



Interactions in the classroom:

An exploration of existing literature and teachers' perceptions to contribute to a model of understanding

Sarah Joanne Swift

School of Education, Communication and Language Sciences

Doctorate in Applied Educational Psychology 2012-2015

I hereby confirm that this is my own work and has not been submitted previously for assessment – June 2015

Acknowledgements and Dedication

I would firstly like to thank my research supervisor, Richard Parker, for his continual patience, support and guidance throughout this whole research process. Thanks also go to my placement supervisor, Rachel Leonard, for always listening and offering endless words of reassurance.

Thanks to all the tutors of the Doctorate in Applied Educational Psychology course at Newcastle University namely: Wilma Barrow, Simon Gibbs, Dave Lumsdon, and Billy Peters. Their skills, knowledge and experience have and continue to inspire me.

A special mention goes to my fellow trainees in cohorts now qualified and those still in training. Your words of kindness have not gone unnoticed and I feel hopeful that our paths will meet again in the future. To my own cohort I can never say enough thanks, you have taught me the true meaning of teamwork.

For my friends old and new I am indebted to you in helping me through these past three years. Both those close by and far away you will never know how much your support has meant to me, I could not have done it without you.

Last but by no means least, thanks go to my loving family. To each one of you past and present I dedicate this doctorate, for without your never-ending love and support I would never have reached this point. I am both humbled and proud to have such a wonderful family, I love you all.

Abstract

Teacher-child interactions have long been documented in psychological theory and research as important within learning. Current policy is increasingly emphasising the achievement of outcomes, and research directly links quality teacher-child interactions to outcomes.

Interactions have been explored in relation to different concepts in the classroom.

Engagement is one such concept and associated with different outcomes in research and policy. My systematic review sought to establish the effects of teacher-child interactions on student engagement. The review revealed an existing model of teacher-child interactions along with helping clarify ambiguity and variation in the definition and measurement of engagement.

To better understand interactions in the classroom I explored the topic from teachers' perspectives. An enquiry-based cycle of learning was used to provide teachers with a process that they could adapt for practice. Within this the model of teacher-child interactions from the systematic review formed an observation aid. Researcher facilitated peer supervision sessions generated the data, which was analysed using a realist grounded theory approach. Findings extended the original model of teacher-child interactions and included: types of interactions including child-child, outcomes being enabled by mediating effects such as engagement and a positive learning environment, and contextual factors influencing the balance of interactions.

Implications included a greater understanding of the complexity of interactions in the classroom, and Educational Psychologists (EPs) using facilitated peer supervision as a process to support teachers in using one another as a resource in developing their practice.

Table of Contents

1. SYSTEMATIC REVIEW: EXPLORING THE EFFECTS OF TEACHER-CHILD INTERACTIONS ON STUDENT ENGAGEMENT.....	8
1.1. ABSTRACT	8
1.2. INTRODUCTION.....	9
1.2.1. <i>Interactions to support outcomes</i>	9
1.2.2. <i>Engaging children and young people</i>	10
1.2.3. <i>Why a systematic review?</i>	10
1.3. METHOD	10
1.3.1. <i>Step 1: Refining my review question</i>	11
1.3.2. <i>Step 2: Determining the types of studies needed</i>	12
1.3.3. <i>Step 3: The literature search</i>	12
1.3.4. <i>Step 4: Screening my results</i>	14
1.4. ANALYSIS.....	15
1.4.1. <i>Step 5: Critically appraising the research</i>	15
1.4.1.1. Descriptive information.....	15
1.4.1.2. Hierarchy of evidence	18
1.4.1.3. Weight of evidence.....	42
1.4.2. <i>Step 6: Synthesis of evidence</i>	43
1.5. FINDINGS AND DISCUSSION	45
1.5.1. <i>Step 7: Discussion of study findings</i>	45
1.5.1.1. Low strength of findings – High weight of evidence.....	45
1.5.1.2. Medium strength of findings – Medium weight of evidence	46
1.5.1.3. Medium strength of findings – High weight of evidence.....	47
1.5.2. <i>Implications</i>	48
1.5.3. <i>Limitations</i>	49
1.5.4. <i>Conclusion</i>	50
2. CHAPTER 2: BRIDGING DOCUMENT	51
2.1. INTRODUCTION.....	51
2.2. WHY DID I UNDERTAKE THIS PARTICULAR PIECE OF RESEARCH AT THIS TIME?.....	51
2.2.1. <i>Political influences</i>	51
2.2.2. <i>Why this particular context?</i>	52
2.2.3. <i>Connecting my systematic review with my research project</i>	53
2.3. PERSONAL REFLEXIVITY	54
2.3.1. <i>My experiences and motivations</i>	54
2.3.2. <i>Values and ethics</i>	55

2.1. EPISTEMOLOGICAL REFLEXIVITY.....	56
2.1.1. <i>Ontology and epistemology</i>	57
2.1.2. <i>Methodology and method</i>	57
2.2. SUMMARY.....	58
3. CHAPTER 3: RESEARCH PROJECT – WHAT CAN TEACHERS’ PERCEPTIONS TELL US ABOUT INTERACTIONS IN THE CLASSROOM?	60
3.1. ABSTRACT	60
3.2. INTRODUCTION.....	61
3.2.1. <i>Interactions in the classroom: the development of theory</i>	61
3.2.2. <i>Why should we focus on teachers’ perceptions?</i>	62
3.2.3. <i>The current study</i>	63
3.3. METHOD	63
3.3.1. <i>Peer Supervision</i>	64
3.3.2. <i>Observation Tool</i>	64
3.3.1. <i>Procedure</i>	65
3.3.2. <i>Analysis</i>	67
3.4. FINDINGS.....	71
3.4.1. <i>The ‘process’</i>	71
3.4.2. <i>A model of interactions in the classroom</i>	74
3.4.2.1. Exploring interactions and outcomes further	77
3.4.2.2. Extending the model – interactions and mediating effects.....	78
3.4.2.3. The final model – adding context.....	82
3.5. DISCUSSION	85
3.5.1. <i>Developing peer observation and supervision</i>	85
3.5.2. <i>Developing our understanding of interactions in the classroom</i>	86
3.5.2.1. Type of interactions.....	86
3.5.2.2. Mediating effects	87
3.5.2.3. Context	88
3.5.3. <i>Limitations of this study</i>	88
3.5.4. <i>Priorities and opportunities for further study</i>	88
3.5.5. <i>Conclusion</i>	89
4. REFERENCES	91
5. APPENDICES.....	100
5.1. APPENDIX 1: A VISUAL TO MAP THE DIFFERENT STAKEHOLDERS AND INFLUENCES THAT SHAPED MY SYSTEMATIC REVIEW QUESTION.	100

5.2. APPENDIX 2: AN INTERPRETATION OF EFFECT SIZES, WHICH AIDED THE APPRAISAL OF STUDIES.	101
5.3. APPENDIX 3: AN EXTENDED VERSION OF THE EPPI WEIGHT OF EVIDENCE TOOL FOR PART A – METHODOLOGICAL QUALITY (GOUGH, 2007).....	102
5.4. APPENDIX 4: THE INSET DAY TRAINING SESSION ON INTERACTIONS IN THE CLASSROOM AND PEER SUPERVISION PRESENTED TO ALL KEY STAGE 2 TEACHING STAFF.	107
5.5. APPENDIX 5: OBSERVATION TOOL DERIVED FROM THE ENQUIRY BASED APPROACH BY McGRANE AND LOFTHOUSE (2010).....	114
5.6. APPENDIX 6: PARTICIPANT INFORMATION SHEET TO DETAIL THE STUDY BEFORE PARTICIPATION.	117
5.7. APPENDIX 7: INFORMED CONSENT SHEET COMPLETED WITH PARTICIPANTS.....	119
5.8. APPENDIX 8: DEMOGRAPHIC INFORMATION SHEET THAT PARTICIPANTS COMPLETED. ...	120
5.9. APPENDIX 9: DEBRIEFING STATEMENT DISCUSSED AND PROVIDED TO PARTICIPANTS UPON COMPLETION OF DATA COLLECTION.	121

LIST OF TABLES

TABLE 1: EXCLUSION CRITERIA ESTABLISHED THROUGH REVIEWING MY INITIAL LITERATURE SEARCH.	13
TABLE 2: INCLUSION CRITERIA ESTABLISHED FROM THE PROCESS OF NARROWING MY SEARCH TERMS.....	14
TABLE 3: DESCRIPTIVE INFORMATION FROM THE ELEVEN ARTICLES IDENTIFIED FOR APPRAISAL.....	16
TABLE 4: DETAIL ABOUT THE MEASURES, FINDINGS AND EFFECT SIZES REPORTED FOR THE ELEVEN IDENTIFIED ARTICLES.....	20
TABLE 5: A SUMMARY OF THE WEIGHT OF EVIDENCE FINDINGS FOR THE ELEVEN IDENTIFIED ARTICLES.	43
TABLE 6: DETAIL ON THE PROCEDURE OF THIS STUDY.	65
TABLE 7: THE STAGES OF THE ANALYTIC PROCESS FOR THIS STUDY BASED ON A REALIST GROUNDED THEORY APPROACH BY STRAUSS AND CORBIN (1998).....	67
TABLE 8: AN EXTRACT OF THE MICROANALYSIS FOR TRANSCRIPT 1 - PAIR B SESSION 2.....	69
TABLE 9: AN SAMPLE OF MY ANALYSIS ACROSS ALL FOUR STAGES, AS DENOTED BY STRAUSS AND CORBIN (1998), FOR TRANSCRIPT 1 - PAIR A SESSION 1 (LINES 190-198)	70
TABLE 10: TEACHERS’ PERCEPTIONS OF THE DIFFERENT TYPES OF INTERACTIONS AND OUTCOMES IN MODEL 1.	76
TABLE 11: SUBCATEGORIES OF INTERACTIONS THAT WERE NOT CAPTURED BY MODEL 1 OR 2.	77
TABLE 12: TEACHERS' PERCEPTIONS ON TYPES OF INTERACTIONS AND THE MEDIATING EFFECTS OF THESE.....	79

LIST OF FIGURES

FIGURE 1: THE SEVEN STAGES OF THIS SYSTEMATIC REVIEW, ADAPTED FROM PETTICREW AND ROBERTS (2006).	11
FIGURE 2: A VISUAL REPRESENTATION OF THE CRITICAL APPRAISAL FINDINGS FOR THE ELEVEN IDENTIFIED ARTICLES.....	44
FIGURE 3: SEEDHOUSE'S ETHICAL GRID (2009), DISCUSSED AND ADAPTED IN STUTCHBURY AND FOX (2009). 56	
FIGURE 4: MODEL 1 - WITHIN-DOMAIN AND CROSS-DOMAIN EFFECTS OF TEACHER-CHILD INTERACTIONS ON CHILDREN'S DEVELOPMENTAL OUTCOMES (DOWNER ET AL., 2010).....	62
FIGURE 5: MCGRANE AND LOFTHOUSE'S (2010) ORIGINAL OBSERVATION TOOL.	66
FIGURE 6: AN ADAPTATION OF MCGRANE AND LOFTHOUSE'S (2010) OBSERVATION TOOL FOR THIS STUDY.	66
FIGURE 8: A VISUAL REPRESENTATION OF FINDINGS RELATING TO THE RESEARCH PROCESS.....	72
FIGURE 9: A VISUAL REPRESENTATION OF THE RELATIONSHIPS BETWEEN THE 'RESEARCH PROCESS', 'ADAPTATIONS', AND 'NEXT STEPS' WITH THE 'COMPARISONS' MADE BY TEACHERS.....	73
FIGURE 10: EXCERPTS THAT HIGHLIGHT THE CONNECTIONS BETWEEN DIFFERENT INDIRECT FACTORS AND THE RESEARCH PROCESS.	73
FIGURE 11: MODEL 2 - HOW TEACHERS' PERCEPTIONS MAPPED ONTO THE INTERACTIONS AND OUTCOMES ASPECTS OF THE ORIGINAL MODEL 1 BY DOWNER ET AL. (2010).....	75
FIGURE 12: MODEL 3, WHICH ENCAPSULATES BROADER INTERACTION TYPES AND THE MEDIATING EFFECTS BETWEEN INTERACTIONS AND OUTCOMES.....	81
FIGURE 13: MODEL 4 - FINAL MODEL DEPICTING THE TEACHERS' PERCEPTIONS OF INTERACTIONS IN THE CLASSROOM.	83

LIST OF BOXES

BOX 1: AN EXAMPLE OF TEACHERS' PROGRESSION IN THINKING IN RELATION TO THE RESEARCH PROCESS.	71
BOX 2: THE DEVELOPMENT PEER OBSERVATION AND DISCUSSION.	74
BOX 3: TEACHERS' GENERAL COMMENTS ABOUT MODEL 1.	74
BOX 4: CONTEXTUAL FACTORS INFLUENCING THE BALANCE OF INTERACTION TYPE PROVIDED.	84
BOX 5: AN EXAMPLE OF A DISTAL FACTOR AFFECTING INTERACTIONS IN THE CLASSROOM.	84
BOX 6: VALUES AND BELIEFS UNDERPINNING INTERACTIONS IN THE CLASSROOM.	85
BOX 7: CONCLUDING EXCERPT.	90

1. Systematic Review: Exploring the Effects of Teacher-Child Interactions on Student Engagement

1.1. Abstract

Recent changes to children and families services in England have placed increased emphasis on supporting the achievement of the best possible educational and life outcomes for children and young people. Research into teacher-child interactions has established an association with improved outcomes for children and young people. In order to achieve outcomes children and young people, I posit that they would need to be engaged in their education. To this end, literature on engaging children and young people in school could provide assistance. However, the research around this topic is complex and diverse in the conceptualisation and measurement of engagement. These uncertainties make it difficult to determine what conclusions to draw; for example, does a measure of on task behaviour capture engagement, and does an outcome measure indicate engagement?

This systematic literature review therefore set out to explore: *what are the effects of teacher-child interactions on student engagement?* A process of identification, appraisal, and synthesis was used to answer the review question, and nine of eleven studies were judged to have medium to high strength of findings and trustworthiness. The review found that engagement occurs on two levels: surface engagement, which is looking and acting engaged, and deeper engagement, which is being immersed in discourse and work leading to an extension of understanding. Using this conceptualisation, the findings suggested that dialogic instruction, interventions to develop teacher interactions, and looking at the overall quality of the classroom has an effect on children's engagement at both a surface and deeper level.

Implications from the systematic review findings indicated further areas for study. The nature of the studies used imposed measures and observation systems, which assumed participants agreed with the researchers' conceptualisation of engagement. A next step could be to gather the perspectives of those involved in these interactions to establish their thoughts on models in practice. Furthermore, although the studies focused on the link between interactions and engagement, models of interactions in the literature did not reflect this. This potentially provides future direction in conceptualising engagement, as well as developing existing models of classroom interactions.

1.2. Introduction

Recent policy changes to services for children, young people and their families have emphasised a person-centred approach to support the achievement of outcomes. The Children and Families Act, 2014, set out principles to support families in facilitating the attainment of the best possible life and educational outcomes. The government is also reviewing current policy and guidance on exclusions from maintained settings, academies, and pupil referral units (The Department of Education, 2012). The Local Authority (LA) in which I work, as a Trainee Educational Psychologist (TEP), has at this time aimed to reduce its number of permanent exclusions. Much of the discourse in the LA was focused on children who were not *engaged* in school: affectively and cognitively. Ergo there is presumably more challenge in achieving outcomes for children and young people who are not engaged in education.

The recommendations suggested in the Support and Aspirations green paper, which informed The Children and Families Act, 2014, indicated that schools needed to be more accountable for the early identification and support of children and young people encountering difficulties. This is particularly focused on children with Special Educational Needs (SEN) who are also at greater risk of permanent exclusion from school (Cotzias, 2014). This systematic review considers how schools can support children and young people to engage in education. I consider this particularly pertinent given the increased emphasis on schools having the responsibility to identify need and provide support.

1.2.1. Interactions to support outcomes

In considering schools as being increasingly responsible for supporting children to engage and achieve outcomes, research and theory about interactions can potentially provide assistance. Teacher-child interactions are thought to be a central aspect in facilitating the learning of children and young people (Hamre et al., 2013). Research has linked teacher-child interactions with outcomes for children and young people (Hamre, Pianta, Mashburn, & Downer, 2007; Mashburn et al., 2008). Although interactions in learning are not limited to those that are teacher-child, I believe it is useful to consider how schools can support children's outcomes, and how teachers would play a central role in this context.

Vygotsky's socio-cultural theory suggests that the process of interactions between a child and an expert other is mediated through language (1978). Lyle (2008) intimated that the study of dialogue has burgeoned, with applications of dialogic approaches in education denoted as having great cognitive potential for children and young people. Thus the language in learning

is a topic in and of itself, but one that also seems integral to interactions. For the purposes of this review I therefore included both non-verbal and verbal exchanges in my conceptualisation of the term interactions.

1.2.2. Engaging children and young people

In considering the concept of engagement, it has been discussed as a recognised concept in educational practice (Appleton, Christenson, Kim, & Reschly, 2006). This is corroborated in my LA context where engagement is frequently used as a descriptive term when discussing children or young people who may be encountering difficulties. It has been suggested that engagement is a contributor to the success of children and young people in school (Fredricks, Blumenfeld, & Paris, 2004). However, the literature also acknowledges disparity within the field due to a lack of conceptual clarity (Fredricks et al., 2004; Furlong & Christenson, 2008). Definitions and measures of engagement vary, for example, Fredricks et al. (2004) queried whether engagement was a construct in and of itself, thus measured it concurrently with related concepts, whereas Appleton et al. (2006) considered it a concept worthy of study in its own right and measured it as such.

1.2.3. Why a systematic review?

One way of mapping out uncertainties in a field of literature is by using a systematic literature review (Petticrew & Roberts, 2006). A systematic review can be helpful in establishing what is real and assumed knowledge, which I considered useful in this case because of diversity in the conceptualisation of engagement. Along with clarifying unknown aspects of the literature, I also hope to provide an account of the current literature around interactions and engagement in the classroom. A review of the present literature provides an update of sorts on how knowledge and understanding have evolved and developed over time. In conducting this review I seek to undertake an intellectual project to identify knowledge-for-understanding and knowledge-for-action, to extend understanding of the literature for potentially practical applications (Wallace & Wray, 2011).

1.3. Method

Petticrew and Roberts' (2006) seven stages for conducting a systematic review informed my process, which included identification, appraisal and synthesis of the literature. Figure 1 summarises these steps and provides a framework for the rest of this systematic review.

Figure 1: The seven stages of this systematic review, adapted from Petticrew and Roberts (2006).

1) Method	Clearly define the question that the review is setting out to answer in consultation with anticipated users
2) Method	Determine the types of studies that need to be located in order to answer your question
3) Method	Carry out a comprehensive literature search to locate those studies
4) Method	Screen the results to decide which articles meet the inclusion criteria and thus need more detailed examination
5) Analysis	Critically appraise the included studies
6) Analysis	Synthesise the studies in terms of quality and relevance
7) Findings & Discussion	Present the findings and links to existing literature

1.3.1. Step 1: Refining my review question

Before deciding upon a specific question to ask of the literature, I began with a broader central question. Wallace and Wray (2011) describe a central question as being about an aspect of the social world that will need several specific review questions to answer it. My central question was derived from my initial scoping of the literature. Theory and research discussed in the introduction section provides an insight into my starting point:

How do teacher-child interactions and dialogue influence children's development?

In seeking to refine this question I mapped out the different stakeholders and influences to shape the most helpful review question (see Appendix 5.1). In terms of my interest, I was particularly intrigued by the use of the term engagement both in practice and literature. Direct stakeholders that could benefit from this review included Children and Adult Services in the LA in which I work as a TEP. A key area of focus for the LA was reducing their high exclusion rates in education, and much of the discourse was around *engaging* children. Establishing *how* to engage children would therefore potentially be helpful for the LA.

However, this assumes children's engagement can be externally influenced. Thus I considered that a more appropriate starting point would be to review the existing literature to establish:

What are the effects of teacher-child interactions on student engagement?

1.3.2. Step 2: Determining the types of studies needed

I next turned my attention to what type of studies would help answer my question. Despite having a specific review question, it was still quite broad in nature. This was purposeful so as not to be reductionist and enable an exploration of the existing literature base. However, this meant that a single type of study was not necessarily enough to provide a comprehensive answer.

Petticrew and Roberts (2006 p.46-47) discuss study types that would likely answer particular review questions. Referring back to my literature scoping, it seemed that my review question potentially attended to two aspects: effectiveness of interactions on engagement, and observational associations between interactions and engagement. This meant that the pool of appropriate study type was wider, such as Randomised Controlled Trials (RCTs), cohort studies, and cross-sectional surveys.

1.3.3. Step 3: The literature search

With a range of study types contributing to answering my review question, it did not seem appropriate to use particular study designs as inclusion/exclusion criteria. Furthermore, I was cautious of applying any existing assumptions to the search by creating exclusion criteria from the outset. I therefore decided to begin my search using the terminology within and around my review question before refining my search criteria:

'engagement' AND 'interaction' AND 'teacher-child' yielded 17 articles

'engagement' AND 'interaction' AND 'teacher-child' AND 'dialogue' yielded 0 articles

'engagement' AND 'interaction' AND 'teacher' yielded 450 articles

'engagement' AND 'interaction' AND 'dialogue' yielded 18 articles

These were searched using the Scopus database on the 17th and 18th of October, 2013. I then reviewed the abstracts and found that 86 articles were of interest. In reading through these abstracts I discovered groups of articles that were not directly relevant to answering my question, thus providing some exclusion criteria.

Table 1 details these exclusion terms, along with descriptions of the studies' topics, and the reason why I deemed them irrelevant.

Table 1: Exclusion criteria established through reviewing my initial literature search.

<i>Exclusion term</i>	<i>Description</i>	<i>Why it is not relevant</i>
Technology	Focus on technology supporting teachers' continued professional development, use of technology in the classroom, technology as a form of interaction.	Interest in the verbal and non-verbal interactions within the classroom rather than technology in interactions.
Relationships	Focus on relationships between teachers and students.	Interest in interactions that make up the relationship rather than the relationships specifically.
Special Educational Needs (SEN)	Targeting specific children based on diagnoses or categorised as SEN, how these interactions differ, one to one support, special schools.	Interested in interactions in a typical classroom rather than targeted support specifically.
Characteristics	Targeting specific populations such as EAL, particular ethnicities, personality characteristics.	Interested in interactions in a typical classroom rather than how specific populations may differ.
Curriculum	Different curriculum foci.	Interested in interactions in a typical classroom rather than how these may differ dependent on curriculum amendments.

Between the 7th November 2013, and 24th January 2014, I searched the following databases: Scopus, OVID – psycharticles, JSTOR – Psychology and Education, and Web of Science. Within this I tried to narrow my search through exploring different inclusion criteria derived from the review of my initial search:

- Population: **'teacher-child', 'child-teacher', 'teacher', 'child', and 'young person'**
- Intervention: **'interaction*¹', 'quality classroom interactions', 'intervention', 'instructional support', 'continued professional development', and 'professional development'**
- Outcomes: **'engagement'**

¹ * Indicates a wildcard symbol to retrieve variations on a word.

From these refinements I found that many of the abstracts were irrelevant and diverse. Petticrew and Roberts (2006) discussed the issue of specificity versus sensitivity when conducting literature searches, where highly specific searches can lead to a low proportion of irrelevant studies. More sensitive searches tend to yield many more studies, which would need to be reviewed by hand. In this case I thought it was necessary to have a more sensitive search in order to identify the most relevant studies to answer my review question. For my refined literature search I returned to broader search terms. Through the process of trying to narrow my search I screened my results and identified inclusion criteria (see Table 2) to apply alongside the existing exclusion criteria in Table 1.

Table 2: Inclusion criteria established from the process of narrowing my search terms.

<i>Inclusion criteria</i>	<i>Description and reasoning</i>
Study type	The majority of studies were quantitative in nature, thus I used this as an inclusion criterion to represent the majority of the literature in this field.
Population	Children and young people in mainstream educational settings ranging from early years to further education. Studies in higher education seemed less relevant due to the significantly different curriculum focus and process.
Intervention	Types of interactions, and interventions targeting interactions were included.
Outcome	Engagement.

I applied the inclusion criteria to the 86 studies from my initial Scopus search. I also revised my final search terms to be a balance between the sensitivity of the initial search terms and the specificity of the refined search terms. I conducted my final search on the 30th January, 2014 in the databases: OVID – psycharticles, OVID - psychinfo, Web of Science – Psychology and Educational, with the terms:

‘teacher-child’ OR ‘teacher-pupil’ OR ‘teacher-student’ AND ‘interaction*’ AND ‘engagement’

1.3.4. Step 4: Screening my results

There were 319 abstracts to be reviewed in total: 86 from the initial search and 233 from the final search. After applying my inclusion and exclusion criteria I identified eleven articles to be critically appraised.

1.4. Analysis

The next few stages constitute the analytical portion of this systematic review. The eleven articles were critically appraised and synthesised to establish their quality and relevance to answering the review question.

1.4.1. Step 5: Critically appraising the research

Petticrew and Roberts (2006 p.128) refer to critical appraisal as a way of establishing errors within studies that affect the interpretation of findings. This should be a systematic process, preferably with each study being judged using the same criteria (op cit). Checklists or scales can be used to support the reviewer in attending to key aspects of studies in a way that is not too critical, appreciating researchers' attempts to produce a robust piece of research (op cit).

1.4.1.1. Descriptive information

I began my appraisal by looking at some descriptive details to gather contextual information about the studies (see Table 3). In terms of population, ten of the studies had teacher participants, eight had student participants, but four studies did not report fully on the participants involved. Missing information could be indicative of a wider reliability issue, thus further exploration may be helpful. School settings included: early years, primary and secondary provision, ten being located in the United States. This could indicate a potential gap in the literature, as I am a researcher based in England. The ecosystem around a child may differ greatly between countries e.g. due to differences in educational settings, pedagogical approaches, and political context (Bronfenbrenner, 1994).

Considering the studies themselves, there was a range in design, which included: two experimental, one quasi-experimental, and eight observational studies. This was to be expected, as discussed in step 3 (p.12) of this review, due to the broad nature of my review question. The purpose of the studies also reflected diversity with:

- Three studies focused on the impact of interaction interventions on engagement.
- Four focused on the experiences of interactions and engagement in the classroom.
- Four focused on the association between interactions and engagement.

Table 3 provided an overview of context and content based on the articles' descriptions. However, it did not give an insight into the relevance of the articles in answering the review question. Furthermore, there is no indication of what the studies propose to have found or how reliable these findings were.

Table 3: Descriptive information from the eleven articles identified for appraisal.

Study	Participants		Context		Design	Purpose
	Teachers	Students	School	Country		
Bierman et al. (2013)	44 classrooms in 24 Head Start Centres	n = 338 mean age = 4.59 years	Preschool and Kindergarten Early Years ²	United States	RCT Experimental	To assess the learning and behavioural outcomes of children one year after they had taken part in either 'usual practice' or a preschool intervention.
Caughlan, Juzwik, Kelly, Borsheim-Black, and Fine (2013)	n = 87 experience = training English teachers	Not reported	Secondary	United States	Design-Based Research Quasi-experimental	To examine the impact of a dialogic curricular intervention on student participation.
Gregory, Allen, Mikami, Hafen, and Pianta (2014)	n = 87 teachers in 12 schools average experience = 8 years	n = 1669 students	Secondary	United States	RCT Experimental	To test the efficacy of an intervention to coach teachers on their interactions to improve students' behavioural engagement.
Kelly (2007)	117 classrooms	n = 2051 students grade = 7 th -8 th	Middle Secondary	United States	Cohort Observational	Investigating the relationship between classroom evaluation and student engagement in literacy.
McElhone (2012)	n = 21 teachers in 16 schools experience = 1-26 years	Not reported	Elementary Primary	United States	Cohort Observational	Examining the interactions between teachers and students to determine how certain patterns of teacher-student talk support student comprehension achievement and reading engagement.

² Grey text is my inference, for example, preschool and kindergarten would be an early years setting in an English context.

Study	Participants		Context		Design	Purpose
	Teachers	Students	School	Country		
Malmberg, Hagger, Burn, Mutton, and Colls (2010)	n = 24 experience = NQT year & first two years	Not reported	Secondary	England	Longitudinal Observational	To investigate whether and how teachers change in their classroom quality during their teacher education year and first two years of professional practice.
National Institute of Child Health and Human Development Early Child Care Research Network (2005)	n = 780 teachers mean years of experience = 12.10	n = 780 children, 1 per 780 classes	Elementary – Private and Public Primary	United States	Cohort Observational	To explore a typical day in the third grade in terms of experience and activities through measuring classroom quality, teacher behaviour, and child behaviour.
Ponitz, Rimm-Kaufman, Grimm, and Curby (2009)	n = 36 mean years of experience = 18.1	n = 171 mean age = 5.5 years	Kindergarten/ Elementary Early Years/ Primary	United States	Longitudinal Observational	To establish the extent to which behavioural engagement mediates global classroom quality and children’s reading achievement.
Skinner, Furrer, Marchand, and Kindermann (2008)	n = 53	n = 805 age = 4 th - 7 th grade	Elementary/ Middle Primary/ Secondary	United States	Longitudinal Observational	To investigate the internal dynamics of behavioural and emotional engagement/disaffection, facilitative effects of teacher support, and student self-perceptions over the school year.
Test and Cornelius-White (2013)	Not reported	n = 12 mean age = 47 months	Preschool Early Years	United States	Cohort Observational	To look at the influence of the timing of social factors on engagement.
Williford, Maier, Downer, Pianta, and Howes (2013)	n = 309 mean years experience = 10.92	n = 605 mean age = 50.18 months	Preschool & Early Years	United States	Not reported Observational	To examine the quality of pre-school experiences at a child and classroom level.

1.4.1.2. Hierarchy of evidence

Table 4 encompasses detailed information relating to the design of studies by what they measured and how, as well as any significant findings, and the effect sizes of these findings. In terms of study design, Petticrew and Roberts (2006) considered hierarchies and typologies of evidence. In step 3 (p.12) I discussed typology and how a broader design range would potentially be more helpful in comprehensively answering my review question. However, a hierarchy of study design may be a useful indicator of the internal validity of the studies.

At the top of this hierarchy of evidence would be experimental studies, such as RCTs, which aim to randomise samples and control variables where possible. The intention is to provide increased internal validity; making any findings more reliable, and more warrant to the conclusions drawn. Ergo, studies with less control over sample and measures can be less sure of their internal validity in comparison. However, this does not negate studies of this nature, with observational studies potentially having more external validity (Petticrew & Roberts, 2006). There presents, in a sense, a trade-off between internal and external validity, with both being important.

Effect size is another aspect that can be considered when seeking to establish the internal validity of studies (Petticrew & Roberts, 2006). Effect size gives an indication of the magnitude of a significant finding to enable the reader to assess its importance, and compare to similar studies (Baguley, 2009). However, establishing and calculating effect size can be complicated as there are numerous measures available (op cit). This is especially pertinent for this systematic review as it contains studies of different designs.

Table 4's effect size column reports different measures of effect size dependent on the study design. For example, an RCT compares two groups: an intervention and a control, and therefore a d statistic could be calculated as this compares two means (op cit). An observational study on the other hand may look at multiple variables thus requiring multi-level analysis. Therefore a different statistic would be required such as percentage of the variance explained, an r or a β statistic (op cit).

In terms of comparing effect sizes, as previously mentioned, this is challenging when there are different measures involved. Even when calculating a particular measure of effect size e.g. Cohen's d , there are different ways of doing so that can impact on the stability of the measure (Baguley, 2009). Therefore caution should be used when comparing effect sizes, whether this is one particular measure or different measures. I have established and compared findings

across studies using the terms of small, medium and large effect size. This is based on existing literature on interpreting effect size, more detail of which can be found in Appendix 5.2.

One study reported and discussed effect sizes, eight did not directly report but had the information to establish effect sizes (grey text in Table 4), and two neither reported effect sizes nor provided any data which would enable its calculation. Therefore the two studies where effect size could not be established should be interpreted with caution, as the strength of significant findings cannot be determined. For the nine articles where effect sizes were available: two reported large effects, four reported medium/small effects, one reported small effects, and two reported small-large effects. These effect sizes indicate the importance of the significant findings, with more weighting given to those with large effects.

The effect size information can be coupled with that relating to study design. Two of the studies were RCTs and nine were observational designs, and within this nine studies had controls to varying degrees. All of this information starts to build a picture of reliability, with some studies having to be interpreted with caution due to no controls in their design, and small or no effect sizes.

Table 4: Detail about the measures, findings and effect sizes reported for the eleven identified articles.

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
Study: Bierman et al. (2013)				
<p><u>Control condition:</u></p> <ul style="list-style-type: none"> • ‘Usual practice’ Head Start group <p><u>Demographic information:</u></p> <ul style="list-style-type: none"> • Parent interviews to establish... • Family income-to-needs ratio • Child age • Child gender • Race <p><u>School context:</u></p> <ul style="list-style-type: none"> • Location of Head Start setting • REDI Intervention locations <p><u>Pre-intervention assessments:</u></p> <ul style="list-style-type: none"> • Outcome measures used where possible • Elision, Blending, and Print Awareness subtests in the Test of Preschool Early Literacy • Parent ratings of child behaviour • Cognitive ability subtests: Block Design (WPPSI-III), Vocabulary (EOWPVT), Executive Functioning – Backward Word Span, Peg Tapping, Dimensional Change Card Sort, Walk-a-Line Slowly, 	<p><u>Intervention Condition:</u></p> <p>Research-based Developmentally Informed (REDI) Head Start group</p>	<p><u>Language and Emergent Literacy:</u></p> <ul style="list-style-type: none"> • The Expressive One-Word Picture Vocabulary Test (EOWPVT) • The Letter-Word Identification subscale of the Woodcock-Johnson Tests of Achievement III-Revised • Test of Word Reading Efficiency (TOWRE) subtests: Sight Word Efficiency, and Phonemic Decoding Efficiency <p><u>Learning Engagement:</u></p> <ul style="list-style-type: none"> • REDI Project School Readiness Questionnaire to assess self-regulation and learning motivation • Attention Deficit 	<p><u>Language and Emergent Literacy:</u></p> <ul style="list-style-type: none"> • Main effect of REDI on Phonemic Decoding Efficiency, $\beta = 0.25$, $p < 0.05$ • Main effect of the Kindergarten Context – Teacher-Student Interactions on Letter-Word Identification, $\beta = 0.14$, $p < 0.01$ and Sight Word Efficiency, $\beta = 0.13$, $p < 0.05$ • Main effect of Kindergarten Context – Reading Curriculum Emphasis on Letter-Word Identification, $\beta = 0.43$, $p < 0.01$ and Sight Word Efficiency, $\beta = 0.33$, $p < 0.05$ • Main effect of Kindergarten Context – School Achievement on Letter-Word Identification, $\beta = 0.31$, $p < 0.05$ <p><u>Learning Engagement:</u></p> <ul style="list-style-type: none"> • Main effect of REDI on Learning Behaviours, $\beta = 0.28$, $p < 0.05$ • Main effect of Kindergarten 	<p>Cohen’s <i>d</i> reported and explained:</p> <p>The intervention-control group differences were small to moderate, with effect sizes ranging from 0.22 to 0.40 for the significant main effects.</p> <p>The sustained effects of the REDI intervention – through to kindergarten - were mainly in the social-emotional domain:</p> <ul style="list-style-type: none"> • Teacher ratings of learning behaviours pre-kindergarten $d = 0.11$ small kindergarten $d = 0.28$ small/medium • Children’s competent social problem-solving skills pre-kindergarten $d = 0.35$ medium kindergarten $d = 0.40$ medium • Teacher rated aggression pre-kindergarten $d = -0.28$

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results $p < 0.05$	Effect size
<p>Adapted Leiter-R Assessor Report</p> <p><u>Kindergarten Context:</u></p> <ul style="list-style-type: none"> • CLASS Observation Tool to assess teacher-student interaction quality • Teacher rating of didactic literacy instructional practices to establish the quantity of reading instruction • Standardised tests records for the state on literacy and maths provided school student achievement levels 		<ul style="list-style-type: none"> • Hyperactivity Disorder (ADHD) Rating Scale <p><u>Social Competence:</u></p> <ul style="list-style-type: none"> • Challenging Situations Task • Social Competence Scale <p><u>Aggressive Disruptive Behaviours:</u></p> <ul style="list-style-type: none"> • Challenging Situations Task • Part of the Teacher Observation of Child Adaptation-Revised (TOCA-R) 	<p>Context – Reading Curriculum Emphasis, $\beta = 0.27$, $p < 0.05$</p> <ul style="list-style-type: none"> • Significant effect of the REDI for Low Achieving Schools for Attention Problems – Teacher Rating, $\beta = 0.75$, $p < 0.01$ and Attention Problems – Parent Rating, $\beta = 0.46$, $p < 0.01$ <p><u>Child Social Competence:</u></p> <ul style="list-style-type: none"> • Main effect of REDI on Competent Problem Solving, $\beta = 0.40$, $p < 0.01$ • Main effect of Kindergarten Context – Reading Curriculum Emphasis on Social Competence – Teacher Rating, $\beta = 0.28$, $p < 0.05$ • Main effect of Kindergarten Context – School Achievement on Competent Problem Solving, $\beta = 0.36$, $p < 0.05$ • Significant effect of the REDI for higher quality contexts as measured by Teacher-Student Interactions for Competent Problem Solving, $\beta = 0.27$, $p < 0.05$ • Significant effect of the REDI for Low Achieving Schools for Social Competence – Teacher Rating, $\beta = -$ 	<p>small/medium kindergarten $d = -0.25$ small</p> <ul style="list-style-type: none"> • Parent rated aggression pre-kindergarten $d = -0.13$ small kindergarten $d = -2.0$ small • Teacher-rated social competence for low achieving schools pre-kindergarten $d = 0.24$ small kindergarten $d = 0.26$ small

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
			<p>0.94, p<0.01</p> <p><u>Child Aggressive Behaviour:</u></p> <ul style="list-style-type: none"> • Main effect of REDI on Aggression – Teacher Rating, $\beta = -0.26$, p<0.05 • Main effect of REDI on Aggression – Parent Rating, $\beta = -0.22$, p<0.05 • Main effect of Kindergarten Context – School Achievement on Aggressive Problem Solving, $\beta = -0.30$, p<0.05 • Significant effect of the REDI for Low Achieving Schools on Aggression – Teacher Rating, $\beta = 0.79$, p<0.01 <p>Results controlling for post-intervention scores, to isolate change in kindergarten rather than pre-kindergarten:</p> <p><u>Language and Emergent Literacy:</u></p> <ul style="list-style-type: none"> • Main effect of the Kindergarten Context – Teacher-Student Interactions on Letter-Word Identification, $\beta = 0.14$, p<0.01 and Sight Word Efficiency, $\beta = 0.13$, p<0.05 • Main effect of Kindergarten Context – Reading Curriculum 	

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
			<p>Emphasis on Letter-Word Identification, $\beta = 0.37$, $p < 0.01$ and Sight Word Efficiency, $\beta = 0.29$, $p < 0.05$</p> <ul style="list-style-type: none"> • Significant effect of the REDI on Schools with a de-emphasis on Reading for Vocabulary, $\beta = -0.40$, $p < 0.05$ <p><u>Learning Engagement:</u></p> <ul style="list-style-type: none"> • Main effect of Kindergarten Context – Reading Curriculum Emphasis, $\beta = 0.28$, $p < 0.05$ • Significant effect of the REDI for Low Achieving Schools for Attention Problems – Teacher Rating, $\beta = 0.64$, $p < 0.05$ <p><u>Child Social Competence:</u></p> <ul style="list-style-type: none"> • Main effect of REDI on Competent Problem Solving, $\beta = 0.31$, $p < 0.05$ • Main effect of Kindergarten Context – Reading Curriculum Emphasis on Social Competence – Teacher Rating, $\beta = 0.28$, $p < 0.05$ • Main effect of Kindergarten Context – School Achievement on Competent Problem Solving, $\beta = 0.36$, $p < 0.05$ 	

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
			<ul style="list-style-type: none"> • Significant effect of the REDI for Low Achieving Schools for Social Competence – Teacher Rating, $\beta = -0.96$, $p < 0.01$ <p><u>Child Aggressive Behaviour:</u></p> <ul style="list-style-type: none"> • Main effect of Kindergarten Context – School Achievement on Aggressive Problem Solving, $\beta = -0.36$, $p < 0.05$ • Significant effect of the REDI for higher quality contexts as measured by Teacher-Student Interactions for Competent Problem Solving, $\beta = -0.64$, $p < 0.05$ • Significant effect of the REDI for Low Achieving Schools on Aggression – Teacher Rating, $\beta = 0.85$, $p < 0.01$ 	
Study: Caughlan et al. (2013)				
<p><u>Basic contextual information</u> was gathered from coded documents submitted by teachers, and included detail on:</p> <ul style="list-style-type: none"> • Course • Grade level • Type of school • Demographics 	<p><u>Focal data</u> for the study measures were gathered from the following coded documents submitted by teachers:</p> <ul style="list-style-type: none"> • Lesson plans • Contextualising materials • Video transcripts 	<p><u>Focal data</u> for the study measures were gathered from the following coded documents submitted by teachers:</p> <ul style="list-style-type: none"> • Lesson plans • Contextualising materials • Video transcripts 	<p>The relationship between planning for dialogically organised instruction and teachers' dialogic discourse moves:</p> <ul style="list-style-type: none"> • Significant positive correlation between the <i>total number of dialogic tools used</i> and <i>teacher authentic questions</i> Spearman's Rho (ρ) = 0.15, $p < 0.05$ 	<p>Effect size not directly reported or explained</p> <p>r squared was provided with the data for the statistical modelling: <u>Model 1</u> - Constant and student-led dialogic tools with prevalence of student utterances</p>

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results $p < 0.05$	Effect size
<ul style="list-style-type: none"> • Instructional focus • Activities • Content 	<ul style="list-style-type: none"> • Reflections <p><u>The number and kind of dialogic tools</u> in planning was coded into:</p> <ul style="list-style-type: none"> • Categories of tools • Kinds of tools • Teacher-led or student-led tools <p><u>The nature of teacher instructional discourse</u> was coded into:</p> <ul style="list-style-type: none"> • Teacher use of authentic questions • Teacher use of non-authentic questions • Teacher uptake • Teacher re-voicing of student utterances 	<ul style="list-style-type: none"> • Reflections <p><u>The extent of student participation</u> in classroom discourse was measured through:</p> <ul style="list-style-type: none"> • Ratio of student to teacher utterances, where utterances were distinguished by a change in speaker 	<ul style="list-style-type: none"> • Significant positive correlation between the <i>total number of dialogic tools used</i> and <i>teacher uptake</i> $p = 0.17, p < 0.01$ <p>The relationship between dialogic tools and student participation in classroom discourse:</p> <ul style="list-style-type: none"> • Significant association between the <i>use of dialogic tools</i> and <i>student participation in the classroom</i> $p = 0.32, p < 0.001$ • Significant association between <i>student-led dialogic tools</i> and <i>student participation in the classroom</i> $p = 0.32, p < 0.001$ <p>The effect of dialogic tools on the nature of teacher questions and student participation in classroom discourse:</p> <ul style="list-style-type: none"> • Model 1 – <i>Constant</i> $p = 0.54, p < 0.001$ and <i>student-led dialogic tools</i> $p = 0.070, p < 0.001$, were significantly associated with <i>prevalence of student utterances</i> $r^2 = 0.205$ • Model 2 – <i>Constant</i> $p = 0.49, p < 0.001$, <i>student-led dialogic tools</i> p 	<p>$r^2 = 0.205$ large</p> <p><u>Model 2</u> – Constant, student-led dialogic tools, teacher authentic questions, and teacher uptake with prevalence of student utterances</p> <p>$r^2 = 0.187$ large</p> <p><u>Model 3</u> – Constant, student-led dialogic tools, teacher authentic questions, teacher uptake, and control variables</p> <p>$r^2 = 0.249$ large</p> <p><u>Model 4</u> could not be compared to the other models due to including teacher-level variance (see p.242 of article)</p>

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
			<p>= 0.047, p<0.001, and <i>authentic teacher questions</i> $\rho = 0.055$, p<0.01, significantly associated with <i>prevalence of student utterances</i> $r^2 = 0.187$</p> <ul style="list-style-type: none"> • Model 3 - Constant $\rho = 0.44$, p<0.001, <i>student-led dialogic tools</i> $\rho = 0.050$, p<0.001, <i>authentic teacher questions</i> $\rho = 0.060$, p<0.01, and <i>school level</i> $\rho = 0.050$, p<0.001 significantly associated with <i>prevalence of student utterances</i> $r^2 = 0.249$ • Model 4 - Constant $\rho = 0.51$, p<0.001 and <i>student-led dialogic tools</i> $\rho = 0.039$, p<0.001, were significantly associated with <i>prevalence of student utterances</i> $r^2 = 0.513$ 	
Study: Gregory et al. (2014)				
<u>Teacher and Classroom Characteristics</u> – teacher surveys: <ul style="list-style-type: none"> • Teacher age, gender, experience, and race/ethnicity • Classroom size, gender, and racial/ethnic composition <u>Student background information</u> -	Teachers were randomly assigned to the Intervention or Control group: <ul style="list-style-type: none"> • Intervention condition – Teachers received My Teaching Partner-Secondary (MTP-S) 	Outcomes measures were completed in Fall and Spring <u>Observed Teacher Behaviour</u> coded using the CLASS-S system for: <ul style="list-style-type: none"> • Positive Climate 	<u>Teachers' participation</u> in the MTP-S intervention: <ul style="list-style-type: none"> • Significantly associated with student engagement, $\beta = 0.23$, p<0.05 • Significant effect on Instructional Learning Formats, $\beta = 0.22$, p<0.05 	Effect size not directly reported or discussed r^2 change was reported and can be interpreted as an effect size, Cohen's <i>d</i> could be calculated for some: <ul style="list-style-type: none"> • MTP-S on student

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
<p>school records:</p> <ul style="list-style-type: none"> Percentage of low income students Average baseline achievement 	<p>Program</p> <ul style="list-style-type: none"> Control condition – Teachers received “business as usual” Professional Development 	<ul style="list-style-type: none"> Teacher Sensitivity Regard for Adolescent Perspective Instructional Learning Formats Analysis and Problem-Solving <p><u>Observed Student Engagement</u> coded using the CLASS-S system for:</p> <ul style="list-style-type: none"> Student Behavioural Engagement 	<ul style="list-style-type: none"> Significant effect on Analysis and Problem Solving, $\beta = 0.25$, $p < 0.05$ Significant effect on Instructional Learning Formats for classrooms with more Low Income Children, $\beta = -0.25$, $p < 0.05$ <p><u>Indirect effects</u> of Teachers’ participation in the MTP-S intervention:</p> <ul style="list-style-type: none"> Significant indirect effect of Instructional Learning Formats on Engagement, $a \times b = 0.13$, $p < 0.05$ Significant indirect effect of Analysis and Problem Solving on Engagement, $a \times b = 0.12$, $p < 0.05$ 	<p>engagement, r squared change = 0.04 small/medium, $d = 0.1$ small</p> <ul style="list-style-type: none"> MTP-S on Instructional Learning Formats, r squared change = 0.04 small/medium, $d = 0.1$ small MTP-S on Analysis and Problem-Solving, r-squared change = 0.06 medium, $d = 0.01$ small MTP-S on Instructional Learning Formats for Low Income Children, r-squared change = 0.6 medium <p>Indirect effects of MTP-S</p> <ul style="list-style-type: none"> Instructional Learning Formats on Engagement (CI = 0.17, 0.249) Analysis and Problem-Solving on Engagement (CI = 0.14, 0.213)
Study: Kelly (2007)				
<p><u>Teacher characteristics:</u></p> <ul style="list-style-type: none"> Years of teaching experience Postgraduate qualifications <p><u>Measures of multidimensional</u></p>	<p><u>Measures of teachers’ dialogic instruction:</u></p> <ul style="list-style-type: none"> Data obtained from observational data using 	<p><u>Measures of student engagement:</u></p> <ul style="list-style-type: none"> Participation – number of instances of asking 	<p>Inequality in participation in classroom discourse as a function of teacher attitudes, implementation of dialogic instruction, task diversity, organisation</p>	<p>Not reported, no raw data to calculate.</p>

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
<p><u>instruction:</u></p> <ul style="list-style-type: none"> • High task autonomy • Whole class instruction <p><u>Initial achievement:</u></p> <ul style="list-style-type: none"> • Reading achievement score from a reading assignment • Writing achievement score from a writing assignment <p><u>Student background:</u></p> <ul style="list-style-type: none"> • Student questionnaire to gather details on ethnicity, family educational attainment, family occupational attainment, and the family resources of the students' parents 	<p>the CLASS system</p> <ul style="list-style-type: none"> • Teacher questions were tracked based on – response, authenticity, uptake, cognitive level, and nature or response to student questions <p><u>Teacher attitudes and reports of instructional practice:</u></p> <ul style="list-style-type: none"> • Data collected using teacher questionnaire • Three factors included which were Individualised Instruction, Working with Student Limitations, Transmission of Established Knowledge 	<p>and answering questions through use of the CLASS observation tool</p> <ul style="list-style-type: none"> • Effort – four measures of student effort in English and language arts through use of a year-end student questionnaire 	<p>of instruction, and background characteristics:</p> <ul style="list-style-type: none"> • Significant association of dialogic instruction – discussion, Gini coefficient = 0.82, p<0.01 • Significant association of dialogic instruction – number of questions, Gini coefficient = -0.32, p<0.001 • Significant association of teacher characteristic – years of experience, Gini coefficient = -0.0037, p<0.01 • Significant association of teacher characteristic – postgraduate qualification, Gini coefficient = 0.72, p<0.01 <p>Inequality in student effort on classroom tasks as a function of teacher attitudes, implementation of dialogic instruction, task diversity, organisation of instruction, and background characteristics:</p> <ul style="list-style-type: none"> • Significant association of attitude measure – transmission of established knowledge, Gini coefficient = 0.0046, p<0.05 • Significant association of dialogic 	

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results $p < 0.05$	Effect size
			<p>instruction – authentic questions, Gini coefficient = -0.055, $p < 0.001$</p> <ul style="list-style-type: none"> • Significant association of dialogic instruction – uptake, Gini coefficient = -0.069, $p < 0.01$ • Significant association of dialogic instruction – elaborated response, Gini coefficient = -0.067, $p < 0.05$ • Significant association of dialogic instruction – high level questions, Gini coefficient = -0.055, $p < 0.001$ <p>Inequality in participation in classroom discourse due to differentials in reading and writing skills as a function of teacher attitudes, implementation of dialogic instruction, task diversity, organisation of instruction, and background characteristics:</p> <ul style="list-style-type: none"> • Significant association of dialogic instruction – polarity of cognitive level, Gini coefficient = 0.47, $p < 0.05$ <p>Inequality in student effort due to differentials in reading and writing skills as a function of teacher attitudes, implementation of dialogic instruction, task diversity, organisation of instruction, and background</p>	

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
			characteristics: <ul style="list-style-type: none"> • Significant association of attitude – transmission of established knowledge, Gini coefficient = 0.39, p<0.05 • Significant association of dialogic instruction – uptake, Gini coefficient = -0.52, p<0.01 • Significant association of dialogic instruction – high level questions, Gini coefficient = -0.34, p<0.01 • Significant association of unidimensional instruction – high task autonomy, Gini coefficient = 0.099, p<0.05 • Significant association of unidimensional instruction – whole-class organisation of instruction, Gini coefficient = -0.009, p<0.05 	
Study: Malmberg et al. (2010)				
	<u>Change over time:</u> <ul style="list-style-type: none"> • Classroom quality • Individual differences <u>Teacher characteristics:</u> <ul style="list-style-type: none"> • Gender • Age 	<u>Classroom quality – CLASS observation tool:</u> <ul style="list-style-type: none"> • Emotional support • Instructional support • Organisational support • Student engagement 	<u>Change over time:</u> Classroom quality <ul style="list-style-type: none"> • Organisational support (OS) increased significantly over time $\beta = 0.175$, p<0.05 • Emotional support (ES) was an 	Effect size not directly reported or explained. Standardised regression coefficients were reported (β or r), which can be interpreted as effect size r:

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
	<ul style="list-style-type: none"> Teaching subject <u>Contextual factors:</u> <ul style="list-style-type: none"> Class size Year group 		<p>inverted U- shape $\beta = -0.201$, $p < 0.05$</p> <p>Individual differences</p> <ul style="list-style-type: none"> ES $p < 0.05$ OS $p < 0.05$ Student Engagement (SE) $p < 0.001$ <p><u>Teacher characteristics:</u></p> <ul style="list-style-type: none"> English and Science teachers provided higher level of ES than Maths teachers $p < 0.05$ Students were more engaged in English and Science $p < 0.05$ Older teachers provided a higher level of Instructional Support (IS) $p < 0.05$ <p><u>Classroom Contexts:</u></p> <ul style="list-style-type: none"> ES lower in older year groups $p < 0.05$ ES higher in larger student groups $p < 0.01$ Students more engaged in larger groups $p < 0.05$ Larger classes more common for younger students $r = -0.50$, $p < 0.05$ <p><u>Student Engagement:</u></p> <ul style="list-style-type: none"> ES $\beta = 0.64$, $p < 0.001$ OS $\beta = 0.42$, $p < 0.001$ IS $\beta = 0.48$, $p < 0.001$ 	<ul style="list-style-type: none"> OS over Time, $\beta = 0.175$ small ES over Time, $\beta = -0.201$ small Classes more common for younger students, $r = -0.50$ large Student Engagement and ES $\beta = 0.64$ large Student Engagement and OS $\beta = 0.42$ large Student Engagement and IS $\beta = 0.48$ large <p>% of the variance explained was provided for models:</p> <p>Emotional Support Time = 0.51% $r^2 = 0.0051$ small</p> <p>Teacher Characteristics = 0.09% $r^2 = 0.0009$ small</p> <p>Student Engagement = 0.44% $r^2 = 0.0044$ small</p> <p>Instructional Support Teacher characteristics = 0.06% $r^2 = 0.0006$ small</p> <p>Student Engagement = 0.48% $r^2 = 0.0048$ small</p>

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
			<ul style="list-style-type: none"> • High level of IS created less variability in SE p<0.001 • SE varied from lesson to lesson p<0.001 	Organisational Support Time = 0.56% r squared = 0.0056 small Student Engagement = 0.53% r squared = 0.0053 small Student Engagement Teacher = 0.31% r squared = 0.0031 small
Study: McElhone (2012)				
<u>Background Information:</u> <ul style="list-style-type: none"> • Teacher and School information • Fiscal • Demographic • Performance data 	Classroom Observations of Teacher Talk - Videotaped Observation coded into the following <u>Discourse Patterns</u> : <ul style="list-style-type: none"> • High Press • Expanded High Press • Sustained High Press • Reducing Press • Strategy Instruction 	All outcome measures done in Fall and again in Spring. <u>Reading Comprehension Achievement:</u> <ul style="list-style-type: none"> • Comprehension subtest of the Gates-MacGinitie Reading Test, Fourth Edition (GMRT) <u>Affective Reading Engagement:</u> <ul style="list-style-type: none"> • Abridged form of the Motivations for Reading Questionnaire (MRQ) <u>Cognitive Reading Engagement:</u> <ul style="list-style-type: none"> • Metacognitive Awareness of Reading Strategies Inventory 	<u>Reading Comprehension Achievement:</u> <ul style="list-style-type: none"> • Reducing Press Discourse was a significant negative predictor, coefficient = -95.16 p<0.01 • Strategy Instruction was a significant negative predictor, coefficient = -62.64 p<0.01 • Student Pre-test was a significant predictor, coefficient = 0.75 p<0.01 <u>Affective Reading Engagement:</u> <ul style="list-style-type: none"> • Student Pre-test was a significant predictor, coefficient = 0.43 p<0.01 <u>Cognitive Reading Engagement:</u> <ul style="list-style-type: none"> • Student Pre-test was a significant predictor, coefficient = 0.36 p<0.01 <u>Behavioural Reading Engagement:</u> <ul style="list-style-type: none"> • A higher proportion of 4th graders in mixed 4th and 5th grade classes 	Effect size not directly reported or discussed. Cohen's <i>d</i> could be calculated for the pre and post-test where significant predictors were found. However these predictors are not in isolation, which multiple variables inputted in each model: <ul style="list-style-type: none"> • Reading Comprehension Achievement <i>d</i> = -0.23 small • Affective Reading Engagement <i>d</i> = 0.14 small • Cognitive Reading Engagement <i>d</i> = 0.06 small • Behavioural Reading Engagement <i>d</i> = 0.04 small

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
		(MARSI) <u>Behavioural Reading Engagement:</u> <ul style="list-style-type: none"> The Reading Activity Inventory (RAI) 	was a significant predictor, coefficient = 0.19 p<0.01 <ul style="list-style-type: none"> Student Pre-test was a significant predictor, coefficient = 0.30 p<0.01 	
Study: National Institute of Child Health and Human Development Early Child Care Research Network (2005) – NICHD ECCRN.				
	<u>Classroom Observations:</u> <ul style="list-style-type: none"> Using the Classroom Observation System for Third Grade (COS-3) Focus on the classroom in terms of activities and the experiences of specific children through their interactions with the teacher Time sampled observation using codes for aspects such as; setting, activities, teacher behaviour, child engagement More specific coding was used for specific activities such as literacy: word level, and comprehension Global rating on classroom 		Child Engagement and Academic Activities on offer: <ul style="list-style-type: none"> Significant association $r = 0.376$, $p < 0.001$ Child Engagement and Non-academic Activities on offer: <ul style="list-style-type: none"> Significant negative association $r = -0.422$, $p < 0.001$ Child Engagement and a more Positive Classroom Climate: <ul style="list-style-type: none"> Significant association $r = 0.336$, $p < 0.001$ 	Effect size not directly reported or explained. r statistic reported: <ul style="list-style-type: none"> Child Engagement and Academic Activities $r = 0.376$ large Child Engagement and Non-academic Activities $r = -0.422$ large Child Engagement and Positive Classroom Climate $r = 0.336$ large

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
	<p>quality, teacher and child behaviours during 5-10 minutes before and after the time sampled session</p> <p><u>Teacher and Classroom Characteristics:</u></p> <ul style="list-style-type: none"> • Questionnaire to gather information on experience, salary, training and perception of support • The Teaching Self-Efficacy Scale was also completed 			
Study: Ponitz et al. (2009)				
<p><u>Family socio-demographic characteristics:</u></p> <ul style="list-style-type: none"> • Parental questionnaire 	<p><u>Observed classroom quality:</u></p> <ul style="list-style-type: none"> • CLASS observation tool <p><u>Children’s classroom engagement:</u></p> <ul style="list-style-type: none"> • Adaptation of the Observed Child Engagement Scale • Time sampled live observations of off-task behaviour, codes adapted from the Classroom Observation Scale • Teachers’ Self-Control Rating Scale <p><u>Direct assessment of</u></p>		<p>Structural equation modelling established a model to explain the data:</p> <ul style="list-style-type: none"> • This was Model 3, chi-squared (χ^2) = 67(degrees of freedom 36) <p>Within the Model 3 there was:</p> <ul style="list-style-type: none"> • Significant effect of Classroom Quality (CQ) on Engagement (E) - standardised coefficient $\beta = 0.16$, $p < 0.05$ • Significant effect of Risk (R) on Engagement (E) – standardised coefficient $\beta = -0.16$, $p < 0.05$ • Significant effect of Fall Reading (FR) 	<p>Effect size not directly reported or explained.</p> <p>Standardised regression coefficient beta (β) reported, which can be interpreted as a standardised effect size equivalent to r:</p> <p>Classroom Quality on Engagement $\beta = 0.16$ small</p> <p>Risk on Engagement $\beta = -0.16$ small</p>

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
	<u>achievement:</u> <ul style="list-style-type: none"> • Two subtests from the Woodcock-Johnson III Tests of Achievement • Letter-word Identification sub-test • Sound Awareness subtest • Subtests completed in fall and spring 		<p>on Spring Reading (SR) - standardised coefficient $\beta = 0.81$, $p < 0.05$</p> <ul style="list-style-type: none"> • Significant effect of Engagement (E) on Spring Reading (SR) - standardised coefficient $\beta = 0.18$, $p < 0.05$ 	<p>Fall Reading on Spring Reading $\beta = 0.81$ large</p> <p>Engagement on Spring Reading $\beta = 0.18$ small</p>
Study: Skinner et al. (2008)				
<p>School Grade:</p> <ul style="list-style-type: none"> • 4, 5, 6, 7 <p>Gender:</p> <ul style="list-style-type: none"> • boys, girls 	<p>All measures completed in Spring and Fall</p> <p><u>Behavioural and Emotional Engagement versus Disaffection:</u></p> <ul style="list-style-type: none"> • Student report on their behavioural and emotional participation in learning activities within the classroom <p><u>Perceived Competence and Control:</u></p> <ul style="list-style-type: none"> • The Control Beliefs subscale of the Student Perceptions of Control Questionnaire <p><u>Autonomy Orientation:</u></p>		<p><u>Grade differences and changes in Engagement and Disaffection:</u></p> <ul style="list-style-type: none"> • Profiles of Engagement differed by grade $f(12, 2111) = 8.64$, $p < 0.01$ <p><u>Internal dynamics among indicators of Engagement versus Disaffection</u></p> <ul style="list-style-type: none"> • Significant predictor of bored disaffected emotion on behavioural engagement $\beta = -0.23$, $p < 0.001$ • Significant predictor of anxious disaffected emotion on behavioural engagement $\beta = -0.10$, $p < 0.001$ • Significant predictor of frustrated disaffected emotion on behavioural engagement $\beta = -0.12$, $p < 0.001$ • Significant predictor of bored disaffected emotion on behavioural 	<p>Effect size not directly reported or discussed.</p> <p>Standardised regression coefficient beta (β or r) reported, which can be interpreted as a standardised effect size equivalent to r:</p> <ul style="list-style-type: none"> • Bored Disaffected Emotion (DE) on Behavioural Engagement (BE) $\beta = -0.23$ medium • Anxious DE on BE $\beta = -0.10$ small • Frustrated DE on BE $\beta = -0.12$ small • Bored DE on Behavioural

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results $p < 0.05$	Effect size
	<ul style="list-style-type: none"> The Autonomy Scale <p><u>Sense of Relatedness:</u></p> <ul style="list-style-type: none"> Student report on sense of belonging and relatedness to their teachers <p><u>Teacher Support – Student Report:</u></p> <ul style="list-style-type: none"> Student report on the involvement, structure, and autonomy support they received from their teachers <p><u>Teacher Support – Teacher Report:</u></p> <ul style="list-style-type: none"> Teacher report on the involved, structure, and autonomy support they provided to each child 		<p>disaffection $\beta = 0.18, p < 0.01$</p> <ul style="list-style-type: none"> Significant predictor of anxious disaffected emotion on behavioural disaffection $\beta = 0.08, p < 0.01$ Significant predictor of frustrated disaffected emotion on behavioural engagement $\beta = 0.09, p < 0.01$ Significant predictor of behavioural engagement on bored disaffected emotion $\beta = -0.08, p < 0.01$ Significant predictor of behavioural disaffection on bored disaffected emotion $\beta = 0.12, p < 0.001$ Significant predictor of behavioural disaffection on anxious disaffected emotion $\beta = 0.14, p < 0.001$ Significant predictor of behavioural disaffection on frustrated disaffected emotion $\beta = 0.12, p < 0.001$ The feedforward effect of emotional engagement on changes in behavioural engagement was significantly greater than the coefficient depicting the feedback effect of behavioural engagement $t = 2.90, p < 0.01$ 	<p>Disaffection (BD) $\beta = 0.18$ small</p> <ul style="list-style-type: none"> Anxious DE on BD $\beta = 0.08$ small Frustrated DE on BE $\beta = 0.09$ small BE on Bored DE $\beta = -0.08$ small BD on Bored DE $\beta = 0.12$ small BD on Anxious DE $\beta = 0.14$ small BD on Frustrated DE $\beta = 0.12$ small Relatedness on Boredom $\beta = -0.08$ small Autonomy on Boredom $\beta = -0.15$ small Perceived Control on Anxiety $\beta = -0.08$ small Autonomy on Frustration $\beta = -0.15$ small Student reports on Engagement average $r = 0.53$ large

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
			<p><u>Potential facilitators of Engagement:</u> <u>Self-System Processes (SSPs):</u></p> <ul style="list-style-type: none"> • Correlations among the four indicators of engagement and three SSPs within the two time points where all in the predicted direction and significant at p<0.001 • Significant predictor of relatedness on boredom $\beta = -0.08$, p<0.05 • Significant predictor of autonomy on boredom $\beta = -0.15$, p<0.001 • Significant predictor of perceived control on anxiety $\beta = -0.08$, p<0.05 • Significant predictor of autonomy on frustration $\beta = -0.15$, p<0.001 <p><u>Potential facilitators of Engagement:</u> <u>Teacher Supportive Context:</u></p> <ul style="list-style-type: none"> • Student reports and teacher reports on support provided by teachers were correlated with the four indicators of engagement within the two time points to p<0.05 • Student reports were more highly correlated with the four indicators of engagement average $r = 0.53$ than teacher reports average $r =$ 	<ul style="list-style-type: none"> • Teacher reports on Engagement average $r = 0.17$ small • Student Reports of Teacher Support on Boredom $\beta = -0.14$ small • Student Reports of Teacher Support on Frustrations $\beta = -0.09$ small • Teacher Reports of Teacher Support on Behavioural Engagement $\beta = 0.07$ small • Student Report of Teacher Support on Behavioural Engagement $\beta = 0.22$ small/medium • Teacher Support and SSPs on Behavioural Engagement $\beta = 0.13$ small • SSPs on Behavioural Engagement $\beta = 0.15$ small • SSPs on Emotional Engagement $\beta = 0.14$ small • SSPs on Behavioural Disaffection $\beta = -0.12$ small

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results $p < 0.05$	Effect size
			<p>0.17</p> <ul style="list-style-type: none"> • Significant predictor of student reports of teacher support on boredom $\beta = -0.14, p < 0.001$ • Significant predictor of student reports of teacher support on frustrations $\beta = -0.09, p < 0.001$ • Significant predictor of teacher reports of teacher support on behavioural engagement $\beta = 0.07, p < 0.05$ <p><u>Process models of potential facilitators of engagement:</u></p> <ul style="list-style-type: none"> • Significant effect of student report of teacher support on behavioural engagement $\beta = 0.22, p < 0.001$ • Significant effect of teacher support and self-system processes on behavioural engagement $\beta = 0.13, p < 0.05$ • Significant effect of self-system processes on behavioural engagement $\beta = 0.15, p < 0.01$ • Significant effect of self-system processes on emotional engagement $\beta = 0.14, p < 0.001$ • Significant effect of self-system 	

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
			processes on behavioural disaffection $\beta = -0.12, p < 0.001$	
Study: Test and Cornelius-White (2013)				
	Child Engagement: <ul style="list-style-type: none"> • Observation – Engagement codes Child Talk: <ul style="list-style-type: none"> • Observation – Talk codes Child Attention: <ul style="list-style-type: none"> • Observation – Attention codes 		<u>Before engagement:</u> More likely than expected by chance to... <ul style="list-style-type: none"> • Talk to peer about new activity • Watch peer in new activity • Be alone • Be with teacher • Wander • Follow peer • Move purposefully to new area <u>During first few minutes of engagement:</u> More likely than expected by chance to... <ul style="list-style-type: none"> • Talk to teacher on topic • Watch peer in new activity • Watch teacher talk • Be alone • Be with teacher <u>During engagement:</u> More likely than expected by chance to... <ul style="list-style-type: none"> • Talk to self on topic • Talk to and from peer on topic • Be with peers 	Not reported, no raw data to calculate.

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
			<ul style="list-style-type: none"> • Be with teacher <u>Minutes before disengagement:</u> More likely than expected by chance to... <ul style="list-style-type: none"> • Talk to self on topic • Talk to peer about new activity • Teacher talk about new topic • Watch peer in new activity • Be alone <u>Disengage:</u> More likely than expected by chance to... <ul style="list-style-type: none"> • Teacher talk to child <u>Not engaged:</u> More likely than expected by chance to... <ul style="list-style-type: none"> • Teacher talk to child • Watch peer in new activity • Be with teacher • Wander • Follow peer • Move purposefully to new area All likelihoods are p<0.05	
Study: Williford, Maier, et al. (2013)				
Child demographic information: <ul style="list-style-type: none"> • Age • Ethnicity 	Quality of individual children's engagement: <ul style="list-style-type: none"> • inCLASS observation tool 	School Readiness: Language - receptive and expressive vocabulary	Significant outcomes for <i>positively-engaged</i> children compared to <i>typically-engaged</i> children:	Effect size: coefficient x s.d. predictor/s.d. for outcome Cohen's <i>d</i> convention:

Control measures and/or conditions	Measures and/or conditions	Outcome measures	Results p<0.05	Effect size
<ul style="list-style-type: none"> • Gender • Background Teachers' professional and classroom demographic survey	Quality of teacher-child interactions: <ul style="list-style-type: none"> • CLASS observation tool 	<ul style="list-style-type: none"> • Peabody Picture Vocabulary Test 3rd Edition • Woodcock-Johnson III Psychoeducation Battery; Picture Vocabulary subtest Emergent literacy - phonological awareness and print knowledge <ul style="list-style-type: none"> • Test of Preschool Early Literacy; Print Knowledge, Phonological Awareness, and Definitional Vocabulary subtests Self-regulation - inhibitory control and working memory <ul style="list-style-type: none"> • Pencil Tap Test • Backward Digit Span subtest 	<ul style="list-style-type: none"> • Expressive Vocabulary (EV) p=0.01 • Working Memory (WM) p=0.02 • Inhibitory Control (IC) p=0.03 Significant outcomes for <i>negatively-engaged</i> children compared to <i>typically-engaged</i> children: <ul style="list-style-type: none"> • Print knowledge (PK) p=0.01 • IC p=0.03 Significant outcomes for <i>CLASS composite</i> (quality of interactions) on <i>engagement</i> : <ul style="list-style-type: none"> • Receptive Vocabulary (RV) p=0.03 • PK p=0.003 • IC p=0.01 Significant interaction between being <i>positively-engaged</i> and the <i>CLASS composite</i> (quality of interactions) for: <ul style="list-style-type: none"> • EV p=0.04 	EV = 0.07 small WM = 0.1 small IC = 0.08 small PK = 0.07 small IC = 0.09 small RV = 0.06 small PK = 0.11 small IC = 0.11 small EV = 0.37 small/medium

1.4.1.3. *Weight of evidence*

After considering the internal validity of the studies through a hierarchy of evidence, I then used the Evidence for Policy and Practice Information (EPPI) weight of evidence tool, which focuses on both the methodological soundness and relevance of studies (EPPI, 2010; Gough, 2007). Aspects of the hierarchy of evidence have intimated that particular studies without control variables or reported effect sizes may have questionable reliability.

Part A of the weight of evidence tool seeks to establish the trustworthiness of the studies by judging their methodological quality (EPPI, 2010). In terms of relevance to a specific review, part B and C assist in deciding this based on methodology and topic. Part B is focused on deciding how appropriate the research design of a study is to providing relevant information to answer the review question (Gough, 2007). Part C is to judge whether the findings from studies are relevant to answering the review question (op cit). An overall judgement is then made in part D, as a combination of the three prior parts (op cit).

Table 5 provides a summary of the weight of evidence tool applied to this review. For this I made a judgement of low (red), medium (orange), or high (green) for each part. The overall judgement (Part D) was based on the predominant level of quality across Parts A, B and C. Thus a study with two of three parts judged as high (green) quality would be rated as high (green) quality overall e.g. Gregory et al. (2014) in Table 5. Although it could be argued that this does not provide an objective account of the studies' quality and relevance, I have been systematic and applied each criterion to each study.

Appendix 5.3 provides an extended version of how I came to the judgements for part A across these studies. Part A contains detailed considerations as it is a generic and non-review specific judgement on quality (Gough, 2007). Appendix 5.3 shows the judgements I made for each study in terms of the twelve different aspects of methodological quality from the EPPI weight of evidence tool (op cit). I used a colour code to help inform my overall judgement, with green shaded cells indicating sound methodological quality, and orange cells indicating concerns around methodological quality. To gain an overall judgment I added up how many green aspects there were out of the twelve indicators of quality with: 0-4 indicating low quality (red), 5-8 demonstrating medium quality (orange), and 9-12 denoting high quality (green).

It can be seen in column D of Table 5, that four studies were judged as medium, and seven as high, in terms of their quality and relevance. Therefore any conclusions drawn should be relevant and I could have confidence in their methodological quality.

Table 5: A summary of the weight of evidence findings for the eleven identified articles.

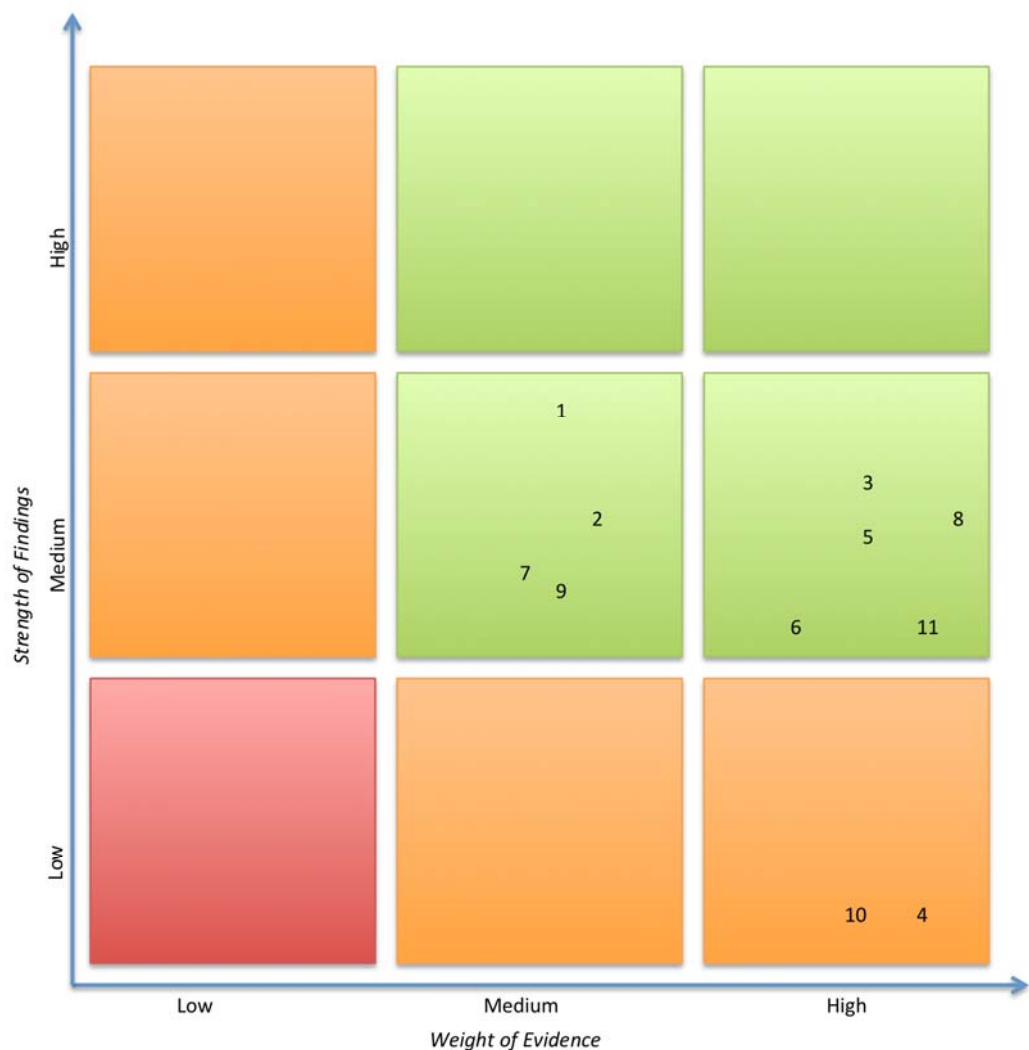
Study	A: Methodological quality	B: Methodological relevance	C: Topic relevance	D: Overall judgement
Bierman et al. (2013)	HIGH	MEDIUM	MEDIUM	MEDIUM
Caughlan et al. (2013)	MEDIUM	HIGH	MEDIUM	MEDIUM
Gregory et al. (2014)	HIGH	MEDIUM	HIGH	HIGH
Kelly (2007)	HIGH	HIGH	HIGH	HIGH
Malmberg et al. (2010)	HIGH	HIGH	MEDIUM	HIGH
McElhone (2012)	MEDIUM	HIGH	HIGH	HIGH
NICHD ECCRN. (2005)	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Ponitz et al. (2009)	HIGH	HIGH	HIGH	HIGH
Skinner et al. (2008)	HIGH	MEDIUM	MEDIUM	MEDIUM
Test and Cornelius-White (2013)	HIGH	MEDIUM	HIGH	HIGH
Williford, Maier, et al. (2013)	HIGH	HIGH	HIGH	HIGH

1.4.2. Step 6: Synthesis of evidence

At this point the critical appraisal of studies has yielded information relating to the hierarchy of evidence and weight of evidence. This has provided detail on the internal validity of studies based on; study design, consideration of the strength of findings based on effect sizes, the methodological quality of the studies, and the relevance these have to answering the review question. It therefore seems logical to map all of this evidence so that a judgement can be made in relation to how far we can trust any findings from the eleven studies.

Figure 2 provides a graphical representation of this information made up of different coloured sections. Those in a green quadrant had a trustworthiness rating of medium to high, where as orange indicated a low trustworthiness rating along with either a medium or high rating, and red had low trustworthiness overall. Figure 2 acts as a visual traffic light in effect, and it highlights that study 10 (Test & Cornelius-White, 2013) and study 4 (Kelly, 2007) have elements of low trustworthiness. This visual synthesis of the critical appraisal thus highlights studies in terms of how far we can trust the findings and conclusions they have reached.

Figure 2: A visual representation of the critical appraisal findings for the eleven identified articles.



Key for Figure 2

- | | |
|----------------------------|--------------------------------------|
| 1 = Bierman et al. (2013) | 7 = NICHD ECCRN. (2005) |
| 2 = Caughlan et al. (2013) | 8 = Ponitz et al. (2009) |
| 3 = Gregory et al. (2014) | 9 = Skinner et al. (2008) |
| 4 = Kelly (2007) | 10 = Test and Cornelius-White (2013) |
| 5 = Malmberg et al. (2010) | 11 = Williford, Maier, et al. (2013) |
| 6 = McElhone (2012) | |

1.5. Findings and Discussion

I now consider the significant findings of the studies with a view to establishing the effects of teacher-child interactions on children's engagement. Along with presentation of the studies' findings, I will consider how these fit with the wider literature, and highlight to what degree I can trust the findings based on my appraisal evidence.

1.5.1. Step 7: Discussion of study findings

Referring back to Figure 2, I will consider the eleven studies in three groups dependent on where they were placed in terms of the appraisal synthesis.

1.5.1.1. *Low strength of findings – High weight of evidence*

Any conclusions I draw from Kelly (2007) and Test and Cornelius-White (2013), are done so with caution due to their low strength of findings. Although methodologically sound and relevant, neither reported any effect sizes to enable me to interpret the magnitude of any significant findings.

Both studies focused on discourse within interactions and the influence this had on children's engagement. Kelly (2007) specifically focused on dialogic instruction, and found a significant association with one of two engagement measures: student effort, but not student participation. Student effort was measured by time spent on work, and participation was the number of questions asked and answered by students.

In terms of dialogic literature, Skidmore (2006) discussed using a dialogic approach to encourage participation in talk and thus enhance understanding of topics. Kelly (2007) did not find any significant associations between dialogic instruction and student participation. However, all measures in the Kelly (2007) study seemed quite simplistic in nature e.g. the number of questions asked and answered by students does not indicate the quality of these responses or whether this enhanced understanding.

Test and Cornelius-White (2013) also used observational codes to consider patterns of talk linked to engagement in tasks. This found mixed results, with variation in who was talking and the timing of talking in relation to engagement. However, it is not to say that these studies have not measured engagement, but rather that the level of engagement is quite superficial.

Nystrand and Gamoran (1990 p.5) have discussed this difference, with the term 'procedural' engagement capturing what these two measures have studied: asking and answering questions, doing work, and looking engaged.

1.5.1.2. Medium strength of findings – Medium weight of evidence

The conclusions drawn from these four studies can be accepted with more confidence as they had a higher strength of findings rating. Thus I have moderate trustworthiness of the claims made by the studies, which demonstrated moderate effect sizes for significant findings.

Caughlan et al. (2013) also focused on talk, and established that the use of dialogic tools was associated with an increase in student participation. Student participation was measured primarily through student utterances, and again seemed to be measuring 'procedural' engagement (Nystrand & Gamoran, 1990).

The NICHD ECCRN (2005) also focused on 'procedural' engagement, but focused more on the classroom environment. They found that children were visibly more engaged at academic rather than non-academic activities (op cit). Furthermore, children were more engaged in classrooms with a positive learning environment (op cit). This was equated to teachers providing interactions and opportunities that were instructionally and emotionally supportive, and linked to a framework proposed by Hamre et al. (2007). The Classroom Assessment Scoring System (CLASS) framework purports that there are three types of teacher-child interactions: instructional, organisational, and emotional (op cit).

An intervention focused on developing teachers' practice around instructional and emotional support was presented in the Bierman et al. (2013) study. It was found to have a positive association with a measure of learning engagement behaviours, including self-regulation and motivation. It also found a positive association with literacy skills and social-emotional outcomes. Engagement could be linked here on a more 'substantive' level, where the interactions have supported children to connect with and become involved in the classroom activities, which has been demonstrated through improved outcomes (Nystrand & Gamoran, 1990). Another suggestion is engagement as a mediator between the context a child is in and their outcomes (Appleton et al., 2006; Fredricks et al., 2004).

Skinner et al. (2008) gathered student reports on engagement, perceptions of their self, and perceived support. A positive association was established when students perceived that they had support from their teacher. There were also significant associations about perceived

competency, autonomy and relatedness, with reports of engagement and disaffection. The 'self' aspects of competence, autonomy, and relatedness, were derived from the Self-Determination Theory of motivation (Ryan & Deci, 2000). Although connections have been established, teacher support and self-perception seem quite separate. I wonder if perceived support from teacher's leads to children being engaged, demonstrated through an increase in perceived competency, autonomy, and relatedness.

1.5.1.3. Medium strength of findings – High weight of evidence

This third set of studies was the highest ranked in terms of strength of findings and weight of evidence. Thus I can have most confidence in the trustworthiness of the claims made, which demonstrated medium effect sized significant findings.

It is at this point that some repetition occurs in the foci of studies, indicating commonalities between them. McElhone (2012) focused on teacher talk in literacy, and that a dialogic approach to instruction was associated with engagement and literacy outcomes. Her article discusses the Nystrand and Gamoran (1990) definition of engagement as a reason for measuring outcomes; to establish if substantive learning has occurred. The engagement measures seemed to consist of self-report questionnaires about motivation for reading. However, Appleton et al. (2006) claimed that motivation is necessary for engagement but does not mean that engagement will occur.

The Gregory et al. (2014) study was similar to that of Bierman et al. (2013) in that it focused on an intervention to develop the interactions of teachers through coaching. The effect of this intervention was a positive association with engagement, which was measured in terms of how actively engaged in discussion and tasks children were. Interactions of teachers were measured through consideration of positive classroom climate, teacher sensitivity, regard for children's perspectives, instructional support, and organizational support (op cit). These measures were collected using the CLASS system, which is an observational tool based on the CLASS framework of teacher-child interactions (Hamre et al., 2007).

Malmberg et al. (2010) also used the CLASS system and found associations between instructional, organisational, and emotional support, and children's engagement. They also looked at the types of support offered in terms of classroom quality. Classroom quality was also studied by Ponitz et al. (2009) and Williford, Maier, et al. (2013) and significantly associated with measures of engagement and literacy skills. Classroom quality was described

and measured where children: experience warm and sensitive interactions with their teacher, have clear behavioural expectations, and provides cognitively stimulating tasks and feedback.

1.5.2. Implications

Teacher-child interactions within these eleven studies have been found to have a positive association with children's engagement. Particular aspects of teacher-child interactions have been focused on, including: teacher dialogue (e.g. Caughlan et al., 2013; McElhone, 2012), interventions to mentor and coach teachers' interactions with children (Bierman et al., 2013; Gregory et al., 2014), and teacher' role in providing a *quality* classroom environment through their interactions (e.g. Malmberg et al., 2010; Williford, Maier, et al., 2013).

A predominant framework/model and system was present, used in six of the eleven studies. The CLASS framework is one that suggests teacher-child interactions are divided into three types: emotional, organisational, and instructional support (Hamre et al., 2007). This has also developed into an observational system of classroom quality and children's engagement (Center for Advanced Study of Teaching and Learning, 2015). Furthermore, the framework has been developed into a model of teacher-child interactions (see Figure 4 p.62) based on the authors' review of literature in the field (Downer, Sabol, & Hamre, 2010). This model linked teacher-child interactions and children's outcomes in a bidirectional manner which included the three types of interaction from the original framework (Hamre et al., 2007), and the children's outcomes of: emotional-social development, self-regulation, and cognitive–academic development. However, one noticeable aspect missing from the model is engagement.

In clarifying the conceptualisation of engagement in response to this review, it may be possible to speculate why it is not explicitly present in the Downer et al. (2010) model. From this review, the findings of the studies seem to suggest that engagement has been measured on two levels: procedural and substantive (Nystrand & Gamoran, 1990). Procedural measures included: on task behaviour (e.g. Gregory et al., 2014; Malmberg et al., 2010; Ponitz et al., 2009), student utterances (Caughlan et al., 2013), and completing work (Kelly, 2007). Substantive measures indicated sustained commitment and involvement in work (Nystrand & Gamoran, 1990) and included literacy skill development such as vocabulary and word reading efficiency (Bierman et al., 2013; McElhone, 2012), along with self regulation and learning motivation levels (Bierman et al., 2013; Williford, Maier, et al., 2013).

The studies by Skinner et al. (2008) and McElhone (2012) seem to focus on motivational measures as indicators of engagement. They both conceptualise engagement into three types: affective, cognitive, and behavioural. McElhone (2012) measured affective engagement in terms of intrinsic motivation to read, cognitive engagement through the use of different reading strategies, and behavioural engagement through frequency and breadth of reading. I consider that these measures seem similar to procedural engagement, but with some cross over with the concept of motivation. Skinner et al. (2008) use the concepts of autonomy, competency, and relatedness, from the Self-Determination Theory of motivation (Ryan & Deci, 2000) to measure engagement. Again I wonder whether this is a convergence of two concepts, which have been described as 'separate but not orthogonal', meaning you can be motivated but not engaged, so motivation is needed but not sufficient in ensuring engagement occurs (Appleton et al., 2006 p.428).

In applying this understanding of engagement to a model of teacher-child interactions, any model should therefore account for both procedural and substantive levels. The substantive measures discussed do seem to fit with the outcome types in the Downer et al. (2010) model. Therefore is procedural engagement as a mediating factor missing from this model? Appleton et al. (2006) have engagement as a mediating factor in their model of engagement, but the distinction between procedural and substantive engagement is missing. Perhaps a convergence of these models would be more apt with teacher-child interactions influencing the procedural engagement of children, and leading to substantive engagement, established through outcomes for children.

1.5.3. Limitations

A limit of this systematic review is that despite attempting to be thorough and robust in my critical appraisal of studies, there still remains an element of my judgement of their trustworthiness and interpretation. The weight of evidence tool provides an example; although I appraised each study in terms of their reliability and validity, I still made the decision about how methodologically sound they were. Another shortcoming of this review is that I was a solo researcher, and perhaps having a second reviewer would have limited any unintentional bias.

In terms of topic, I chose a broad area, which could mean that in trying to be sensitive in my search to not limit its scope I have lost some specificity (Petticrew & Roberts, 2006). More specific follow up reviews could be a way of establishing greater detail on particular aspects of the link between interactions and engagement.

1.5.4. Conclusion

In conclusion, I can suggest a positive association between the effects of teacher-child interactions and children's engagement. To that end, I consider that the concept of engagement warrants acknowledgement in existing models of teacher-child interactions (e.g. Downer et al., 2010). In proposing this addition to existing models the conceptualisation of engagement has been explored and clarified. The findings suggest that whatever the conceptualisation, measures seem to capture engagement on two levels: procedural and substantive level (Nystrand & Gamoran, 1990).

In achieving greater understanding through this review my next steps for consideration were practical applications. Thus I referred back to my stakeholders in my LA to discuss opportunities to disseminate my findings. I considered the implications for further study in this field as either being more specific or more sensitive. Specificity could be attending to procedural and substantive engagement in more detail, or how interactions support engagement. Sensitivity could be consideration of a revised model of teacher-child interactions, which includes engagement, in a holistic way. I chose the latter option and further detail on this study can be found in Chapter 3.

2. Chapter 2: Bridging Document

2.1. Introduction

The primary purpose of this chapter is to provide detail on how my systematic literature review led to my research project. This includes discussion of my conceptual framework; which clarifies my decision-making process and justifications made throughout. Within this discussion I explore why my topic of study is of particular importance in terms of wider political context, and the particular context in which this research was conducted. I also attend to my personal and epistemological reflexivity by considering how my experiences, values, and worldview have shaped my research (Willig, 2010). In essence this chapter documents my journey as a person, an applied psychologist, and a researcher.

2.2. Why did I undertake this particular piece of research at this time?

This section highlights why this research was important against the current political backdrop, as well as why it was appropriate within the context in which it was conducted.

2.2.1. Political influences

Present political context has seen an overhaul of services for children and families. The Children and Families Act, 2014, sets out principles for supporting children, young people and their families in achieving the best possible life and educational outcomes. This has had particular repercussions for my profession, with significant reforms to Special Educational Needs (SEN) processes (The Department of Education & The Department of Health, 2015) focusing on specific, measurable, and achievable outcomes.

The process underpinning SEN is the application of a person-centred approach; where children, young people, and their families are the focal point of planning and support decisions (op cit). Humanistic psychology provided the basis of person centred approaches, which emphasise that individuals have the authority on their own life (Brazier, 1993; Joseph, 2008). This attempts to redress the balance of power so that the individual child or young person has control over the process, the people they wish to be involved, and what aspirations they would like support to achieve this (Sanderson, 2000). These approaches potentially impact on the type of interactions occurring in relation to SEN, with children, young people and their families requiring professionals to facilitate more person centred discussions.

Additional political pressure for schools includes an increase in accountability, which was recommended in the Support and Aspirations green paper (Department for Education, 2012). Within this strategy document there was call for schools to take more responsibility in the early identification and support of children and young people with SEN. This implies that schools increasingly have to demonstrate that they are supporting each child and young person effectively at a universal level. Furthermore, this has implications for my own profession in supporting teachers to support children and young people at this wider level.

2.2.2. Why this particular context?

Along with permeating national policy, the educational setting in which I conducted my research also had local policy and initiatives to embrace. The Local Authority (LA) used service days for different education professionals to disseminate the changes to children and families services. This arguably has a twofold emphasis on achieving outcomes, and early identification of needs and support.

Early identification appeared to be reflected in local policy targets to reduce the number of statements of SEN (now Education, Health and Care plans), and the number of permanent exclusions from schools. Much of the discourse on how these policies were disseminated was around *engaging* children both affectively and cognitively. Looking at exclusion rates across England, it can be seen that those with SEN and/or who qualify for free school meals are more likely to be permanently excluded (Cotzias, 2014). Therefore, early identification could help support children and young people to remain engaged in school. My systematic review explored the concept of engagement and found that this was linked with children and young people's outcomes.

Alongside wider political influences and local initiatives, the particular setting that took part in this study had its own specific influences. These different layers of influence are reminiscent of the ecological model by Bronfenbrenner (1979). The factors I have discussed thus far seem to be aspects of the political system and education system situated around an individual child or young person. These factors seem to encapsulate the exosystem and highlight the complexity even within one level of an ecological system (op cit). In considering this specific school, factors within the mesosystem around an individual are contemplated (op cit).

The educational setting involved in this research project was a large community based primary school. One particular area of focus for the school was in response to their latest inspection by the Office for Standards in Education, Children's Services and Skills (Ofsted), namely children's

writing levels. The senior leadership team had taken the decision to implement different targeted interventions to improve writing. However, after evaluating their impact, school staff established that this approach had not been effective. The schools' Special Educational Needs Coordinator (SENCo) then discussed this area of development with their named Educational Psychologist (EP).

Through dissemination at a team meeting the named EP was aware of my systematic review findings about the effects of teacher-child interactions on engagement, which was inclusive of outcomes. The EP and I discussed if this schools' area of focus, to improve children's writing outcomes, could be a potential participating school for my research. I decided that meeting with the school SENCo may be helpful to determine (a) if the topic and findings of my review were relevant (b) if the school would be interested in taking part in the research project, and (c) if we could negotiate a mutually agreed project. During the meeting I outlined the focus of my systematic review, what I found, and my initial ideas for next steps. The SENCo took this back to the senior management of the team and reported that all considered it relevant and were keen to be involved.

2.2.3. Connecting my systematic review with my research project

The focus of my systematic review was the effects of teacher-child interactions on children's engagement. The foundation of this was an existing body of literature indicating a positive association between quality teacher-child interactions and outcomes (Bierman et al., 2013; McElhone, 2012; Williford, Maier, et al., 2013). My aim was to explore engagement – as a term that had emerged from local policy, and to understand how this fit with teacher-child interactions and outcomes. From the findings it emerged that outcomes were used as an indicator that children were substantively engaged (Nystrand & Gamoran, 1990) in school. However, frameworks and models of teacher-child interactions did not fully capture my findings and moreover were imposed on participants within the studies. This made me consider: what are the perceptions of those involved in the interactions about the conceptualisation of teacher-child interactions?

Discussing my systematic review and research ideas, with the school SENCo, revealed that the school were keen to take a different approach. The senior leadership team noted that targeted intervention to improve specific aspects of the curriculum, such as writing, had not been effective. They were keen to be involved in a project that looked at outcomes in a more holistic way and teacher-child interactions having a positive association with outcomes was ideal. Thus, I could gather the perceptions of teachers about interactions in the classroom,

and school staff could better understand how interactions supported outcomes in their school. I was keen to undertake research to yield knowledge for understanding and practice, and given the negotiated process I considered that this was possible (Wallace & Wray, 2011).

2.3. Personal reflexivity

Willig (2010) discussed personal reflexivity as the researcher reflecting on their experiences and values in relation to their research. This section presents my reflections on how my experiences, values and ethics have shaped my research project. Furthermore, I consider, at the conclusion of this piece, the reciprocity of the research project in how it has affected me as a person and a professional.

2.3.1. My experiences and motivations

I have always had a keen interest in my own and others' learning throughout my education and work life. I continually strived as an early years professional to understand and adapt to best support children's development, drawing on Vygotsky's theory of the zone of proximal development (Vygotsky, 1978).

In undertaking my doctorate training I have developed a new level of reflexivity. I have been encouraged to critically reflect not only on psychological research and theory, but my own practice. From this I came to the realisation that I gained a vast amount from other people in terms of my knowledge and skill development. I particularly noticed this when having group discussions with my cohort of TEPs, considering that my peers were greatly extending my thinking. I wondered what made these discussions so valuable to me, and it was at this point I realised the extent to which I found affinity with Vygotsky's ideas on the importance of interactions in learning (Vygotsky, 1978). I was also stuck by the work of Mercer, Wegerif, and Dawes (1999) around *types of talk*. I thought that the discussions amongst the cohort created lots of *exploratory* talk, appreciating the views of others, but questioning in a supportive and curious way.

During the second and third year of my training, meeting as a cohort became less frequent, and the demands on placement increased. When our cohort did meet up our discussions maintained constructiveness, which encouraged a fellow TEP and I to develop a peer supervision group. This ensured there was a regular time for these discussions and provided supplementary supervision to that which we received on placement. I have found supervision particularly invaluable and the gains from this fit with those described by Kadushin and

Harkness (2002): managerial, supportive, and educational. I also concur that the quality peer and professional supervision I receive is paramount to my own development, well-being, and ensures I maintain high standards of practice for service users (Dunsmuir & Leadbetter, 2010). This positive experience of peer supervision made me keen to share the process with others in my profession and beyond.

2.3.2. Values and ethics

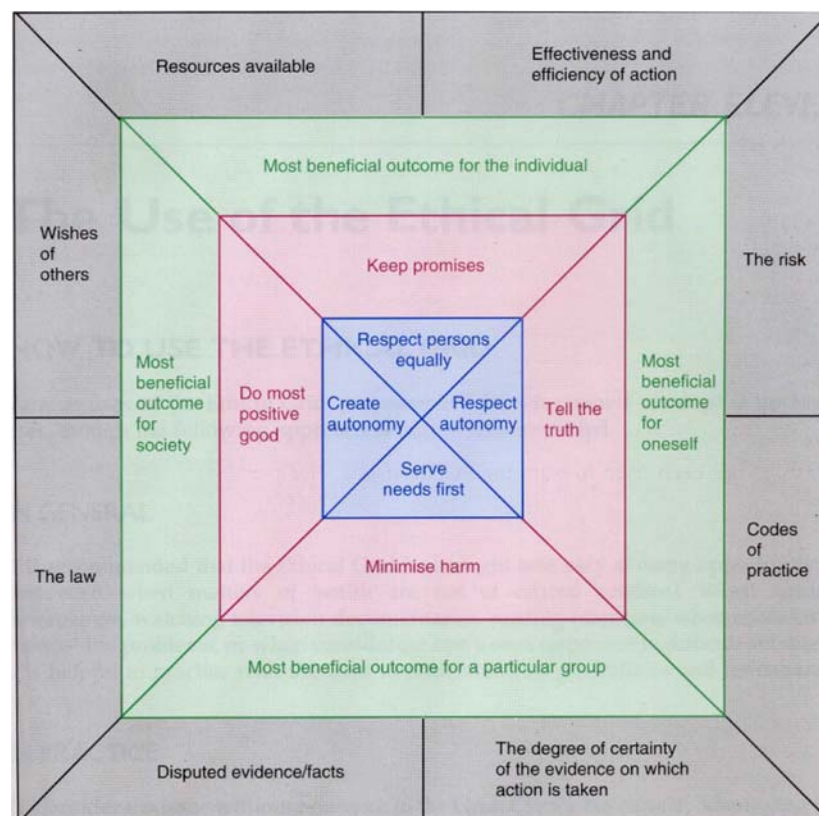
In the axiology literature Trow (1953) stated how values 'permeate through all educational interrelationships' (p.451). I considered this to mean that the values of each person and system in place are inextricable from the relational work EPs undertake. It also resonated with me in terms of the relational aspect of my applied role; based on building, sustaining, and ending professional relationships (Health and Care Professions Council, 2012). Through my doctoral training I have increasingly realised how important this relational aspect is, especially in finding ways to work constructively and collaboratively with others to extend thinking. This is particularly evident I believe in terms of my motivation towards peer supervision, to have the development and support through constructive discussion.

I also value positivity and consider that the principles of positive psychology underpin my everyday work. Identifying and nurturing the strongest qualities within myself and others resonates with how I am as a person and how I wish to practise as a psychologist (Seligman & Csikszentmihalyi, 2000). The supportive environment that a positive psychology stance could potentially create would encourage and motivate me as a person. Feedback from service users, in particular parents/carers, has included how refreshing and positive it was to consider what was working well and the strengths of an individual. This is not to say that I would ignore areas of challenge but rather frame this in a solution-oriented way of having time to listen to the problem but also considering the possibilities (Rees, 2008).

In reflecting on what I value as a person and a professional, this led to thoughts as to how I would conduct myself as a researcher. In terms of method, the school were happy for me to carry out the research in the way I saw best. There seemed an inherent assumption that I would carry this out in the most appropriate way. For this I adhered to ethical procedures imposed by the university and ethical guidelines set my discipline (British Psychological Society, 2009). However, Stutchbury and Fox (2009) suggest that using an ethical framework can help provide a more effective analysis of ethics for research.

Figure 3 is Seedhouse's ethical framework (2009) and the outer layer is the external considerations in which guidelines fit. This does not negate the other considerations at this level but rather the guidelines were an explicit aspect I reflected on. The next layer in is consequential considerations, which encourage the researcher to think about the impact of their research. For this I wanted to create a research process that was helpful for the participants involved. I thought that the findings of the research would be helpful for the school and myself, but a direct impact for the teacher participants could make it a worthy investment of time for them. Deontological considerations make up the next layer about the duty of the researcher. In relation to this my values of positivity seemed clear in wanting a process that was supportive for teachers. The last layer is the inner layer, which constitutes the core rationale for the project. In wanting to support teachers through a useful research process as well as content, I ascertained I was trying to support teacher autonomy.

Figure 3: Seedhouse's ethical grid (2009), discussed and adapted in Stutchbury and Fox (2009).



2.1. Epistemological reflexivity

Willig (2010) described epistemological reflexivity as the researcher considering how their worldview has influenced research process decisions. Within this I discuss my ontological and

epistemological stance, methodological decisions, and the sources of information this generated in relation to the importance of this research and my personal reflexivity.

2.1.1. Ontology and epistemology

Moore (2005 p.106) defined both of these forms of study as:

- Ontology *'related to questions about the nature of being and the form of reality'*
- Epistemology *'relates to the explanatory principles that underpin particular bodies of knowledge and the nature of the relationship between the knower and what can be known'*

Considering my ontological stance, I believe that there is an independent reality that is knowable if we have the means to capture it, which reflects a realist view of the world (Scott, 2005). In terms of my epistemological stance I consider myself constructivist, in that objects of reality are not easily described and explained with certainty (op cit). In this sense I would consider myself a critical realist, acknowledging that attempts to measure reality are fallible and open to interpretation (Maxwell, 2012). The implications for my research would be that I am seeking to discover a form of truth in a social object, but that this is influenced by my interpretation.

2.1.2. Methodology and method

Thinking back to why and what was important about the topic of this research, I discovered a gap in the literature in terms of the views of those involved in teacher-child interactions, namely teachers. Qualitative methods provide researchers with a way to study participants in their own context, to better understand through description and explanation (Willig, 2010). Thus this methodology seems ideal in trying to gather teachers' views regarding the classroom context.

In considering how to gather teachers' perceptions I refer back to my personal reflexivity section in that my values and ethics led me to consider a flexible and useful process of data collection. Therefore an approach that is not too structured and allows the autonomy of the participants seemed ideal. A research agenda seemed appropriate by having research topics rather than consistent open-ended questions to enable participants' terminology to be incorporated into an interview (Willig, 2010). In being a novice researcher this could be a challenge in terms of effective questioning, however I considered that by developing my

consultation skills as an EP I was not entirely a novice in framing questions to gather information. In terms of an interview, I wondered how I could make the process helpful, and thought of my positive experiences of discussions during peer supervision. This led me to consider that a facilitated peer supervision approach may be an approach that hopefully provided a useful process for teachers.

Qualitative research offers different methods that could be used to analyse the views collected. Discourse analysis (DA) is focused on the language, but I was more keen to understand the content and meaning being conveyed (Braun & Clarke, 2013).

Phenomenological methods aim to capture how a person makes sense of their experiences, which could have been a useful approach in relation to interactions (Willig, 2010). Grounded theory seeks to generate theory about social phenomenon from the perceptions of those involved (op cit). I considered that as I was trying to understand and explain interactions this was the most appropriate form of analysis.

There are different approaches to grounded theory, realist, and social constructionist. A realist version is focused on discovering and building theory from data (Strauss & Corbin, 1998), and a social constructionist version is focused on the researcher constructing theory through interacting with the data (Charmaz, 2006). Although my epistemology acknowledges the difficulties in establishing truth about aspects of the world, I do believe there are aspects to be known. Thus I accept what Charmaz (2006) states; that my interpretation cannot be extricated from any theory I generate. However, I am still striving in my aim to understand and explain the social phenomenon of interactions in the classroom from the data I collect. For this reason I consider I am trying to discover meaning from the data and therefore a realist version of grounded theory seemed most appropriate to build new theory about interactions in the classroom.

2.2. Summary

First and foremost I hope that this document has provided an insight into how my systematic review developed into my research project. More than this I hope I have provided an insight into my personal and epistemological reasons for the research process I decided upon. I consider that my personal experiences and motivations ignited my interest in interactions within learning and constructive discussions with peers. Furthermore, I hope it illustrates how my values have impacted on my research, especially the decision that data collection should be a useful and positive process for teachers. Insight into my worldview and how this has

shaped my research included trying to capture an aspect of the world through the perceptions of those involved in the social phenomenon of interactions.

I end with some personal reflexivity about how this research process has changed me. This whole process has changed me as a person and a professional. Through the research process I developed in confidence in terms of my applied work, and more able to understand how my experiences, values, and worldview influence and underpin my practice. In essence this process has been a journey; a long one, a challenging one with frustrations and unexpected diversions along the way. However, it is a journey I chose because of my interest and belief that the end point was worth the effort, that the gains in understanding and the process itself would be useful.

3. Chapter 3: Research Project – What can teachers’ perceptions tell us about interactions in the classroom?

3.1. Abstract

Recent policy changes to services for children and families have placed greater emphasis on achieving measurable outcomes. Alongside this, more responsibility for early intervention has been expected of educational settings. Theory and literature has identified links between teacher-child interactions and children’s outcomes. However, researchers have tended to focus on specific aspects of interactions and/or outcomes that are more easily defined and measured. Findings about specific facets within this field have been collated to form a model of explanation. What is less clear is how interactions work holistically in educational contexts. Thus the aim of this study was to gather teachers’ perceptions on interactions in the classroom, as they are involved in these interactions.

Two teacher pairs from one community primary school were provided with an enquiry-based observation tool to support them to consider the interactions in each other’s classrooms. Their perceptions were then gathered through researcher facilitated peer supervision sessions, and this data was then analysed using a realist grounded theory approach. In terms of findings, the research process itself offered an alternative to an existing peer observation and discussion process used in school. A new model of interactions was also established, which extended previous findings across three areas (a) types of interactions include child-child as well as teacher-child (b) mediating effects of: developing relationships, warm learning environment, engagement and motivation, and acceptability and expectations, were all identified as effects arising from interactions (c) contextual factors have a direct influence on the interactions that occur in the classroom.

Implications of the research included Educational Psychologists (EPs) being ideally placed to support teachers in developing a more reflective approach to peer observations and discussions. Furthermore, that the new aspects established in the proposed model should be studied to develop understanding. Lastly, that all professions in the education sector are aware of the complexity of learning, support children holistically, and be mindful of the direct influence contextual factors can have on classroom interactions.

3.2. Introduction

In this chapter I provide an account of the empirical research I undertook following the findings of my systematic literature review.

Current political context has seen a renewed focus on achieving outcomes for children and young people. The Children and Families Act, 2014, sets out general principles to emphasise supporting children, young people and their families to facilitate development and achieve the best possible educational and life outcomes. In my profession, educational psychology, the revised Special Educational Needs (SEN) Code of Practice (The Department of Education & The Department of Health, 2015) also indicates that outcomes are integral to the coordination of support in SEN. Furthermore, the Support and Aspirations green paper, which helped inform the Children and Families Act 2014, highlighted more accountability for schools with regards to supporting those with SEN and early identification of needs (Department for Education, 2012).

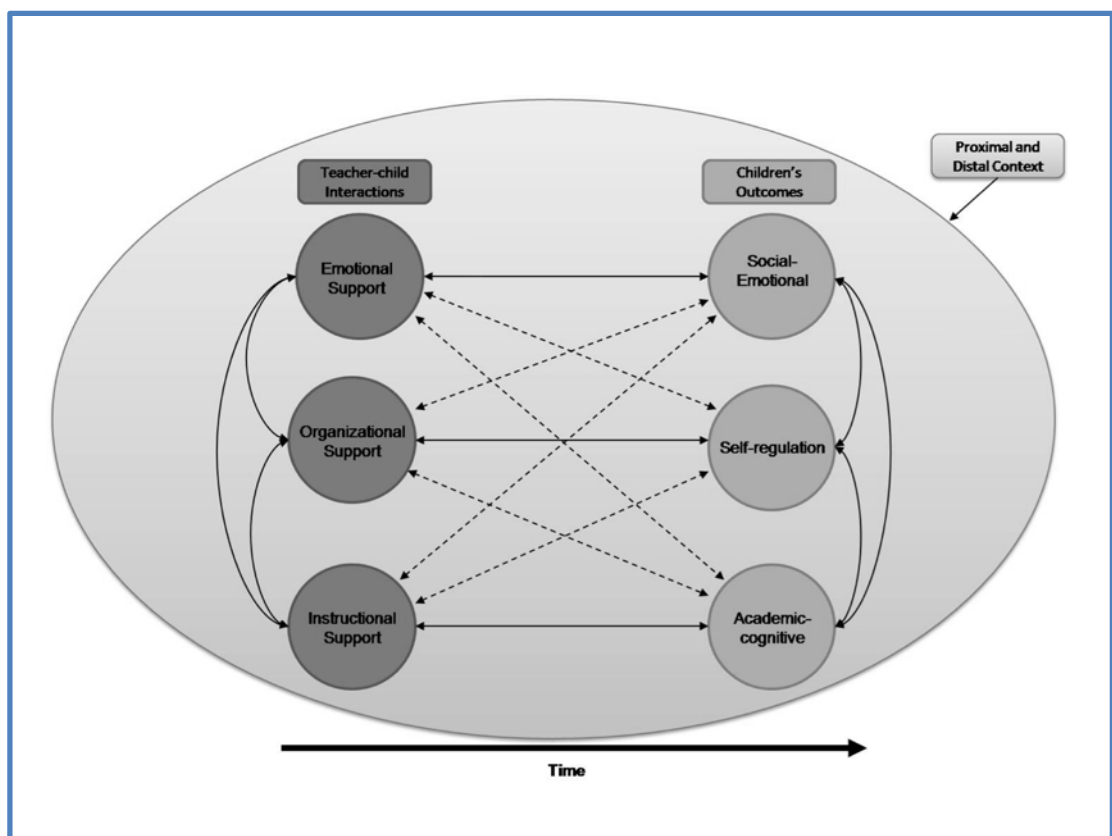
Research has linked interactions in the classroom with outcomes for children (Downer et al., 2010; Hamre & Pianta, 2007; Mashburn et al., 2008). Gains in academic achievement (Bierman et al., 2013; Ponitz et al., 2009; Williford, Vick Whittaker, Vitiello, & Downer, 2013), self-regulation skills (Rimm-Kaufman, Curby, Grimm, Nathanson, & Brock, 2009; Skinner et al., 2008), and social competency (Curby et al., 2009; Hamre & Pianta, 2005) have been established. Despite these links, detail on *how* interactions support outcomes is less clear (Downer et al., 2010). Studies have tended to focus on specific aspects of teacher-child interactions, such as teachers' discourse patterns on children's reading comprehension (McElhone, 2012) rather than a holistic view of teacher-child interactions in the classroom.

3.2.1. Interactions in the classroom: the development of theory

Teacher-child interactions have been called a 'central driver for student learning' (Hamre et al., 2013 p.461). This perhaps reflects Vygotskian ideas about the importance of social and cultural influences on children's learning and development (Vygotsky, 1978). Vygotsky's theory posits that the process of interactions between an expert other and a child are mediated at the zone of proximal development through language (Vygotsky, 1978). It has been said that Vygotsky's work has had a vast impact on research and thinking within the spheres of social science and education (Lyle, 2008). I tend to agree with this statement as a researcher focusing on the continuing importance of understanding interactions in a child's learning context.

To develop an understanding of interactions in the classroom I initially conducted a systematic review of the literature. I discovered that researchers had collated separate research findings in this field to create models of explanation to better understand teacher-child interactions. The CLASS (Classroom Assessment Scoring System) framework is one such example, which proposes that teacher-child interactions are of three main types: emotional support, organisational support, and instructional support (Hamre et al., 2007). This framework has been subject to validation by the authors (op cit), been used as a foundation for research in this field (e.g. Gregory et al., 2014; Kelly, 2007; Malmberg et al., 2010; Williford, Maier, et al., 2013), and has been developed as both a model and a tool. More recent development of the CLASS framework can be seen in Figure 4, a model which extends the existing classification of interactions to incorporate research findings that suggest the effects of teacher-child interactions on children’s outcomes (Downer et al., 2010, p. 702).

Figure 4: Model 1 - Within-domain and cross-domain effects of teacher-child interactions on children's developmental outcomes (Downer et al., 2010).



3.2.2. Why should we focus on teachers' perceptions?

The CLASS framework has also been applied in the form of an observation tool to support the development of effective teacher-child interactions (Center for Advanced Study of Teaching and Learning, 2015). Effective interactions were described as those which promote student

autonomy, structure, and cognitive stimulation (Malmberg et al., 2010). Research across thousands of educational settings found that higher scores on the observation system correlated with improved outcomes for children (La Paro et al., 2009). However, the system itself and research that utilises it, imposes types of interactions that have been determined by researchers. This begs the question, what do teachers think about how interactions work in their classrooms - and to what effect?

A more open approach to observation may offer insight into interactions from the teachers' perspective rather than information that *fits* with the CLASS framework (Hamre & Pianta, 2007). The development of the CLASS framework acknowledges the influence of the ecological context on interactions through the proximal and distal factors, as shown in the model in Figure 4 (Downer et al., 2010). This suggests that there could potentially be significant amounts of variation in interactions based on contextual factors.

3.2.3. The current study

This study aimed to explore interactions in the classroom from the perspective of teachers. Teachers are within the context of the classroom and thus well placed to provide insight into describing interactions, the effect they have, and any influencing factors. With increased responsibility and accountability being placed on schools to effectively monitor and support children (Department for Education, 2012) this research project provided teaching staff with the opportunity to reflect on their practice.

An adapted enquiry-based process of observation and discussion was used based on the work of McGrane and Lofthouse (2010). Enquiry-based learning placed my role, as an Applied Educational Psychologist, within a facilitative capacity to encourage reflection and exploration (Kahn & O'Rourke, 2005). In thinking about being a facilitator I also drew on principles of supervision, to help teachers support one another and extend each others thinking (Kadushin & Harkness, 2002). Furthermore, Downer et al. (2010) provide a starting point for the teachers' enquiry in the form of a model of teacher-child interactions and the effects these have on children's outcomes.

3.3. Method

This section details how I gathered and analysed teachers' perceptions about interactions.

3.3.1. Peer Supervision

Four teachers volunteered as two pairs to take part in this project. All taught Key Stage 2 at a large community primary school in the North East of England. There were three females and one male with teaching experience ranging from five to twelve years. Participants were recruited as part of a scheduled school training day, where the topics of interactions in the classroom and peer supervision were introduced along with the project outline (see Appendix 5.4).

For each teacher pair I facilitated two sessions of peer supervision, which I audio recorded to form my data. I used a research agenda approach to my questioning so I did not limit the breadth of participants' discussion (Willig, 2010). This enabled me to have a guide for my questions but the scope to follow up on terms and ideas expressed by the participants. The agenda included the topics of: the research process, the model of interactions, and interactions in general. These topics also complemented those presented as prompts in an observation tool (see Appendix 5.5), which the participants carried out prior to the peer supervision sessions.

3.3.2. Observation Tool

The observation tool (Appendix 5.5) was derived from Lofthouse, Wright, Riches and Sellers (2007) enquiry-based observation approach to teachers' professional development. The enquiry-based observation tool was developed through action research with student teachers (op cit). Observations are a necessary part of teacher training, but using an enquiry-based approach established a partnership as opposed to hierarchical judgement (Kahn & O'Rourke, 2005; Lofthouse et al, 2007) to develop a supportive culture. Supporting and sharing has been found to be an important aspect of useful peer supervision (Baker, Cluett, Ireland, Reading, & Rourke, 2013).

Figure 5 and Figure 6 show how the tool was derived from the work of McGrane and Lofthouse (2010). It follows the same pattern of planning, observation, reflection, and discussion, which resonates with Kolb's learning cycle (Kolb, Boyatzis, & Mainemelis, 2001). The discussion aspect of McGrane and Lofthouse's (2010) cycle in this study was peer supervision. An initial peer supervision session was used for contracting peer supervision (Hawkins & Shohet, 2007), and introducing the observation tool, which also included a reflection aspect (see Appendix 5.5). This initial session was the start of the first full cycle, and therefore was primarily for planning. Plans for the first cycle were partially imposed in order to focus the observation on interactions, which can be seen from the planning part of Appendix 5.5. This imposed aspect

included the model of interactions by Downer et al. (2010), along with prompts derived from the research agenda for the discussion part of the cycle. There was also an opportunity for participants to add their own plans in the initial session, as part of the contracting (Hawkins & Shohet, 2007).

3.3.1. Procedure

Table 6 describes the four parts of this study:

Table 6: Detail on the procedure of this study.

Part of study	Description
PART A: Inset day training session	<ul style="list-style-type: none"> • Providing a half-day session on the topics of teacher-child interactions and peer supervision. This was presented to all teaching staff in Key Stage 2, during a scheduled inset day, through a process of information giving and group discussion. • The presented information can be seen in Appendix 5.4, and provided an overview of my systematic review findings, and an introduction to supervision literature. • The research project was also outlined and two teacher pairs volunteered to participate.
PART B: Initial peer supervision session	<ul style="list-style-type: none"> • To fully explain and outline the study using a participant information sheet (see Appendix 5.6) in order to gain informed consent (see Appendix 5.7) • To contract what participants wanted to gain from supervision using the CLEAR (Contract, Listen, Explore, Action, Review) model (Hawkins & Shohet, 2007). • To introduce the observation tool (see Appendix 5.5) and discuss any aspects of planning that teachers wanted to be considered during the observation. • Between PART B and C participants observed and reflected on one another's practice using the observation tool (see Appendix 5.5).
PART C: Peer supervision session (1)	<ul style="list-style-type: none"> • Discussing the observations and reflections to gather teachers' perceptions of teacher-child interactions in the classroom, and to start the next cycle through establishing plans for the next observation. • Audio recorded for transcription and analysis. • Between PART C and D participants observed and reflected on one another's practice based on PART C planning.
PART D: Peer supervision session (2)	<ul style="list-style-type: none"> • Discussing the observations and reflections to further gather teachers' perceptions of teacher-child interactions in the classroom, and inform any next steps teachers wished to take forward following the study's completion • Audio recorded for transcription and analysis. • Demographic form (see Appendix 5.8) and debriefing form (see Appendix 5.9) discussed and completed by the participants.

Figure 5: McGrane and Lofthouse's (2010) original observation tool.

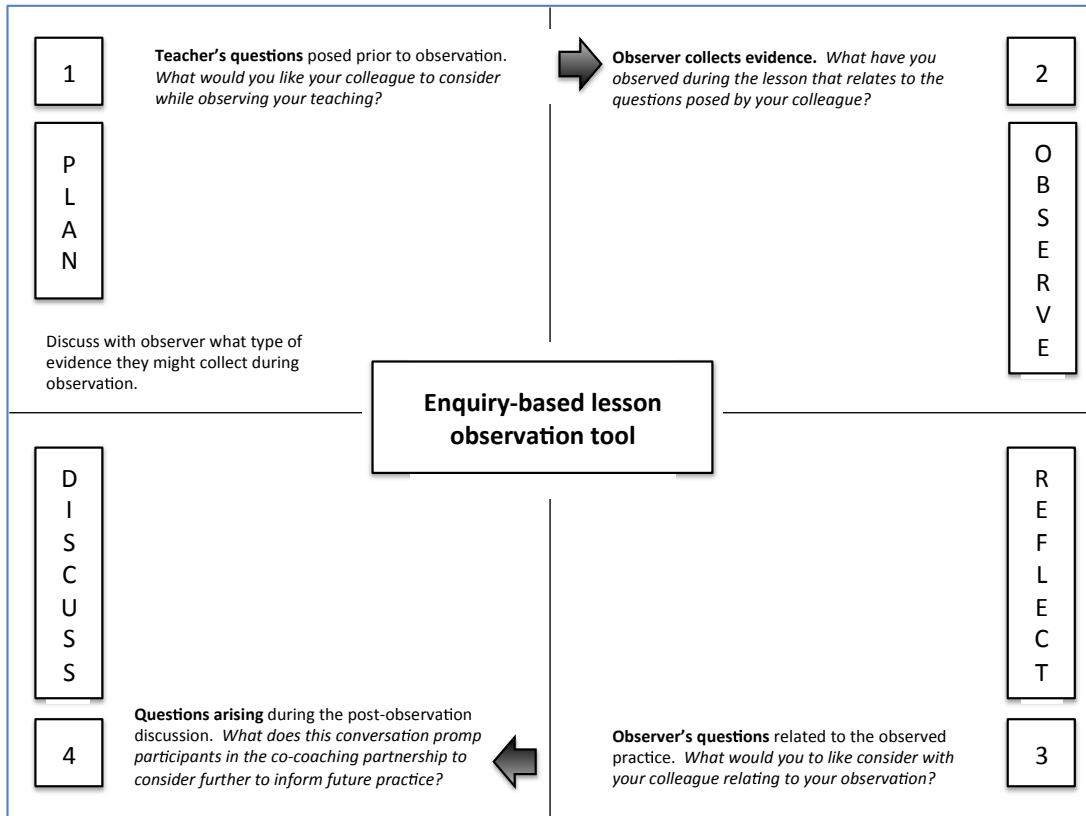
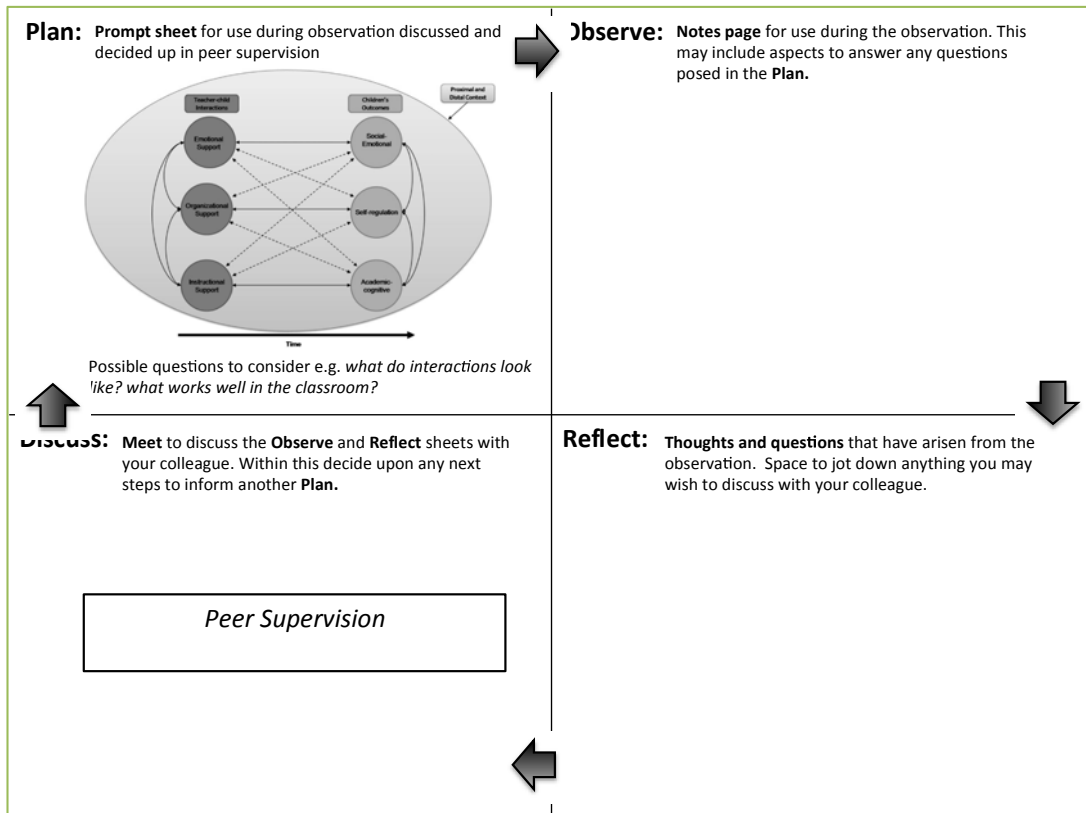


Figure 6: An adaptation of McGrane and Lofthouse's (2010) observation tool for this study.



3.3.2. Analysis

To analyse my data I used a realist grounded theory approach to understand and explain interactions in the classroom as a social phenomenon (Willig, 2010). Grounded theory generates just that, theory, and a realist version develops this from the data (Strauss & Corbin, 1998). Rather than build purely new theory, this study aims to extend previous understanding and explanations of interactions in the classroom as presented in my introduction (p.9). An abbreviated version rather than a full version of grounded theory was used, which focused on what the data reveals. A full version would return to participants to check and refine the model, but pragmatics of time and my awareness of the potential influence I had as a facilitator of peer supervision made the abbreviated version most appropriate (Willig, 2010). I used the transcripts from the peer supervision sessions as my data set to be analysed.

Table 7 describes the four stages of my analysis, and although presented in a linear order it can be seen that the stages integrated with one another. Strauss and Corbin (1998) recommend using the coding tools in this flexible way, responding to the data rather than dictating the direction and form of analysis.

Table 7: The stages of the analytic process for this study based on a realist Grounded Theory approach by Strauss and Corbin (1998).

Stage	Description	Example
1 – Micro-analysis	I used the following analytical tools to complete line-by-line analysis: <ul style="list-style-type: none"> • Questioning • Analysis of a word, phrase or sentence • Comparisons 	See Table 8 for excerpt: the first three columns contain microanalysis.
2 – Open coding	I began this stage whilst carrying out my microanalysis by noting emerging concepts and categories. After microanalysis was complete the open codes were compared across transcripts to establish concepts. These concepts were made up of multiple categories and subcategories created through identifying similarities and differences within and across the data.	See Table 8 for excerpt: the fourth column contains initial open coding

Stage	Description	Example
3 – Axial coding	This process was intertwined with the latter part of open coding. When categories were established axial coding was the consideration of the possible relationships and connections between categories.	See Table 9 for excerpt: column four shows the axial codes that have arisen from the previous three columns of analysis.
4 – Selective coding	This stage refines the categories and connections into an order, thus creating new theory. New theory is then validated with the original data i.e. does it work.	See Table 9 for excerpt: the fifth column shows the selective coding that has arisen from the previous four columns of analysis.

An excerpt of the first two stages of the analytical process can be seen in Table 8. The headings describe the type of coding, and each row represents line/s from the corresponding transcript. Normal text is that from the transcript and italic text is my coding. Once these first two stages of analysis were completed for all four transcripts, the open codes were printed and cut out to enable an organic process of categorising and connecting data. This manual organisation of codes constituted the third and fourth stages of analysis. Table 9 shows a sample of the entire analytic process for a segment of one transcript, where each column builds on the previous one. This process begins with the raw transcript data, shows the categories that are discovered, and ends with the selective coding that sequenced the established categories and connections. The final stages of analysis were the development of theory from my analysis and form the basis of my findings.

Table 8: An extract of the microanalysis for transcript 1 - Pair B session 2.

<p>Questioning:</p> <ul style="list-style-type: none"> Who, what, where, how, when Frequency, duration, rate, timing How much space, where, open or closed 	<p>Analysis of a word, phrase or sentence:</p> <ul style="list-style-type: none"> Possible meanings Assumed or expressed 	<p>Comparisons:</p> <ul style="list-style-type: none"> Comparing incidents and objects to establish similarities and differences Comparing categories and concepts to establish properties and dimensions 	<p>Open coding:</p> <ul style="list-style-type: none"> Emerging categories or relationships
<p>65 <i>there was academic achievement</i> – what does this look like? 66</p>	<p><i>therefore</i> – so, this means <i>behaviour aspects were really good</i> – behaviour good <i>also</i> – and <i>there was academic achievement</i> – another noticeable effect <i>because</i> – reason, why <i>I sat and watched</i> – physical aspect <i>one child first score sixteen and then score twenty</i> – increase in scores</p>	<p><i>behaviour aspects were really good</i> – on task, conforming to routine = behaviour being good <i>one child first score sixteen and then score twenty</i> – academic achievement</p>	<p>noticeable effect, academic achievement = improvement in scores on a test</p> <p>physical aspect – I sat and watched</p>
<p>67 <i>they were doing</i> – children 68</p>	<p><i>cause</i> – reason, why <i>doing a self recognised test</i> – action, doing, child recognising? <i>there was some cognitive development</i> – link to outcome? <i>and some self regulation</i> – outcome link <i>because</i> – reason, why <i>they didn't get up and wander</i> – physical aspect, not getting up without purpose</p>		<p>linking academic achievement and conformity to outcomes of cognitive development and self regulation</p> <p>physical aspect – children not up and wandering with no purpose</p>

Table 9: An sample of my analysis across all four stages, as denoted by Strauss and Corbin (1998), for transcript 1 - pair A session 1 (lines 190-198)

Transcript excerpts	Microanalysis	Open coding	Axial coding	Selective coding
<p>A “yes personalised interactions you need to know each child personally because some children don’t like you to say well done”</p> <p>C “oh she touched me and some children don’t like you and don’t listen to what you say...that’s this but again it’s building that relationship”</p> <p>A “yes”</p> <p>C “that I do have a little boy from the other day and gave him a clicker we forgot about that now he I’m thinking in my head I just touched him but he was ok”</p>	<ul style="list-style-type: none"> • “yes personalised interactions” – agreement • “you need to” – definite, must • “know each child personally” – know each and every child, personal, individual • “because” – why, reason • “some children” – but not all, what about other children? which children are these? • “don’t like you to say well done” – not liking individual praise • “oh she touched me” – surprise at being touched • “some children don’t like to” – and some children do like it • “and don’t listen to what you say” – associating children who don’t like praise and to be touched with not listening to teacher • “don’t listen to what you say” – what do you say that they don’t listen to? example? • “but again” – however, repetition, said before? • “it’s building that relationship” – creating, developing a relationship with a child • “yes” – agreement • “I do have a little boy” – example? • “from the other day” – recent • “gave him a clicker” – what is a clicker and what is this for? • “we forgot about that” – who is we, forgot about what? • “now he” – present different that the past? • “I’m thinking in my head” – just occurred now, thinking through as talking? • “I just touched him” – only, simple • “but he was ok” – expecting him to not be ok 	<p>The importance of knowing children personally in order to establish what sort of interactions they like – some don’t like individual praise</p> <p>Some children not liking being touched – associating with them also the children who do not listen?</p> <p>Building and developing relationships with individual children</p> <p>Example of child who didn’t like to be touched, relationship developed and now he is ok with being touched</p>	<p>Category about teachers’ actions:</p> <ul style="list-style-type: none"> • Knowing children • Adapting interactions <p>Category about children:</p> <ul style="list-style-type: none"> • Likes/dislikes • Link to context <p>Category about context:</p> <ul style="list-style-type: none"> • Individual differences; children <p>Category about relationships:</p> <ul style="list-style-type: none"> • Building • Developing over time • Link to teacher actions 	<p>Clarification of links....</p> <p>Context of children’s individual differences in what they like e.g. praise -> influences teachers’ actions in adapting their interactions to individual children -> with the effect of building and developing teacher-child relationships....</p>

3.4. Findings

Reflecting on my analysis I considered there to be two distinct parts to the findings: aspects about the research process, and data pertaining to interactions in the classroom. It seems relevant to dedicate space to both parts, as the process was important as I wanted it to be useful for the teachers, and the model of interactions in the classroom is integral to answering the research question posed. I will now take each part in turn and discuss with relevant excerpts from the data.

3.4.1. The 'process'

Figure 7 is a visual representation of the 'process' findings from my analysis and shows the main categories, subcategories and open code examples related to this. The categories in green relate directly to the process of this study, and are connected in the direction they take by the green arrows. There is a category solely about the 'research process' undertaken for this project, then one for any 'adaptations' that teachers made to this process, and a category for the 'next steps' discussed. Another category directly about the process was that of 'comparisons'. These 'comparisons' encompass two subcategories: comparisons with the existing model of teacher-child interactions used for this study (Downer et al., 2010), and comparisons with an existing process of peer observation in the teachers' school. The bracket arrows that link the 'comparisons' to and from the 'research process', 'adaptations', and 'next steps' represent how the teachers' thinking and reflection progressed. The comparisons influenced and shaped the teachers' thoughts and ideas about the research process, the model of teacher-child interactions (Downer et al., 2010) and the existing peer observation process in school.

A transcript example to demonstrate the development of teachers' thinking in relation to the research process can be seen in Box 1. Within the 'research process' category the observations were described as "a snapshot" (Transcript 4, Samuel and Julie, Line 92-93). Later on in the same transcript a comparison to the existing peer observation process was made and connected to a possible next step:

Box 1: An example of teachers' progression in thinking in relation to the research process.

'...we do normally the peer observations as a formal you're in for the full lesson you watch the whole thing and I think actually I'd rather pop in and see you two or three times a week all over the term...'
(Transcript 4, Samuel and Julie, Line 242-244.)

Figure 7: A visual representation of findings relating to the research process.

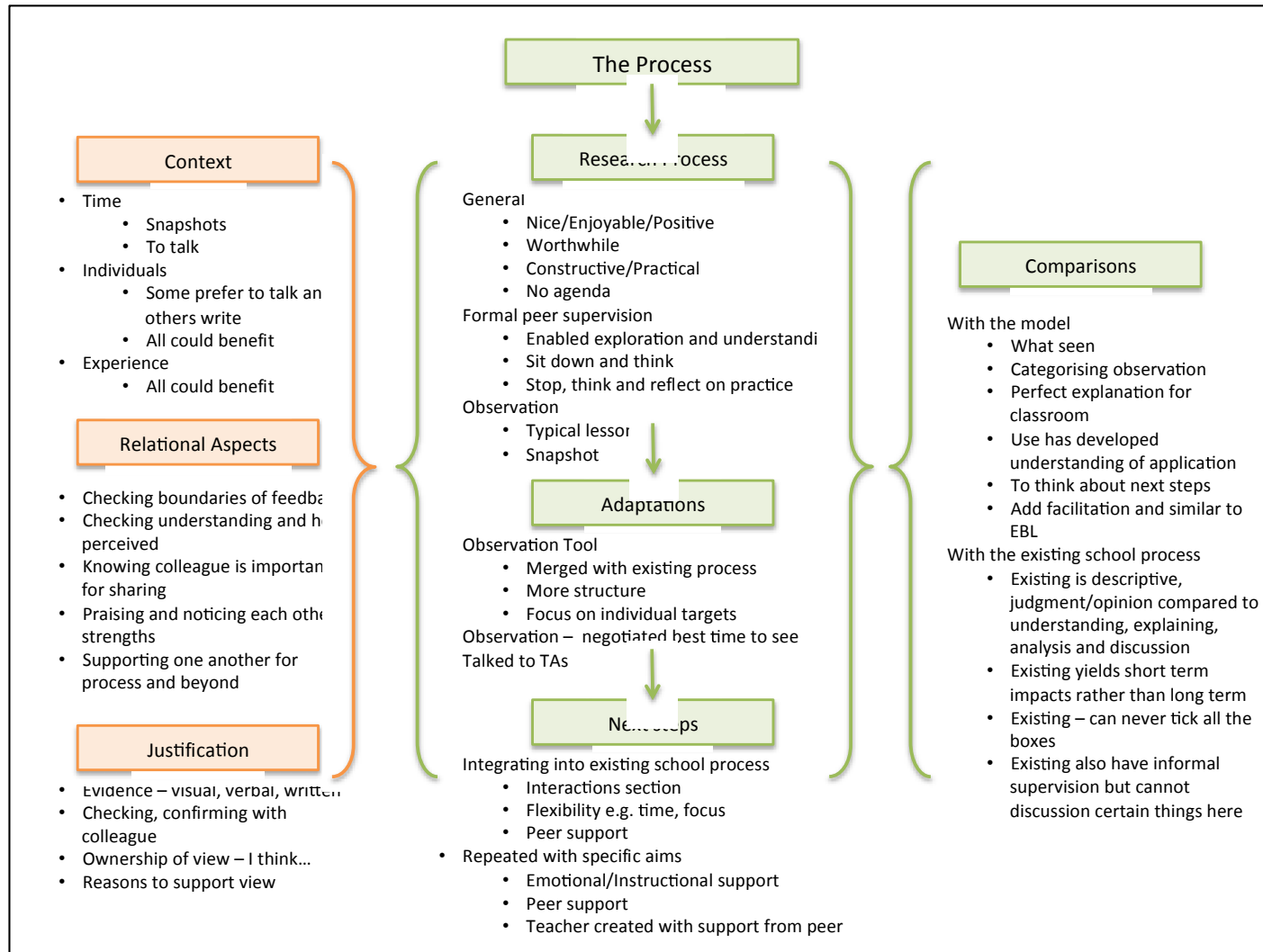
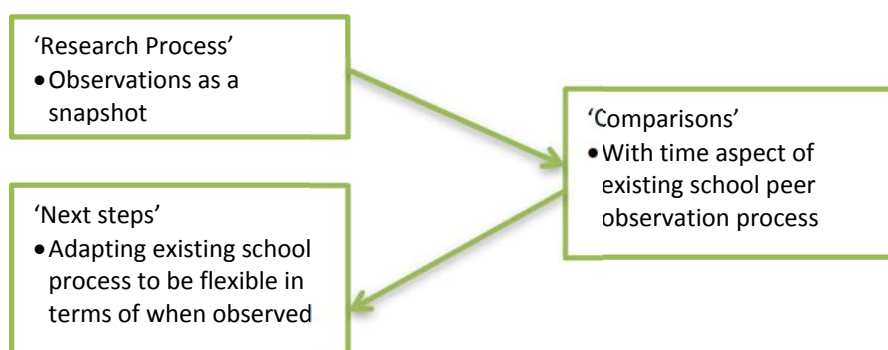


Figure 8 exemplifies the relationship between the categories and the end point of the teachers' thinking and reflection: a next step to adapt the existing peer observation in school to consist of informal and regular short observations across the term as opposed to a formal full lesson observation.

Figure 8: A visual representation of the relationships between the 'research process', 'adaptations', and 'next steps' with the 'comparisons' made by teachers.



Along with the complexity of the relationship between categories that relate directly to the research process, there were also indirect factors at play. The categories in orange (see Figure 7) represent these indirect factors and again there is a dynamic interplay between these categories and those relating directly to the research process. Figure 9 highlights this through data excerpts:

Figure 9: Excerpts that highlight the connections between different indirect factors and the research process.

- 'Context' refers to factors about the experience of the process that may differ such as time and individual characteristics...
'...I think every teacher in the world it doesn't matter who you are or how long you've been teaching I generally think if you did this and did it I think you would improve your teaching...'
(Transcription 4, Samuel and Julie, Line 166-168)
- 'Relational aspects' represent how the teachers interacted with each other during the research process and any implications from this...
'...I think it could have been a different experience if we'd been a pair of people we didn't get on...'
(Transcription 3, Alice and Chloe, Line 504-505)
- 'Justification' was the recurrent theme of teachers feeling as though they had to evidence, support and declare their perceptions...
'...I'm thinking like I dunno if this is right I probably in my head...'
(Transcription 2, Samuel and Julie, Line 303)

The interrelationships between the categories showed a fluid research process that evolved with the teachers' thinking and ideas. Teachers said it helped to "generate a discussion" (Transcription 4, Samuel and Julie, Line 263) and encourage "reflective thinking" (Transcription 4, Samuel and Julie, Line 264), which led to the possible next step illustrated in Box 2:

Box 2: The development peer observation and discussion.

'...I think on formal peer to peer observation someone gives an opinion of you and there's no reflection of reflective thinking on it there's no analysis of what went on and no why it went on...'

(Transcription 4, Samuel and Julie, Line 267-269)

'...I think that when we do the observations I think that we will definitely talk about the interaction...'

(Transcription 3, Alice and Chloe, Line 529-530)

This suggests a new integrated approach to peer observation and discussion, which adapts the existing peer observation process in school from the research process. An approach where teachers plan their observation focus, undertake the observation in a flexible manner, and discuss in a way that is not simply the 'what', but the 'how' and 'why'. Moreover, the teachers thought it would be useful to include interactions as a recurrent topic in the adapted process.

3.4.2. A model of interactions in the classroom...

Along with teachers taking forward the topic of interactions, the data also helped to capture teachers' perceptions of interactions in the classroom. An existing model of teacher-child interactions (Downer et al., 2010) was used as an aid for the teacher observations (see Figure 4, p.62). This is referred to as Model 1 from this point on, and general comments are presented about Model 1 in Box 3:

Box 3: Teachers' general comments about Model 1.

'...a model it's just like perfect for the classroom because if you don't do one thing then you're not gonna get what you want at the end every single thing you take out you wouldn't get the end result that you wanted in the classroom by taking one of those out...' (Transcription 1, Alice and Chloe, Line 333-336)

'...it makes you aware of your interactions so I think when I watched you it made me really what I see I could almost erm describe it as military style I could see that but what I could what I could then break that down to I could understand why it was military style because it was these two things...' referring organisational and instructional support (Transcription 2, Samuel and Julie, Line 448-452)

The teachers seemed to agree with every aspect within Model 1 and it was also useful in encouraging teachers to reflect on the interactions in their classrooms. There were clear categories from my analysis that fit with Model 1 and thus I began by mapping these findings onto Model 1 to see the extent in which it captured the teachers' perceptions. Figure 10 shows this mapping in terms of the teacher-child interactions and outcomes proposed by Downer et al. (2010) as Model 2.

Figure 10: Model 2 - How teachers' perceptions mapped onto the interactions and outcomes aspects of the original Model 1 by Downer et al. (2010).

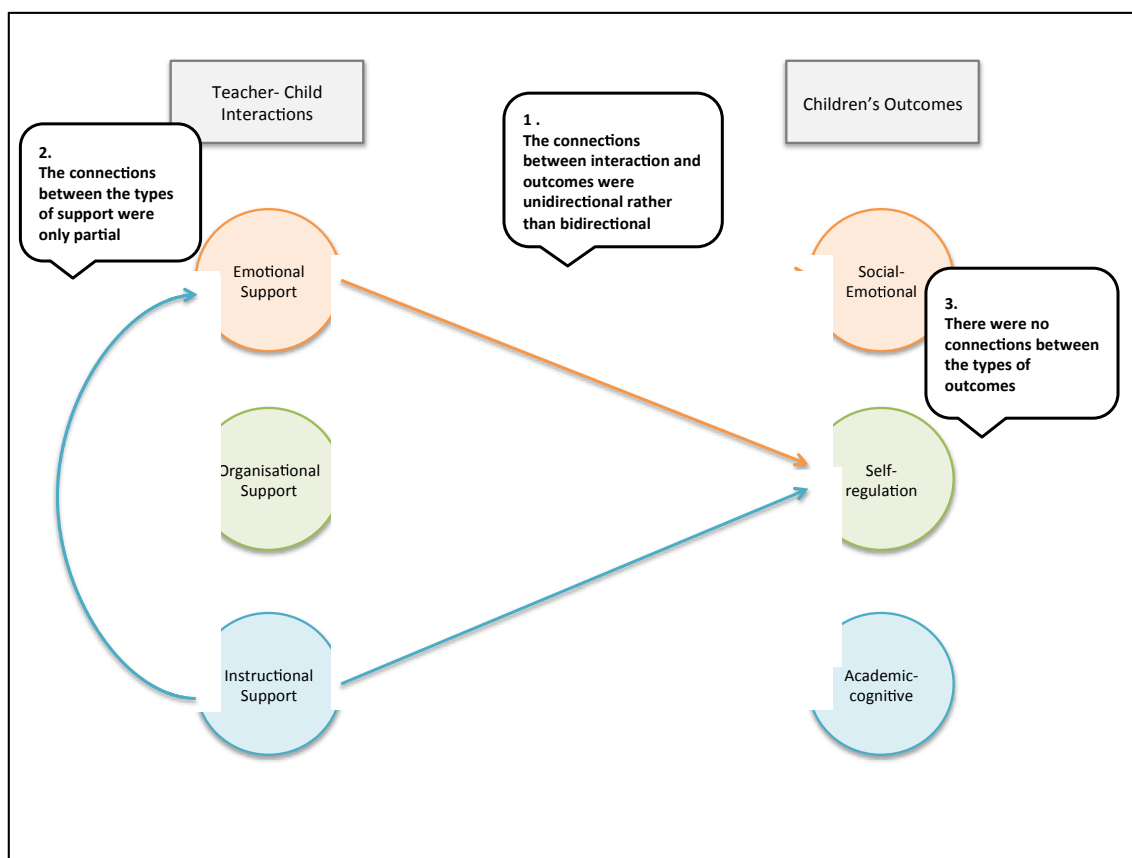


Figure 10 shows how each type of interaction and outcome in Model 1 had a coinciding category from my analysis. This supports the general comments by the teachers that no aspect of the model could be taken out. One main difference is that of the connections between and within the support types and outcomes, with:

1. The connections between the support types and outcomes not being bidirectional.
2. The connections between the support types not being complete.
3. There being no connections between the types of outcomes.

Table 10 provides greater detail of the teachers' articulated thoughts about the categories presented in Model 1. It provides descriptions based on the open codes for the categories,

and any connections made between the categories. In terms of the connections these could be lacking because teachers considered that these categories were quite distinct from one another. Conversely, the reverse could be true with teachers finding it difficult to describe support types and outcomes as distinct categories thus obscuring any possible connections.

Table 10: Teachers’ perceptions of the different types of interactions and outcomes in Model 1.

Categories	Description	Connections
Emotional Support	<ul style="list-style-type: none"> •Guidance and checking •Reassurance and praise •Awareness of discourse and body language •Humour •Feel it rather than see it but important aspect •Need based •Resources and programmes •Teacher as a facilitator 	Facilitating peer support enables the teacher to provide more emotional support and the children to provide organisational and instructional support
Organisational Support	<ul style="list-style-type: none"> •Firm and teacher led organisation •Routine and planning •Appropriate timings •Modelling how to do 	Organisational support is a foundation and once this is in place teachers can build on this with emotional support
Instructional Support	<ul style="list-style-type: none"> •Firm and teacher led instructions •Clear instructions and plans for day •Reinforcing instructions visually and orally •Use of resources as aids •Space and time for children to work through •Self assessment 	
Social-Emotional Outcome	<ul style="list-style-type: none"> •Children don’t feel embarrassed or as though they are wrong •A smile is evidence of a positive outcome •Children feel important •Children know what is expected 	• All three types of support needed for the social-emotional outcome
Self-regulation Outcome	<ul style="list-style-type: none"> •Children get on and are not being silly •They know where to go and know what to do 	• All three types of support help the self-regulation outcome

Categories	Description	Connections
Academic-Cognitive Outcome	<ul style="list-style-type: none"> • Getting the answers right • Improvement of scores on a test • Academic achievement • Cognitive development 	<ul style="list-style-type: none"> • Emotional support helps children get it right – an academic-cognitive outcome • Organisational support helps children focus more so they can achieve academically • Instructional support leads to academic achievement and cognitive development

3.4.2.1. Exploring interactions and outcomes further

However, Model 2 does not represent the full extent of the analytic findings. There were distinct categories of data on ‘interactions’ and ‘outcomes’ that did not fit directly with Model 1. In terms of interactions there were four unique subcategories not present in Model 1 or 2, which are described in Table 11:

Table 11: Subcategories of interactions that were not captured by Model 1 or 2.

Subcategory	Description based on open codes
1 <i>Balance of support types: Emotional, Organisational, Instructional</i>	<ul style="list-style-type: none"> • Variation in size of interactions <ul style="list-style-type: none"> ○ Small interactions include modelling, praise, encouragement ○ Large interactions include teaching the class • Different amounts of support type are dependent on... <ul style="list-style-type: none"> ○ Knowing your class and what they need ○ Contextual factors ○ Providing more of one will decrease another ○ Peers can provide support types to each other ○ Important to have all three types
2 <i>Beyond teacher-child interactions</i>	<ul style="list-style-type: none"> • Teacher-child interactions occur but child-child interactions need to be developed • Teachers as facilitators of peer support • Interactions and support being reciprocal and collaborative between teachers and peers

<p>3</p> <p><i>Thinking about and being aware of interactions</i></p>	<ul style="list-style-type: none"> • Interactions are not always visibly evident but what they look like is important in developing understanding • Interactions being automatic <ul style="list-style-type: none"> ○ They take you in unexpected places ○ Don't always think consciously about ○ Some interactions you know you just need to do • Considering how you interact <ul style="list-style-type: none"> ○ Teachers interactions are models for children all the time ○ Thinking more carefully about how you interact due to research process
<p>4</p> <p><i>Levels of support</i></p>	<ul style="list-style-type: none"> • Impact/Effect on the class <ul style="list-style-type: none"> ○ Individual support can affect the whole class ○ An interaction with one child can be an interaction to the whole class • Individual support <ul style="list-style-type: none"> ○ Providing this to one child can mean another misses out ○ Interactions were mainly teacher-child, one to one questions

For 'outcomes', the teachers considered these as a way to establish what support to give. Also the teachers' aim was always to have a positive outcome even if it did not always occur. A further point about outcomes was wondering whether children's outcomes would be the same as the teachers' desired outcomes. The remaining open codes were not so much about outcomes but a way to achieve outcomes. This included teachers facilitating peer support to create a "warm good friendly classroom environment" (Transcript 2, Samuel and Julie, Line 417) and from this the "outcome is that they got resolved and it got put right" (Transcript 2, Samuel and Julie, Line 427). Referring back to Table 10, "right" answers were described as an academic-cognitive outcome. Thus created a 'warm environment' seemed to mediate an academic outcome, and there were other examples of mediating effects discovered.

3.4.2.2. *Extending the model – interactions and mediating effects*

Thus exploring the categories of 'interactions' and 'outcomes' highlighted an extension to the existing model. For interactions, these appeared to not be limited to just teacher-child, as in Model 1. Another extension is mediating effects that bridge the gap between interactions and outcomes in the classroom. Possibly this could explain why the connections between the outcomes presented in Model 1 were missing from the analytical findings of this project - because teachers were using the interactions for particular effects that would enable the achievement of outcomes.

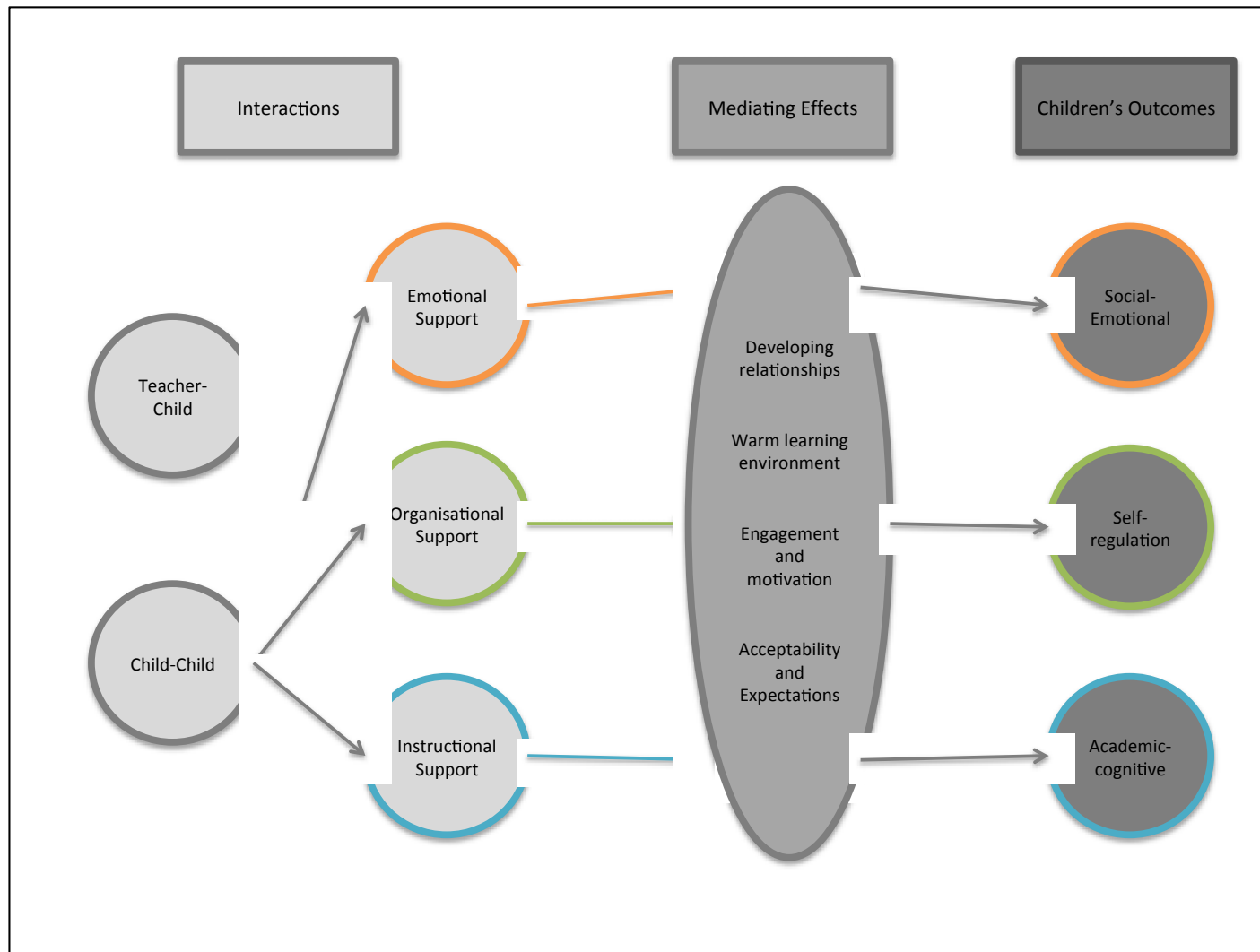
Figure 11 is Model 3 and illustrates the development of Model 1 and 2 based on teachers' perceptions. Table 12 provides detail on how the new aspects of the model were described within the data through descriptions of axial codes based on open codes and transcript examples.

Table 12: Teachers' perceptions on types of interactions and the mediating effects of these.

Axial codes	Description derived from open codes	Transcript excerpts
Teacher-child actions	<ul style="list-style-type: none"> • Discourse – praise, humour, reassurance, conversations • Routine – preparing, reminding, repetition • Time – listen to children, follow up • Space – balance of direction and independence • Adapt – knowing children, being aware, time for spontaneity • Guide - modelling, facilitating child-child interactions 	<p><i>'...I also put supportive environment for the children to put forward their ideas so again there was emotional support there so and it was actually through humour...'</i></p> <p>(Transcript 2, Samuel and Julie, Line 140-142)</p>
Child-child actions	<ul style="list-style-type: none"> • Support – helping one another, thinking of others • Adapt – to different teachers, to routines, behaviour • Pride – feeling of achievement, showing work • Individual – choose adult for support, do different quantity and quality of work, like different aspects of work 	<p><i>'...from working with each other you could see the confidence growing and one individual due to her confidence growing on one to one she was able to stand up and go off to another group erm and help them...'</i></p> <p>(Transcript 4, Samuel and Julie, Line 41-44)</p>
Developing relationships	<ul style="list-style-type: none"> • Important to feel able to support one another • Children feeling able to ask and share without fear • Liking one another helps but not always the case <ul style="list-style-type: none"> ○ Teachers considering it their job to keep trying 	<p><i>'...even if we don't feel an immediate attachment because you don't with some children because they don't give you that they don't give you that talking to you about their home life and you have to pull everything out of them and it's very difficult to make a</i></p>

Axial codes	Description derived from open codes	Transcript excerpts
	<ul style="list-style-type: none"> ○ Hard for children stuck with a teacher they don't like ● Relationships developing over time from interactions 	<p><i>relationship with them but as an adult you just keep trying...'</i></p> <p>(Transcript 1, Alice and Chloe, Line 318-321)</p>
Warm learning environment	<ul style="list-style-type: none"> ● Collective – do together, help one another, an individual can impact on the class morale, comparison to a family ● Discourse – questions, explanations, organising, sequencing, praise, humour and active discussion ● Action – space, time, and physical props/environment ● Belonging – valued, listened to, clear expectations 	<p><i>'...a good environment to teach in as well because erm I think it would be difficult as a teacher to work in a classroom where children didn't feel valued where they didn't feel like they were being listened to where children didn't know what was acceptable...'</i></p> <p>(Transcript 1, Alice and Chloe, Line 80-82)</p>
Engagement and Motivation	<ul style="list-style-type: none"> ● Hard to describe – visible, just know ● Engaged and motivated - engrossed, minds ticking, talking on topic, pride and responsibility, enjoying work, understanding work ● Use enthusiasm to encourage 	<p><i>'...because Alice had created a kind of euphoria about maths and come on let's try this lets do this let do that so everyone was engaged and trying to have a go so erm it felt active it did it felt like there was a lot of learning going on motivating and engaged...'</i></p> <p>(Transcript 1, Alice and Chloe, Line 267-169)</p>
Acceptability and Expectations	<ul style="list-style-type: none"> ● Clarity – increases chance of learning, know where the line is, know what to do, no inhibitions ● Dealings with an individual can provide clarity to others 	<p><i>'...modelling interactions have shown how to talk to one another and what is acceptable and what's not acceptable...'</i></p> <p>(Transcript 1, Alice and Chloe, Line 374-375)</p>

Figure 11: Model 3, which encapsulates broader interaction types and the mediating effects between interactions and outcomes.



From the transcript excerpts in Table 12 the link between interactions, mediating effects and outcomes can be seen. For the mediating effect of 'motivation and engagement' we can see that the teacher-child interaction was enthusiasm, creating "euphoria about maths", and encouragement of "let's do this". These actions led to children demonstrating their engagement by "having a go" and being "active" in the learning. Considering outcomes, "lots of learning" can be denoted as an academic outcome, but being motivated to learn could also be interpreted as an emotional outcome too. The mediating effects seem to be clearly linked with the interactions, but the outcomes of emotional-social, self-regulation, and academic-cognitive developments are less so. This could be due to these outcomes being longer term and cumulative effects of interactions.

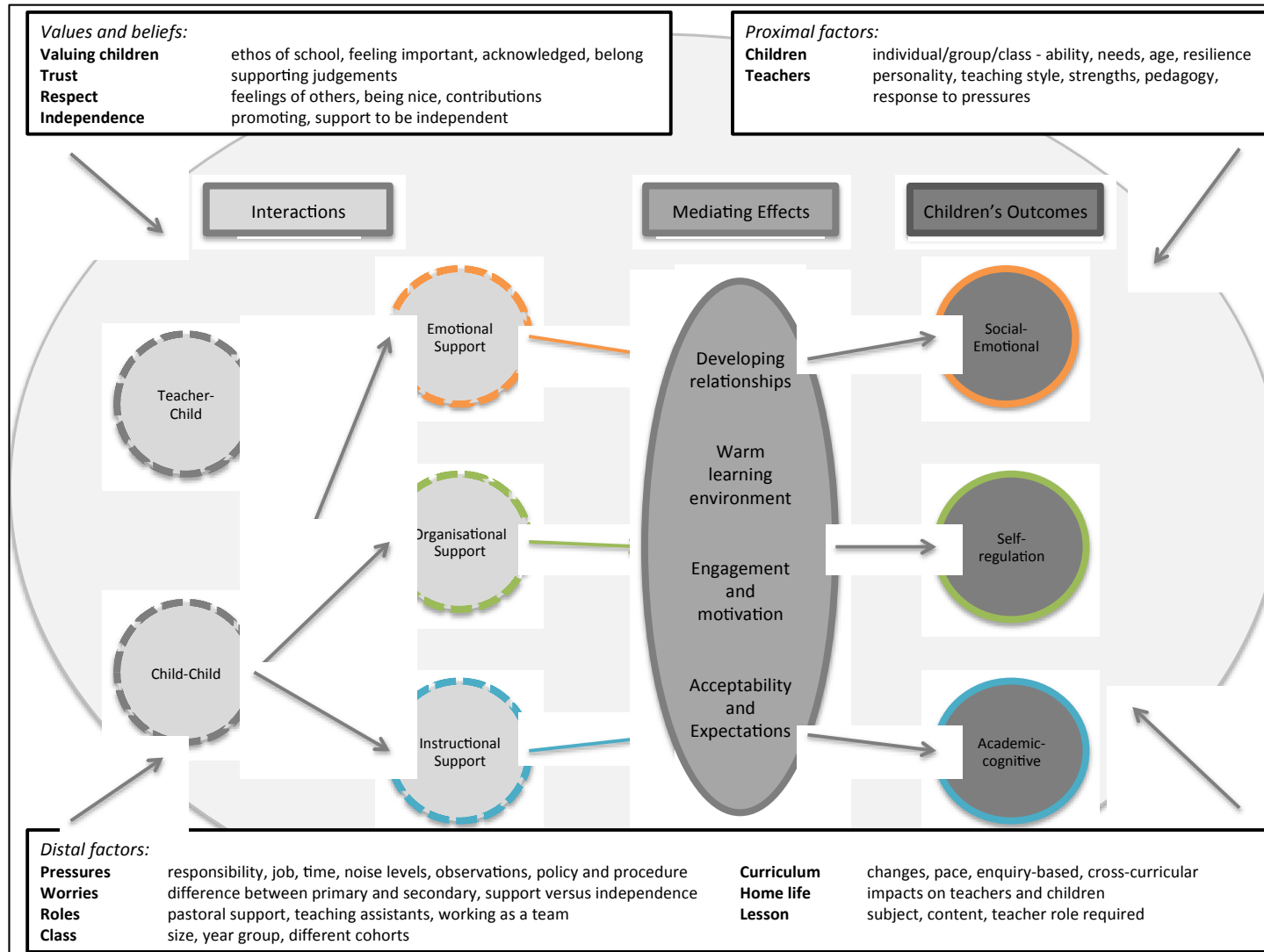
Although the links between interactions and 'mediating effects' are clear the distinction between the 'mediating effects' is ambiguous. Model 3 (see Figure 11) visually portrays mediating effects as a whole concept rather than separate entities like the types of interactions and outcomes. A possible reason for the mediating effects being difficult to separate from one another could be that teachers' interactions often led to multiple effects. For example in Table 12, children being "valued, listened to", and knowing what was "acceptable" created a 'warm learning environment'. However, this also fits with the mediating effect of 'acceptability and expectations'. Although this overlap in mediating effects is apparent in the data, distinct themes for each effect also emerged.

Within Table 12 there is also intimation that other factors may affect the interactions. 'Developing relationships' has an excerpt about teachers not forming a relationship with some children immediately. There is the suggestion that because particular children do not share information about themselves that it is difficult to develop a relationship with them. Thus contextual factors may influence the interaction and resulting effect(s).

3.4.2.3. The final model – adding context

One important aspect of Model 1 (p.62) I have yet to discuss in relation to my findings is the influence of contextual factors. Model 1 included proximal and distal factors that have been found to have an impact on the quality of interactions in the classroom (Downer et al., 2010). Proximal factors included teacher and child factors at an individual level such as biological factors, predispositions, beliefs, psychological functioning, and individual attributes (op cit). Distal factors were those relating to the family, classroom, and sociocultural contexts (op cit). Figure 12 is a visual representation of the final model (4) discovered from the data, adding the contextual factors that emerged:

Figure 12: Model 4 - Final model depicting the teachers' perceptions of interactions in the classroom.



Contextual factors emerged as important influencing factors that inextricably impacted upon the interactions in the classroom. Model 4 represents the impact of external factors through arrows directed in towards the interactions, mediating effects and outcomes. Furthermore, the types of interactions have dashed lines which encase them to represent how the amount of each type of support is variable. This variation in type of support seemed to be primarily affected by contextual influences as shown in Box 4:

Box 4: Contextual factors influencing the balance of interaction type provided.

'...sometimes you're at the front and that you think you know you need to listen to me because I'm helping you and other times it's more like lets do this together and what can you help me with it depends on the lesson and the context as well...'

(Transcript 1, Alice and Chloe, Line 171-174)

Analysis discovered both proximal and distal factors, as in Model 1. However, I considered that Model 4 provides greater emphasis and clarity about the influence of contextual factors on interactions in the classroom that was not as apparent in the Downer et al. (2010) model. An example of a proximal factor influence is children with "high pastoral needs" (Transcription 2, Samuel and Julie, Line 103-104) having more "emotional support" (Transcription 2, Samuel and Julie, Line 103) to help them. In terms of distal factors these mainly focused on the school context. One such was the role of different adults in providing different types and balance of interactions as in Box 5:

Box 5: An example of a distal factor affecting interactions in the classroom.

'...they work as a team it's not just Alice giving the emotional support she does as well and sometimes they can they know something is going on would you deal with that one and I'll deal with this one so it's just that working together so I think the children are lucky in the fact that they have the two adults in a room...'

(Transcript 3, Alice and Chloe, Line 62-66)

Beliefs was an aspect included in the proximal factors of the Downer et al. (2010) model. I have chosen to separate this out like the macrosystem of the ecological model by Bronfenbrenner (1994). I considered that the values and beliefs were not so much a factor but underpinning principles to how teachers would interpret and act in the classroom. In this project the teachers seemed to have similar values, suggesting a whole school ethos (see Box 6):

Box 6: Values and beliefs underpinning interactions in the classroom.

C *'...I think it's across school isn't it*

A *you can't really be a good teacher if you don't value the value of the children...'*

(Transcript 1, Alice and Chloe, Line 608-609)

In summary, teachers' perceptions have highlighted the importance of context to the balance of interactions in the classroom. Furthermore, interactions and the effect of these are more complex than a direct effect on children's outcomes. I have begun to discuss these findings in relation to the original model by Downer et al. (2010) and have presented a revised model based on teachers' perceptions (Model 4). However, how does this new model fit within the wider literature?

3.5. Discussion

The research findings from this project have implications that stem from both the research process and a proposed new model of interactions in the classroom. I now consider the findings and implications alongside the existing theory and research within the field of educational psychology. Subsequently I will acknowledge possible limitations to this research and conclude with potential direction for future research and practice.

3.5.1. Developing peer observation and supervision

Findings related to the research process suggest that the method of enquiry-based observation and peer supervision was a supportive and useful tool for teachers. Within this, teachers considered relational aspects were important and valued the peer support. There appeared to be a focus on the *positives* and using one another's *strengths* to enhance practice. This seemed to resonate with a positive psychology stance of helping one another to identify and nurture their strongest qualities (Seligman & Csikszentmihalyi, 2000). I consider positive psychology to be an underlying principle of my practice, thus I wonder the extent to which I have facilitated this approach through the research process.

In thinking about myself as a facilitator I recall teachers commenting that through the research process we were in effect applying the model of interactions as adults. Links to observational learning theory could be drawn here in terms of adults, children and young people learning from direct observation of interactions (Bandura, 1971). Indeed taking Model 4 (p.83) as an explanation, I would be the teacher in the model facilitating peer interactions. This has potential implications for the role of an EP in supporting teachers to identify and develop using

one another as a valuable resource in enhancing their knowledge and skills. This is also reminiscent of supervision models that promote a supportive and educational function alongside a managerial aspect (Kadushin & Harkness, 2002).

A next step derived from the research process was potentially adapting the existing peer observation and discussion process in school. Teachers reflected that their existing process was opinion based and descriptive. Similar findings were revealed in a survey of new teachers; that they tended to base their effectiveness on the opinion of others rather than their own judgement (Tracey et al., 2008). The suggestion was that the teachers might not have developed the reflective skills to gauge their self-efficacy. Gibbs and Miller (2013) discussed how EPs could support teacher's efficacy belief through supportive supervisory and consultative approaches, such as applying positive psychology.

3.5.2. Developing our understanding of interactions in the classroom

Another implication that can be drawn from this research is a greater understanding of interactions in the classroom. This study aimed to gather teachers' perceptions on this topic and has done so to the effect of creating a new model of explanation (p.83). The findings have extended Model 1 (p.62) in three ways: interaction type, mediating effects, and contextual factors.

3.5.2.1. Type of interactions

Interactions were established as not being limited to those that are typified as teacher-child. Child-child interactions were a key element in the teachers' aim to promote independent learning. Research has linked collaborative peer work with improved outcomes for children (e.g. Johnson, 1981; Kamps, Barbetta, Leonard, & Delquadri, 1994), but with the caveat of this being dependent on the pairings and group arrangements to ensure students can and are supporting one another (Battistich, Solomon, & Delucchi, 1993; Carter, Cushing, Clark, & Kennedy, 2005). Johnson (1981) intimated that children might have to learn *how* to work collaboratively. The teachers in this study seemed to concur that children being able to support one another and themselves was a process, one that they facilitated.

Facilitation of peer interactions occurred within the research process too. For my part, I considered that I used dialogue to facilitate reflective thinking and support between teachers. Skidmore (2006) summarised existing dialogic literature in four main parts: dialogic instruction, dialogic enquiry, dialogical pedagogy, and dialogic teaching. Dialogic instruction through use

of authentic questions and uptake resonated with how I considered I facilitated peer supervision (Nystrand, Gamoran, Kachur, & Prendergast, 1997). Moreover, there were also elements of dialogic enquiry where teachers engaged in progressive discussion throughout the peer supervision sessions (Wells, 1999). I approach any conclusions in terms of the teachers' perceptions on dialogue with caution, as the topic was not explicitly referred to. However, certain aspects that Alexander (2001) describes as dialogic teaching, such as a supportive and collective approach, seem akin to teachers' perceptions on the interactions in their classrooms.

3.5.2.2. *Mediating effects*

Another new aspect in Model 4 (p. 83) were the mediating effects arising from interactions of developing relationships, a warm learning environment, motivation and engagement, and acceptability and expectations. These mediating effects are not completely novel concepts within the field of educational psychology and parallels can be drawn with existing bodies of literature. For developing relationships, an increased perception of closeness or quality of relationship between a teacher and child has been positively associated with children's behavioural and academic outcomes (e.g. Fowler, Banks, Anhalt, Der, & Kalis, 2008; Tsai & Cheney, 2012). A warm learning environment could be linked with literature on the emotional climate of the classroom. Findings have suggested a positive association between emotional climate and children's engagement and outcomes too (Bellocchi, Ritchie, Tobin, Sandhu, & Sandhu, 2013; Reyes, Brackett, Rivers, White, & Salovey, 2012). Detail on the literature pertaining to engagement can be found in my systematic review, which links engagement to outcomes and suggests engagement as a mediating factor. Much of the research about expectations relates to teachers with high expectations for children's achievement generating a self-fulfilling prophecy (Rosenthal & Jacobson, 1968; Rubie-Davies, Hattie, & Hamilton, 2006). However, the findings from the present study actually seem to present acceptability and expectations as a way of making social relationships, routine, and academic work clear.

There appears to be supportive evidence linking mediating effects and outcomes for children within the existing literature. Aspects of Self-Determination Theory can also offer further explanation of these mediating effects. Self-Determination Theory focuses on meeting the psychological needs of: autonomy, competence, and relatedness (Ryan & Deci, 2000). It is claimed that by providing the social and cultural environment to facilitate these needs, individual's intrinsic motivation, self-regulation, and well-being are encouraged (op cit). Parallels in terminology such as the mediating effect of motivation, and the outcome of self-regulation can be seen in Model 4 (p.83). However, the key difference seems to be the

concept of *self*, which did not emerge from the findings of this research. I can postulate as to the extent of its existence, which may differ dependent on individuals' ontological stance, but nevertheless further study about these mediating effects may provide clarification in relation to practice and theory.

3.5.2.3. Context

The findings section (p.82) provides some comparisons with Model 1 (p. 62) in terms of the contextual factors that influence interactions in the classroom. Within this there is some discussion about the ecological influences of Bronfenbrenner (1979, 1994) in terms of the different structures of systems in which children are embedded e.g. microsystem, mesosystem, exosystem, and macrosystem. There are also some similarities with ecology in terms of children being dynamic rather than passive within this model. However, what differs is the reciprocity between child and environment that Bronfenbrenner (1979, 1994) suggested. In Model 4 (p.83) there is a unidirectional relationship between contextual factors and interactions. This is not to say that there are not bidirectional relationships, but more detailed study about contextual factors may clarify these connections.

3.5.3. Limitations of this study

A limitation of this study could be that it took place in one setting. Thus the generalisation and applicability of the findings, and the resulting model of interactions in the classroom (Model 4, p.83), can only be surmised at this point. Another shortcoming of the study is that the participants were limited to Key Stage 2 teachers. School management considered that Key Stage 2 had the most scope, in terms of time commitments, to embark on a research venture. Furthermore, despite participation being offered to all teaching staff within Key Stage 2, it seemed that teachers were more easily released from teaching duties. Therefore the perceptions gathered in this study do not capture the views of other adults in the classroom environment, such as teaching assistants, or those of the children and young people.

3.5.4. Priorities and opportunities for further study

Although this study only focused on one school setting, it provided an opportunity to establish a model specific to this context. I have previously intimated that there appears to be three types of contextual factors (proximal, distal, values and beliefs). Possibly these main types remain constant across different settings, but the specific aspects within these types of contextual factor differ. I believe that this warrants further study to establish if and how Model 4 is applicable within other settings e.g. early years settings, infant schools, and

secondary schools. The same point is applicable to the other new aspects of model 4: mediating factors, and child-child interactions. Thus it is with caution that conclusions are drawn and an acknowledgement that further study and validation would be required to have stronger conviction in Model 4 as an accurate explanation of interactions in the classroom.

Another opportunity for further research follows up on a limitation of this study, the participants. The teachers in this study discussed the importance of other adults in the school in terms of supporting children, and one teacher pair included their teaching assistants in their one of their observation and reflection cycles. Specifically gathering perceptions within school on a wider scale could provide more information on the different roles of adults and what they offer. Moreover, gathering the views of children and young people would provide further depth to our understanding of interactions in the classroom, especially as this group constitutes the other half of a *teacher-child* interaction.

A further opportunity arising from this research came from the process itself. The research process has yielded findings and implications for supporting teachers to develop their skills in observing and reflecting on their practice. This has been done so through using both an enquiry-based and facilitated peer supervision approach. However, professional and peer supervision needs time, and educational settings would have to consider it worth the cost in resources. Therefore a next step will be to disseminate research about the benefits of using supervision, and supporting those schools that are willing with planning and implementation. I hope that the findings of this study and others such as Gibbs and Miller (2013), will help to demonstrate the importance of investing EP time in developing support for teachers to improve outcomes for all.

3.5.5. Conclusion

The implications of this research are twofold: further application of the research process, and a greater understanding of interactions in the classroom. For the research process, the possible implication for EPs is in guiding a more enquiry-based approach to peer observation for schools, and facilitating peer supervision to develop teachers' reflection on practice. In terms of understanding interactions in the classroom, a new model has been presented based on teachers' perceptions. It has highlighted that facilitation is not only an important aspect in teacher development but also for peer interactions. Mediating effects of developing relationships, warm learning environment, engagement and motivation, and acceptability and expectations, have also been suggested. With some tentative links with existing theory and literature this offers direction for further study. The importance and direct influence that

contextual factors have on interactions has also emerged. Further study in this area would also be important to establish the directionality of these factors.

Overall I consider that this research has reiterated messages throughout theory and research across time: the importance of the social world of the child. Thus in a world increasingly focused on measureable outcomes, we should not lose sight of the child as a whole. To those who work directly with children and young people, I hope that this study emphasises that you can have a direct influence on the trajectory of their development. To all professionals in the education sector, that this study has encouraged you to pause and consider the complexity of how children learn, and the array of external factors that can directly impact on what goes on in the classroom:

...sometimes you need to get something out at the end of the lesson but I think that it's really important to take into consideration your interactions with the children in the lesson because sometimes it moves you onto things that you wouldn't have thought of...

Transcript 1, Alice and Chloe, Line 149-152

Box 7: Concluding excerpt.

4. References

- Alexander, R. J. (2001). *Culture and Pedagogy: International Comparisons in Primary Education*. Oxford: Blackwell.
- Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring Cognitive and Psychological Engagement: Validation of the Student Engagement Instrument. *Journal of School Psychology, 44*(5), 427-445. doi: 10.1016/j.jsp.2006.04.002
- Baguley, T. (2009). Standardized or Simple Effect Size: What should be Reported? *British Journal of Psychology, 100*(603-617).
- Baker, M., Cluett, E., Ireland, L., Reading, S., & Rourke, S. (2013). Supervising Undergraduate Research: A Collective Approach Utilising Groupwork and Peer Support. *Nurse education today*.
- Bandura, A. (1971). *Social Learning Theory*. New York: General Learning Press.
- Battistich, V., Solomon, D., & Delucchi, K. (1993). Interaction Processes and Student Outcomes in Cooperative Learning Groups. *The Elementary School Journal, 94*(1).
- Becker, L. A. (2000). Effect Size. from <http://www.uccs.edu/lbecker/effect-size.html>
- Bellocchi, A., Ritchie, S. M., Tobin, K., Sandhu, M., & Sandhu, S. (2013). Exploring Emotional Climate in Preservice Science Teacher Education. *Cultural Studies of Science Education, 8*(3), 529-552.
- Bierman, K. L., Nix, R. L., Heinrichs, B. S., Domitrovich, C. E., Gest, S. D., Welsh, J. A., & Gill, S. (2013). Effects of Head Start REDI on Children's Outcomes 1 Year Later in Different Kindergarten Contexts. *Child Development*. doi: 10.1111/cdev.12117
- Braun, V., & Clarke, V. (2013). *Successful Qualitative Research: A Practical Guide for Beginners*. London: Sage Publications Limited.
- Brazier, D. (1993). *Beyond Carl Rogers*. London: Constable.
- British Psychological Society. (2009). *Code of Ethics and Conduct*. Leicester: British Psychological Society.

Bronfenbrenner, U. (1979). *The Ecology of Human Development: Experiments by Nature and Design*. Massachusetts: Harvard University Press.

Bronfenbrenner, U. (1994). Ecological Models of Human Development. *International Encyclopedia of Education*, 3, 37-43.

Carter, E. W., Cushing, L. S., Clark, N. M., & Kennedy, C. H. (2005). Effects of Peer Support Interventions of Students' Access to the General Curriculum and Social Interactions. *Research and Practice for Persons with Severe Disabilities*, 30(1), 15-25.

Caughlan, S., Juzwik, M. M., Kelly, S., Borsheim-Black, C., & Fine, J. G. (2013). English Teacher Candidates Developing Dialogically Organized Instructional Practices. *Research in the Teaching of English*, 47(3), 212-246.

Center for Advanced Study of Teaching and Learning. (2015). Classroom Assessment Scoring System. Retrieved 25.05.15, 2015, from <http://curry.virginia.edu/research/centers/castl/class>

Charmaz, K. (2006). *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*. London: Sage Publications Limited.

Coe, R. (2002). It's the Effect Size, Stupid - What Effect Size is and why it is Important. from <http://www.leeds.ac.uk/educol/documents/00002182.htm>

Cotzias, E. (2014). *Permanent and Fixed Period Exclusions in England: 2012-2013*. London: National Statistics.

Curby, T. W., LoCasale-Crouch, J., Konold, T. R., Pianta, R. C., Howes, C., & Burchinal, M. (2009). The Relations of Observed Pre-K Classroom Quality Profiles to Children's Achievement and Social Competence. *Early Education & Development*, 20, 346-372.

Department for Education. (2012). *Support and Aspiration: A New Approach to Special Educational Needs and Disability*. Cheshire: Crown Publishing.

Downer, J., Sabol, T. J., & Hamre, B. (2010). Teacher-Child Interactions in the Classroom: Toward a Theory of Within and Cross-domain Links to Children's Developmental Outcomes. *Early Education and Development*, 21(5), 699-723. doi: 10.1080/10409289.2010.497453

Dunsmuir, S., & Leadbetter, J. (2010). *Professional Supervision: Guidelines for Practice for Educational Psychologists* (BPS Ed.). Leicester: Division of Educational and Child Psychology.

Evidence for Policy and Practice Information and Co-ordinating Centre. (2010). *EPPI-Centre Methods for Conducating Systematic Reviews*. London: EPPI-Centre.

Fowler, L. T., Banks, T. I., Anhalt, K., Der, H. H., & Kalis, T. (2008). The Association between Externalizing Behavior Problems, Teacher-student Relationship Quality, and Academic Performance in Young Urban Learners. *Behavior Disorders, 33*, 167-183.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research, 74*, 59-109.

Furlong, M. J., & Christenson, S. L. (2008). Engaging Students at School and with Learning: A Relevant Construct for all Students. *Psychology in the Schools, 45*(5), 365-368.

Gibbs, S., & Miller, A. (2013). Teachers' Resilience and Well-being: A Role for Educational Psychology. *Teachers and Teaching, 20*(5), 609-621. doi: 10.1080/13540602.2013.844408

Gough, D. (2007). Weight of Evidence: A Framework for the Appraisal of the Quality and Relevance of Evidence. *Applied and Practice-based Research. Special Edition of Research Papers in Education, 22*(2), 213-228.

Gregory, A., Allen, J. P., Mikami, A. Y., Hafen, C. A., & Pianta, R. C. (2014). Effects of a Professional Development Program on Behavioral Engagement of Students in Middle and High School. *Psychology in the Schools, 51*(2), 143-163.

Hamre, B. K., & Pianta, R. C. (2005). Can Instructional and Emotional Support in the First Grade Classroom make a Difference for Children at Risk of School Failure? *Child Development, 76*, 949-967.

Hamre, B. K., & Pianta, R. C. (2007). Learning Opportunities in Preschool and Early Elementary Classrooms. In R. Pianta, M. Cox, & K. Snow (Eds.), *School Readiness and the Transition to Kindergarten in the era of Accountability*. Baltimore: Brookes.

Hamre, B. K., Pianta, R. C., Downer, J. T., DeCoster, J., Mashburn, A. J., Jones, S. M., Brown, J. L., Cappella, E., Atkins, M., Rivers, S. E., Brackett, M. A., & Hamagami, A. (2013). Teaching

through Interactions: Testing a Developmental Framework of Teacher Effectiveness in over 4,000 Classrooms. *The Elementary School Journal*, 113(4), 461-487. doi: 10.1086/669616

Hamre, B. K., Pianta, R. C., Mashburn, A. J., & Downer, J. T. (2007). *Building a Science of classrooms: Application of the CLASS Framework in over 4,000 US Early Childhood and Elementary Classrooms*. University of Virginia. Virginia.

Hawkins, P., & Shohet, R. (2007). *Supervision in the Helping Professions*. Berkshire: McGraw-Hill International.

Health and Care Professions Council. (2012). *Standards of Proficiency: Practitioner Psychologists*. London: Health and Care Professions Council.

Johnson, D. W. (1981). *Student-Student Interaction: The Neglected Variable in Education*. Paper presented at the American Educational Research Association Annual Meeting, Boston.

Joseph, S. (2008). Positive Psychology as a Framework for Practice. In B. Kelly, Woolfson, L., and Boyle, J. (Ed.), *Frameworks for Practice in Educational Psychology: A Textbook for Trainees and Practitioners*. London: Jessica Kingsley Publishers.

Kadushin, A., & Harkness, D. (2002). *Supervision in Social Work*. Chichester: Columbia University Press.

Kahn, P., & O'Rourke, K. (2005). Understanding Enquiry-Based Learning. In T. Barrett, I. Mac Labhrainn, & H. Fallon (Eds.), *Handbook of Enquiry and Problem-based Learning: Irish Case Studies and International Perspectives*. Galway: Centre for Excellence in Learning and Teaching.

Kamps, D. M., Barbetta, P. M., Leonard, B. R., & Delquadri, J. (1994). Classwide Peer Tutoring: An Integration Strategy to Improve Reading Skills and Promote Peer Interactions among Students with Autism and General Education Peers. *Journal of applied behavior analysis*, 27(1), 49-61.

Kelly, S. (2007). Classroom Discourse and the Distribution of Student Engagement. *Social Psychology of Education*, 10(3), 331-352. doi: 10.1007/s11218-007-9024-0

- Kolb, D. A., Boyatzis, R. E., & Mainemelis, C. (2001). Experiential Learning Theory: Previous Research and New Directions. *Perspectives on thinking, learning, and cognitive styles, 1*, 227-247.
- La Paro, K. M., Hamre, B. K., Locasale-Crouch, J., Pianta, R. C., Bryant, D., Early, D., Clifford, R., Barbarin, O., Howes, C., & Burchinal, M. (2009). Quality in Kindergarten Classrooms: Observational Evidence for the Need to Increase Children's Learning Opportunities in Early Education Classrooms. *Early Education and Development, 20*(4), 657-692.
- Lyle, S. (2008). Dialogic teaching: Discussing theoretical contexts and reviewing evidence from classroom practice. *Language and Education, 22*(3), 222-240. doi: 10.2167/le778.0
- Malmberg, L. E., Hagger, H., Burn, K., Mutton, T., & Colls, H. (2010). Observed Classroom Quality During Teacher Education and Two Years of Professional Practice. *Journal of Educational Psychology, 102*(4), 916-932.
- Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., Burchinal, M., Early, D. M., & Howes, C. (2008). Measures of Classroom Quality in Prekindergarten and Children's Development of Academic, Language, and Social Skills. *Child Development, 79*(3), 732-749. doi: 10.1111/j.1467-8624.2008.01154.x
- Maxwell, J. A. (2012). *A Realist Approach for Qualitative Research*. London: Sage Publications Limited.
- McElhone, D. (2012). Tell Us More: Reading Comprehension, Engagement, and Conceptual Press Discourse. *Reading Psychology, 33*(6), 525-561. doi: 10.1080/02702711.2011.561655
- McGrane, J., & Lofthouse, R. (2010). *Developing Outstanding Teaching and Learning: Creating a culture of professional development to improve outcomes*. London: Optimus Education.
- Mercer, N., Wegerif, R., & Dawes, L. (1999). Children's Talk and the Development of Reasoning in the Classroom. *British Educational Research Journal, 25*(1), 95-111.
- Moore, J. (2005). Recognising and Questioning the Epistemological Basis of Educational Psychology Practice. *Educational Psychology in Practice, 21*(2), 103-116.

National Institute of Child Health and Human Development Early Child Care Research Network. (2005). A Day in Third Grade: A Large-scale Study of Classroom Quality and Teacher and Student Behavior. *Elementary School Journal*, 105(3), 305-323.

Nystrand, M., & Gamoran, A. (1990). *Student Engagement: When Recitation Becomes Conversation [Technical Report]*. Washington, DC.: Office of Educational Research and Improvement.

Nystrand, M., Gamoran, A., Kachur, R., & Prendergast, C. (1997). *Opening Dialogue: Understanding the Dynamics of Language and Learning in the English Classroom*. New York: Teachers College Press.

Petticrew, M., & Roberts, H. (2006). *Systematic Reviews in the Social Sciences: A Practical Guide*. Oxford: Blackwell Publishing Limited.

Ponitz, C. C., Rimm-Kaufman, S. E., Grimm, K. J., & Curby, T. W. (2009). Kindergarten Classroom Quality, Behavioral Engagement, and Reading Achievement. *School Psychology Review*, 38(1), 102-120.

Rees, I. (2008). A Systemic Solution-Oriented Model. In B. Kelly, L. Woolfson, & C. Boyle (Eds.), *Frameworks for Practice in Educational Psychology: A Textbook for Trainees and Practitioners*. London: Jessica Kingsley Publishers.

Reyes, M. R., Brackett, M. A., Rivers, S. E., White, M., & Salovey, P. (2012). Classroom Emotional Climate, Student Engagement, and Academic Achievement. *Journal of Educational Psychology*, 104(3), 700-712.

Rimm-Kaufman, S. E., Curby, T. W., Grimm, K., Nathanson, L., & Brock, L. L. (2009). The Contribution of Children's Self-regulation and Classroom Quality to Children's Adaptive Behaviors in the Kindergarten Classroom. *Developmental Psychology*, 45, 958-972.

Rosenthal, R., & Jacobson, L. (1968). Pygmalion in the Classroom. *The Urban Review*, 16-20.

Rubie-Davies, C., Hattie, J., & Hamilton, R. (2006). Expecting the Best for Students: Teacher Expectations and Academic Outcomes. *British Journal of Educational Psychology*, 76(Pt 3), 429-444. doi: 10.1348/000709905X53589

Ryan, R. M., & Deci, E. L. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-being. *American Psychologist*, 55(1), 68.

Sanderson, H. (2000). *Person-Centred Planning: Key Features and Approaches*. UK: Joseph Rowntree Foundation.

Scott, D. (2005). Critical Realism and Empirical Research Methods in Education. *Journal of Philosophy of Education*, 39(4), 633-646.

Seedhouse, D. (2009). *Ethics: The Heart of Healthcare*. Chichester: John Wiley and Sons Limited.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive Psychology: An Introduction. *American Psychologist*, 55(1), 5-14.

Skidmore, D. (2006). Pedagogy and dialogue. *Cambridge Journal of Education*, 36(4), 503-514. doi: 10.1080/03057640601048407

Skinner, E., Furrer, C., Marchand, G., & Kindermann, T. (2008). Engagement and Disaffection in the Classroom: Part of a Larger Motivational Dynamic? *Journal of Educational Psychology*, 100(4), 765.

Strauss, A., & Corbin, J. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* (2nd ed.). London: Sage Publications Limited.

Stutchbury, K., & Fox, A. (2009). Ethics in Educational Research: Introducing a Methodological Tool for Effective Ethical Analysis. *Cambridge Journal of Education*, 39(4), 489-504.

Test, J. E., & Cornelius-White, J. H. D. (2013). Relationships between the Timing of Social Interactions and Preschoolers' Engagement in Preschool Classrooms. *Journal of Early Childhood Research*, 11(2), 165-183. doi: 10.1177/1476718X12466217

The Department of Education. (2012). *Exclusion from Maintained Schools, Academies and Pupil Referral Units: A Guide for those with Legal Responsibilities in Relation to Exclusion*. London: Crown Publishing.

The Department of Education, & The Department of Health. (2015). *Special Educational Needs and Disability Code of Practice: 0 to 25 years - Statutory Guidance for Organisations who Work with and Support Children and Young People with Special Educational Needs and Disabilities*. England: Department of Education and Department of Health.

Tracey, L., Homer, M., Mitchell, N., Malerez, A., Hobson, A. J., Ashby, P., & Pell, G. (2008). *Teachers' Experiences in their Second Year in Post - Findings from Phase IV of the Becoming a Teacher Project*. Nottingham: DCSF Publishers.

Trow, W. C. (1953). The Value Concept in Educational Psychology. *Journal of Educational Psychology*, 44(8), 449-462. doi: 10.1037/h0060934

Tsai, S. F., & Cheney, D. (2012). The Impact of the Adult-Child Relationship on School Adjustment for Children at Risk of Serious Behavior Problems. *Journal of Emotional and Behavioral Disorders*, 20(2), 105-114. doi: 10.1177/1063426611418974

Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. Cambridge, MA: Harvard University Press.

Wallace, M., & Wray, A. (2011). *Critical Reading and Writing for Postgraduates* (2nd ed.). London: Sage Publications Limited.

Wells, G. (1999). *Dialogic Inquiry: Towards a Sociocultural Practice and Theory of Education*. Cambridge: Cambridge University Press.

Williford, A. P., Maier, M. F., Downer, J. T., Pianta, R. C., & Howes, C. (2013). Understanding how Children's Engagement and Teachers' Interactions Combine to Predict School Readiness. *Journal of Applied Developmental Psychology*. doi: 10.1016/j.appdev.2013.05.002

Williford, A. P., Vick Whittaker, J. E., Vitiello, V. E., & Downer, J. T. (2013). Children's Engagement Within the Preschool Classroom and Their Development of Self-Regulation. *Early Education and Development*, 24(2), 162-187. doi: 10.1080/10409289.2011.628270

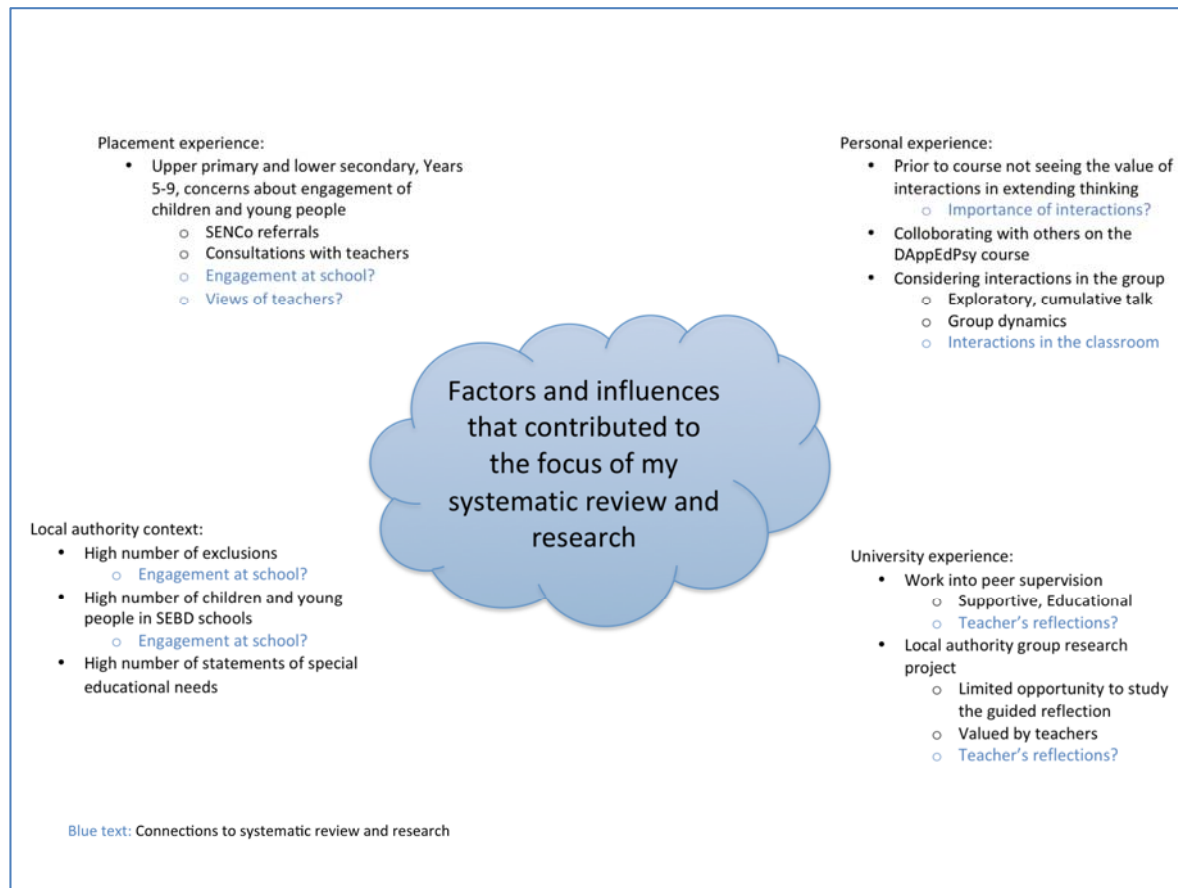
Willig, C. (2010). *Introducing Qualitative Research in Psychology* (2nd ed.). Berkshire, England: McGraw-Hill International.

Wuensch, K. (2009). from

<http://core.ecu.edu/psyc/wuenschk/docs30/EffectSizeConventions.pdf>

5. Appendices

5.1. Appendix 1: A visual to map the different stakeholders and influences that shaped my systematic review question.



5.2. Appendix 2: An interpretation of effect sizes, which aided the appraisal of studies.

Effect size interpretations

Standardised effect size has been scaled in terms of the variability of the sample from which the measure was taken (Baguley, 2009, p. 604). The primary aim of this is to enable comparison of effects measured on different scales (op cit). However, there are many ways of computing an effect size all of which may affect the stability of the effect size measure (op cit). Thus caution in comparing one measure of effect size is needed as well as comparing across different measures i.e. two different studies may have calculated Cohen's *d* differently in terms of the standard deviation measure used.

Although acknowledging the cautions of effect size comparison, the measures still provide a tentative indicator of the magnitude of findings claimed by studies. The table includes the different types of effect size the eleven studies reported or provided the information for me to calculate, and what the values mean in terms of magnitude e.g. a *r* value effect size of around 0.4 would be interpreted as a large effect size.

Effect size magnitude	Cohen's <i>d</i> value	<i>r</i> value	Beta value	Percentage of the variance explained
Large	0.8	0.4	0.4	15%
Moderate	0.5	0.25	0.25	6%
Small	0.2	0.1	0.1	1%

Through researching effect size I found some variations in what values were attributed to what magnitude of effect size. I therefore used multiple sources to devise my table of effect size to judge the eleven studies I appraised (Baguley, 2009; Becker, 2000; Coe, 2002; Wuensch, 2009).

5.3. Appendix 3: An extended version of the EPPI weight of evidence tool for Part A – methodological quality (Gough, 2007).

Study	Ethical concerns (1)	Appropriate involvement of p's (2)	Sufficient justification for why study was done (3)	Choice of research design appropriate (4)	Reliability of data collection tools (5)	Validity of data collection tools (6)	Reliability of data analysis (7)	Validity of data analysis (8)	Able to rule out other sources of error/bias which may explain findings (9)	Generalisability of results (10)	Does my view differ from the authors views in terms of the findings (11)	Sufficient attempts to justify the conclusions drawn (12)
Ponitz et al, 2009	Parental and teacher consent	Parental and teacher involvement through questionnaires, observations of children and teachers, child assessments	Yes- to understand how to support reading achievement through understanding relationship of classroom quality and engagement	Yes - randomised sample, mixed of observation and questionnaires, controlling for different aspects to understand relationship of factors	Reliability of measures discussed	Validity of measures discussed	Discussion of method, controlling the factors to establish best explanatory model	Discussed why use of SEM ³ is valid, to test each hypothesis separately	Controlling for each of the factors in the models, trialling different models before deciding on the final one	Corroborating with existing evidence, adds to understanding of how to support reading achievement	No - I agree, seems sound study with clear conclusions	Yes - in terms of each finding limitations were addressed too
Bierman et al, 2013	Did not attend to consent, teachers compensated for each child involved as well as their own info	Teachers and parents completed scales, children's test record provided and observed in class	Yes - to test the efficacy of an early years intervention	Yes - randomised controlled design to test efficacy of intervention	Reliability of measures not really attended to, especially for scales	Lots of detail on the measures used, background and how compiled	Control used in models in terms of characteristics and pre-intervention assessments	Yes - justified in terms of being able to look at the models with all measures included	Controls used in model to ensure conclusions as strong as possible	Evidence for REDI ⁴ supporting social and emotional development	No - limitations attended to and conclusions tentative	Yes - causal and correlational results highlighted for accurate conclusions

³ SEM – Structural Equation Modelling

⁴ REDI – Research based, Developmentally Informed

Study	Ethical concerns (1)	Appropriate involvement of p's (2)	Sufficient justification for why study was done (3)	Choice of research design appropriate (4)	Reliability of data collection tools (5)	Validity of data collection tools (6)	Reliability of data analysis (7)	Validity of data analysis (8)	Able to rule out other sources of error/bias which may explain findings (9)	Generalisability of results (10)	Does my view differ from the authors views in terms of the findings (11)	Sufficient attempts to justify the conclusions drawn (12)
National Institute of Child and Human Development Early Child Care Research Network, 2005	Already part of larger study, particular sample? No detail on consent	Teacher and student observation, teacher questionnaire specific to their characteristics	Yes - typical day to gather an idea of quality	Observational to gather typical information	Lots of info on tests of reliability for both observation coding and questionnaire	Measure specific to programme, lots of description as to how it captures the experience of the classroom	Not much detail on the analysis in terms of reliability	Not much attendance to why the analysis is valid	What would have cropped up qualitatively? Children's views in terms of experience. Coding based on previous study with same cohort	Not sure how generalisable as it is an experience of third grade but based on a pre-coded observation process	No - limitations accepted and conclusions not too vast, variations across classrooms	Accepted limitations, linked to previous studies
Test & Cornelius-White, 2013	Did not attend to consent, observed as usual in setting	Observation of teachers and students	Yes - looking at timing of interaction and engagement, gap in research	Observational in terms of timing of interactions and engagement	Attended to inter-rater reliability	Did not really justify why they observed and coded in the way they did	Attend to reliability to terms of the statistics calculated, and what is reported	Discussed that sequential analysis was undertaken to explore sequence of interactions and engagement	Do not explain content, arbitrary codes ok for timing but not sure can be certain of the interaction or engagement	Small sample, not really generalisable to other settings	No - authors accept limitations of study and suggest further direction	Tentative conclusions about possible next steps in terms of sample and methodology
Williford et al, 2013	Teachers part of a intervention in terms of coaching, full consent from parents and teachers	Observation of teachers and students	Yes - looking at interactions and engagement, used an observation tool for that	Used observation of interaction and engagement as well as measures for outcomes	Some outcome measure discussed in terms of their reliability Inter-rater reliability for observation tool	Observation tool discussed in terms of previous use All outcome measures discussed in terms of validity	Missing data, effect size, and controls used	Discussion of why done each part of analysis	Controlled for different aspects to ensure conclusions could be justified	Quality interactions and engagement positive with outcomes	No - seems to be sound study and shows quality interactions support outcomes, for better understanding	Yes - tentative, extending understanding, accepting of limitations

Study	Ethical concerns (1)	Appropriate involvement of p's (2)	Sufficient justification for why study was done (3)	Choice of research design appropriate (4)	Reliability of data collection tools (5)	Validity of data collection tools (6)	Reliability of data analysis (7)	Validity of data analysis (8)	Able to rule out other sources of error/bias which may explain findings (9)	Generalisability of results (10)	Does my view differ from the authors views in terms of the findings (11)	Sufficient attempts to justify the conclusions drawn (12)
Skinner et al, 2008	Did not attend to consent, participants recruited from schools involved in a previous motivation study	Student reports, teacher report	Yes - looking at motivational dynamics, in particular engagement within this	Used self-report process to look at internal dynamics, based on model	Did not attend to reliability of the self-report measures used	Discussion of why each measure was chosen, what it tapped into	Did not really explore the reliability of the analysis used	Discussion of why each part of the analysis was done, to what end	Made lots of attempts to look at specific factors to establish the most plausible explanation	Self-reports on internal dynamics, not sure extent of generalisation except in importance	Authors accept the limitations of their findings	Tentative conclusions exploring understanding in motivational dynamics field
Caughlan et al, 2013	Recruited from particular training programme - voluntary, no mention of student consent	Teacher and student video observations, teacher reflections	Yes - to use a supportive tool in terms of enhancing dialogic practice	Observation using video which was analysed in terms of instruction	Not really and the teachers videoed and submitted records themselves, inter-rater?	Teachers gathered examples of their dialogic teaching, choose particular examples?	Yes - matched the parts of the analysis to the research questions to be answered, notes about reducing bias	Yes - matched the parts of the analysis to the research questions to be answered	Controlled for bias in analysis generated by teachers choosing their clips	Quite personal, not sure on replication due to teachers choosing own clips	Not sure can draw conclusions without a comparison without dialogic tools	Seems very pro-dialogic teaching and the study does not help to demonstrate this rigorously
Malmberg et al, 2010	Teachers involved in development programmes - voluntary basis, particular sample? Students could opt out	Both teachers and students observed	Yes - multiple factors in measuring if change in practice occurs for teachers after training	Observation of teachers over time, different factors affecting quality	Recorded observations analysed using existing observation tool CLASS-S and coders were trained and tested for inter-rater reliability	Discussed observation tool in terms of its prior use and what it is made up of for a classroom quality indicator	Yes discussed how different factors were included and accounted for	Used to look at difference in change in a hierarchical linear fashion	Careful to account for time and individual differences in each model	Complex with lots of variables, unclear as to the effect of change in classroom quality due to associations only	No - accept complexity and suggest further study, adds to self report studies in this field	Yes and for each part of the findings

Study	Ethical concerns (1)	Appropriate involvement of p's (2)	Sufficient justification for why study was done (3)	Choice of research design appropriate (4)	Reliability of data collection tools (5)	Validity of data collection tools (6)	Reliability of data analysis (7)	Validity of data analysis (8)	Able to rule out other sources of error/bias which may explain findings (9)	Generalisability of results (10)	Does my view differ from the authors views in terms of the findings (11)	Sufficient attempts to justify the conclusions drawn (12)
McElhone, 2012	Schools part of ECAR/W ⁵ , consent of students not attended to	Both teacher and students observed, students included in terms of outcome measures	Observing patterns of discourse, not sure why there is a mix of physical and video observations	Observation and coding of discourse patterns measured against student engagement	Student outcome measures - all discussed in terms of reliability Observation - coding this data was discussed in terms of inter-rater reliability	Student outcomes measures - all discussed as to why valid measure Observation - coding this data was piloted for validity and related to prior research	Not much discussion into the analysis method, except that variance of different factors could be accounted for	Used to establish to predict student outcomes, compared HLM ⁶ to ordinary regression	Did not seem to control for student/teacher characteristics, does not account for what was coded and what not	Not sure how generalisable as no firm suggestion that one type of discourse pattern is better than another	No - just the importance of responses to students, too much of one type not great for engagement	Discussion of limitations of measures, complexity of discourse
Gregory et al, 2014	Teachers: money for participation and CPD ⁷ credit, Parents and students: purely voluntary and consent	Includes data from teachers and observational data only from students	Yes - to test the efficacy of an interaction intervention on engagement	Randomised controlled trial to test intervention	Inter-rater reliability, and coding reliability tested and reported for observation tool	Discussed in relation to research and theory, validity of dimensions tested and only distinct dimensions included	Accounted for different trainers of intervention, any between school variance	Used multilevel model to account for any other variables explaining variance	Looked into indirect and direct effects, accounted for control variables in model	Some tentative evidence to suggest this intervention works, but more attention needed	No - tentative results, complex with mediating variables to be explored further	Limitations discussed in terms of claims

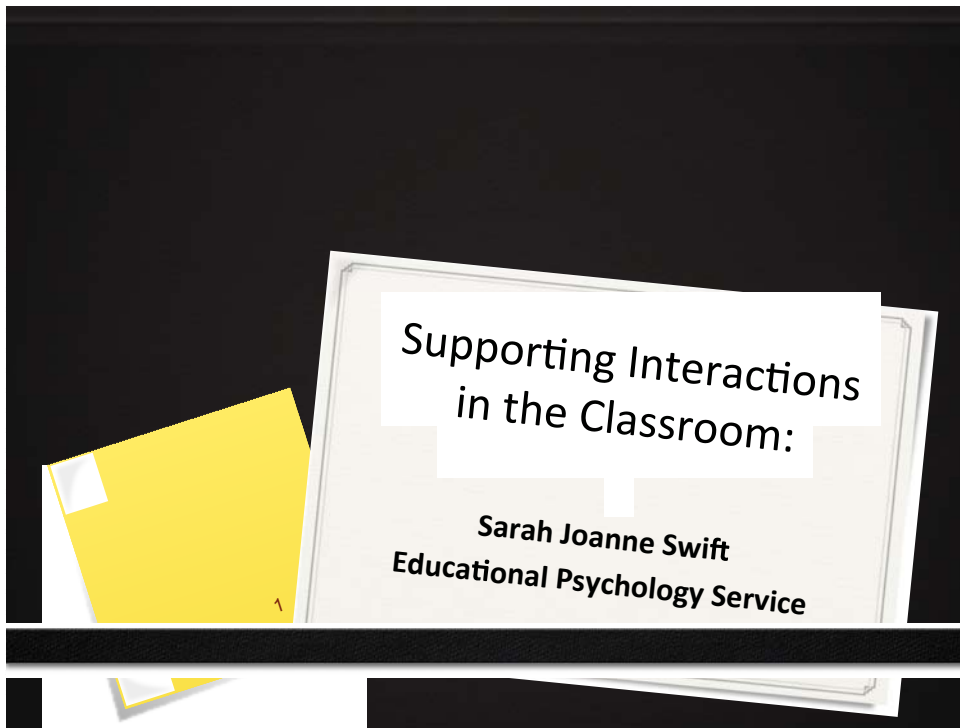
⁵ ECAR/W – Every Child a Reader/Writer

⁶ HLM – Hierarchical Linear Modelling

⁷ CPD – Continued Professional Development

Study	Ethical concerns (1)	Appropriate involvement of p's (2)	Sufficient justification for why study was done (3)	Choice of research design appropriate (4)	Reliability of data collection tools (5)	Validity of data collection tools (6)	Reliability of data analysis (7)	Validity of data analysis (8)	Able to rule out other sources of error/bias which may explain findings (9)	Generalisability of results (10)	Does my view differ from the authors views in terms of the findings (11)	Sufficient attempts to justify the conclusions drawn (12)
Kelly, 2007	No concerns but not attended to in paper - Partnership for Literacy?	Includes data from teachers and students	Methodology gap in motivation research, extending use of pre-existing data	Observation and measures of engagement	Questionnaire for student effort - no detail on reliability	Questionnaire for student effort - not much detail	Taking out low reliability weight classrooms due to low reliability, explaining coefficient used, however not enough stats to calculate effect size	Used the particular coefficient to look at the equality/ inequality across classrooms and refers to research to support this	Include known aspects in the table such as attitude, experience, type of instruction	Adds to previous research about how dialogic instruction impacts upon engagement, which was the aim	No - complexity of motivational climates may add to the diversity in classrooms, aspects not accounted for in model	Lots of discussion within the results as to why the findings occurred, no outlandish claims in the conclusion
				Observation tool - related to prior research	Observation tool - used for interactions and engagement before							
				Teacher questionnaire - more detail and factor loadings mentioned	Teacher questionnaire - used for possible alternative influence on instruction							

5.4. Appendix 4: The inset day training session on interactions in the classroom and peer supervision presented to all Key Stage 2 teaching staff.



Overview

- Session of two halves:
 - Interactions in the classroom
 - Teacher-child
 - Professional supervision
 - Peer support
 - Research introduction
- What we will be doing:
 - Information giving
 - Research and theory
 - Discussion
 - Activity

2

Interactions

- What makes a *quality* interaction?
 - Encourages a response
 - Sustained
 - Thought provoking
 - Stimulating
 - Authentic
- Why is it important in the classroom?
 - To teach and to learn
 - Academic achievement
 - For developing socially and emotionally
 - Building relationships

3

Research

Engagement

- Promoting dialogue leads to an increase in student participation
 - Uptake and authentic questions
 - Frequent sustained, substantive opportunities
- Higher level of classroom organisation -> less variability in student engagement
- More instructional and emotional support -> engagement in academic activities
- Interactions that promote student thought and analysis -> student effort being more evenly distributed
- Social factors such as interactions, talk, and presence of others influence engagement in the classroom

4

Research

Academic and Behavioural outcomes

- Rich positive interactions -> behavioural engagement -> literacy achievement
- A focus on analysis and problem solving during instruction -> improved behaviour and academic achievement
- Diverse formats of providing instruction -> improved behaviour and academic achievement

5

Research

Academic outcomes

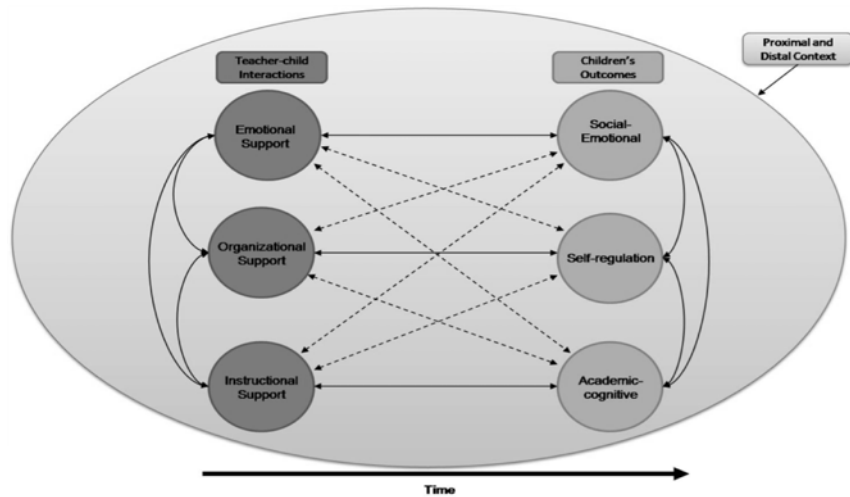
- Highly responsive interactions -> increase in expressive vocabulary
- In depth interactions during reading that request; evidence, examples, clarification, and elaboration -> improved comprehension and engagement

Quality interactions

- That are warm, well organised, and cognitively stimulating support student autonomy

6

Model



7

Other Factors to Consider

- Variations due to context
 - Location
 - Specific school
 - Particular class
- So does one size fit all?

8

Activity

- In small groups...
 - Think about the interactions in your school and classroom/s
 - What contextual factors influence your interactions?
 - Then, consider the model we have looked at and think about:
 - What works in your classroom?
 - What have you tried that did not work so well?
 - What would you like to improve?
 - What would you like to maintain?
 - How might you go about improving interactions in your classroom?
 - Make notes to feedback your thoughts and ideas to the rest of the group

9

Feedback

- Brief overview from each group
 - Thoughts
 - Ideas
 - Is there anything that you wish to take forward from this discussion?

10

Supervision

Peer Supervision

- Activity discussion
 - Constructive talk
 - Listening
- Group techniques
 - Reflective Teams
 - Solution Circles

Professional Supervision

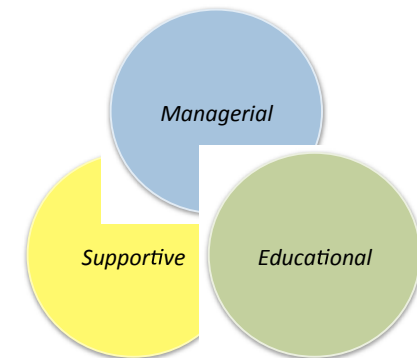
- CLEAR
 - Contract
 - Listen
 - Explore
 - Action
 - Review

11

Model

- The functions of professional supervision
 - Managerial
 - Educational
 - Supportive

- Peer supervision...
 - Less managerial
 - More supportive and educational



12

Benefits

- Reflecting on practice
 - **HOT** emotional response
 - **COOL** considered response
- Managerial
 - Maintaining standards
 - Quality assurance
- Education
 - Developing understanding
 - Ideas and possibilities
 - Skill development
- Supportive
 - Well-being
 - Confidence

13

Research

- Objective:
"To explore interactions in the classroom through supervision"
- Possible implications
 - Developing interactions in the classroom -> improving outcomes -> writing
 - Peer supervision -> develop, continue, and extend -> education and support for teachers
- Key Stage 2

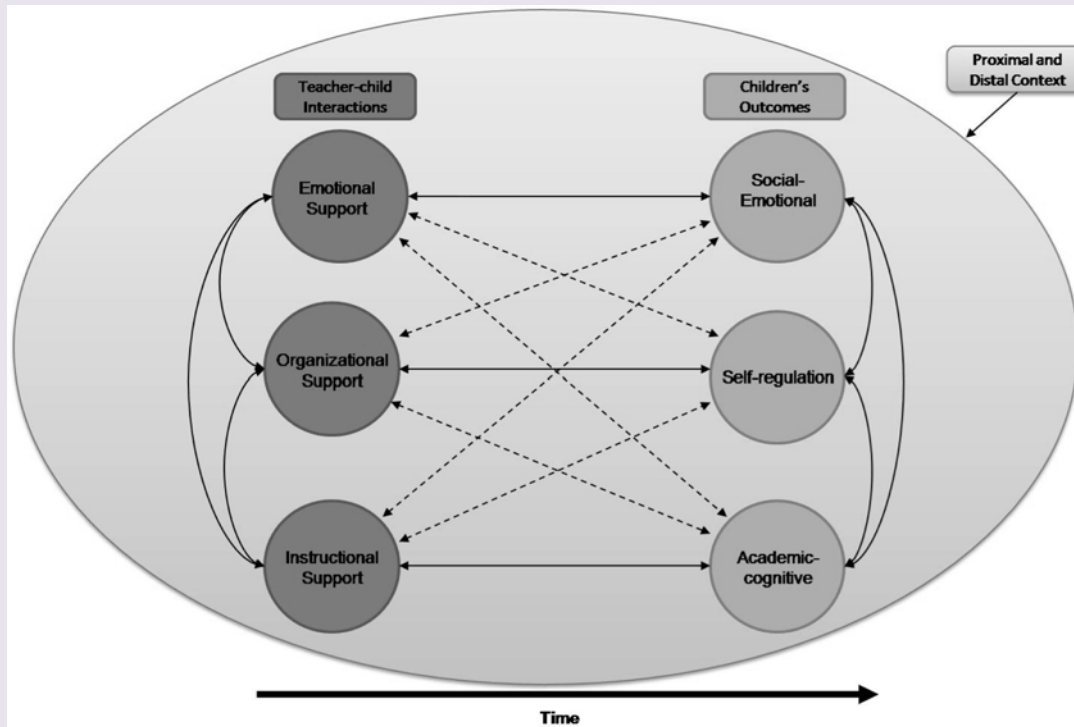
14

5.5. Appendix 5: Observation tool derived from the enquiry based approach by McGrane and Lofthouse (2010).

Plans: This is a prompt sheet about the area for consideration during the observation. You may want to think about some of the questions posed prior to the observation too. The model and questions below are for your reference during the observation.

Possible considerations:

- The different types, if any, of teacher-child interactions
- What do the interactions look like?
- Are there noticeable effects from teacher-child interactions?
- Are any effects at an individual, group and/or class level?
- What works well in the classroom?
- What could be different?
- How does the model fit within this classroom?



Observe: Use this opportunity to collect some evidence to inform peer supervision. You may want to consider what you have observed during the lesson which relates to the plans (see page 1)? The space below is for your notes.

2

Reflect: You may wish to consider some questions that relate to the observation. What would you like to discuss with your colleague during peer supervision? The space below is for your thoughts and questions.

3

5.6. Appendix 6: Participant information sheet to detail the study before participation.

Participant Information Sheet

Introduction

I, Sarah Joanne Swift, a trainee Educational Psychologist (TEP) from Newcastle University, am conducting this piece of research. It forms part of my doctoral training in Applied Educational Psychology led by programme director Dr Simon Gibbs.

What is the purpose of this research?

The working title of this project is:

Interactions in the classroom: working towards a model based on the views of teaching staff

The aim of this project is:

To explore the views of teaching staff through peer observation and researcher facilitated peer supervision. Observation and discussion will be based on the topic of teacher-child interactions in the classroom. This will be done so with a view to developing and enhanced models of teacher-child interactions. The intent is to use a peer supervision method to understand the role of teacher-student interactions to support development of knowledge, practice and policy.

What will the project involve?

To begin there will be an introduction to peer supervision through discussion between a teaching staff pair and the researcher. This will involve talking through what it is hoped to be gained from supervision and how.

After the initial introductory session both of the teaching staff pair will observe one another during classroom based work. An observation guide will be provided by the researcher along with a copy of an example model of teacher-child interactions in the classroom. This will focus the observation on teacher-child interactions for reflections to discuss in peer supervision.

The next step will be researcher facilitated peer supervision. Here the researcher will guide the teaching pairs' discussion of the observation sessions that have taken place. Discussions will lead to next steps to be completed before the next peer supervision session.

The researcher will also lead the second peer supervision, but this time based on the agreed actions from the first supervision session. Afterwards teaching staff will be debriefed following their involvement.

All researcher led session will be audio recorded and the researcher will take these recordings away to have the data transcribed into written form. This will be analysed and the researcher will at this point write up a formal report.

What happens to my information?

All information will remain entirely confidential. Once data has been collected, it will be stored on a password protected computer to ensure confidentiality. Any personal identifiers will be removed and the audio recording securely destroyed once the data has been transcribed. Only Sarah Joanne Swift and her supervisor Dr Richard Parker will be analysing the data. The transcribed data will be stored securely and kept until the project has been written up into a report.

You are under no obligation to take part and may withdraw from the study at any point.

Please feel free to contact me if you have any questions on the following contact details:

Email: s.j.swift@newcastle.ac.uk

Phone: 07795590414

Should you have any queries you do not wish to direct to the researcher you can contact my supervisor, Dr Richard Parker:

Email: richard.parker@newcastle.ac.uk

Address: School of Education,
Communication & Language Sciences,
Newcastle University,
King George VI Building,
Queen Victoria Road,
Newcastle,
NE1 7RU

Thank you for taking the time to read this information.

5.7. Appendix 7: Informed consent sheet completed with participants.

Consent form

Please circle YES or No.

- I have read and understood the information sheet provided.

YES / NO

- I have had an opportunity to ask questions and been given satisfactory responses.

YES / NO

- I am aware that at any time, up until the transcription is completed, I can withdraw from this study.

YES / NO

- I give my permission for the peer supervision sessions to be audio recorded and transcribed for the purpose of this study only.

YES / NO

- I understand that the audio recording will be destroyed after transcription, that the transcript will be anonymised so that it will not be possible for anyone to be identified in any subsequent reports.

YES / NO

- I am happy to take part in this study and give my informed consent.

YES / NO

Name: _____

Signature: _____ Date: _____

5.8. Appendix 8: Demographic information sheet that participants completed.

Teaching Staff Demographics

Please could you fill in the following details to be used as contextual information for my research write-up:

- What is your job title?

- What year group do you primarily teach in school?

- Do you have any additional roles and responsibilities in school?

- Do you have any additional qualifications following teacher training?

- How many years of teaching experience do you have?

Thank you.

5.9. Appendix 9: Debriefing statement discussed and provided to participants upon completion of data collection.

Debriefing Statement

Thank you for taking part in this study, which aimed to gather the perceptions of teaching staff on the topic of teacher-child interactions in the classroom, through use of peer supervision.

From this data I hope to establish main themes from the data using analysis in order to better understand teacher-child interactions in context. I also hope that this will inform and develop a model of teacher-child interactions to reflect practice as well as research.

You still retain the right to withdraw from this study and please be assured that data will be transcribed using pseudonyms as identifiers to maintain confidentiality. Once the study is complete I will contact school to establish if you would like me to report back my main findings.

Should you have any further queries or questions about this research please do not hesitate to contact me on the following contact details:

Email: s.j.swift@newcastle.ac.uk
Phone: 07795590414

Alternatively you can direct queries to my supervisor, Dr Richard Parker, on the following contact details:

Email: richard.parker@newcastle.ac.uk
Address: School of Education,
Communication & Language Sciences, □
Newcastle University,
King George VI Building,
Queen Victoria Road,
Newcastle,
NE1 7RU