and methods amenable to reasonable external scrutiny. The assessment of the quality of the evidence supporting any inferences is an especially important feature of any research and must be open to scrutiny. Where sponsors initiate the request for scrutiny, and disclosure of aspects of the data may be injurious to participants, researchers should consider assuring the sponsor of the integrity of the work through the scrutiny of a mutually acceptable third-party, who is also bound by the non-disclosure agreements.

46. Researchers must accord due respect to all methodologies and related methods. They must contribute to the community spirit of critical analysis and constructive criticism that generates improvement in practice and enhancement of knowledge.

Authorship

47. The authorship of publications is considered to comprise a list of everyone who has made a substantive and identifiable contribution to their generation. Examples of substantive contributions include: contributing generative ideas, conceptual schema or analytic categories; writing first drafts or substantial portions; significant rewriting or editing; contributing significantly to relevant literature reviewing; and contributing to data collection, to its analysis and to judgements and interpretations made in relation to it.

48. Academic status or other indicator of seniority must not determine first authorship; rather the order of authorship should reflect the relative leadership and contributions made by the researchers concerned.

APPENDIX M

TABLES OF CATEGORIES: SUMMARY OF THE RESULTS ON ALL CATEGORIES GATHERED DURING PHASES I, II AND III

» CHANGE «

Phase I	Phase II (Portugal)	Phase III
► training changed teachers' teaching practice ► some did not register significant changes because it had always been their teaching style or school's ethos ► after the implementation of TS interventions, improvements of practice and learning process occurred and changed attitudes and behaviour of teachers and pupils ► change was prompted by training, TS theory, challenge and feedback of learning improvements, pupils' progress, practice and classroom experience ► change was welcomed ► no traces of resistance to change ► initial apprehension about training in new educational initiative was dissolved by classroom improvements ► changes are gradual and continual: behaviour and attitudes take longer to change ► some changes are immediate: teachers' questioning skills, creation of a safe environment, pupils' discussions, justification skills, cooperation, motivation, participation ► teachers possess more awareness of pupils' learning process, challenge them more, are more confident, motivated ► teachers infused more TS activities into the NC ► teachers reflected more: were able to assess the impact interventions had on pupils, which motivated them further ► lack of consistent, statistical evidence to support change: progression was observed but it was hard to measure ► nonetheless teachers applied the TS interventions: they believed it could raise standards and they trusted their professional judgment ► evidence to support change: tests results improved, better deduction and inference answers, boys' attainment, Maths and writing, videos, pre and post tests to measure impact of TS interventions ► more time was needed to apply and prepare TS interventions	► teachers often resisted change or were apprehensive about it because: - it meant extra work - they lacked adequate training, materials and physical classroom conditions - of administrative and bureaucratic aspects that influence the teaching and learning processes ► teachers embraced change if it was evidently beneficial to all ► they felt TS interventions would change: - their performance in the classroom - relationships between pupil-pupil and pupil-teacher - lesson planning - attitudes regarding pupils' learning process - teachers' attitude: more child centred, democratic and inclusive lessons ► a 'transition phase' between teaching styles or a combinations of traditional - innovative teaching approaches was necessary	► training had provoked changes: - attitudes and enhanced perception of teaching and learning processes - teachers' questioning skills: more open, philosophical questions - pupils have more time to think and answer - teachers' confidence and motivation was boosted by adequate training and materials ► pupils enjoyed TS lessons offered by their teachers ► most children interviewed did not want lessons to be different, *i.e.*, to be more traditional ► most pupils felt it was easy to concentrate on TS lessons

Summary of results on *change* gathered during Phases I, II and III.

» TRAINING «

Phase I	Phase II (Portugal)	Phase III
►all participants had training in TS interventions ►valuable, constructive, interesting and useful for professional development ►great impact on confidence, motivation, enthusiasm ►made teaching more rewarding and enjoyable for teachers ►offered teaching guidelines ►promoted improvements in teaching strategies and planning ►boosted teachers' mindset ►changed the idea people had about the learning process ►some people only welcomed training in TS interventions once they saw its benefits in practice ►people felt well prepared to deliver the TS strand included in the NC ►realization that more time was needed for further training and the actual application of TS interventions ►training need to be practical and realistically applicable	►none of the participants was aware of the existence of TS interventions ►none of the participants had training in TS interventions ►they believed it would be valuable, interesting and useful for the development of teaching and learning processes ►they believed TS interventions would produce significant improvements in teachers' professional development ►implementation of TS interventions in Portuguese classrooms would require adequate training beforehand ►adequate training would boost teachers' confidence and motivation t teach through TS interventions ►some participants wished to know more about TS interventions	►all participants had training in TS interventions ►valuable, interesting and useful for their professional development ►greater awareness of more adequate teaching procedures ►more adequate combination of materials and strategies ►greater awareness of material elaboration and design ►greater awareness of pupils' need of time to think ►training impacted on confidence, motivation, enthusiasm

Summary of results on *training* in TS interventions gathered during Phases I, II and III.

» PRACTICE «

Phase I	Phase II (Portugal)	Phase III
►teachers applied TS interventions ►they believed it was an effective style of teaching ►teaching through TS approaches was more satisfying and fun ►they believed it raised standards ►they believed they were teaching children to be independent thinkers, confident individuals, learners for life ►teachers believed the inclusion of the TS strand in the NC was paramount ►teachers preferred an infused application of TS interventions ►combination of teaching styles was enhanced ►they needed: - support from HT and staff - adequate (practical) training - time to apply TS interventions - a positive attitude towards its application ►teachers improvements: - questioning skills - better at unpack/explore vocab. - give pupils more time to think - help them to consider more than one solution to a problem - they are more child centred - boosted confidence, self-esteem and motivation ►TS interventions: - highlighted mismatches between teaching and learning outcomes - could lose appeal if overused - harder to apply to Maths - its application could be limited by NC constraints - time consuming: elaboration of materials and application - rarely has tangible outcomes - since it mainly produces oral work, it is harder to assess pupils' progress and improvements (teachers *get a good feeling* children make progress)	►teachers believed: - it was possible to apply TS interventions in their classrooms - it would benefit pupils - it was important to teach children to think independently - it was an effective teaching style, providing more didactic benefits and opportunities - it would improve the teaching and learning processes - it would take quite some time for changes to take place - it would be necessary to modify and adjust certain aspects of TS interventions to the Portuguese social, political and cultural context - implementation would only be viable after a major change in attitudes, beliefs and policy - there would be some resistance before initial benefits and improvements could be noticed - it would be important to recognize and comprehend the advantages of a rejuvenated educational system: more child centred, inclusive, challenging and democratic ►Portuguese teachers needed: - combination of teaching styles - an infused application of TS interventions seemed more appropriate ►changes required: - parents and course providers' mentality and attitudes, which were regarded as being overly conservative (it also included some teachers and children) - the Curriculum needs to be more flexible to allow the use of new teaching approaches - a less extensive programme would provide teachers with more time to apply new interventions in the classroom	►various components of a good TS lesson were detected during lesson observations ►teachers showed confidence and satisfaction during lessons ►child centred teaching style ►use of wide range of materials ►children were arranged in circles, pairs or small groups ►teachers trust their professional judgement ►teachers are committed to their job ►the need for concrete evidence of classroom improvements was significant

Summary of results on *practice* through TS interventions gathered during Phases I, II and III.

» LEARNING «

Phase I	Phase II (Portugal)	Phase III
TEACHERS ►learnt from training received ►provided training to peers ►some pursued further training ►training's impact reinforced implementation of TS interventions ►promoted safe learning environment ►promoted all-inclusive lessons PUPILS ►more engaged, motivated, valued, tolerant, responsible, confident ►stronger feelings of inclusion, respect, self-esteem, trust, autonomy ►improved concentration span ►lessons were more fun, challenging, rewarding ►lessons were particularly beneficial to SEN pupils ►improvements in pupils' results, behaviour, learning process awareness, reasoning and questioning skills (more rational and philosophical) ►reduced writing activities ►initial contact with interventions generated lack of discipline	►teachers believed: - the application of TS intervention would be beneficial and impact on pupils' learning process and lifelong learning - interventions would improve the Portuguese educational system - lessons were more fun, interesting, challenging, creative and rewarding for pupils and teachers - this would promote pupils' motivation, confidence, self-esteem - lessons would be more beneficial to introverted, less autonomous or SEN pupils - change in pupils' attitude was needed to successfully implement interventions - pupils could misbehave as they would be unfamiliar with unusual level of classroom freedom	►teachers offered a combination of activities to cover distinct learning styles, augmenting pupils' learning probabilities ►pupils 'did a lot of thinking' and discussion in TS lessons ►pupils were more confident, participative and motivated to learn ►pupils were given a chance to use background knowledge ►evidence for a good TS lesson: - pupils discussed matters with peers - they had time to think - had opportunity to give their opinion PUPILS' INTERVIEWS: ►pupils enjoyed TS lessons and thought they were fun: - high ability pupils felt they were easy but enjoyed the hard challenges - low ability pupils were less keen, most felt classes were hard and it was difficult for them *to think* ►lower ability pupils showed signs of lower levels of confidence and self-esteem ►all pupils enjoyed listening to their peers' opinions in class ►pupil enjoyed team work: for lower ability pupils it meant extra help ►pupils enjoyed reflecting about their learning and using their imagination

Summary of results on *learning* gathered during Phases I, II and III.

» CHANGE «

Phase I	Phase II (Portugal)	Phase III
►training changed teachers' teaching practice ►some did not register significant changes because it had always been their teaching style or school's ethos ►after the implementation of TS interventions, improvements of practice and learning process occurred and changed attitudes and behaviour of teachers and pupils ►change was prompted by training, TS theory, challenge and feedback of learning improvements, pupils' progress, practice and classroom experience ►change was welcomed ►no traces of resistance to change ►initial apprehension about training in new educational initiative was dissolved by classroom improvements ►changes are gradual and continual: behaviour and attitudes take longer to change ►some changes are immediate: teachers' questioning skills, creation of a safe environment, pupils' discussions, justification skills, cooperation, motivation, participation ►teachers possess more awareness of pupils' learning process, challenge them more, are more confident, motivated ►teachers infused more TS activities into the NC ►teachers reflected more: were able to assess the impact interventions had on pupils, which motivated them further ►lack of consistent, statistical evidence to support change: progression was observed but it was hard to measure ►nonetheless teachers applied the TS interventions: they believed it could raise standards and they trusted their professional judgment ►evidence to support change: tests results improved, better deduction and inference answers, boys' attainment, Maths and writing, videos, pre and post tests to measure impact of TS interventions ►more time was needed to apply and prepare TS interventions	►teachers often resisted change or were apprehensive about it because: - it meant extra work - they lacked adequate training, materials and physical classroom conditions - of administrative and bureaucratic aspects that influence the teaching and learning processes ►teachers embraced change if it was evidently beneficial to all ►they felt TS interventions would change: - their performance in the classroom - relationships between pupil-pupil and pupil-teacher - lesson planning - attitudes regarding pupils' learning process - teachers' attitude: more child centred, democratic and inclusive lessons ►a 'transition phase' between teaching styles or a combinations of traditional - innovative teaching approaches was necessary	►training had provoked changes: - attitudes and enhanced perception of teaching and learning processes - teachers' questioning skills: more open, philosophical questions - pupils have more time to think and answer - teachers' confidence and motivation was boosted by adequate training and materials ►pupils enjoyed TS lessons offered by their teachers ►most children interviewed did not want lessons to be different, *i.e.*, to be more traditional ►most pupils felt it was easy to concentrate on TS lessons

Summary of results on *change* gathered during Phases I, II and III.

» REFLECTION «

Phase I	Phase II (Portugal)	Phase III
►all participants habitually reflected on their practice ►it could foment changes of attitudes: - negative aspects were avoided - less effective strategies were repealed or adjusted to pupils' needs and aptitudes - positive aspects replicated in future lessons - improved practice, confidence and motivation - enhanced understanding of teaching and learning processes ►reflection challenged things further ►it could exacerbate self-critical analysis and lead to frustration and dissatisfaction as weaknesses and difficulties were exposed ►lesson outcomes were discussed with other teachers, especially same Year Group teachers ►the majority felt that to share ideas and experiences with colleagues was important and useful ►some schools had a formal system of monitoring teachers, which focused on observations and lesson outcomes: positive criticism, positive aspects raised self-esteem and negative aspects were discussed to be avoided in future performances	►all participants habitually reflected on their practice ►the majority felt that to share ideas and experiences with colleagues was important and useful ►lesson outcomes were discussed with other teachers, especially same Year Group teachers	* no significant data was gathered *

Summary of results on *reflection* gathered during Phases I, II and III.

» POLICY «

Phase I	Phase II (Portugal)	Phase III
►all participants felt that the inclusion of the TS strand in the NC was very important ►the TS strand should be made more explicit, with more enlightening examples of TS activities ►only two participants were unaware of the TS strand delineated in the NC ►none of the participants had training in TS interventions during their initial teacher training courses ►all participants obtained specialised training as part of their professional development training ►training provided to people was good and useful ►some participants felt they had used approaches similar to those used in TS interventions but under a different 'label' ►schools' support was important so that teachers could pursue training opportunities and implement it even further in the classroom ►training providers needed to organize courses in a more practical and realistic manner, so that teachers could make the best use of it ►more time for training and further professional development as well as to apply the interventions in the classroom should be provided	►none of the participants had training in TS interventions ►the Portuguese curriculum does not address this issue directly ►teachers emphasised the importance of the explicit inclusion of the development of TS in the Portuguese Curriculum ►teachers argued Portugal should have a more child centred educational policy ►teachers indicated a lack of funding did not allow a wider variety of training courses available to them ►teachers suggested funding of less useful training courses should be channelled to subsidize courses that would introduce and implement innovative teaching approaches as the TS interventions ►participants were unaware of an allegedly important national educational initiative, an integrant part of the international project 'Schooling for Tomorrow', called 'Good Hope, Good Practices Programme' that intended to promote quality in Education by recognizing and supporting cases of good practice	►all participants felt that the inclusion of the TS strand in the NC was very important ►TS activities were more embedded in the school's *ethos*

Summary of results on *policy* gathered during Phases I, II and III.