The Impact of Motivation on Children's Reading Comprehension: Differential Effects of Gender and Ability.

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I, Lisa Fridkin, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Abstract

Research and theory indicate that situational interest may be effectively triggered by an environmental stimulus, and that this supports increases in effort, attention and perseverance (Hidi & Renninger, 2006) which can positively impact related reading comprehension performance and task enjoyment (Wigfield & Guthrie, 1997). Further evidence suggests that these characteristics may be moderated by gender and ability (Logan, Medford & Hughes, 2011; Sainsbury & Schagen, 2004).

Three experimental studies were conducted to explore the relationship between reading motivation, manipulated through situational interest, and reading comprehension and task enjoyment in children (8-9 years old), where choice, and two types of novelty were examined as potential triggers.

Each study investigated children's reading comprehension performance and task enjoyment through a repeated measures, cross-over design. After reading a story, participants completed a reading comprehension task and enjoyment questionnaire. Post-testing, a selection of participants took part in focus groups to investigate the research questions.

Study 1 investigated effects of choice through offering a perceived choice in the experimental condition. Study 2 investigated effects of novelty through story presentation, where a visitor read the story prologue aloud in the experimental condition only. Study 3 investigated novelty through non-textual features where the experimental condition story included scratch and sniff stickers. In the control conditions, participants read a story without choice or novelty. All studies found significant effects for reading comprehension scores and reported task enjoyment. There was no evidence that effects of choice or novelty were moderated by ability but novelty non-textual features (Study 3) had significantly greater impact on girls' compared to boys' reading comprehension.

The findings indicate that situational interest may be effectively triggered by both choice and novelty, successfully increasing reading comprehension performance and task enjoyment. There is evidence to suggest that, for some types of novelty, task performance may be sensitive to gender effects.

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Chapter One

Introduction

The overall aim of this research project is to investigate the impact of reading motivation and situational interest on reading comprehension performance and reported task enjoyment of young children in a reading task. Based on current theory and prior research, the central hypothesis is that heightened situational interest will enhance both reading comprehension performance and reported task enjoyment. This is investigated through examining the effects of three potential triggers for situational interest: choice; novelty through story presentation; novelty through non-textual features, through three separate experimental studies. Some research also indicates that reading interest and motivation may operate differently depending on both gender and ability differences and therefore differential effects of both of these on reading comprehension performance and reported task enjoyment are also examined. For each study, Year 4 pupils from two two-form entry schools were recruited and then completed reading comprehension tasks, where the motivational trigger was manipulated in the experimental condition, followed by a task enjoyment questionnaire. The studies used a repeated measures, cross-over design so that all participants completed these tasks for both conditions (experimental and control). Post-testing, a number of pupils were selected to participate in focus groups to enrich understanding of the research questions.

The purpose of this chapter is to provide the context for this research and guide the reader through the thesis. It is divided into three sections. The first section gives a brief introduction to the research area and how this thesis came about. This is followed by an explanation of the organisation of the thesis. The final section explains how the literature review was conducted.

1.1 Introduction to the Research Area

Motivation is a complex psychological construct that drives many aspects of our behaviours. In the context of education, motivation can enhance our understanding of why some learners engage differently, work with greater effort, and maintain determination compared to their peers; why younger children appear to display more

motivated characteristics for learning than older children; and why learners, with no apparent cognitive barriers to their learning, disengage or fail to make the expected progress. Whilst cognitive processes are necessarily at the heart of education and learning, evidence and policy acknowledge that learning is also influenced by numerous factors, including motivation, which has been linked to higher achievement. Motivation represents a potential factor in understanding why those with strong cognitive abilities do not fulfil their potential. Not only does it offer a route to support children to attain better academic outcomes, it is a variable that can potentially be manipulated in the classroom environment.

In the current education system, strong literacy skills are a gateway to the curriculum. When my own son started school, his motivation for learning was vast but also fragile. I experienced and saw anxiety and frustration in children, parents and teachers in the development of literacy skills, and was frequently told I was 'lucky' that my son was a motivated reader, particularly given that he was a boy. A close friend disclosed challenges she faced encouraging her eight-year-old son to read anything beyond some scratch and sniff books she was involved in publishing at the time. From these experiences emerged my own questions about why some children choose to read, yet many others do not, even though there are no obvious obstacles to reading, and whether there was foundation in assumptions about gender differences. Through reading relevant literature, I became increasingly interested in the role and effects of motivation on learning generally and reading in particular. Motivation, whilst rich and varied as a research area, also suffers from a lack of systematic approach resulting in a scatter-gun effect where, due to a range of definitions and methodologies used, it is challenging to draw conclusions or extrapolate from previous empirical research. Research and theory indicate that interest as a motivational variable may be effectively triggered by an environmental stimulus and that this may lead to a more sustained personal interest over time (Hidi & Renninger, 2006). Moreover, several researchers indicate that this type of interest can be effectively manipulated in a classroom setting (Hidi & Harackiewicz, 2000; Wentzel & Brophy, 2014). However, there are significant gaps in knowledge, highlighting a need for research to address exactly how potential triggers for situational interest might be operationalised in a classroom setting, how these might be effective in the domain of reading comprehension with emerging confident readers, and a need for a robust methodological approach. This research will therefore make a significant and original contribution to knowledge in the field of reading motivation by addressing these issues.

1.2 Organisation of the Thesis

This thesis is organised into ten chapters, including the current chapter.

The research project had the central aim of investigating the effects of potential triggers of situational interest on reading comprehension performance and reported task enjoyment. It comprised three experimental studies that looked at three possible triggers for situational interest, in the areas of choice and novelty, and so the literature review is divided across three chapters (Chapter Two, Chapter Four and Chapter Six). Chapter Two provides the context for the research and gives a brief overview of the current picture of literacy and reading comprehension knowledge before looking at the wider aspects of relevant literature, considering the role of motivation in learning and specifically the place of interest. Chapters Four and Six focus more closely on situational interest and examine empirical work relevant to the role of Choice (Chapter Four) and Novelty (Chapter Six). They examine these two factors as motivational variables and how they add to our understanding of interest development as well as demonstrating the contribution that the current experimental studies make to existing knowledge.

Four chapters (Three, Five, Seven and Eight) refer to the rationale, ethical procedure and methods for this research. The three studies follow the same experimental cross-over design, central methodology and materials: Chapter Three focuses on the overarching rationale and describes the methodological paradigm for investigating the experimental hypothesis that situational interest will make a difference to the reading comprehension performance and reported task enjoyment of young children in a reading task. Chapters Five, Seven and Eight describe the methods and results of each experimental study, including the specific rationale, any necessary amendments to the methods and materials, and providing a full account of the statistical analyses for each investigation. Chapter Five describes the first experimental study investigating the effects of Choice, Chapter Seven describes the second experimental study investigating the effects of Novelty through Story Presentation, and Chapter Eight describes the third experimental study investigating the effects of Novelty through Non-Textual Features.

Focus groups were conducted with a selection of participants from each study to investigate the research questions. These data are analysed collectively for all three experimental studies in Chapter Nine.

The final chapter, Chapter Ten, discusses the findings from the three studies, relating them to each other and to the overall aims of the research. This chapter concludes with an evaluation of the current research and implications for future research in this field.

1.3 Research Approach and Aims

This area has long lacked a systematic approach (Wigfield, Gladstone & Turci, 2016) and so a variety of terms, although intending to investigate similar themes, have been used in prior research. Therefore, a wide search, using a broad range and combination of terms, was necessary to explore all possible related avenues and ensure as much relevant literature as possible was included. The literature search was carried out from October 2012 with the UCL library search tool which covers a comprehensive range of relevant journals and academic search engines (e.g. EBSCO, Google Scholar; JSTOR, PsychARTICLES), using the following words both singularly or in combination as search terms: ‘motivation’, ‘reading’, ‘interest’, ‘situational interest’, ‘choice’, ‘triggers’, ‘novelty’, ‘non-textual features’, ‘reading comprehension’, ‘reading enjoyment’, ‘reading engagement’, ‘reading attitude’, ‘children’. Articles were then used to generate further potential relevant sources through references and follow-up searches of specific authors.

This research aims to contribute to current knowledge in this field by examining three potential triggers of situational interest and their effects on reading comprehension performance and reported text enjoyment in 8-9 year olds. In particular, it employs a research paradigm designed to provide a robust model for testing the hypotheses and eliminating common confounds of research in this area. This research can inform theoretical and practical understanding of how to support reading motivation through situational interest in this domain and age group.

Chapter Two

Motivation to Read

This chapter critically examines current understanding of motivation in learning, and specifically interest as a motivational tool and situational interest as a trigger in learning and learning development. The focus is situated in reading motivation in young children. The chapter begins with an introduction to the context for this research in relation to literacy skills and the role of motivation. The following section provides a brief overview of what it means to be an effective reader, considering those skills and abilities that may be overlooked in supporting able children to develop into skilled and confident readers. It then explores motivation in learning within the specific boundaries of this research in an effort to disentangle what is meant by motivation in relation to the learning environment and how this might impact reading. Motivation is a wide and varied area and it is only possible to touch briefly on those theories that are particularly relevant to the current research, many areas are therefore necessarily omitted. For reasons which will be discussed, the focus in this thesis is ultimately very sharply on specific aspects of 'of the moment' or 'online' interest, not generally addressed in macro-level theories of motivation. The following sections review and evaluate research and theory on interest as a motivational construct and consider situational interest in particular and why and how this variable may be central to stimulating reading motivation in young children. The emphasis is on the theoretical viewpoint, where empirical work is the focus of later chapters. The final sections describe the challenges of conducting research in this area before setting out the aims of the current research.

2.1 Introduction

Reading is a fundamental life skill necessary for children and adults alike and understanding how to support the development of secure reading skills is of high value at both the individual and the national level. Poor literacy skills can have far-reaching effects and according to a wide evidence base, (e.g. Hulme & Snowling,

2013; National Literacy Trust[1]; Sullivan & Brown, 2013), can have serious adverse consequences, with a deleterious effect on academic achievement, health and well-being as well as life chances and the wider economy. Throughout childhood, reading is an essential skill in academic learning, necessary to fully access the school curriculum, where early reading ability is strongly linked to academic success (Grigg, Daane, Ying & Campbell, 2003). Fluent readers are less likely to drop out of school, and they improve both their life options and their long-term career prospects (Hofstetter, Sticht & Hofstetter, 1999). A deficit in competent reading skills makes everyday tasks such as shopping, reading signs or completing forms both complex and challenging. Furthermore, the overall effect of these experiences can result in negative consequences for self-esteem and quality of life (Brozo, 2010).

Research informs us that by secondary school age a significant number of children are switched off from reading. Brophy (2004) suggests that the two key causes for this are lack of interest and alienation. Coddington and Guthrie (2009) propose other reasons: learners are 'over-controlled' in reading activities, that the perceived difficulty of texts is 'too' high; that texts are meaningless and that reading as an activity conflicts with identity values. However, whilst some children turn away from reading because of negative associations with identity formation, those with high intrinsic motivation for reading in place maintain this through both primary years (Guthrie, Hoa, Wigfield, Tonks, & Perencevich, 2006) and later adolescence (Otis, Grouzet & Pelletier, 2005). This highlights the importance of understanding better how to switch children on to reading from a young age so that not only are they more proficient readers but also that they intrinsically value reading from this time. This has been substantiated by various findings: Wigfield and Guthrie (1997) found that, for primary school students, valuing reading was associated with intrinsic motivations of involvement and curiosity in reading, as measured by rated importance of reading as a skill; and McGeown and colleagues (2015) reported that affective aspects of learning to read (attitude and enjoyment) and their relationship with reading skill development was evidenced in young children (mean age 6 years 9 months) (McGeown et al., 2015).

However, data from a variety of sources indicate that literacy is a continuing concern in the UK. In spite of a significant increase in average point score from the last two cycles and a reported rise in international rankings for reading and literacy in England

[1] The National Literacy Trust provides information and / or links from a variety of sources about the wide-reaching effects of literacy skills in the UK: see www.literacytrust.org.uk

(McGrane, Stiff, Lenkeit, Baird, & Hopfenbeck, 2017) other evidence from the Progress in International Reading Literacy Study (PIRLS)[2] report suggests that reading and literacy remain a concern. Findings show that England remains significantly behind the top performers; that improvements are attributed to increases in performance from two specific groups: boys and low-performers; and that there is no significant change in attitudes to reading. In fact, findings show a four point decrease in reported highest levels of reading enjoyment in girls: evidence informs us that positive attitudes to reading are key to sustained reading attainment. Clark and Cunningham (2016) report that, along with more than a third of children (34%) failing to reach Key Stage 2 national reading targets, girls continue to significantly outperform boys, and only 54.8% of children report that they enjoy reading as an activity. A comparison of reading attainment in sixty-five countries by the Organisation for Economic Co-operation and Development (OECD)[3] highlighted that one in five British 15 year olds failed to meet minimum requirements in reading (OECD, 2010) whilst functional illiteracy amongst adults is estimated to be around 15% (National Audit Office, 2008).

According to the 2015 PISA (Programme for International Student Assessment) report from the OECD, which evaluates education systems globally, there has been no significant change in England's performance, as measured by reading scores, since 2006. The 2015 report stated that nine countries had a mean reading score at least one third of a school year ahead of England and yet performance of the top 10% of pupils in England was at least in line with the top performers (OECD, 2016). These figures highlight that literacy skills did not significantly improve during this period and also that there is a wide gap in reading skills between the top performers and other groups. The implication is that there are extended issues surrounding literacy development that need to be identified and tackled.

Whilst cognitive processes are the cornerstone of reading development, there is now increasing recognition that reading comprehension skills cannot be fully understood without taking into account the role played by motivation (Schaffner, Schiefele & Ulferts, 2013; Sullivan & Brown, 2013; Wigfield, Guthrie, Tonks & Perencevich, 2004). Guthrie (2001) stresses the need to acknowledge that reading competency and

[2] PIRLS is the Progress in International Reading Literacy Study which is an international study designed to measure children's reading achievement and to gather information about influences on children's experience on learning to read, conducted by the International Association for the Evaluation of Educational Achievement every five years.

[3] Global effects are well-documented in information supplied by the Organisation for Economic Co-operation and Development (www.OECD.org).

motivation are interdependent: without motivation to read, those who can read, don't read and yet without competent reading skills, those who want to read, cannot. Thus able readers, with strong cognitive skills, do not necessarily spend much time reading if they are not motivated to do so (Wigfield et al., 2004). Reading is a developing skill in childhood needing regular practice and like any skill, if unpractised, ability can decline. So, motivation, both to develop the necessary cognitive skills and strategies but also to maintain and develop reading ability, appears to hold a central role in secure reading skill development.

Motivation describes the factors and processes that drive our actions and is typically associated with cognitive effort, persistence and enjoyment. Strong motivation and a positive approach are consistently linked to higher levels of achievement and regular reading activity (Baker & Wigfield, 1999). Furthermore, increased reading frequency, increased reading enjoyment and improved reading performance create a cycle of behaviours that increase motivation for an activity as they stimulate greater self-efficacy for the task. Other evidence indicates that high levels of interest for reading as an activity, stemming from strong topic interest, can be created in the individual and promote reading ability (Young & Brozo, 2001). Research and review by Guthrie and Wigfield (2000) have identified five aspects of motivation (goals, intrinsic motivation, extrinsic motivation, self-efficacy and social motivation) and how these may influence reading.

Where interest is recognised as a motivational variable, situational interest is considered a preliminary stage of interest development (Hidi & Renninger, 2006; Krapp, 2002). Situational interest can be artificially constructed to attract the reader, increasing levels of engagement in a text and consequently improving comprehension. It is suggested that it is this initial engagement in reading that is essential to the process of creating initial interest, motivation and a sustained interest in reading (Brozo, 2010; Renninger & Su, 2012). Put simply, although there are fundamental skills without which reading cannot develop, reading is *effortful activity* (Baker & Wigfield, 1999), and therefore as the individual decides whether to do it and how much effort to put into it, motivation is a central factor. Furthermore, evidence directs us to recognise that interest is crucial in both cultivating and sustaining this motivation.

Research in the domain of interest frequently considers the role of reading but it usually places reading at the centre of measurement for performance in science or mathematics, rather than considering reading as an activity in itself. Additionally, there

are further issues surrounding methodology and participant age, where a majority of studies have been carried out with high school pupils or young adults. It is posited that to improve academic performance overall, reading itself needs to be an automatic process that is not a barrier to further learning. In this way, it is therefore essential for reading to be an effortless and enjoyable activity. Motivated reading or reading for pleasure is more important for children's cognitive development than parents' level of education and it is a more powerful factor in life achievement than socio-economic background (Sullivan & Brown, 2013). Yet there is clear evidence that indicates that reading for pleasure, along with interest in reading and motivation to read, decline throughout childhood (Sainsbury & Schagen, 2004; Wigfield et al., 2016).

Despite encouraging progress in our understanding of how to support the cognitive development of strong reading skills, the overall picture of literacy as an area for urgent review prevails. There is limited success in promoting life-long readers or children who enjoy reading and engage in reading for its own sake. To create this positive attitude, children need to be interested in reading as an activity in its own right and be intrinsically motivated to do so. Thus, how to encourage such positive attitudes is a persistent and significant challenge and approaching this through addressing reading motivation poses a potentially valuable route. It is a logical step to look at ways to enhance reading enjoyment and reading performance in order to create a positive attitude to reading. Evidence suggests that situational interest is one factor which can create such positive effects. It is recognised as a trigger to increased engagement with an activity but little is known about how this increased attention immediately impacts a reading task with younger children or any effects of either gender or ability within this group.

Motivation is an inherently complex area. It is confounded by a lack of clarity separating, categorising and conceptualising how it is defined and how it may operate. The challenges presented by these issues are widely recognised by some of the leading researchers in the field who acknowledge that evaluating prior research is confounded by the many different measures used and that a consensus on definitions of reading motivation and its dimensions as well as the use of individual and composite scales should be a central priority for future research (Conradi, Jang & McKenna, 2014; Schiefele, Schaffner, Möller & Wigfield, 2012). Whilst immensely rich, it is equally challenging to condense and synthesise this body of work to present and clarify those parts that enable a clear understanding of the workings of situational interest and interest development and where they sit within existing research. Terminology, definitions and concepts overlap so that describing and critically

examining work becomes complex: explicitly separating, for example intrinsic motivation from interest, becomes both impractical and unhelpful for the researcher and the reader. Whilst they are clarified and defined within the boundaries of this research, it should be recognised that the interpretations used are situated in the theories examined here and how they relate to the research questions under investigation rather than the broader field.

This chapter will now explore what it means to be a reader, considering briefly the components of effective reading and exploring why motivation might be important to reading development.

2.2 Being a Reader

It is broadly agreed that the two critical components of reading comprehension are decoding and constructing meaning through language comprehension (Rose, 2006). Word recognition is therefore an essential factor in effective reading comprehension. At the most basic level, the reader needs to have a good grasp of the alphabetic principle and be able to decode effectively and fluently. Efficient word recognition also means that working memory capacity is free to deal with the more complex aspects of comprehension (Gough, 1996 as cited in Hurry & Doctor, 2007). If the text is too difficult at the word level then the reader has to expend a high level of effort decoding. It is generally agreed that a text needs to be decodable with at least 90% accuracy for it to have good accessibility. This is obviously an important consideration when selecting or developing materials to assess reading comprehension.

In order then to construct meaning, the reader draws on information and knowledge stored in long term memory, moving relevant information to short term memory, as he or she moves through the text. It is suggested that the reader's level of background knowledge relevant to the text is directly related to ability to comprehend the text (Butcher & Kintsch, 2003 as cited in Pardo, 2004). As mental representations build, understanding emerges both through literal interpretations and inferential interpretations of the text. Information from the text either fits with existing schema or the reader adjusts stored information or rejects the new information. In order to achieve this, the reader employs strategies such as summarising and questioning (Pardo, 2004). Other reader characteristics are also identified as impacting their interaction with a text, such as their cognitive development and motivation, where

more motivated readers are expected to use more strategies and put more effort into comprehending text than less motivated readers (Pardo, 2004). These factors too need to be borne in mind when developing reading comprehension assessments, and such potentially confounding factors controlled for in empirical investigations. Finally, the surface features of the text itself are also understood to affect comprehension, where, for example, the readability of the text in terms of font type and size, level of challenge and coherency are important factors in supporting readers to construct meaning (Tracey & Morrow, 2002 as cited in Pardo, 2004).

One of the central issues in reading comprehension is that these different factors work together to bring about competent reading skills. Studies have shown that as many as 10% of children can decode effectively but experience difficulties with text comprehension (Yuill & Oakhill, 1991 as cited in Hurry & Doctor, 2007). Similarly, studies have shown that children can have good comprehension yet poor decoding skills (Spooner, Baddeley & Gathercole, 2004). Traditionally, research and literature have focussed on the development of the cognitive elements of reading to understand better and improve literacy competence, (e.g. Adams, 1990; Cain & Oakhill, 2007; Ruddell, Ruddell & Singer, 1994). Clearly these fundamental elements are essential. However, many children who acquire these skills do not become competent and fluent readers or develop their ability in the long term. Looking beyond the typical emphasis on purely cognitive process, Snow, Burns and Griffin (1998) identified three main obstacles to skilled reading for young children: difficulty using and understanding the alphabetic principle; failure to transfer spoken language comprehension skills to reading; lack of motivation for reading. As indicated hereto, there is wide recognition that reading comprehension depends on both cognitive and motivational variables (Schaffner et al., 2013) where readers need to acquire the necessary skills to decode and comprehend as well as display the necessary effort and persistence to succeed with the task, and yet in terms of research and practice this is generally and persistently overlooked.

A motivated reader cannot comprehend text without good word recognition nor without the ability to construct meaning, yet many able readers fail in reading because they lack the motivation to engage positively in reading as an activity. The correlation between regular reading and reading performance is long established (e.g. OECD, 2010). Research also shows that this particular barrier may be further exacerbated by continuing declines in motivation to read over the school years, even within populations of proficient readers (Sainsbury & Schagen, 2004; Wigfield et al., 2016). Certainly, successful readers need to be fluent decoders where they are able to

analyse and comprehend text using complex cognitive strategies. It is inevitable that the acquisition of this skill necessitates sustained effort. Where learners encounter difficulty or deficit in any of the fundamental cognitive factors then the level of effort and commitment to developing secure reading skills will be increased.

Proficient reading comprehension is fundamental for success in every academic domain and the skills needed become increasingly demanding throughout the school years. To fully access an academic curriculum, children need to be fluent decoders as well as have the ability to analyse and understand text using complex cognitive strategies. Reading is a skill and therefore it is dependent on secure knowledge of the foundations of reading and their application. As with any skill, a gap in knowledge or ability can have a significantly deleterious effect on performance. However, it is not only the immediate impact on ability to comprehend but also potential impact on self-efficacy where deficits in knowledge and ability also encroach on self-perception and ultimately intrinsic motivation, as research has shown that this is also susceptible to falling off during the school years (Jacobs, Lanza, Osgood, Eccles & Wigfield, 2002). Likewise, those with strong self-competency belief are more likely to reengage with similar tasks where a cycle of increased reading strengthens knowledge and strategies and vice versa. Where students believe they are competent and experience success in an activity, then their performance in that activity, such as reading, is enhanced (e.g. self-efficacy theory, Schunk & Pajares, 2009). Young children typically have a strong sense of their own competence in school activities and this understanding increases as they go through school (Guthrie & Wigfield, 2000).

It is proposed that the typical focus on cognitive elements may be misleading: not only is reading motivation recognised as an important characteristic in reading development but motivation research in the educational context provides a clear indication that it can support a further dimension to our understanding of these processes. The established links between reading frequency and effective reading attainment (Mol & Bus, 2011; Wang & Guthrie, 2004), the indications that children's reading enjoyment may impact attainment (Sainsbury & Schagen, 2004), and the evidence demonstrating that interest in reading and motivation to read typically declines throughout the school years (Brophy, 2004; Wigfield et al., 2016) all direct us to give greater consideration to motivation and its role in the development of reading skills. It is logical therefore to aim to provide opportunities for students to build self-efficacy, understand both the importance and relevance of their learning, and provide an environment that allows reading motivation to be stimulated through autonomy and social interaction in order to provide a climate where reading

motivation might flourish (Guthrie, Wigfield & You, 2012). This research thus suggests that one of the critical factors to bring about reading skill development is motivation, and an approach which encompasses cognitive, situational and individual factors should be adopted.

The express focus of this research is on the first phase of situational interest and how environmental triggers, such as the non-textual features of a reading task, might act as a motivational tool and elicit affective response in the individual: this response is believed to have immediate effects in terms of increases in attention, effort and perseverance in a task. Thus, together with appropriately developed cognitive skills, it is suggested that these motivational factors enhance reading and positively impact comprehension specifically. Repeated positive experience with an activity is also understood to sustain both reading skill and interest development, and, as suggested, potentially offers wider benefits. Without effective cognitive process and strategy, competent reading comprehension is unattainable, yet it is proposed that motivation is a central factor for successful development and maintenance of this skill. This chapter will now take a closer look at the role of motivation in learning.

2.3 Motivation

2.3.1 Motivation in learning.

In its broadest terms, motivation is understood as the process that drives behaviours: from the starting point of arousal, to what elicits and directs a behaviour, to how that behaviour is maintained, how it may change and why it stops. It is key in determining the way in which the individual engages with tasks, activities and the environment. It is the underlying driver that leads to action in the individual where motivations can be both positive and negative in their influence on that interaction. If motivation for an activity, such as reading, is high then it would be expected that frequency of engagement in that activity would also be high, and vice versa. Furthermore, motivation will direct the way that the individual performs a task or activity: a motivated reader would read with high levels of effort, attention and perseverance.

Scope for motivation research is broad and diverse: the body of work for developmental and educational psychology alone is significant in both size and variety. The research literature dates back more than a century, and since the 1980s has made a considerable contribution to our understanding of behaviour related to

academic learning and achievement. Whilst motivation is both complex and challenging to investigate, it is central to our behaviours and, as it is not fixed, it can have a direct influence on learning and is therefore of particular interest to educators (Hidi & Harackiewicz, 2000) and as situational interest can be directly manipulated, it is potentially highly valuable (Wentzel & Brophy, 2014).

Motivation theories have typically explained behaviours as being driven by either extrinsic motivators, external influences in the environment such as rewards; cultural values, beliefs and goals, where behaviours are directed by task-value (Wigfield & Eccles, 2000) or perceptions of self-efficacy (Bandura, 1997); or intrinsic[4] motivators where influences are internal and motivation may be driven by a different range of variables such as interest or curiosity. So motivation drives action in such a way that what we engage with and how we engage with it may be the result of one or a combination of influences. In this way, for example, a desire to achieve a good grade in a French test may be motivated by extrinsic drivers such as the promise of a reward from a parent, desire to please a teacher, or knowledge that it will be useful in a future career, or intrinsic drivers such as enjoyment of learning the work or a desire to speak French, or, most likely, a combination of these motivational factors. Motivation results in the desire for the fulfilment of needs, from the most basic to the most complex. Clearly then motivation can be a complex process and our different motivations are not only driven by different things but are therefore manifest in different behaviours.

Motivation theories, which seek to enhance our understanding of this multifaceted concept and explain how various aspects of motivation may operate, typically emphasise cognitive (goal mastery, belief, values) rather than affective processes (Eccles & Wigfield, 2002). Self-Determination Theory (SDT) (Ryan & Deci, 2000) provides a macro-theory of motivation, seeking to establish an overview of the mechanisms which determine how motivation functions. Deci and Ryan have developed their arguments over several decades: they suggest that three central factors – autonomy, relatedness and competency – drive behaviour and therefore the individual's sense of well-being and happiness. It is proposed that high degrees of motivation and engagement for activities are experienced when these three needs are supported. A task perceived as interesting and enjoyable fosters intrinsic motivation. This facilitates a positive learning experience with regard to both strength of engagement with the task and the emotional experience (Assor, 2012). It is a

[4] Intrinsically motivated behaviour is understood as engaged behaviour for one's own pleasure, without anticipation or expectation of secondary reward.

compelling theory that demonstrates how motivation is controlled by the basic needs of the individual, where a sense of internal rather than external locus of causality facilitates intrinsic motivation. However, it is suggested that this account of motivation is unable to explain the detail and subtleties of how motivation is operationalised. Research demonstrates that motivation is sensitive to a range of variables: it is culturally situated and, in the case of situational interest, there appears a need to present triggers in a precise way. It is proposed that these more refined aspects need a deeper account than the one currently provided by the SDT framework.

Other theories focus on a specific aspect of operationalisation such as expectancies for success through attributions of effort, ability and achievement goals (Hidi & Harackiewicz, 2000), and self-efficacy (Bandura, 1997; Pajares, 1996), or subjective task values (Wigfield & Eccles, 2000) which examine why value is placed on one task over another. Of relevance to the current research is that many of these theories recognise that poor motivation may affect attention and cognitive processes which may impact academic performance (Pintrich & Schunk, 2002).

Theorists propose that the various facets of motivation, including competence and efficacy beliefs, intrinsic and extrinsic motivation and achievement goals, together determine the individual's choice of activity, effort levels and duration of interest (Bandura, 1997; Eccles, Wigfield & Schiefele, 1998). This would therefore imply that when motivated, we engage more regularly, with greater focus and over longer periods of time in an activity. Research indicates that these behaviours can have a positive impact on reading outcomes (Logan, Medford & Hughes, 2011; Wigfield & Guthrie, 1997).

Whilst the evidence suggests that motivation is influential in academic learning and reading skill development, the debate around the role therein of extrinsic over intrinsic motivation remains complex. For some time, the consensus has been that intrinsic motivation is more beneficial and has greater long-term effect than extrinsic motivation, thus supporting the idea that it is of greater value to foster intrinsic motivation in academic development, a view endorsed by Schiefele and Löweke (2017), who affirm that it is intrinsic motivation in particular that is most important to reading motivation. Some research has suggested that extrinsic motivation can have negative effects on intrinsic motivation. A meta-analysis by Deci, Koestner and Ryan (1999) demonstrated that although extrinsic rewards increase desired behaviours, they simultaneously undermine intrinsic motivation. However, Hidi and Harackiewicz (2000) propose that extrinsic motivators are valuable in both low interest tasks and in

the development of intrinsic interest, where, for example, intrinsically motivated effort may be stimulated by pre-existing topic interest, prior knowledge or situational interest (Hidi & Renninger, 2006). It is also essential to recognise that extrinsic motivation is a fundamental consideration of any motivation theory because of its pervasive nature in the classroom (e.g. traditional systems of marking and rewarding achievements or behaviours) (Pintrich & Schunk, 2002; Ryan & Deci, 2000).

This research supports the view that academic achievement is not solely linked to ability, where learners may have more than adequate cognitive skills and yet fail to fulfil their academic potential, and emphasises that a key factor which impacts this performance, outside of ability, is motivation. Where motivation is characterised by the effort and perseverance accorded to a task or an activity, and is typically aligned with engaged behaviour, it is only logical that this should be a focus for those working to support learners fulfil their academic potential. Although the link between motivation and academic performance has emerged regularly in academic research it has rarely come under empirical scrutiny and it is only relatively recently that its potential role in learning has come into greater focus (Renninger & Hidi, 2016). Research is now beginning to examine the elements of this construct and approach a preliminary understanding of its possible potency for learners in an educational context. The next section looks at the relationship between motivation and reading.

2.3.2 Reading motivation.

Wigfield and Guthrie (1997) describe the behavioural indicators of motivation as reflected in the choice of activity that is made, persistence at these activities, and the level of effort given to a task. These behavioural indicators reflect a conscious, driven choice by the individual. Therefore, where reading motivation is present, frequent, focussed and effortful reading activity might be expected. There is a clear relationship between these behaviours and reading success: motivation affects both the amount and breadth of the individual's reading activity which is understood to be part of the essential backdrop to the development of reading competence (Guthrie & Wigfield, 2000; Mol & Bus, 2011). Furthermore, motivation elicited through situational triggers can have an immediate positive effect on behaviours such as attention and perseverance: behaviours strongly associated with increased reading comprehension performance (Guthrie et al., 2012).

The National Literacy Strategy (Department for Education and Employment (DfEE), 1998) set out to overcome literacy problems through the introduction of a prescriptive

teaching framework. The impact of this initiative was investigated through a survey of more than 5000 pupils in years 4 to 6. Findings indicated that enjoyment in reading had significantly declined and pupils read increasingly less frequently over time, in spite of significant improvements in reading comprehension (Sainsbury & Schagen, 2004). The findings also revealed a gender imbalance in attitudes towards reading, with girls significantly more positive than boys. The researchers, although unable to determine conclusive causes for the decrease in levels of enjoyment, draw attention to the importance of motivation and pleasure from independent reading and the detrimental impact on these posed by such a rigid framework. The survey illustrates that even with improved ability, if the activity is not enjoyable, then children will not engage with a task. It is strongly indicative of the need to recognise that competent reading ability alone is neither commensurate with motivated reading behaviours, nor will it create readers who enjoy reading.

A significant contribution to existing knowledge of the effects of motivation on reading with children is evident through the extensive research of Guthrie, Wigfield and colleagues and their developed framework for reading motivation, Concept-Oriented Reading Instruction (CORI). This specifically sets out to increase students' engaged reading in the classroom, and therefore wider learning, using both cognitive and motivational strategies. The carefully structured units of work are designed to stimulate student interest by offering a broad range of learning activities while simultaneously, reading comprehension strategies are explicitly taught. The focus is on providing a rich environment for learning with a high level of opportunities to access motivational and engagement supports.

Research has investigated how practical application of their framework might underpin substantial improvements in this area through the use of classroom-based instructional approaches. At the centre of the framework are five motivational constructs (mastery goals, intrinsic motivation, perceived autonomy, self-efficacy and social interaction) which map to five instructional practices: relevance, choice, success, collaboration and thematic units (Guthrie, McRae & Klauda, 2007a). Students are given opportunities to learn about a specific unit of work with these underlying practices at the core over a number of weeks. It has been established that these practices stimulate situational interest that supports increases in motivation and engagement. The success of such investigations is typically assessed through a quasi-experimental design where CORI students are compared to similar groups receiving traditional instruction methods. The researchers have also been able to identify that such instructional practice is sensitive to several key variables, including

age, gender and ethnicity (e.g. Wigfield et al., 2016). Through this comprehensive body of work CORI provides substantial evidence that contributes to our understanding of how reading motivation might be operationalised through situational interest in real educational contexts. However, as the variables are at work simultaneously, the individual contribution of each one is not known.

The positive effects of CORI and its contribution to our understanding of the role of motivation in reading have been demonstrated through multiple studies, where the implementation of CORI has achieved some compelling results. Through a meta-analysis of 11 studies on 9-11 year olds Guthrie, McRae and Klauda (2007a) showed that CORI had large effects on reading motivation, engagement and comprehension and this has been borne out by similarly impressive results for reading comprehension in many later studies. In a 2014 study investigating the effects of CORI as implemented through a language-arts 4-week instructional unit that offered cognitive scaffolding for text comprehension as well as motivational-engagement support using the CORI framework with 615 Grade 7 pupils, Guthrie and Klauda found that there was a significant difference in text comprehension and student motivation compared to those following traditional instruction (TI) methods. Similarly, in a science-based 12-week intervention for Grade 5 students, differentiating effects between high and low achievers receiving CORI instruction (explicit instruction, levelled texts, and motivation support) and TI, Guthrie et al., (2009) found that the CORI intervention group (both high and low achievers) performed significantly better on post-test measures of word recognition speed, reading comprehension, and ecological knowledge compared to the TI group, indicating that interventions that manipulate motivation and support cognitive strategy are effective across all achievement groups.

CORI repeatedly demonstrates that reading motivation can be enhanced to impact performance. Its methodology, comprising several elements, contributes to a persuasive picture of how reading instruction might be presented to support motivation and engagement and therefore academic performance. The motivational factors of this framework represent a collective trigger for situational interest as understood by the developmental model presented by Hidi and Renninger (2006). Of particular note however, is that Guthrie and colleagues' work represents an instructional practice and does not investigate the individual contribution of the different components of that practice. Whilst it appears desirable to use this methodology to introduce thematic units, such practice may not always be feasible and it is both practically and theoretically valuable to understand the potential

significance of the various components to the operationalisation of situational interest. Furthermore, CORI is implemented and investigated by a team of experts who devised this methodology and it is not known how well this practice might be replicated and extended in other settings.

In spite of the identification of the importance of factors such as reading motivation, reading for pleasure and reading attitude to reading development and academic performance, in practice they are often overlooked and rarely actually addressed. Current guidelines for literacy are laid out in the Primary National Strategy (Department for Education and Skills (DfES), 2006) and although the need for motivation is cited as important to maintain both interest and progress in reading throughout this documentation, there are no recommendations on how to address poor motivation nor to how to encourage motivated behaviour. The CORI studies focus on the role of reading motivation and demonstrate the potential high influence of this on increasing reading engagement across several age groups and types of learner. However, the research does not establish the specific value of the individual motivational tools employed and a more precise account of the role of the different elements of motivation is useful to inform theory, practice and to enhance methodological rigour. Evidence identifies that high levels of interest, recognised as a key motivational tool, for activities such as reading, can be created in the individual and positively influence reading ability and achievement (Baker & Wigfield, 1999; Guthrie, Wigfield & colleagues; Young & Brozo, 2001) and would therefore present an area that could be positively manipulated in a school setting to support reading development. The next sections will now look in detail at interest research and theories and their relationship with motivation.

2.4 Interest

Interest appears a particularly convincing motivational tool: an intrinsic motivator that may be triggered in its initial stages by external drivers. Strong evidence points to motivation stemming from interest as central in supporting learners' engagement, effort and attention: variables which are strongly linked to positive performance and reading comprehension skills. This potential ability of interest, to elicit such changes in behaviour, forms the focus of this current research specifically in relation to a reading text. The increasing empirical evidence in this area suggests that, not only is there a relationship between motivation and reading skills, but that some of this

evidence could be directly mapped to pedagogical practice to potentially positively impact student motivation and associated variables such as attention, effort and engagement which have been found to directly impact academic performance. It is proposed that these constructs need to be taken into account in order to fully comprehend the learner, specifically the reader, and that there is a need to adopt an approach that recognises cognitive, situational and individual factors.

The next sections will critically examine how our understanding of interest is informed by theory and research with a specific focus on how this work relates to situational interest.

2.4.1 The unique properties of interest and its relationship with motivation.

Interest has been identified as an important and unique motivational variable (Hidi, 1990), characterised by its distinctive property to elicit an affective response in the individual (an emotional reaction or attitude to a stimulus). In contrast to motivation research which may typically focus on cognitive over affective process (Eccles & Wigfield, 2002), interest research looks specifically to the central role of affect and the interplay between affective and cognitive components and how they drive behaviour (e.g. Hidi & Renninger, 2006; Krapp, 2007; Renninger & Hidi, 2011). This interplay is one of the key characteristics of interest identified by Renninger & Hidi (2011) in a review of studies from the decade preceding their paper. It is this recognition of the central role of affective response that sets interest apart as a motivational variable, where interest operates as a cognitive *and* affective motivational variable (Renninger & Su, 2012).

Where motivation may often involve a very focussed and determined effort to channel attention and concentrate energy, interest is distinguished by creating an effortless interaction between the individual and the stimulus. Where a motivated reader might be expected to approach a reading task with intended perseverance, effort and attention, motivation triggered by interest elicits an unconscious change in these same behaviours independently from the pre-task state. It is this automatic and effortless drive to engage with specific content, where the individual may be either unaware that they have responded to a stimulus or where they may be profoundly absorbed in a task or activity, that further characterises interest as a motivational variable (Hidi, 2006). Such changes to attention, effort and concentration can impact interaction with potential influence on performance outcomes. Engagement in task or activity content may be more marked (as observed in time spent on task), attention

to the content more pronounced, and information processed at a deeper level. It is also proposed that interested interaction is more enjoyable because of this deeper engagement, that self-efficacy is enhanced because of increased comprehension, and that an overall more positive view of the activity is experienced so that all together there is a stronger likelihood to reengage (Hidi, 2006). These potential immediate consequences are highly desirable and would be beneficial in supporting the development of effective reading skills and enhancing reading attitude and ability. These characteristics are central to interest and to this research.

Research distinguishes two types of interest: individual (also sometimes referred to in the literature as personal) interest and situational interest, with both being associated with beneficial outcomes (Hidi, 1990; Krapp et al., 1992; Renninger, Hidi & Krapp, 1992; Schiefele, 2009), and distinctly different to the state of being interested. Individual or personal interest is characterised as being relatively stable over time and is associated with an affinity with or attraction to a domain, topic or activity. Typically it is also analogous with a well-developed level of relevant subject and content knowledge (Renninger, 2000) and is aligned with individual differences. Interest in this form presents as cognitive engagement, perseverance and enjoyment and would be associated with high levels of engagement in a task or activity. Situational interest is a passing liking for a domain, topic or activity that is stimulated by the immediate context or environmental triggers and can therefore be artificially constructed. It is this attribute, that situational interest might be stimulated by environmental triggers and therefore presents an opportunity for external manipulation, which makes it potentially valuable to educators. The current research focusses specifically on how situational interest might be elicited in educational contexts.

2.4.2 The conceptualisation of interest.

Interest can be understood as an increase in attention or curiosity for specific content that is characterised by voluntary and repeated engagement with a task or activity. In research literature, it has been measured across a broad range of variables such as liking, value and feeling valences, positive feelings, stored value, and repeated engagement. Interest research is based on a wide range of perspectives, from developmental, to an emotion base, to value task features and vocational interest. This wide range of perspectives and potential variables for measurement has resulted in many of those issues that surround motivation research generally being apparent

in both empirical investigation and theoretical development for interest. The variation in approach stems from the lack of cohesive theoretical understanding and therefore differences in the conceptualisation of interest (Renninger & Hidi, 2011). This inevitably leads to differences in measures. Overall, the literature lacks a systematic approach: differences in conceptualisations, differences in measurement and research methods and differences in participant age and so on, all lead to a fragmented understanding of the field (Conradi et al., 2014; Renninger & Hidi, 2011). Problems are further compounded because not all researchers acknowledge the gap between the conceptualisation of interest and the measures and methods employed in research (Krapp & Prenzel, 2011).

In a comprehensive review of salient aspects of interest theory development over a ten-year period, Renninger and Hidi (2011) propose five key characteristics of interest as a motivational variable for which there is a wide consensus. Interest is content or object specific and therefore refers to the individual's engagement or focussed attention with a particular event, task or activity; it centres on an interaction between the individual and the environment; it consists of both affective and cognitive components; attention or engagement may be beyond the awareness of the individual, and there is a physiological / neurological basis so that activations in the brain reflect a state of interest. It could thus be suggested that interest therefore guides the individual's attention to interact with specific content in a manner whereby little or no conscious effort is required. Increases in attention driven by an affective reaction, facilitate cognitive processes and consequently impact understanding or learning. However, there is a lack of grounded and tested theory in this area (Renninger & Hidi, 2011) and it is recognised that there is a need to investigate key assumptions in a systematic way, building on existing knowledge.

Understanding of interest and clarity of research is further muddied by the dual interpretation of interest as either a psychological state or as a feature of a task or activity. When interest first emerges, it may be in response to either an innate predisposition of the individual, or through repeated interaction with an activity (that may be the result of a developmental response to engagement with the activity) which is artificially generated, or a combination of the two. Therefore, interest may be an inherent feature of an individual, a psychological state waiting to be awakened (Schiefele, 1991) or it can be introduced, nurtured and encouraged to develop. This potentially key characteristic of interest is widely accepted by motivation and interest theorists, although again, it is something not always acknowledged in the research literature (Hidi & Renninger, 2016).

Schiefele (2009) further debates whether there is one state of interest caused by different factors or in fact, different states of interest, but concludes that lack of empirical evidence forces an acceptance of there being just one state of interest triggered by different factors. Other researchers (Durik & Harackiewicz, 2007; Hidi & Renninger, 2006; Mitchell, 1993) proffer agreement, that interest represents some combination of both trait and state characteristics, where it begins as a state and develops into a trait. In general there is little consensus about how much of each really contributes to overall interest in any given situation.

Ainley (2006) conceptualises interest as a purely subjective state that represents a subjective experience stemming from either an interaction between the individual and the activity or task that has situational triggers, or from a well-developed individual interest. It represents an integration of affect (positive activation), motivation (directions) and cognition (knowledge seeking). The central idea is that the state of interest harnesses motivation, in the form of prior goals and interests and focuses them onto task behaviour. Ainley, Hidi and Berndorff (2002) suggest that any predisposition (measured as depth of interest curiosity) would be expressed in the triggered state of interest, reflected in higher levels of interest in related topics. For example, a predisposition for interest in learning would be reflected in higher levels of interest shown towards text titles for specific topics such as science and popular culture. Studies have shown that topic interest as reflected in text titles has a positive effect on engagement with a task in terms of effort and persistence (Ainley, Corrigan & Richardson, 2005), as well as on the individual's self-assessment of their own performance (Ainley, 2006).

It is important to recognise that a predisposition to develop interests may go some way in helping understand variance in response to different stimuli found to generate situational interest and develop longer term, individual interest. Furthermore, factors such as gender, ability or initial low interest may dictate and explain a difference in susceptibility to the effects of situational interest both in terms of what is required to stimulate a predisposition for an interest or to cultivate a new interest. However, there is little evidence to support these suppositions.

Research has suggested that motivation is the result of an interaction between the individual and their (literacy) environment. In investigations to establish which factors relate to literacy motivation and task engagement, Turner and Paris (Turner, 1995; Turner & Paris, 1995) conducted a series of classroom based studies with children aged 6 years old, by investigating the motivational strategies used by teachers in

literacy classrooms. They found that the daily classroom tasks directed by the teacher were the most reliable indicator of motivation for literacy development, where open-ended tasks had the strongest effect on task engagement. They also found that task type may influence students' affect, such as their desire to engage with literacy activities, their ability to self-regulate as readers and writers and their understanding of the goals of literacy. These findings are in line with those of other researchers in identifying the critical factors to create motivational experiences for children (e.g. Ames, 1992; Lepper & Hoddell, 1989).

Schraw and Dennison (1994) propose that interest is a state that is both initiated and maintained by reader purpose. They found that reading motivation, as measured through text recall, was driven by giving an active purpose to the reading task (assigning the reader a perspective and task) rather than text content relating to reader interest. The study was carried out with undergraduate students and the sample size was small. Nonetheless, it provides evidence that the interestingness of a text can be externally manipulated.

These differences in the understanding of the development of interest and its conceptualisation highlight the challenges faced by the researcher in this area and the difficulties in confirming a theoretical model. This is further confounded by the fact that it appears that interest is sensitive to a range of variables such as gender, age and cognitive development (Bernstein, 1955; Brophy, 2004; Wigfield, et al., 2016) and is also strongly aligned to individual differences relating to environmental factors and influences (Ainley, 2006; Turner, 1995; Turner & Paris, 1995).

Whether or not there may be an innate predisposition of interest that may vary the strength of initial interest, the concept that interest develops sequentially is compelling and central to developmental models of interest development which will now be examined.

2.4.3 A developmental perspective of interest.

The current research adopts a developmental view of interest in line with research by Hidi & Renninger (2006) and Krapp (2002; 2007). This framework allows for a more comprehensive understanding of interest and draws widely from existing literature both in interest and motivation research. Whilst interest is widely acknowledged as a motivational variable, its specificity is not addressed by macro-level theories of motivation, and as already acknowledged, Renninger and Hidi (2011) accept that

there is still a need to develop a fitting and appropriate theory in this field. The underlying assumption is that interest develops sequentially through a set of phases. The most recent theories put forward by these researchers share many commonalities and are essentially borne from the three-phase model of interest (Krapp, Hidi & Renninger, 1992). However, their theoretical understanding is later divided over the role of affective and cognitive components in interest development and also in how interest development is researched. Hidi and Renninger focus on the role of interest in learning and development whereas Krapp is concerned with the individual's growing self-awareness and identification with interest (Renninger & Hidi, 2011).

The four-phase model of interest development (Hidi & Renninger, 2006) proposes the view that situational interest may, over time, lead to individual interest (Hidi, 1990; Renninger & Hidi, 2016) across four stages that may interact and overlap. Interest is initiated by external environmental factors until, at its final stage, it has become secure, developed and internalised. The four phases can be usefully split into two stages which distinguish situational interest and individual interest. The first phase, triggered situational interest, is defined as a 'psychological state resulting from short-term changes in cognitive and affective processing' (Hidi & Renninger, 2016 p.13) and this develops into maintained situational interest. This second phase also describes interest as a purely psychological state but additionally, it recurs and persists over time. Initially, there is typically only fleeting engagement with content, and external support to do so is required. This interaction can provoke either a positive or negative reaction. Importantly, the response triggered is likely to be beyond the conscious awareness of the individual. By the maintained (second) phase, there is positive reengagement with the previously triggered content and both knowledge and a sense of value for the content begin to develop. This is where a more personal connection first emerges as content becomes meaningful to the individual (Harackiewicz, Durik, Barron, Linnenbrink-Garcia, & Tauer, 2008). The third and fourth phases are so-called emerging and well-developed individual interest. Here, there is a shift from the uniquely psychological state to the development of a favourable predisposition for the content that is aligned with preferences to reengage, develop knowledge and take a tenacious approach to personal development in the area (Hidi & Renninger, 2006).

This account of situational interest is particularly forceful because it acknowledges that, whilst the individual is susceptible to the influence of triggers, its development will depend on multiple factors: continuing interaction with the task as well as social,

environmental and further motivational factors such as self-efficacy beliefs, rewards, role models, attitudes, prior experience and so on. This therefore acknowledges not only the potency of social environments but also validates and recognises other key motivational theories where a wider goal for example, may drive behaviour.

Hidi & Renninger (2006) propose that interest is a combination of affective and cognitive components that are interactive but separate systems. Interest mediates the way in which the individual engages with content and influences the decision to reengage. 'How much' situational interest any one individual requires before interest is maintained and over what period of time is not specified. Clearly, the notion that interest may impact any decision to reengage could perhaps be better phrased to explain that interest may determine firstly whether or not the individual voluntarily reengages with a task or activity and secondly will impact the attitude of the individual and their psychological state when they reengage. This caveat is proposed as, if reading is considered as an activity for young children, they will clearly be obliged to engage in some form in reading. However, evidence hereto considered would suggest that reading in a motivated state, with interest in the activity, will enhance both performance and learning.

Krapp's work (2002; 2003; 2005; 2007) focuses on the relationship between interest and the individual: interest is a relational construct between the individual and object or content that may or may not last over time and develops sequentially. Krapp identifies three stages – emerging situational, stabilised situational and individual interest – in contrast to Hidi & Renninger's (2006) four stages, but both theories therefore describe situational interest as developing over two phases. Indeed, the multi-faceted nature of interest is viewed as a key finding that has contributed significantly to research (e.g. Hidi, 1990; 1995; Krapp et al., 1992; Mitchell, 1993). By classifying the different types or stages of interest researchers have been able to show distinct differences in how interest may be initiated, sustained and maintained over different lengths of time. Although the detail of how these processes may take place remains unclear, this recognition of there being different types of interest is a very important first step to reach this understanding. Recognition of the multi-faceted nature of interest has enabled research to draw out distinct characteristics distinguishing situational interest (a context specific interest) from individual interest (a more general and long-lasting interest), (Schraw & Lehman, 2001).

There are strong similarities between the work of Krapp and that of Hidi and Renninger: interest development is commonly regarded as sequential and content

specific, and the interaction between the individual and a stimulus is associated with positive emotion or feeling. However, although both theories recognise affective and cognitive interplay, the function of each is explained differently. The four-phase model attributes greater importance to affect, which is seen as an integral part of the interaction, to a greater or lesser extent, throughout each stage of interest development. Affect informs valuing in tandem with knowledge so that cognitive processes respond to and interact directly with affective systems. Krapp (2007) describes emotional response as a separate function, which occurs alongside cognitive process.

Further differences lie in how the role of knowledge is interpreted. The four-phase model asserts that variation in depth of knowledge is present for all age groups and at all stages of interest development: essentially, knowledge and value must eventually be present and the need for these progresses as interest itself progresses (Renninger & Su, 2012). Krapp (2002), however, regards knowledge as only relevant for younger children when interests are necessarily linked to their knowledge base (Hidi & Renninger, 2006), a view shared by Schiefele (1999).

Krapp's later arguments (e.g. Krapp, 2007) stand on the shoulders of Deci and Ryan's (1985) Self-Determination Theory which proposes that motivation centres on the three basic needs of competence, autonomy and social-relatedness. Krapp argues that these needs are necessary to interest development: the individual will only reengage in an activity where it is felt to have sufficient value-related valence and provides an essentially positive experience (Krapp, 2007). He views interest as a response by the individual to an increasing self-awareness and biological need to mollify the sense of self by integrating these two aspects of self and object or content. The transformation to individual interest only occurs if the content fulfils certain criteria for the individual (Krapp, 2007). Krapp suggests that this is explained by the central psychological mechanism of 'internalisation' as described by SDT (Deci & Ryan, 1985; Krapp, 2002b as cited in Krapp, 2007; Ryan & Deci, 2000). In contrast, whilst recognising a role for these needs, the four-phase model is less absolute. It views them as one of several determinants in interest development, fulfilling a more supportive role. Interest mediates how the individual engages in an activity or content: the individual may gain a sense of pleasure from the autonomy derived from choosing to engage in a particular activity, thus fulfilling a central tenet of SDT without engaging this as a meta-theory of interest development. Equally, by reading challenging material about a topic, the individual is also fulfilling other motivational and interest determinants such as goal setting and self-efficacy (Hidi & Renninger, 2006).

There is some direct empirical validation of the four-phase model. For example, Harackiewicz and colleagues' study (2008) found relationships between initial interest, achievement goals, situational interest, and class performance, where reported situational interest in an introductory course (assessed through participant responses to questions regarding experiences in and enjoyment of course lectures) predicted course choices seven months later. These results are particularly compelling as the researchers controlled for initial interest and the study was carried out with a large sample (858) of undergraduates. Levels of interest, stemming from situational interest triggers, were directly related to reported previous level of interest over the three points of measurement. That is, those students who reported increased interest at Time 1 were more likely to report increased interest at Time 2, and so on. However, most data were collected using self-report surveys and furthermore, all participants came from a psychology course and therefore would have held a certain amount of interest in the area: the researchers found moderate effects when attrition rates (those who had dropped out or not taken up enough courses over time) were accounted for. The authors also point out that the trigger for situational interest was not established but speculate that it may have been non-textual task features or meaningfulness or presentation of the material; this is also identified as an area that would merit further research.

2.4.4 The role of affect for interest development and task enjoyment.

The role of affect has already been discussed in relation to both empirical research and theoretical models where it is inherent to interest development and is the critical feature of interest as a motivational variable that sets it apart from other constructs. Both Hidi and Renninger and Krapp propose that to experience a state of interest, is to experience affect and that this emotion is integrated with any cognitive processes. It was acknowledged by early theorists like Dewey (1913) who suggested that positive emotion was key to the development of interest and learning, so that effort operates as an automatic response to conditions that support interest.

Affect or positive emotion is a fundamental factor in the intrinsically motivated state. However, it is also important to recognise here that, whilst widely recognised as central to motivation and interest development, influential theories often ignore this element. Meyer and Turner (2002) point out that motivational theories tend to focus on cognitive processes and do not include emotion as a central influence but rather, if included, view emotion as a possible outcome. In line with the four-phase model,

they propose that emotions are in fact central to understanding the cognitive processes themselves. Research by Rathunde (1993; 1998 as cited in Hidi & Harackiewicz, 2000) on the emotional component of interest describes the affective-cognitive synthesis of the dual nature of interest as the combining of positive affective feelings, such as enjoyment, stimulated by interest, with the cognitive reactions that situational interest brings about when triggered, that is, focused attention, meaningful thoughts and the association of importance and value to a task. This parallels key aspects of an intrinsically motivated state.

Linnenbrink and Pintrich (2002) also acknowledge the potentially powerful effect of emotion on intrinsic motivation, where enjoyment in a task or even anticipation may result in an intrinsically motivated state. Nonetheless, they also point out that the influence of affective and cognitive processes on cognition, learning and performance is not always in a positive direction but can both increase and decrease attentional resources: for example, anxiety over performance may use up valuable working memory and therefore have a negative impact, a view shared by Ainley, Hidi and Berndorff, (2002) and also Hidi, (1990). Many studies investigating situational interest demonstrate this sensitivity and indicate a need to develop understanding of how variables may interact and what effects they may promote.

The sensitivity of response is described by Pekrun and colleagues (Pekrun, Goetz, Titz, & Perry, 2002) as taxonomy of emotions where affective states are derived from either the task or the self and can be either positive or negative. These different responses to an activity impact cognitive processing by way of mood congruent effects (so a positive mood enables ease of encoding and processing); by the influence on the quality of cognitive engagement (heightened attention through heightened interest impacts positively); the nature of the cognitive engagement in the task: affective states may impact the cognitive resources available); effects on motivation where a positive experience leads to enhanced intrinsic motivation and therefore positive changes in learning, cognition and task involvement. Of interest in situational interest is the response of the individual to the task, where the task features elicit a reaction in the individual: this is the affect that can be potentially manipulated.

2.5 Situational Interest

2.5.1 The two stages of situational interest.

Hereto, research informs us that interest is a powerful motivator in learning and that it supports the individual to operate skills associated with improved academic performance as well as task enjoyment, which underpin longer term engagement in tasks. For reading we can therefore surmise that cultivating interest and enjoyment in reading as an activity in itself will support a positive approach and potential long term academic gain. Where situational interest has been identified as a potential gateway to stimulating interest and supporting its development (Dewey, 1913; Hidi & Harackiewicz, 2000; Renninger & Su, 2012; Schraw & Lehman, 2001; Turner & Paris, 1995), it is a logical step to look at ways to enhance reading interest and enjoyment through potential triggers. However, although it has been proposed that situational interest makes a significant contribution to supporting interest development and acting as an effective motivator (Sansone & Harackiewicz, 2000), in reality there is little evidence as to how this might be operationalised, particularly in relation to reading, and how it is influenced by factors such as age, gender or ability.

As discussed, situational interest is typically seen as occurring over two phases (Hidi & Renninger, 2006; Krapp, 2007; Mitchell, 1993) that are initiated by a trigger from a stimulus that impacts the way the individual interacts with the task or activity. A key feature is the unconscious response elicited that promotes effortless increases in task attention and perseverance and is typically aligned with a sense of enjoyment. At first, stimulated interest creates immediate but short-lived changes to affective and cognitive processing that may result from text features, specific environments or the initial triggering of a predisposition for interest in that specific content. Following this, maintained situational interest differs in that it focuses attention and increases persistence for a more sustained time span and also may recur and persist. An important feature is that the activity or task has developed meaningfulness (where meaningfulness refers to the extent to which any activity is deemed relevant to the individual) and brings about increasing personal task involvement. In these initial stages, levels of effort, intrinsic motivation, goal setting and self-efficacy beliefs are different to those that are apparent as a more concrete individual interest is established (Lipstein & Renninger, 2006 as cited in Hidi & Renninger, 2006; Renninger & Hidi, 2002).

Mitchell (1993) describes the two stages of situational interest as ‘catch’ and ‘hold’, reflecting this externally supported interaction of the trigger with the individual. The

differences between these stages and the mechanisms of Hidi and Renninger's stages for situational interest are subtle and rest on the duration of response to triggers and an interpretation of meaningfulness. Mitchell's (1993) catch facets are triggers in the environment which stimulate the individual via either a sensory or cognitive route whereas hold facets are variables that empower the individual: the actual content becomes meaningful to the individual and enables them to reach personal goals, such as wanting to read. Mitchell further proposed that meaningfulness for younger age groups parallels the ability to understand and complete tasks.

Therefore, in the case of a reading task, a colourful illustration may act as a trigger to catch interest, and the attraction will dissipate once the page is turned, whereas if reading as an activity is perceived as empowering, then the material will hold the individual's interest until the task is completed. Schiefele (2009) suggests however that repetition of catch facets would also maintain the individual's interest during an activity and this aligns with Hidi and Renninger's model (2006). In this way, therefore a reading activity that included vivid pictures throughout the material would work to maintain interest for a longer time span. Schiefele also posits that this could therefore represent another trajectory for interest development: repeated positive experience through repeated catch facets would lead to positive association and developing interest for a task or activity. There is a lack of empirical evidence to support either of these claims and this draws attention to the need for firm theoretical models to be described and empirically tested in order to further understanding in this area.

It could therefore be suggested, based on these deductions, that it is either the relevant meaningfulness of any triggers and their personal valence or repeated situational triggers leading to repeated positive experience with content or activity that would decide the overall impact on any longer term or sustained interest. However, this does not necessarily suggest that either route would have any greater or lesser impact on the immediate response elicited in the individual, and therefore outcomes in terms of behaviour and performance could be expected to be the same. Mitchell's suggestion regarding the interpretation of age and meaningfulness raises questions regarding the sensitivity of situational interest for different age groups. An alternative interpretation of meaningfulness might be more closely aligned to the role of challenge in tasks, a variable highlighted by several researchers as important to situational interest (Dewey, 1913; Malone & Lepper, 1987).

2.5.2 Empirical contributions in understanding situational interest.

This section considers some notable experimental work that gives background to and underpins current understanding of situational interest. Chapter Four and Chapter Six look in greater detail at this and relevant empirical work with specific focus on the variables under investigation in this research.

A range of empirical support for the effects of situational interest on reading comprehension performance comes from studies by Guthrie and colleagues. In a 2006 investigation into the way in which situational interest can trigger reading motivation and the potential impact on reading comprehension, children, aged 7-9, were exposed to either a high or low number of motivational tasks across four settings and then children were given an opportunity to read up on related areas to further their knowledge (Guthrie et al., 2006). Situational interest was promoted by exposing participants to stimulating non-reading tasks associated with the target comprehension material, such as hands-on science observation and experiments. Comprehension was then assessed using a range of reading-related tasks. The findings showed that those children experiencing high exposure to stimulating tasks (associated with promoting situational interest) reported higher levels of motivation, and this was reflected in improved reading comprehension. These findings demonstrate the benefits of situational interest through non-textual features to increases in motivation for further reading and improved comprehension. The study illustrates how these features may be important components in encouraging reading and supporting engagement and motivation and how this may impact comprehension. Additionally, it serves to illustrate that, although situational interest is a temporary response, it has the potential to promote immediate improvements in comprehension and also to trigger long term interest (Ainley, Hidi & Berndorff, 2002; Brozo, 2010) or at least to provide a positive reading experience which in itself may provide a solid basis for a more positive approach to reading (Palmer, Codling & Gambrell, 1994).

A series of experiments by Anderson and colleagues (Anderson, Shirey, Wilson & Fielding, 1987) provides strong evidence for the role of interest and its immediate effects on learning as measured through sentence recall. Although the premise for these studies was to evaluate effects of interestingness of sentences on learning, the definition of interest used (the ability to elicit an emotional response) and the focus of the investigations, (looking at immediate effects which stem from features associated with situational interest, such as novelty), comparing sentences such as '*The fat waitress poured coffee into the cup'* with '*The huge gorilla smashed the schoolbus*

with his fist' (Anderson et al., 1987, p.287) indicates that these studies are closely aligned to studies investigating situational interest.

In the first studies, children, aged 8-10, had to orally recall sentences, previously rated by other children for level of interestingness, after one exposure based on a noun-phrase cue. They found that interest accounted for thirty times as much variance in sentence recall as readability and as much variance in recall as reading comprehension scores. The effects were found to be true under a variety of conditions such as reading aloud, in groups or from a computer.

They also found that children processed interesting information more slowly than other information whereas the opposite was true for adults, therefore suggesting that information is processed differently dependent on age or that increased attention may impact differently depending on age.

Gender impacted both the type of sentence rated as interesting: that is some sentences were more likely to be rated interesting by boys than by girls and vice versa, and boys were more likely to recall the sentences that were rated as interesting by boys rather than those rated as interesting by girls and vice versa. Furthermore, overall the effects of interest were stronger for boys than for girls. Similar results suggesting differences in how interest may operate across these groups comes from Malone (1981) who found that fantasy elements were intrinsically motivating for boys and disliked by girls whereas girls found musical rewards motivating, as measured by time spent on task. Research in reading development commonly highlights gender differences and literacy reports often confirm this; the same distinction has also emerged in studies investigating the influence of interest and motivation, where boys are generally more susceptible to influences of interest than girls (Bernstein, 1955; Oakhill & Petrides, 2007).

Anderson and colleagues' studies also investigated which attributes contribute to interestingness of sentences with 8-9 year olds by identifying four potential attributes: novelty, theme, character identification and activity level (intensity of action). They found that novelty and theme accounted for 47% and 21% of the variance respectively. Character identification and activity level (material with intense action) were not statistically relevant. This is supportive of theories and studies which identify novelty as a key feature of situational interest. Furthermore, the identification of novelty as accounting for most variance is also indicative that these studies demonstrate effects of situational interest.

Further empirical support for the operationalisation of situational interest and the multi-faceted nature of interest come from Mitchell's studies (Mitchell, 1993) which set out to disentangle situational from individual interest and clarify a theoretical model. His key rationale was based on overcoming the issue of classroom boredom with specific reference to secondary mathematics. He proposed that boredom was in fact lack of motivation to learn, and that interestingness represented the motivational variable necessary to move learners on from this state. Using qualitative and quantitative methods, Mitchell gathered data from 350 14-16 year olds through a small sample of focus groups and open-ended questionnaires asking participants to identify different aspects of their lessons as either interesting or boring and explain their statements. Through this, Mitchell found that triggers for situational interest, so-called 'catch' facets (features identified as high interest) included group work, puzzles and using computers. The commonly ascribed cause was that these provided a change of pace and variety. 'Hold' facets were identified as empowering elements through meaningfulness and involvement.

Durik and Harackiewicz (2007) investigated individual interest as a moderator to catch and hold factors as elements of situational interest for mathematics tasks and found that their results did not support Mitchell's findings: the effectiveness of these elements was dependent on initial levels of interest. Their findings showed that catch facets were effective for individuals with low individual interest in maths but hampered those with high interest and vice versa for hold facets, so that those with high individual interest experienced increased motivation but those with low individual interest experienced undermined motivation.

However, where Mitchell's study was with high school students, Durik and Harackiewicz's study was with undergraduates who would be logically expected to have more confirmed attitudes to specific domains. It is proposed that this difference reflects the sensitivity of triggers of situational interest and that effects are likely mediated by age. This view is supported by Wigfield, Guthrie and colleagues who have found that success of instructional practices that may boost motivation to read and of reading comprehension motivational strategies is indeed age-related.

These examples suggest that situational triggers may be influenced by initial levels of interest, or general exposure and experience of the world. In the case of reading for young children, whose reading experience would inevitably be more limited compared to older children and whose personal experience of reading is fairly recent, it could be suggested that levels of interest would be necessarily less varied. For

example, the studies carried out by Durik and Harackiewicz were with undergraduates, who would be expected to have a relatively clearly defined level of interest in a topic such as mathematics. It thus follows that how situational factors might affect reading in young children is not necessarily likely to follow the same pattern as suggested by these studies. In fact, it could further be suggested that the effects of catch and hold facets of situational factors might be stronger for this age group because of their more limited world experience and knowledge (Renninger, 2009), because of the nature of learning in children (Dewey, 1913) or because children have less developed individual interests than adults (Renninger, 2000). Consideration of these examples signposts the desirability of: using factors which can be externally manipulated to support a positive attitude to reading; the importance of introducing such factors before the onset age of the reported decline in motivation observed in primary-age children; the importance of developing our knowledge about which triggers can effectively stimulate reading interest in this age group (e.g. Pintrich & Schunk, 2002; Wigfield, Byrnes & Eccles, 2006).

This chapter has so far aimed to establish the context for this research and examine key areas in relevant theory and literature. It has demonstrated that, whilst motivation and explicitly situational interest, is an area of high research value, it is also challenging to present crisp boundaries in this area both due to the nature of the constructs and a lack of theoretical coherence. Evidence indicates that potential triggers of situational interest may be operationalised differently across age groups, genders and influenced by individual differences – ideas that will be explored further in the following chapters. It is likely that novelty, for example, would be influenced by experience and therefore age.

It has also highlighted that measurement poses significant challenges for rigorous empirical research. Methodologies rely mostly on self-report techniques, correlations between variables such as students' perception of classroom learning opportunities with persistence, strategy use and achievement measures. These methods have clear limitations, presenting issues with validity, replication and, due to the level of self-awareness and metacognition required, can be challenging to implement with any degree of reliability (Renninger & Hidi, 2011). It has also been suggested that self-report poses particular difficulties with younger children, meaning this type of measure is potentially unstable as an accurate measurement (Turner, 1995). These difficulties are equally applicable in research on interest, where it is widely recognised that direct measurement of interest is challenging (Renninger & Hidi, 2011).

Renninger and Hidi (2011) also point out that additional complications arise because the items used to assess interest are subject to wide variation, may investigate one aspect of interest only (such as affect) or examine one variable in relation to others. Overall this signifies that results cannot be effectively compared. The content of surveys may not effectively reflect the conceptualisation of interest that the researchers aim to examine. Situational interest is transient by definition and it is questionable if causal inferences can therefore be drawn from self-report. Furthermore, interest, as a developmental phenomenon, is likely to change over time in line with both cognitive development and changes in the individual's understanding of the world around them. It is influenced by environmental factors that may impact the individual perspective of the concept of interest. It is also widely theorised that situational interest may be either a psychological state of the individual: a predisposition for a certain interest waiting to be stimulated; or it may reside wholly in features of the object or content – such theories and differences present significant challenges for measurement.

For this research, specific considerations concern the appropriateness of measures in relation to the age (8 – 9 years old) of the participants. As indicated, younger children may lack the cognitive awareness to assess their own preferences, and may be more easily influenced by other external factors such as wanting to please the researcher, and give what they perceive to be the 'right' answer. A study by Frenzel and colleagues (Frenzel, Goetz, Lüdtke, Pekrun & Sutton, 2009) found age-related measurement variance in research investigating mathematical interest in a group of adolescents, stemming from a difference in the participants' conceptualisation. Younger participants were more likely to base their answers on affective experience and expression of value, while the older ones were more likely to be influenced by issues related to personal autonomy and to link their answers to their desire to advance their knowledge.

Interest research within the domain of reading faces further challenges because variables such as prior knowledge of a topic or familiarity with content can bias participant interest. Such potentially confounding variables would immediately impact the attention and affective response to the task or activity content.

2.6 Concluding Comments

The research examined hereto firstly demonstrates that interest is a powerful motivator that may bring about beneficial effects in learning and reading skill

development. It shows that there is a lack of consensus and empirical work to support our understanding of which triggers might bring about such effects and particularly be successful in eliciting situational interest in reading tasks. Even where there is some agreement about triggers, these have not been systematically tested to establish differential effects for groups and domains. As Wigfield, Gladstone and Turci (2016) elucidate, there remains a need to build on existing research in reading motivation to identify effective methods that can be used in the classroom to support reading comprehension across different age groups of children. This research will contribute to theoretical and practical understanding of how motivation, through situational interest, might be created with specific reference to young children and reading comprehension performance.

The methodological challenges have been carefully considered and informed the design of the present studies. The current research adopts the Four-Phase Model of Interest Development (Hidi & Renninger, 2006) to provide a framework for understanding both how interest may develop generally and the potential characteristics of situational interest, and specifically investigates the triggering of situational interest, corresponding to the first stage only of this model. This research uses Hidi and Renninger's work, as well as evidence from relevant research and consideration of the methodological challenges, to build a robust paradigm for systematically testing the efficacy of three potential triggers of situational interest for reading in 8-9 year old children which is described in Chapter Three.

Situational interest is considered more closely in Chapter Four, looking at the role of choice as a variable and potential trigger for situational interest and in Chapter Six where the role of novelty is considered through story presentation and non-textual features. Research questions are set out at the end of each of these chapters.

Chapter Three

Methods

The aim of Chapter Three is to provide a methodological paradigm for experimentally investigating the hypothesis that situational interest will make a difference to the reading comprehension performance and reported task enjoyment of young children.

This research investigates the effects of situational interest through a series of three experiments where three different variables were manipulated to examine their impact on the reading comprehension scores and reported task enjoyment scores of children aged 8-9 years old. The chapter describes the methodological elements central to all three experimental studies. The methods relating specifically to the investigation of each variable are set out in Chapter Five, section 5.2 for the study investigating the effects of choice, Chapter Seven, section 7.2 for the study investigating the effects of novelty through story presentation, and in Chapter Eight, section 8.2 for the study investigating the effects of novelty through non-textual features.

3.1 Rationale

In line with the overarching rationale for this study, this research aims to determine the effects of motivation on the reading comprehension of young children as it is believed that it is important to enhance reading motivation in this age group. There is a recognised need to investigate the effects of potential triggers of situational interest with this age group (e.g. Flowerday & Schraw, 2003; Renninger, 2009). As discussed in Chapter Two (see Sections 2.1, 2.2 and 2.5.2) several specific factors also contribute to the decision to investigate these potential effects with children aged 8-9 years old. There is a persistent issue in literacy and in developing and maintaining positive attitudes to reading, where reading for pleasure, motivation to read and interest in reading steadily decline during childhood and specifically begin to tail off by the later years of primary school (age 10-11) (e.g. Sainsbury & Schagen, 2004; Wigfield et al., 2016). Research also informs us that where children develop intrinsic motivation for reading during the primary school years, this interest in reading is sustained both during and beyond this period into adolescence (e.g. Otis et al., 2005).

It is therefore timely to support the development of intrinsic motivation to read before any decline sets in and it is therefore a logical step to investigate the variables which may support interest development (and therefore enjoyment and willingness to reengage with an activity) from as young an age as possible. However, it is also important that participants are confident readers and have developed the necessary decoding skills to be able to confidently access texts which are challenging in terms of reading comprehension. Children in Year 4 (8-9 years old) should be efficient decoders, and this age is considered a key time in reading development (Hirsch, 2003). Participants for these studies were therefore drawn from Year 4 of main stream schools in West Hertfordshire and South Buckinghamshire.

An acknowledged limitation of interest studies is that they rely heavily on self-report measures (Renninger & Bachrach, 2015). Thus, in order to investigate this hypothesis three carefully controlled experiments were designed that measured reading comprehension performance as an outcome of changes in effort and attention for a task, given that such performance would be expected to improve if situational interest were triggered. The exact design and procedure is accounted for in this chapter under sections 3.4 and 3.8 respectively. Measures of pre-test reading motivation and reading enjoyment scores immediately post-test were also conducted in order to fully investigate different aspects of the manipulation and provide a reading and motivation profile for each participant.

In recognition of the complexities of this area, such as the expectation that situational interest elicits an unconscious response to the stimulus, qualitative data were also collected immediately post-testing in order to enrich our understanding of the participants' own perception of the role of the manipulation (choice and novelty through either story presentation or non-textual features) on the reading task and enjoyment of the task, as well as attitudes to reading. These data were collected through small focus groups of up to four children. The groups were spilt by gender and ability to reflect the research questions for each experimental study, investigating whether effects of situational interest (observed through changes in task performance and enjoyment) would differ across these groups.

3.2 Ethics

Ethical issues were given the highest consideration at every point of this research from ensuring that testing materials were designed that were accessible and not overly onerous for the participants, to gaining consent. British Psychological Society guidelines were strictly followed and ethical approval was granted for this study by the Research and Ethics Committee at the University of London, Institute of Education.

Parental consent for each child was obtained through an opt-out consent form distributed by the schools (see Appendix A) which included information about the aims and procedures of each study and offered an opportunity to withdraw consent by either returning a reply slip, contacting the researcher by email or advising the class teacher. No questions regarding the study or requests for withdrawal were received for the studies investigating choice and novelty through story presentation; one guardian requested their ward withdrawn from the study investigating novelty through non-textual features but no further questions regarding the study or requests for withdrawal were received. Opt-out consent forms were selected with the participating schools' approval as it was felt that this was the most appropriate method to use given that the experiment was neither invasive nor potentially damaging. The advice of classroom teachers was sought at each testing stage regarding the participation of the children and to ensure that the researcher was aware of any difficulties that may be experienced. Furthermore, the children's assent was sought at each stage of testing so that they were clear that they could stop or opt-out at any point.

For the focus groups, the selected participants and the proposed questions were discussed with class teachers to ensure the researcher was aware of any sensitive issues concerning these groups.

On completion of all testing the children were given a full debrief explaining the purpose of the study they had participated in, how they had helped and how the target variable had been manipulated. They were given the opportunity to ask questions and informed that if they had any further questions that their teacher could contact the researcher on their behalf.

All data were made anonymous before testing by assigning a number to each participant. On completion of data analysis, documents associating names and numbers were destroyed. Data were stored electronically on a private computer and

on the university's secure back-up storage system. These data will also be deleted on completion of all associated works.

These points reflect the key ethical considerations of this work which were adopted at each stage of both design and procedure throughout this research for all three studies.

3.3 Pilot Study

Given that the testing materials were uniquely created for this study, it was important to apply appropriate rigour to assess these materials. It was particularly important to ensure they were fit for purpose regarding appropriateness of the task for the age group; level of language and accessibility; appropriate challenge for the comprehension questions; suitability of topic for the storybooks and effectiveness of materials for the tasks.

To this end, there were three stages employed to ensure that the materials used and procedure were fit for purpose using the criteria outlined above: evaluation and review by an experienced primary school teacher both prior to the pilot study and post the resulting changes, as well as a pilot study.

The pilot study was conducted with a group of 17 Year 3 pupils[5] well-balanced for gender and of mixed ability to assess the materials (storybooks, comprehension questions and enjoyment questionnaire) and procedure. In one session all pupils read both storybooks and answered the accompanying questions and completed one enjoyment questionnaire. This was followed by an open discussion where pupils were encouraged to share their opinion of the materials and identify any difficulties they had experienced, such as vocabulary items, not understanding questions and so on.

The pilot study showed that the method worked well and that the procedure was suitable. Feedback from the participating children resulted in the rewording of a small number of comprehension questions and changing several words in the texts of the stories that were too challenging for most participants. Review of the scoring of the comprehension questions and enjoyment questionnaire led to the elimination of

[5] As the pilot study was conducted at the end of the summer term with a view to the actual study being carried out in the early autumn, in order to allow for 'drop off' over the summer holidays, the pilot study was conducted with Year 3 rather than Year 4 pupils.

comprehension questions and questionnaire items that were answered incorrectly by a majority of or all participants.

3.4 Design

All children completed a pre-test to assess reading ability and reading motivation. Reading test scores were compared with teacher reading assessment scores in order to identify potential anomalies and then used to rank the children within their class group. Further to this, all children were ranked and matched by gender and ability within each class in each school and randomly assigned to one of two groups for story order.

A repeated measures design was used where Group 1 completed the experimental condition followed by the control condition and Group 2 completed the control followed by the experimental condition. Moreover, in order to control for order effects, a cross-over design was employed so that both stories were used in both conditions, as illustrated in Table 3.1 below.

Table 3.1

Illustration of Condition and Story by Group and School

School I		School II	
Group 1		Group 1	
Experimental Condition	Story 1 - Birthday Story	Experimental Condition	Story 2 - Skiing Story
Control Condition	Story 2 - Skiing Story	Control Condition	Story 1 - Birthday Story
Group 2		Group 2	
Control Condition	Story 1 - Birthday Story	Control Condition	Story 2 - Skiing Story
Experimental Condition	Story 2 - Skiing Story	Experimental Condition	Story 1 - Birthday Story

Enjoyment Questionnaires were completed by all children immediately following each reading task.

After all testing was completed, four Focus Groups following a semi-structured interview, with 4 children per group, organised by gender and ability, were conducted in each school. That is, a high ability and low ability group for each gender. These were informal discussions away from the classroom, with a semi-structured interview format.

3.5 Participants

All participants were drawn from the Year 4 classes of two-form entry primary or junior schools in the counties of Buckinghamshire and Hertfordshire, England. The characteristics for the participants and relevant details for each final sample are described by study in Chapters Five, Seven and Eight.

3.6 Materials

3.6.1 Pre-test phase.

3.6.1.1 New group reading test (NGRT).

Reading comprehension ability was assessed using a standardised test, New Group Reading Test (Burge et al., 2010). Tests 2A and 2B, designed for children aged 6:00 to 10:05 were used. The tests comprise two sections. The first section comprises 20 items with a multiple-choice format where it is necessary to select the word that is the best fit to complete the sentence. The second section comprises three different passages with accompanying multiple-choice questions which are a mixture of context comprehension questions and reading comprehension questions. The tests evaluate vocabulary, grammatical knowledge, inference skills and deduction skills. The test provides high levels of reliability with Cronbach's alpha reported at above 0.9 for both tests. Validity is based on high levels of reliability, adequate representation of the construct of reading, and elimination of irrelevant factors in accordance with the arguments of William (2008). These are demonstrated through the high levels of test reliability, supporting evidence that the test effectively assesses the construct of reading, and a format where writing is eliminated through the sole use of multiple-choice questions.

3.6.1.2 Motivations for reading questionnaire (MRQ): Adapted.

Motivation for reading was assessed using a modified version of The Motivations for Reading Questionnaire (Wigfield & Guthrie, 1997). This instrument was designed to assess different aspects of students' reading motivation based around eleven identified constructs of reading motivation (Guthrie, Van Meter, McCann & Wigfield, 1996) relating to both intrinsic and extrinsic motivations. It is a self-report questionnaire to determine how far the individual is motivated to read. The questionnaire was originally developed to use with 3rd, 4th and 5th grade students in North America and has been used with researchers from grades 4 to 8 in other research. Wigfield and Guthrie (1997) reported the reliabilities for all the aspects of the 53-item MRQ as ranging from .43 to .81 Evidence of construct validity has been reported by Wigfield and Guthrie (1997) using factor analysis, where all constructs except work avoidance correlated positively, and Unrau and Schlackman (2006) reported a confirmatory fit index of .90, suggesting relatively good model fit.

For this exercise, a questionnaire was developed from the revised 53-item questionnaire. The questionnaire was adapted for several reasons: to reduce the number of questions and therefore reduce the testing burden for participants; to ensure that any questions not directly relevant for this study were excluded (e.g. singularly extrinsic motivation assessment); to identify and adapt items which would not be understood by children in British schools and at the start of the academic year of Year 4. For these reasons several criteria were set in order to determine which items were selected. Items solely assessing extrinsic motivation or that were not age-appropriate were excluded. Furthermore, several items were adapted, insofar as their language was anglicised so that they would be readily intelligible to the target audience (e.g. *I read to improve my grades* adapted to *I read to improve my marks*). The final instrument comprised a 38-item questionnaire (see Appendix B) with two practice questions. Internal consistency for the 38 items for all participants across all three studies was analysed by calculating Cronbach's alpha giving a value of .86, indicating a good level of reliability (Loewenthal, 2001).

There are no data regarding standardised scores for the MRQ for this age group. Furthermore, the adaptations made would be expected to impact any possible comparisons. Nonetheless, a degree of concurrent validity is provided by the calculation of Pearson's r correlation coefficient for scores on the MRQ and the scores on the control condition enjoyment questionnaire for all participants across all three

studies. The data show the correlation r = .37, indicating a moderate correlation strength (Cohen, 1992).

3.6.2 Testing phase.

3.6.2.1 Storybooks.

Two short stories were written and matched for both word length and difficulty. Some adaptations were made to each story to fulfil experimental design and are described in the relevant methods sections for each study, under the heading Storybooks.

The main text section for Story 1 (Birthday Story) comprised 627 words and 7 pictures and 682 words and 7 pictures for Story 2 (Skiing Story). A readability formula tool (readabilityformulas.com) which uses a range of 7 recognised readability formulae (see Appendix C for a list of formulae included) to calculate an average grade level, reading age and text difficulty assigned both stories a consensus Grade Level 5, a reading age of 8-9 years and an 'easy to read' reading level. Further to this, the stories were also read by a primary school teacher in order to review their suitability in terms of both story and level. Some sample pages from Story 1 and Story 2 are attached in Appendix D and E respectively.

3.6.2.2 Comprehension questions.

Reading comprehension questions were developed for each story using Key Stage 2 Statutory Assessment Tests (SATs) questions as a model and included a well-balanced combination of question type (that is both literal and inferential questions were included). A total of 18 questions for each story was assessed for suitability by a primary school teacher and then trialled in a pilot study to ensure they were fit for purpose in line with the criteria outlined in section 3.3. From these original questions, 11 comprehension questions were selected for each story (see Appendix F, Story 1 and Appendix G, Story 2). Selection was based on the following criteria: all participants understood the question without help; all participants answered the question in a way that reflected they had understood the question asked; all correct answers referred to the same part of the story. The questions selected for each story reflected the same format and also question type (that is both literal and inferential comprehension questions).

Internal consistency and concurrent validity for the comprehension questions is reported for each study in the relevant methods section under the heading Comprehension Questions.

3.6.2.3 Enjoyment questionnaire.

Enjoyment for each story after reading was assessed using a 14-item questionnaire (see Appendix H). This questionnaire was designed in order to assess the extent to which participants enjoyed each story immediately after reading. The questions were reviewed by a primary school teacher before being trialled in a pilot study to ensure accessibility for this age group in terms of language and content.

Internal consistency for the questionnaire is reported for each study in the relevant methods section under the heading Enjoyment Questionnaire.

3.6.3 Post-test phase.

3.6.3.1 Focus group questions.

A semi-structured interview was designed to enrich understanding of the participants' perception of the experimental manipulation (Study 1, receiving a perceived choice of storybook; Study 2, having a visitor read aloud the prologue to the storybook; Study 3, reading a storybook with additional non-textual features – scratch and sniff stickers) and enjoyment of the stories in both control and experimental conditions. Ten questions were selected to guide the interviews and participants were encouraged to develop their answers and share their thoughts about these areas. The questions were developed following discussion with the pilot study participants and were reviewed by a primary school teacher to ensure that they were appropriate and suited to the task in terms of content and language for this age group, as well as communicating a clear meaning. The format and guide questions are in Appendix I.

3.7 Scoring

3.7.1 Pre-test materials.

3.7.1.1 New group reading test (NGRT).

The test was scored according to the instructions in the Teacher's Guide with one point awarded for each correct answer. A raw score (maximum 48) was recorded for each participant together with the corresponding inflected teacher assessment level.

3.7.1.2 Motivation for reading questionnaire (MRQ): Adapted.

The response format for the 38 items was 1 = very different from you to 4 = a lot like you. Scores were calculated for the questionnaire as a whole (rather than as separate

constructs). Items 4, 6, 12, 23, 27 and 28 were negative statements and as such were reverse scored.

3.7.2 Testing phase.

3.7.2.1 Comprehension questions.

The comprehension answers were scored according to whether or not they had provided a correct answer, with one point awarded for each correct answer. Question 11 for both stories asked the respondent to tick all correct answers. A maximum of three points could be allocated for this answer. If more than three answers were selected, one point was then deducted for each incorrect answer. In this way, if a respondent selected six answers and three were correct, the points awarded were zero; if a respondent selected four correct answers and three were correct, the points awarded were two and so on. The maximum score was 14 and examples of each type of answer and scoring are shown in Appendix J, Story 1 and K, Story 2.

3.7.2.2 Enjoyment questionnaire.

The response format for the 14 items was 1 = very different from you to 4 = a lot like you. Items 3, 6, 8, 9, 10 and 11 were negative statements and as such were reverse scored.

3.7.3 Post-test phase.

3.7.3.1 Focus group questions.

Using thematic analysis, broad themes were identified and coded from the twenty-three semi-structured interviews conducted across the three studies (up to eight semi-structured interviews for each study). Further to this, stand-alone statements about either the experimental variable (choice; novelty through story presentation; novelty through non-textual features) or enjoyment of the story read or reading in general were recorded. A list of themes is included in Chapter Nine which reports on the qualitative analysis of the data from the three experimental studies.

3.8 Procedure

These studies focussed on the effects of situational interest on reading comprehension performance and reported enjoyment of a story. Each study

manipulated a different potential trigger for situational interest: Study 1, choice; Study 2, novelty through story presentation; Study 3, novelty through non-textual features. This section describes the parts of the procedure central to all three studies. The exact procedure for each study is described in the relevant methods section under the heading Procedure and sub-heading Testing Phase.

3.8.1 Pre-tests.

All participants completed a standardised test, the New Group Reading Test (Burge et al., 2010) in order to assess their reading comprehension ability and to provide a comparison to baseline data (class teacher assessment level) provided by the participating schools. The test was administered to all participants during a morning session of the school day and they were allowed as much time as they needed to complete their answers.

Immediately following completion of the NGRT, participants completed the adapted version of the MRQ in order to assess their motivation for reading. The questionnaires were distributed and then the response format was clearly explained with the support of an illustrative slide. This slide was displayed throughout the exercise. The two practice questions were used as examples for how to complete the test items. After an opportunity to ask questions, each item was read aloud and progress to the next item was determined when all participants appeared to have selected their current item response. Participants were able to raise their hand and ask for help and clarification throughout the administration of the exercise.

3.8.2 Testing phase.

Participants were matched by gender and ranked by ability (raw score on the NGRT) and then randomly assigned to one of two groups (Group 1 – Experimental Condition followed by Control Condition and Group 2 – Control Condition followed by Experimental Condition). All sessions took place in the participants' normal classroom in a morning session of the school day. The sessions were at least three days and up to two weeks apart: consistency of time difference was maintained within each study.

3.8.3 Focus groups.

All focus groups took place after the reading comprehension activities had been completed and on the same day as the final activity. These sessions were conducted in a separate classroom with just the researcher and the participating pupils present. Chairs were set up in a circle to support an informal atmosphere.

The class teachers were given a list of the groups and a randomised order and asked to send the participants to the allocated room.

On arrival, participants were told that they had been randomly selected from the whole cohort to come and talk to the researcher about the activities they had been doing. They were told that they were helping the researcher with work that was trying to understand more about how children their age felt about reading and whether or not having a choice about what they were reading or novelty in the way the story was introduced or presented was valuable. Participants were told that they did not have to take part at all, did not have to answer the questions if they did not want to and could leave and return to their classroom at any time. Participants were also assured of full confidentiality. A Code of Conduct was explained (see Appendix L). Participants were told that the session was being audio-recorded. Participants were asked to give their consent to this and given an opportunity to ask any questions before the recording was started.

In order to put the children at ease, an ice-breaker activity, started by the researcher, preceded the main questions (see Appendix I). All participants were given an opportunity to speak and give their view for each question. During the discussion, the researcher acted to ensure that all children participated equally by politely moving some children on or prompting others to extend their answers when appropriate. Participants were free to ask questions at any time.

At the end of the session, participants were invited to ask any further questions.

The focus groups were conducted in line with the ethical procedures outlined in section 3.2. The discussions were recorded as digital files and varied in length from 7 minutes 00 seconds to 13 minutes 27 seconds, (mean length 9 minutes 50 seconds).

3.8.4 Post-test.

All participants had the experimental design explained in full and were made aware of the specific experimental manipulation. The reasons for this were explained and participants were encouraged to ask questions. They were also told that they could still contact the researcher if they had any further questions at a later date via their class teacher.

Chapter Four

Choice

This chapter sets out and critically evaluates studies and literature that inform our understanding of choice as a motivational variable and how it might operate as a trigger for situational interest. It examines how choice contributes to our understanding of how interest can be stimulated and its role in promoting intrinsic motivation in learning, and establishes how the current experimental study extends and develops existing knowledge in this area. The current study explores the potential effects of offering a perceived choice of a storybook as a trigger for situational interest to test the hypothesis that situational interest, operationalised as choice, will make a difference to reading comprehension performance and reported task enjoyment for participants aged 8-9 years old. In the control condition, participants were allocated a storybook to read. The exact hypotheses for this study are presented at the end of this chapter. The methods and results are set out in Chapter Five and the qualitative data analysis from the focus groups conducted as part of this study is included in Chapter Nine.

4.1 Introduction

In its absolute form, choice offers the individual freedom to engage with a task or activity, and it has long been recognised as an important and powerful motivational variable (e.g. deCharms, 1968; Lewin, 1952). Research has shown that it can be used as a highly effective tool in educational settings, successfully impacting intrinsic motivation and interest levels. Within these contexts, it has been considered and investigated from three important perspectives. Choice is considered a key element of Self-Determination Theory (Deci & Ryan, 1985; Ryan & Deci, 2000); it has been identified as one of the five dimensions of reading motivation (Taboada, Tonks, Wigfield & Guthrie, 2009) and is central to the framework used by Guthrie, Wigfield and colleagues in multiple studies (see e.g. Guthrie & Wigfield, 2000); and it is an important potential motivational trigger within the construct of interest (e.g. Cordova & Lepper, 1996; Mitchell, 1993; Patall, Cooper & Robinson, 2008; Schraw &

colleagues), which is theoretically described by Hidi and Renninger's Four-Phase Model of Interest Development (Hidi & Renninger, 2006).

The role of choice as a motivational factor is theoretically understood in broadly similar terms across all three of these perspectives, in that the effects of choice stimulate an increase in intrinsic motivation leading to changes in levels of effort, attention and perseverance. Studies in the area reflect the tenacity of choice as a motivational tool but also its fragility, insofar as the evidence produced does not present a clear picture of the mechanisms which might effectively support choice to operate successfully. Whilst there is agreement from many investigations that choice can positively affect motivation and consequently positively impact performance (e.g. Cordova & Lepper, 1996; studies by Guthrie & colleagues; Patall et al., 2008; Zuckerman, Porac, Lathin, Smith & Deci, 1978), they also inform us that the mechanisms surrounding choice are sensitive. Studies indicate that the effects of choice on motivation can be neutral or in a positive or negative direction, and have demonstrated its reactivity to a variety of factors: the number of choices offered; the way in which choice is presented; the characteristics (prior knowledge, culture and personal interests) of the individual being offered the choice; the characteristics of the choice (if is it meaningful). Understanding the diverse nature of how choice operates as a motivational tool is challenging both theoretically and experimentally.

Variables such as age, gender and ability may also interact differently with these different factors and mediate any potential effects. For example, although it has been suggested that choice is more effective as a motivational variable amongst young children (Anderson, 1982 as cited in Hidi & Baird, 1986; Flowerday & Schraw, 2000; Patall et al., 2008) many studies have been conducted with middle school and college students or adults, and therefore this claim is in fact unsubstantiated. It has also been made clear that there is a need to investigate the role of choice across age groups (Flowerday & Schraw, 2003). Research in the field of reading development and reading ability commonly highlights gender differences, and this is also a central finding in studies investigating the influence of interest and motivation (e.g. Bernstein, 1955; Oakhill & Petrides, 2007). However, few studies carry this forward to establish potential differential effects in research investigating the effects of choice. Similarly, although teachers commonly report that choice is believed to have a greater motivational impact on low ability and low interest students (Schraw, Flowerday & Lehman, 2001) evidence from research is so far unconvincing.

As set out by interest theory, situational interest is interest that is triggered and sustained by an environmental factor outside of the individual (Hidi & Renninger, 2006; Krapp, 2002). Few studies have expressly investigated the direct effects of situational interest arising from choice on academic performance. Furthermore, it has been suggested that the findings from these studies are generally confusing (Clark & Phythian-Sence, 2008). Evidence investigating whether choice arising from situational interest facilitates or diminishes any motivational effects is inconclusive. It is clear that how choice operates as a feature of situational interest is not yet fully understood.

In this chapter, the role of choice as a motivational variable, drawing specifically on studies that focus on its potency as a trigger for developing situational interest, will be explored. It will consider confounds of research in this area and the particular difficulty of measurement. It will highlight current gaps in the research that this study aims to address and provide the rationale for this investigation. The specific focus is to identify if choice can be manipulated to impact behaviour in a reading comprehension task. It is anticipated that choice has the potential to trigger effects of situational interest and thus bring about an increase in levels of effort and attention, and that this will be observed in performance on the experimental reading comprehension task, as well as reported task enjoyment.

4.2 The Theoretical View of Choice

Choice and intrinsic motivation share long-standing links in psychological research. Adler (1930, in Langer & Rodin, 1976) proposed the existence of a fundamental requirement to experience a sense of control over one's environment. The function of choice is central to fulfilling this basic human need and sense of control (deCharms, 1968; Ryan & Deci, 2000). Indeed, several social psychology theories posit that choice, even when rather specious, can have striking positive effect (Iyengar & Lepper, 2000) although this is not always substantiated by empirical evidence.

The perception of control is one of the key criteria for establishing intrinsic motivation in Self-Determination Theory (Ryan & Deci, 2000) driven by a need for freedom to engage and sense of personal causation. Choice is central to the experience of autonomy which is defined as a motivational construct that enables this sense of control, as well as the experience of expressing choice and preference. Through

choice, responsibility and control are exercised thereby increasing motivation. This is said to stimulate a feeling of well-being as there is a belief that action is self-determined.

Conversely, when the environment is experienced as controlling, well-being and intrinsic motivation are diminished (Deci, Connell & Ryan, 1989). It could be expected that this would therefore adversely impact task-related performance. Self-Determination Theory therefore interprets the idea of meaningfulness[6] as related to the authenticity of the individual's values and how far a task fulfils one's needs. Assor (2012) suggests that studies where choice does not impact performance reflect a lack of meaningfulness in the task. That is that the task is not related to the individual's true values. Interpretation of meaningfulness is key to many studies. It is argued here that meaningfulness essentially signifies a sense of personal involvement in a task and it is posited that the misinterpretation of this confuses some investigations in this area, as will be discussed later in this chapter.

Providing opportunities for choice and self-direction correlates with student motivation (Guthrie, Klauda & Ho, 2013). It is suggested that creating motivation for reading can be achieved by allowing individuals to manage their own reading behaviours: choosing what to read, when to read, how much to read and so on. In a review of literature on reading motivation, Coddington and Guthrie (2009) suggest that perceived autonomy can be achieved through giving choice of reading activity via either a choice of text, of task or of display (that is, how knowledge gained from the text is shown), and that further support for the sense of autonomy can be given by allowing students to express opinions about what they have read. Moreover, such interpretations also draw attention to some of the methodological issues for research in this area, where separating the effects of choice from those of prior interest is a common confound.

Guthrie and Wigfield (2000) have proposed a broad framework for reading comprehension that acknowledges the essential nature of both cognitive and non-cognitive skills for effective reading comprehension. Engaged reading, explained as a combination of ability and desire, is fundamental for reading success. Guthrie, Wigfield and colleagues (e.g. Guthrie et al., 2007a; Guthrie & Wigfield, 2000; Guthrie, Hoa, Wigfield, Tonks, Humenick & Littles, 2007b) discuss choice as a desirable

[6] Meaningful choice, according to SDT, directly relates to the authentic values of the individual, representing fulfilment of the basic needs of relatedness, competence and autonomy. See Deci & Ryan, 1985; Katz & Assor, 2007; Assor, 2012.

stimulant for autonomous experience. Moreover, the operationalisation of choice as a motivational tool is also clearly understood as a function of situational interest.

Guthrie and Wigfield's framework (2000) views reading as driven by the ability of the reader and also the individual's desire to read: both are essential for effective reading comprehension. In order to comprehend a text a reader must be both cognitively able and also motivated to do so. It is suggested that choice is one of the factors with a central role in facilitating the development of this motivation to read (Guthrie, 2001). Guthrie and colleagues (e.g. Guthrie et al., 2007b) have carried out a number of investigations examining the impact of manipulating reading motivation in a classroom setting and demonstrating the importance of intrinsic motivation for the development of reading ability and comprehension skills. Their theoretical perspective proposes that engaged reading activity is defined by interactions with the text that are both motivated and strategic. In order to practically evaluate this, they have developed an approach, known as CORI (Concept-Oriented Reading Instruction), which puts a variety of opportunities, selected for their potentially motivating benefits, at the heart of classroom practice. Topic based activities include choice, opportunities for collaboration, carefully selected texts and relevance in order to support the learners' intrinsic motivation through, for example, perceived autonomy, curiosity and self-efficacy. Analysis of CORI studies suggests a significant effect size on both individual motivations (0.30) and also on a composite representing intrinsic motivation (1.26). Whilst these results are compelling, as they are a composite analysis of the suggested motivational elements described by CORI, it is not possible to disentangle the individual effects of choice.

As discussed in Chapter Two, choice, if presented carefully, has the characteristics to operate as a trigger for situational interest. However, in contrast to some typical behaviours associated with changes in intrinsic motivation that bring about a conscious response to the way in which the individual engages with an activity, it would be anticipated that the effects of situational interest would elicit these changes (that is, increases in effort, attention and perseverance) in a way in which the individual was not directly aware. In this way, such a response can be described as automatic and effortless. This accords with Hidi & Renninger's theory of interest development (2006).

There are clear theoretical links between the role of choice and these three perspectives (Self-Determination Theory, Guthrie, Wigfield and colleagues, and Theory of Interest). There is currently a growing body of work examining the

interpretation of Self-Determination Theory to explain motivated behaviour. However, a need for autonomy, as described by Self-Determination Theory, and central to the operationalisation of choice as a motivational tool, does not seem to capture or account for the sensitivity of choice to other variables. Guthrie, Wigfield and colleagues describe perceived autonomy and the role of choice as a core motivational factor but address neither the specific contribution of choice, nor how best to operationalise choice as a motivational tool in their body of work. The current research does not question whether or not choice invests a sense of control, which may or may not be integral to well-being. However, it is proposed that interest theory can account for increases in intrinsic motivation that also support an understanding of the function of these variables, and as such provides a more comprehensive framework for exploring possible triggers of situational interest, including choice.

4.3 Understanding Choice in the Context of Motivation Research

This section will aim to navigate some of the ways in which choice is described and how it is presented. It will illustrate how different researchers take a different approach to choice in their work and demonstrate how that impacts the way in which choice is interpreted in their studies. In many of these studies, confounds and issues with measurement, common to research of situational interest rather than specifically choice, are manifest.

Understanding what is meant by choice in motivational theories is necessary for our interpretation of research in this area. Empirical evidence indicates that for choice to be effective, variables such as number of choices, the way choice is presented and factors such as age and context all play an important role. Situational interest illustrates that the way in which choice is encountered contributes to how it will operate. Interest development theory (Hidi & Renninger, 2006) acknowledges that triggers are organic and that they are necessarily framed by the specific context in which they are presented. The basis is more ephemeral; a trigger captures the attention of the individual and alters the interaction with the environment. In this way, choice as a feature of situational interest represents a fleeting interaction that is able to heighten levels of attention within a context-driven space and time.

4.3.1 Meaningful choice.

Many studies which describe choice as meaningful (or sometimes valid) demonstrate that the choice itself requires certain properties, so that the choice is not an expression of preference or selection of an option but that it involves a considered choice. A meaningful choice is one which necessitates some degree of thinking on the part of the participant, where the individual is able to take ownership of the decision made. When choice is experienced in this way it contributes to the stimulation of a motivated response in the individual (e.g Cordova & Lepper, 1996; CORI studies). In contrast, asking participants to choose at random, so for example between two plain, identical envelopes (Flowerday, Schraw & Stevens, 2004) is not a meaningful choice because the act is arbitrary. In this study, college students were offered a blind choice and then had to complete the task in the selected envelope, compared to being assigned a task, in order to evaluate the effects of choice on motivation. The students had no information about what they were doing and therefore the act of choosing was both arbitrary and meaningless. It was found that choice had a slight negative effect on motivation. It is argued here that the insignificant results in this study can be attributed to the participants' experience of choice which was neither valid nor meaningful. This study reflects that the way choice is presented can impact its effect on motivation. This difference in the act of choosing has been classified by differentiating between *choosing* and *picking* (Margalit & Morgenbesser, 1997, as cited in Katz & Assor, 2007). Although Katz and Assor (2007) also suggest that the act of choosing reflects an act of self-realisation: an opportunity to express preferences and volitions, and therefore be autonomy supportive, it is posited that choosing is a simple and effective assertion by a participant but not necessarily a reflective desire to align needs with the choice made.

In Self-Determination Theory it is proposed that choice is validated as being a meaningful choice when it aligns with a need for autonomy and correlates with fulfilling basic individual needs, dependent on its relation to the individual's values (Assor, 2012; Katz & Assor, 2007; Ryan & Deci, 2000). In a meta-analysis of 41 studies reviewing the effects of choice on intrinsic motivation, Patall, Cooper and Robinson (2008) suggest that Self-Determination Theory best frames our understanding of how choice operates as a motivational variable. The studies included cover a wide range of participants (young children to adults), varying theoretical backgrounds, and different measures. Whilst this is a useful compilation of the effects of choice, the wide-ranging nature of the review compromises its potential to draw definitive conclusions about choice as a motivational tool: it is

posited that Self-Determination Theory provides a broad theoretical understanding of motivation but is not necessarily a ‘best fit’ theory for understanding choice, as in many ways, it does not capture the details of how choice operates successfully at a practical level.

Meaningful choice is also determined by the experimental design and methodology. If investigations into the effects of choice are to provide convincing evidence, it must be clear that the choice made is not an expression of preference or existing interest. Although any choice inherently reflects a preference, robust empirical research that demonstrates the effects of choice must be careful to avoid confounds such as prior interest. For example, Flowerday and Schraw’s study (2003) offered participants a choice between completing a crossword or a short essay as a classroom task. They reported that choice had a significant effect on affective positive engagement (attitude and effort) but not on cognitive performance. However, this finding may be due to an established competence and preference for crosswords or expression through writing rather than the act of choice itself. It is important to establish a clear methodological and practicable approach in order to ensure that changes to behaviour are driven by the act of choosing rather than by an existing interest.

Guthrie and colleagues have examined the impact of manipulating reading motivation in a classroom setting through the particular approach of CORI. These studies support the notion that situational interest is a strong motivator and the researchers suggest that choice is one variable that can be used to act as a trigger for this. The CORI studies recognise choice as a motivational tool primarily as a function of situational interest; however, autonomy of the individual is also highlighted as important when choice is offered. Participants select texts to work from and are allowed some controlled autonomy for topic. Indeed, reading texts are described as needing to be meaningful to the child in order to support autonomy and create situational interest (Wigfield et al., 2004). It is proposed that by affording the individual the opportunity to select their own text, situational interest is triggered and in this way choice facilitates motivation. However, in these studies prior interest is not controlled for and so it is again not clear whether it is existing interest or choice that brings about changes to motivation levels. This, along with the fact that variables are not isolated, is a particular difficulty when interpreting the results of CORI studies to evaluate the individual contribution of motivational factors. Furthermore, these studies are set within the context of classroom learning and are essentially topic-based. It is not clear if these same principles can be applied outside of a specific context: that is, whether

choice can trigger situational interest and impact comprehension performance beyond a structured learning environment.

Distinguishing between the effects of choice and prior interest or knowledge is a frequent confound for research in this area and commonly not controlled for in experiments. It is evident in some of the leading research in this field (e.g. Cordova & Lepper, 1996; Flowerday & Schraw, 2003; Wigfield et al., 2004). The importance of choice being experienced as meaningful both in terms of the act of choosing itself, and in order to ensure that prior interest or knowledge are controlled through method and experimental design, are essential to the rationale of the current study.

4.3.2 The presentation of choice.

The importance of how choice is presented is closely tied to the researchers' understanding of the concept of choice and includes consideration of factors such as the number of choices offered, as well as how concepts such as meaningfulness are interpreted. Difficulties are well-illustrated by Flowerday et al.'s experiment (2004), mentioned above, which investigated choice and interest in a group of undergraduates. The results showed that choice was ineffective as a motivational tool, underlining the importance of the methodological consideration of how to present choice to participants if the choice is to be experienced as meaningful and therefore viable.

There is consensus amongst those researchers (e.g. Iyengar & Lepper, 2000; Katz & Assor, 2007) who have addressed whether number of choices impacts effectiveness of this variable that the optimal number is between two and four options. Various reasons have been put forward for this recommendation, most commonly that the participant should not be over-burdened with the effort of having to make a choice so that it becomes detrimental to the experience of the task. It is suggested that too many choices leads to over-complex decision making processes and may restrict confidence or lead to frustration with a task. However, the evidence in this area is inconsistent. Iyengar and Lepper (1999) used 6 options in a task and performance was not inhibited by the number of choice options. In a series of three experiments in a study with adults to investigate the effects of differing number of choices (range 6 or 24 to 30), Iyengar and Lepper (2000) found that choice was more effective with the smaller number of choices. It has also been suggested that too few choices does not represent effective choice.

A common-sense approach would recognise that multiple options for a task is indeed onerous and also artificial and impracticable. It is therefore posited that number of options offered should be both realistic and accessible. It is also argued that effective choice arises when the choice presented is meaningful rather than being either a blind choice or an onerous decision-making experience.

4.3.3 Difficulties of methodology and measurement.

Issues with measuring triggers of situational interest are pervasive in the research literature. Most typically, participants are invited to self-report on their experiences to assess the extent to which they have enjoyed an activity post-manipulation. Beyond the concerns typically associated with self-report measures, when participants are children it can be suggested that results may be even more unreliable. Asking children to quantify levels of feelings which are abstract (such as interest) is highly demanding in terms of levels of cognitive development and self-awareness. There is a further pressing issue with self-report for measuring effects of situational interest, recognised by other researchers (e.g. Renninger & Bachrach, 2015). Triggers of situational interest are anticipated to elicit an unconscious affective response to a stimulus in the environment that may be both unexpected and transient. Therefore, by these inherent characteristics, it cannot be assumed that participants will be aware that they have been affected by triggers.

Methodological issues concerning experimental design are discussed earlier around interpretations of choice, understanding of terms such as meaningful or valid, how choice is presented and so on and are also central to the interpretation of research in this area.

4.4 Investigating the role of choice

In spite of the differences and difficulties hereto discussed surrounding choice as a motivational tool, there is substantial empirical and significant anecdotal evidence indicating that choice leads to enhanced intrinsic motivation. In a meta-analysis of 41 studies examining the effects of choice on intrinsic motivation and related outcomes, Patall, Cooper and Robinson (2008) report average small to medium effect size (Cohen's d = .36). However, as already suggested, the mechanisms setting out how choice is optimally operationalised are largely inconsistent. This section will evaluate

some key studies and establish how far they contribute to current understanding in this area.

As discussed, Wigfield, Guthrie and colleagues' CORI studies provide multiple examples of the potential high impact of choice as a trigger for situational interest, but, as choice is commonly one of several variables offered to enhance motivation, it is not possible to isolate its effect. Furthermore, it is important to acknowledge that evaluations of this work are carried out by the CORI team. Evidence in favour of the potential efficacy of choice is also found in the results of Zuckerman et al.'s (1978) seminal study which found that participants were more likely to voluntarily engage in the same puzzle activity in a subsequent free choice period if they had been allowed to choose their puzzle task rather than if they had been assigned their puzzle task in the preceding activity. These results suggest that choice leads to intrinsic motivation for a task where there is a willingness to voluntarily reengage, reflecting interest in and enjoyment of a task. Other studies offer more complex findings that demonstrate that it is both necessary and worthwhile to unpack the underpinnings of choice so that it can be used as an effective motivational tool.

Positive effects of choice on affective and cognitive outcomes are found in a classroom based investigation conducted by Patall, Cooper and Wynn (2010). Participants were randomly assigned to one of two groups where they were offered a homework task choice or assigned their homework task for a teaching unit and were then assigned to the other condition for the subsequent teaching unit. In the choice condition, participants reported higher levels of interest and enjoyment (intrinsic motivation) to do their homework task, higher levels of perceived competence and also had significantly better performance as measured by the unit test. Patall et al. (2010) also report a positive trend on homework completion rates in the choice condition. This study provides compelling results for the effects of choice in promoting those effects associated with situational interest. However, as the participants were spread across 4 school year groups (grades 9 – 12) and the number of homework tasks for each included unit ranged from 1 to 5 (M = 2.3), it would be worthwhile to understand how these effects were moderated by these variables as other studies indicate that age in particular may influence the impact of choice and the findings are limited by the number of tasks associated with each unit.

Cordova and Lepper's study (1996) with fourth and fifth grade children (aged 9 – 11) found that choice enhanced both motivation and learning by manipulating the use of choice on *instructionally irrelevant aspects of a task* in an educational computer-

based activity on maths and problem-solving skills. In each of the four experimental groups the task was embellished with either a generic or personalised fantasy context and these groups were then split and invited to make choices for items such as the name of their representative icon and the name of their spaceship. Although irrelevant to the task, this opportunity makes the task meaningful to the individual as it enables a sense of ownership and personalisation. The researchers reported a significant effect on affective engagement and the participants from the experimental groups performed better on task-related tests one week later, although there were no immediate effects on cognitive aspects. There were no differential effects for either age (participants were drawn from two consecutive year groups) or gender. However, given that the overall sample size was only 70 across five conditions (four experimental, one control), with a gender split of 30:40 (girls: boys) it is suggested that these numbers are too small to draw conclusions for either of these two variables.

Interpretation of these results is also limited due to both the design and methodology. Maths task knowledge was controlled for in terms of prior knowledge insofar as the topic had not yet been taught in the curriculum: therefore this controls for taught knowledge but maths task knowledge was not rigorously controlled for by this design. The small sample numbers and the concurrent fantasy embellishments for each condition draw into question the impact of choice. The fantasy embellishments could be interpreted as a further situational trigger (novelty). Although the overall affective impact is highly significant, the difference between the experimental choice and no choice conditions is smaller, suggesting that choice had less impact than the task embellishments. This is limited further by the small sample size. Analysis is based on data from self-report questionnaires. As already discussed, the use of self-report questionnaires in the context of changes to interest levels must be considered highly subjective, and these difficulties may be further compounded by the young age of the participants.

A striking element of these results is the increase in related task performance, particularly as this difference is attributed to the four experimental conditions compared to the control group: the manipulation of the task improved the interaction of the participants with the learning material. It is not possible to assess how far this difference may be attributed to either the embellishments to the activity or to the role of choice. However, in either case, it is possible to attribute this change to the impact of situational interest, arising from either one of these two variables (the activity embellishments (novelty) or the use of choice).

Where studies indicate that choice can enhance reported task enjoyment but do not necessarily impact learning or task performance (Flowerday & Schraw, 2000; 2003; Schraw, Flowerday & Reisetter, 1998) issues in the interpretation of choice or how it is operationalised can account for the findings. Tafarodi, Milne and Smith's study (1999) found that choice significantly enhanced reported task enjoyment and perceived task competence but not task performance or interest. In two parallel studies in Wales and Toronto, 54 and 44 female undergraduates respectively participated in an online reading task. Prior to the task, two groups were invited to choose the 13 names that they most liked from 13 pairs of names. Subsequently, participants were told the story would include these names in the reading task (group 1) or that the story would include a random selection of the 26 names (group 2). In effect, for group 2, none of the preferred names were used. For the control group, this stage was omitted. All three groups were then asked to rate how much they liked the names used in the story, to read the story and, immediately afterwards, rate how much they had liked the story, how well they felt they had understood the story and finally complete a multiple-choice reading comprehension. The authors suggest that there was no effect of choice on task performance because it was already highly interesting to all participants. It is further suggested that, although choice was effective in raising enjoyment, having received an external reward for participating (course credit or small payment), in line with motivation theories (e.g. Deci et al., 1999), task performance was positively impacted and task interest was negatively influenced for all participants.

Positive effects of choice are found in studies by Iyengar and Lepper (1999), that also demonstrate the mediating effect of age, gender and culture. Through a series of three studies, it was found that choice in the selection of category for an anagrams task, rather than being told which category to work on, for children aged 7-9 affected both task performance and subsequent interest in anagrams as an activity. There were no interactions with gender, although there was an effect by grade (age) where effects of choice were strongest for the youngest participants. This study compared Anglo-American and Asian-American children. The three studies offered either a personal choice, a directed task by someone unknown to the participant or a directed task suggested by a key figure (e.g. the participant's mother). Performance and subsequent anagram task activity for Anglo-American children was most impacted by the personal choice condition and there was little difference across the two remaining conditions. In contrast, for Asian-American children, the results were different in all three conditions. The greatest effect was when the task had been assigned by a

known figure, then personal choice (although with less impact than for the comparison group) and finally when the task was assigned by a third party (although performance was better than for the comparison group). This demonstrates that cultural perspective mediates the effects of choice, and exemplifies the sensitivity of choice to a range of variables and the subsequent challenge of identifying how best to operationalise choice across settings.

Schraw, Flowerday and colleagues have contributed considerably to the research on situational interest in classroom settings since the mid-90s. Their body of work has frequently focussed on the role of choice framed by an understanding of both self-determination theory and interest theory. Their interpretation of situational interest distinguishes cognitive and affective engagement and therefore differs from that of some other researchers (e.g. Guthrie and colleagues; Hidi & Renninger, 2006; Mitchell, 1993). The examination of choice and its role as a motivational tool is not always consistent: it is investigated alongside interest as two separate variables that may impact intrinsic motivation (Flowerday & Schraw, 2003; Flowerday et al., 2004); as distinct from situational interest (Flowerday et al., 2004); and as a potential trigger for situational interest (Flowerday & Schraw, 2003; Schraw et al., 2001).

A phenomenological study investigating the effects of situational interest (Flowerday & Schraw, 2000) found that practising teachers consider choice an important motivational strategy for eliciting interest and enhancing learning, with teachers reporting that choice can facilitate positive effects on effort and time dedicated to tasks and activities. It was also reported that effects were believed to be more pronounced for low ability and low interest students. By selecting their own reading material, students can choose pieces they may be familiar with and this prior knowledge increases interest value. However, it is unclear if these perceived effects can be attributed to the choice offered or the pre-existing knowledge and interest. Similarly to the interpretation of choice offered by Guthrie and colleagues, Flowerday and Schraw suggest that choice has a dual nature: it can raise interest levels through investing a sense of ownership and control in a task, and it also triggers situational interest through choice as materials can be selected that reflect personal interests or about which the individual may have some prior knowledge. Schraw, Flowerday and Reisetter's study (1998) found that undergraduate students reported higher situational interest when given a choice of text assessed as meaningful, where prior knowledge promoted motivation through choice. However, selecting material because it reflects an already-established interest, confounds understanding of the effects of choice.

Although the studies reviewed above present evidence that choice can stimulate situational interest, they also suffer in varying degrees from two of the methodological issues common to motivation research mentioned hereto: the challenge of differentiating between effects of variables such as personal interest and the experimental variable (in these studies, choice), and the use of self-report to understand a response that is characterised as being unconscious and affective. It is proposed that this indicates the need to conduct research that isolates the potential influence of variables to establish how choice is best operationalised.

Patall's studies (2013) have unpacked this relationship by investigating how the effects of choice as a trigger for situational interest are mediated by individual characteristics, such as high prior interest, or task characteristics. Patall found that effects of choice were positively impacted by high prior interest as measured by self-report in an online study with 152 adults who had to report on their preference for choosing task aspects in high and low interest scenarios. A follow-up laboratory–based experiment, gave 28 psychology undergraduates a trivia and brain teaser activity following choices about the activity topic in the experimental condition compared to no choices in the control condition. Prior interest in this type of activity was recorded as a pre-test measure and the results showed that, although choice positively impacted performance for all participants, it only impacted perceptions of competence and feelings of interest for those with initially higher interest levels. These studies suggest that situational interest, triggered by choice, can be effective for both high and low interest groups but that positive affective factors (task enjoyment and interest) only occur for those with high levels of interest already in place. These results are limited in that the sample size was small, and gender biased (19 females).

Patall (2013) also reports on an investigation into the effects of choice on a range of both affective and cognitive variables including effort, task liking, willingness to reengage in a similar task and reading comprehension performance where task characteristics (interestingness) were manipulated. Participants comprised 172 college students (132 females) who were given a course credit for participating. All measures were completed online. Task characteristics were manipulated by informing participants that the texts had been found either interesting or boring by other college students in the past, and by aligning text topic of the interesting task only with an area of typical personal relevance to college students. Having been told that they were going to read either an interesting or boring text and that there would be some aspects of the task that could vary (choice of 2 interesting texts in interesting condition; choice of 2 boring texts in boring condition; level of difficulty of

comprehension questions), participants were assigned to one of four conditions: interesting text with choice; interesting text no choice; boring text with choice; boring text no choice. The choices offered were perceived choice only (interesting texts and questions were identical and boring texts and questions were identical). Participants in the choice condition scored significantly higher in the comprehension task in the choice compared to no choice conditions, indicating that choice had a positive effect on reading comprehension performance. Only participants in the boring text choice condition reported positive affective benefits for interest, liking of task and willingness to reengage, and demonstrated enhanced effort compared to participants in the no choice boring text condition. The reverse was true for the interesting text where affective benefits were recorded for participants in the no choice group. This suggests that the affective and cognitive benefits typically associated with situational interest - with choice as the trigger - were mediated by the interestingness of the task for college students and it is argued that these findings provide significant endorsement of Hidi and Renninger's model for situational interest. Task performance was significantly influenced for all participants in the choice conditions regardless of reported levels of task interest and enjoyment: this is consistent with the notion that situational interest brings about changes on an unconscious level.

Patall suggests that these results show that choice creates motivation so that boring and interesting tasks are experienced in a similar way and that choice is most effective for participants who have high initial interest (as recorded on pre-test measures) but carry out a boring activity. Furthermore, she identifies that the effects of choosing may be affected by the extent to which situational interest is anticipated or experienced. It is suggested that this study may also be limited by the reward given to participants, and the gender bias of the group. It is not clear if the findings can be extended to other age groups. Whilst task performance was positively affected across both choice conditions, it is of note that there were only 7 questions for each task. Nonetheless, it is an example where choice creates an automatic heightening of effort as understood by Hidi and Renninger's (2006) interpretation of situational interest where the effects of situational interest are differentially characterised by an automatic response to features that lead to effortless increases in attention and perseverance levels. It is of particular relevance to the current research as it provides an example of the effects of perceived choice as a trigger in a reading comprehension task.

The research discussed in this section reports on increases in the affective effects or the affective and cognitive effects associated with situational interest through the provision of choice. There is substantial evidence that demonstrates that there is a

relationship between choice as a trigger of situational interest or as a motivational variable and affective and cognitive response but this relationship is not always straightforward. Where a positive impact is found in performance, it is sometimes challenging to disentangle the effects of choice from other variables. There are further difficulties surrounding how choice is interpreted and presented, as well as its relationship with other mediating factors, such as age, ability, gender or cultural background. Where effects are measured by self-report ratings, it is argued that this is fundamentally challenged by the concept that situational interest elicits an unconscious response to a stimulus. It may be particularly challenging for young children to reliably report subjective understanding of a complex construct such as interest accurately, where participants are arguably unlikely to have developed the necessary cognitive awareness to express this, or may be susceptible to influences, such as a desire to please.

Current evidence does not clarify how choice might interact with reading motivation as measured by performance, although the exciting potential of this relationship is mostly closely demonstrated through the CORI studies and Patall's investigations (2013). As shown, there are several theoretical frameworks that support the idea that by providing choice the individual may experience a response that leads to increases in intrinsic motivation that in turn impact levels of effort, attention and engagement. Both theory and studies suggest that choice can stimulate intrinsic motivation but it is not clear how choice functions as a feature of situational interest as described by interest theory nor how to optimise the effective function of choice in this context.

4.5 The Present Study

This research is addressing how intrinsic motivation can be manipulated through situational interest, as measured by performance outcomes in a reading task and reported task enjoyment. There is a lack of research evidence directly investigating the effects of situational interest, arising from choice, on reading comprehension in children. As explained in Chapter Three, there is an overarching rationale that supports conducting research with this particular age group, both in terms of reading enjoyment and motivation and inconsistencies in research to date. Situational interest created through choice appears to be a rich area for potentially eliciting positive changes in effort, engagement and perseverance and this study will address issues arising from methodology and experimental design by presenting a tightly controlled

design that measures outcome through performance and offering a perceived but meaningful choice to participants. In this way it will attempt to establish if choice can impact these attitudes and control for confounding variables such as prior knowledge. Self-report measures are unreliable in capturing the effects of situational interest in children because of their limited ability to report affective states and as these effects may operate on an unconscious level. In order to overcome this difficulty performance outcomes have been measured to assess potential impact. Nonetheless, levels of enjoyment have been collected via a self-report questionnaire immediately following both conditions of the task in order to examine if reported task enjoyment is mediated by the effects of choice, where enjoyment is conceptually easier to interpret and therefore more likely captured by such a measure. In order to support our understanding further of the research questions, focus groups have also been conducted. The central aim of this study is to understand if choice in a reading text can bring about the effects of situational interest so that reading comprehension performance and reported task enjoyment are increased. The methods and results for this study are presented in Chapter Five and the qualitative analysis of the focus group data is described in Chapter Nine.

Hypotheses: Study 1 Choice

Hypothesis 1: There will be a difference in reading comprehension scores across the two conditions (choice, no choice).

Hypothesis 2: There will be a difference in reading comprehension scores across the two conditions which will be moderated by ability, where choice will have a greater effect in children with lower reading ability.

Hypothesis 3: There will be a difference in reading comprehension scores across the two conditions which will be moderated by gender, where choice will have a greater effect in boys compared to girls.

Hypothesis 4: There will be a difference in enjoyment scores across the two conditions (choice, no choice).

Hypothesis 5: There will be a difference in enjoyment scores across the two conditions which will be moderated by ability, where choice will have a greater effect in children with lower reading ability.

Hypothesis 6: There will be a difference in enjoyment scores across the two conditions which will be moderated by gender, where choice will have a greater effect in boys compared to girls.

Chapter Five

Experimental Study 1: Choice as a Variable of Situational Interest

This chapter presents a brief rationale, followed by the methods and results for the experimental study investigating the effects of choice as a variable of situational interest on the reading comprehension performance and reported task enjoyment of young children in a reading task. The study uses the methodological paradigm set out in Chapter Three that describes the ethics, design, materials and procedures that are central to the investigation of the effects of situational interest on reading comprehension performance and reported task enjoyment across all three experimental studies of this research. This chapter describes the methodological elements specific to the investigation of the effects of choice on the reading comprehension performance and reported task enjoyment of children and then presents the results of the statistical analyses carried out to test the hypotheses for this study.

5.1 Rationale

This experiment manipulates choice as a potential variable of situational interest and explores the hypothesis that choice will impact behaviour in a reading task, where an effect on reading comprehension performance and reported task enjoyment is predicted. This hypothesis draws on the theoretical model of Hidi & Renninger (2006) that proposes that situational interest can be elicited by environmental and task features to promote an increase in effort and attention for a task at a specific point in time. Perceived control has been identified as one of five dimensions of reading motivation (Taboada et al., 2009) and this is commonly operationalised as student choice. Choice has been shown to stimulate situational interest (e.g. Schraw et al., 1998) and has a positive association with academic performance (e.g. Patall et al., 2008) and reading achievement (e.g. Guthrie et al., 2007b; Skinner, Wellborn & Connell, 1990; Sweet, Guthrie & Ng, 2008).

5.2 Methods

5.2.1 Design.

The experimental design is described in Chapter Three, section 3.4. and explains how the design was implemented for the three studies. For this study, in the experimental condition participants were given a perceived choice of story to read, whilst in the control condition they were allocated a story.

5.2.2 Participants.

The participants were drawn from the Year 4 classes of two two-form entry mainstream schools in West Hertfordshire, England.

School 1 is located in a relatively affluent small town. It was categorised as 'Good' in its most recent Ofsted Report (May, 2014). It is a larger than average co-ed primary school (ages 3 – 11) with 425 pupils on roll at the time of testing. The pupils are predominantly of White British heritage and numbers of pupils registered as Pupil Premium, Disabled, with SEN or School Action, from minority ethnic backgrounds or with English as an additional language are significantly below national averages.

School 2 is located in a built-up area in a large town of the county. It received a grading of 'Outstanding' in its most recent Ofsted Report (June, 2013). It is an average-sized co-ed junior school (ages 7 – 11) with 241 pupils on roll. The pupils come from a wide variety of ethnic backgrounds and the majority speak English as an additional language. The numbers of disabled and SEN pupils are broadly average and those registered as School Action Plus or with a statement are slightly above average. Numbers of pupils with Pupil Premium are below the national average.

Information letters and consent forms (see Appendix A) were sent home via the schools in advance of testing, providing an overview of the purpose and structure of the study and an opportunity to withdraw consent by returning a reply slip, contacting the researcher by email or advising the class teacher. No questions regarding the study or requests for withdrawal were received.

Selection to the final sample required children to participate in both conditions of the testing phase. Absences from one or other of these led to the exclusion of 8 pupils (5 girls and 3 boys). A further criterion for inclusion was for reading ability scores to be in line (maximum of two inflections apart) with teacher assessment for reading ability

as recorded by a current national curriculum level. There were no further exclusions on this basis.

Data provided by both schools showed that, at the time of testing, 45.5% (*N* = 50) of pupils tested spoke English as an additional language but that only 0.9% (*N* = 1) was at an early stage of learning English, 13% (*N* = 14) of pupils were classified as Pupil Premium and 13% (*N* = 14) were assessed as having learning difficulties. A total of 110 participants (49 girls, 61 boys) were included in the final sample.

5.3 Materials

5.3.1 Pre-test phase.

5.3.1.1 Motivations for reading questionnaire (MRQ): Adapted.

A detailed explanation of this measure is provided in Chapter Three, where the final instrument comprised a 38-item questionnaire (see Appendix B) with two practice questions. For this experimental study internal consistency was analysed by calculating Cronbach's alpha giving a value of .88, indicating a good level of reliability (Loewenthal, 2001). Concurrent validity is provided by the calculation of Pearson's r correlation coefficient for scores on the MRQ and the scores on the control condition (no choice) enjoyment questionnaire. The data show the correlation *r* = .43, indicating medium correlation strength (Cohen, 1992).

5.3.2 Testing phase.

5.3.2.1 Storybooks.

Two short stories were written and matched for both word length and difficulty and a detailed explanation of this measure is provided in Chapter Three. For this investigation, two alternative cover pages, each with an individual design and title together with two different first pages for the story were also created for each storybook in order to fulfil the experimental design requirements. Thus a total of four cover pages, four first pages (see Appendix M) and two stories were written.

The four first pages all comprised 57 to 83 words and 1 picture and were all assigned a Grade Level 4, reading age 8-9 years and a 'very easy to read' text difficulty using the same readability assessment procedure outlined for the storybooks in Chapter Three. Further to this, the stories were also read by a primary school teacher in order

to review their suitability in terms of both story and level. Some sample pages are attached in Appendix D (Story 1) and E (Story 2).

5.3.2.2 Story reviews.

A total of four short reviews (see Appendix N) were written that gave generic and favourable opinions of a story with no reference made to any story content. They were comparable in length and style. Two of the reviews were attributed to girls and two to boys, described by a first name and age. The reviews were based on comments made by the children who took part in the Pilot Study. The reviews were paired so that one from each sex was assigned to each story of the choice condition storybook. The same reviews were used for both stories.

5.3.2.3 Comprehension questions.

Further to the description of the comprehension questions provided in section 3.7.2.1, in line with the experimental design of the additional first pages used in this study, due care was taken to ensure that the comprehension questions did not refer to the different versions of these first pages, and only to the main text of the storybook.

5.3.2.3.1 Comprehension questions Story 1.

Internal consistency for the 11 questions (12 items) was analysed by calculating Cronbach's alpha across both conditions, giving an overall value of .73, indicating a satisfactory level of reliability (Loewenthal, 2001).

5.3.2.3.2 Comprehension questions Story 2.

Internal consistency for the 11 questions (12 items) was analysed by calculating Cronbach's alpha across both conditions, giving an overall value of .54, indicating a low but acceptable level of reliability given the small number of items in the scale (Loewenthal, 2001).

5.3.2.3.3 Comprehension questions validity.

Concurrent validity was measured by calculating Pearson's r correlation coefficient for the three measures of reading (comprehension scores in the no choice condition for each story and NGRT raw scores). These correlations are set out in Table 5.1 below. The data show that the correlations between the three measures are r = .50, between the two sets of comprehension scores, r = .60 between Story 1 comprehension scores and NGRT raw scores and r = .57 between Story 2 comprehension scores and NGRT raw scores indicating small to medium correlation strength.

Table 5.1

Correlation Coefficients Matrix of Measures of Reading

	Comprehension Scores Story 1	Comprehension Scores Story 2	NGRT Raw Scores
Comprehension Scores Story 1		*.498*	*.603*
Comprehension Scores Story 2	*.498*		*.574*
NGRT Raw Scores	*.603*	*.574*	

5.3.2.3 Enjoyment questionnaire.

A detailed description for this measure is included in Chapter Three. Internal consistency for the questionnaire was analysed by calculating Cronbach's alpha, giving an overall value of .72, indicating a satisfactory level of reliability.

5.4 Procedure

A detailed explanation of the procedure is provided in Chapter Three. This study focussed on the effects of situational interest, as brought about by choice, on reading comprehension performance and reported task enjoyment of a story. The following section describes the testing phase of the procedure that is specifically relevant to this experimental study.

5.4.1 Testing phase.

Experimental Condition (Choice). In this condition, participants were given two C4 envelopes. Stapled to the front of each envelope, in the following sequence, were: the illustrated cover of the story and page one of the story (see Appendix M) and two story reviews (see Appendix N). Participants were instructed to read the material attached to each envelope and use this information as a guide to select the story they

would then most like to read. Participants were told that, on reaching their decision, they could put the envelope containing the story they did not want to read to one side to be collected in and to remove the contents of the envelope they had selected. It was explained that inside the envelope was the full version of their selected story together with a set of comprehension questions. Participants were asked to read the story and then answer the questions on the answer sheet. They were additionally told that they could refer back to the story at any time whilst answering the questions and that they would not be able to ask for any help during this activity. Participants were allowed as much time as they needed to complete the task.

On completion of the reading comprehension activity, participants were given a copy of the Enjoyment Questionnaire. Once the response format had been explained (the same as the previously completed adapted MRQ), participants were read each statement and given an opportunity to select their response for each item. Participants were able to raise their hand and ask for help and clarification throughout the administration of the exercise.

Control Condition (No Choice). In this condition, participants were given a short story and a set of reading comprehension questions. Participants were instructed to read the story they had been given and answer the questions on the answer sheet. They were additionally told that they could refer back to the story at any time whilst answering the questions and that they would not be able to ask for any help during this activity. Participants were allowed as much time as they needed to complete the task. The procedure for this activity was identical to the procedure in the experimental condition from the point when participants had selected the story that they wanted to read.

On completion of the reading comprehension activity, participants were given a copy of the Enjoyment Questionnaire. The procedure for this activity was exactly the same as in the experimental condition.

5.5 Results

This study set out to investigate the relationship between reading motivation and situational interest, as mediated by choice, on the reading comprehension performance and reported task enjoyment of a short story for young children. This was examined by measuring reading comprehension scores and reported enjoyment

scores across two conditions, where participants were able to choose between two stories (although this was only a perceived choice) in the experimental condition and were allocated a short story in the control condition.

Results are set out in two sections. The first section examines descriptive statistics for the key variables. The following section examines the quantitative data, analysing results evaluating the comprehension scores by condition, in relation to gender and ability, and also in relation to experimental order effects and story effects and evaluating the enjoyment scores by condition and in relation to gender and ability, and also in relation to experimental order effects and story effects.

Further to this, Chapter Nine uses thematic analysis to explore the qualitative data collected from the sample.

5.5.1 Descriptive statistics.

The final sample for analysis consisted of 110 pupils from four Year 4 classes from two schools (49 girls, 61 boys).

The Pearson correlation coefficient was calculated to assess the relationship between reading comprehension scores and reported enjoyment scores. No correlation was found

Mean scores for NGRT (maximum score 48) and MRQ (maximum score 124) for all participants are set out by class and by gender in the table below. Mean reading score for boys (35.47) was lower than mean reading score for girls (38.62). This was not significant ($t(105) = -1.89$, $p = .054$). Mean motivation for reading scores for boys (111.78) was lower than mean motivation for reading scores for girls (114.23). This was not significant ($t(105) = -.739$, $p = .51$).

Table 5.2

Mean Scores for NGRT and Adapted MRQ Pre-tests by Class Group and Gender

			NGRT Raw Score		Adapted MRQ Score	
	Class	***N***	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
School I	***1***	*26*	*39.46*	*7.66*	*107.12*	*19.44*
	2	*28*	*36.85*	*8.64*	*107.89*	*14.51*
School II	***3***	*28*	*37.93*	*8.42*	*118.11*	*11.70*
	4	*28*	*32.64*	*9.37*	*117.32*	*19.17*
	Total	*110*	*36.85*	*8.64*	*112.86*	*16.98*
	Gender					
	Boy	*61*	*35.47*	*9.17*	*111.78*	*16.64*
	Girl	*49*	*38.62*	*7.65*	*114.23*	*17.49*
	Total	*110*	*36.85*	*8.64*	*112.86*	*16.98*

The relationship between reading (NGRT raw score, reading comprehension score in the control condition) and motivation (MRQ) and enjoyment (reported enjoyment score in the control condition) is set out in the table below.

Table 5.3

Correlation Coefficients Matrix of Measures of Reading, Motivation and Enjoyment

	NGRT Raw Score	Comprehension Scores Control	Enjoyment Scores Control	Comprehension Scores Experimental	Enjoyment Scores Experimental
MRQ	*.082*	*.189*	*.480***	*.163*	*.355***
NGRT Raw Score		*.639***	*.135*	*.587***	*.164*
Comprehension Scores Control			*.181*	*.643***	*.096*
Enjoyment Scores Control				*.015*	*.585***
Comprehension Scores Experimental					*.046*

Children's scores for reported enjoyment were not correlated with reading comprehension scores in either the control or experimental condition, nor was there a correlation between scores on the NGRT and MRQ. Reading measures (reading comprehension scores in the control / experimental conditions and NGRT raw scores) and motivation measures (MRQ and enjoyment scores in the control / experimental condition) correlated, indicating medium (motivation measures) and large (reading measures) correlation strength.

5.5.2 Quantitative data analysis.

5.5.2.1 Comprehension measure.

The test of reading comprehension showed good discrimination, with children scoring across the full range of possible scores. Normality tests showed that the data for comprehension scores followed a normal distribution and fulfilled assumptions for parametric analysis.

Hypothesis 1: ***There will be a difference in reading comprehension scores across the two conditions (choice, no choice).***

Observation of means by condition indicated that reading comprehension scores were higher for participants in the experimental condition (choice) (*M* = 7.37, *SD* = 2.77), than in the control condition (no choice) (*M* = 6.14, *SD* = 2.58).

Mean comprehension scores by condition are illustrated in Figure 5.1 below.

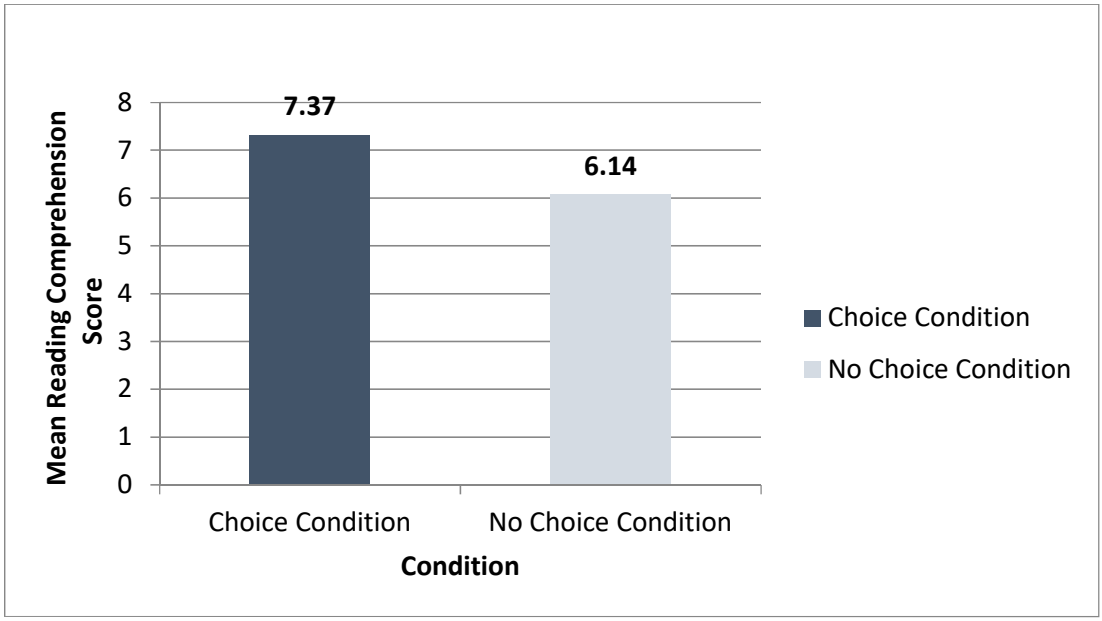

Figure 5.1. Mean comprehension scores by condition

A Repeated Measures ANOVA was conducted to test the statistical significance of the effect of choice on reading comprehension performance.

The results showed that this difference was significant ($F(1, 109) = 29.29$, $p = .001$, $\eta_p^2 = .21$). Observation of the means indicated that the difference in mean scores across the two conditions supported the hypothesis in the expected direction, that is that mean scores were higher in the experimental condition (choice) than in the control condition (no choice). These results indicate that reading comprehension scores were significantly affected by having a perceived choice of story to read compared to being given a story to read, with higher reading comprehension scores achieved for the experimental (choice) condition.

Hypothesis 2: ***There will be a difference in reading comprehension scores across the two conditions which will be moderated by ability, where choice will have a greater effect in children with lower reading ability.***

A mixed ANOVA with condition as the within-subjects variable and NGRT score as the between-subjects variable was conducted, where the NGRT scores were dichotomised with a median split into high and low halves. There was no interaction effect between experimental condition and NGRT level ($F(1, 105) = 1.34$, $p = .25$) although there was a main effect of NGRT level ($F(1, 105) = 46.50$, $p = .001$) with children in the top half on the NGRT scoring better on the comprehension tasks. This indicates that the effect of choice on comprehension scores was not moderated by ability level, as recorded by scores on NGRT.

Hypothesis 3: ***There will be a difference in reading comprehension scores across the two conditions which will be moderated by gender, where choice will have a greater effect in boys compared to girls.***

A mixed ANOVA with condition as the within-subjects variable and gender as the between-subjects variable showed no interaction between gender and experimental condition ($F(1, 108) = 0.072$, $p = .84$) and no main effect of gender ($F(1,108) = .11$, $p = .74$). This indicates that the effect of choice on comprehension scores was not moderated by gender.

5.5.2.1.1 Experimental order and story effects.

The cross-over design of the study accounts for differences in scores that could be attributed to experimental order or story. Further analysis was conducted to provide additional understanding of these effects and to evaluate their impact on the manipulation of the target variable.

Statistical tests were conducted to test for interaction effects of the experimental order (that is whether reading comprehension scores were affected if the participants had the experimental (choice) condition first or second), and also between the experimental condition and story (that is whether reading comprehension scores were affected by which story (Story 1 or Story 2) the participants read in the experimental (choice) condition).

A mixed ANOVA with condition (choice, no choice) as the within-subjects variable and experimental order (first, second) as the between-subjects variable showed no interaction effect between experimental condition and the order in which the choice condition was given on comprehension scores ($F(1, 108) = 0.066$, $p = .80$). However, analysis revealed a main effect of experimental order ($F(1, 108) = 5.426$, $p = .022$) with participant scores significantly higher in both the experimental (choice) and control (no choice) conditions when the experimental condition was carried out in the first session and followed by the control condition compared to participant scores when the control condition was carried out in the first session and followed by the experimental task in the second session. (See Appendix O).

To test for story effects, data were analysed using a mixed ANOVA with condition (choice, no choice) as the within-subjects variable and story (Story 1 experimental condition, Story 2 experimental condition) as the between-subjects variable. This revealed an interaction effect ($F(1, 108) = 20.65$, $p = .001$) where participant scores were more affected by reading Story 2 in the experimental condition than by reading Story 1 in the experimental condition. (See Appendix O). There was no main effect for story ($F(1, 108) = .008$, $p = .93$).

5.5.2.2 Enjoyment measure

The test for reported enjoyment showed good discrimination, with children scoring across the full range of possible scores. Normality tests showed that the data for enjoyment scores followed a normal distribution and fulfilled assumptions for parametric analysis.

Hypothesis 4: ***There will be a difference in enjoyment scores across the two conditions.***

Observation of means by condition indicated that enjoyment scores were higher for participants in the experimental condition (choice) (M = 40.25, SD = 7.59), than in the control condition (no choice) (M = 38.28, SD = 8.07).

Mean enjoyment scores by condition are illustrated in Figure 5.2 below.

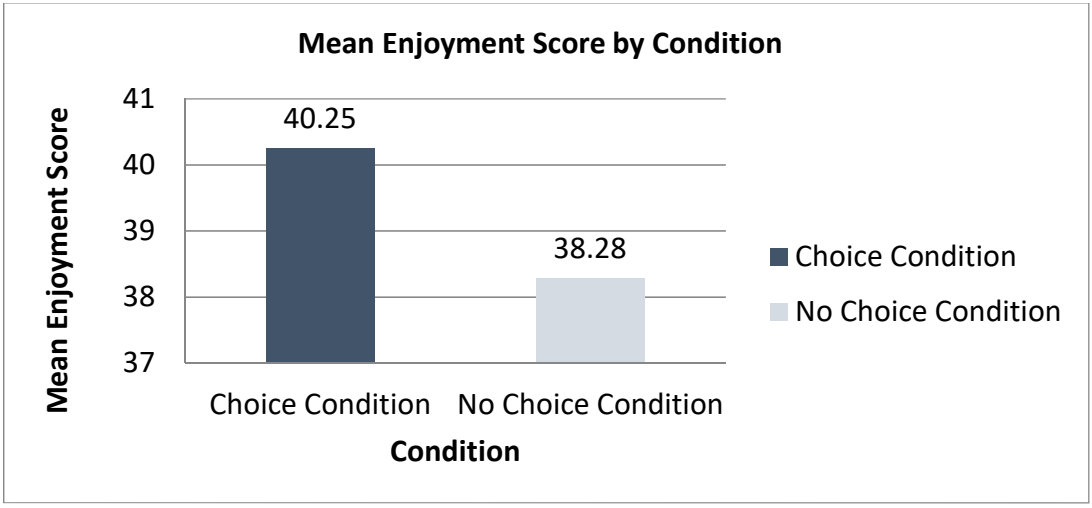

Figure 5.2. Mean enjoyment scores by condition.

A Repeated Measures ANOVA was conducted to test the statistical significance of the effect of choice on enjoyment of the reading task.

The results showed that this difference was significant ($F(1, 109) = 6.21$, $p = .014$, $\eta_p^2 = .054$). Observation of the means indicated that the difference in mean scores across the two conditions supported the hypothesis in the expected direction, that is that mean scores were higher in the experimental condition (choice) than in the control condition (no choice). These results indicate that enjoyment scores were significantly affected by having a choice of story to read compared to being given a story to read, with higher levels of enjoyment of the task reported for the experimental (choice) condition.

Hypothesis 5: ***There will be a difference in enjoyment scores across the two conditions which will be moderated by ability, where choice will have a greater effect in children with lower reading ability.***

A mixed ANOVA with condition (choice, no choice) as the within-subjects variable and NGRT score as the between-subjects variable was conducted, where the NGRT scores were dichotomised with a median split into high and low halves. The results showed that there was no significant interaction between these variables (F(1, 105) = 1.871, p = .17), and no main effect of NGRT level (F(1, 105) = .065, p = .80). This indicates that the effect of choice on reported enjoyment scores was not moderated by ability level, as recorded by scores on NGRT.

Hypothesis 6: ***There will be a difference in enjoyment scores across the two conditions which will be moderated by gender, where choice will have a greater effect in boys compared to girls.***

A mixed ANOVA with condition (choice, no choice) as the within-subjects variable and gender as the between-subjects variable was conducted to investigate the effects of choice on the reported enjoyment of the reading task by gender. The results showed that there was no significant interaction between these variables (F(1, 108) = 3.481, p = .065) and no main effect of gender (F(1, 108) = .204. p = .65). These results indicate that reported enjoyment scores were not moderated by gender.

5.5.2.2.1 Experimental order and story effects.

The cross-over design of the study accounts for differences in scores that could be attributed to experimental order or story. Further analysis was conducted to provide additional understanding of these effects and to evaluate their impact on the manipulation of the target variable.

Statistical tests were conducted to test for interaction effects of the experimental order (that is whether reported enjoyment scores were affected if the participants had the experimental (choice) condition first or second), and also between the experimental condition and story (that is whether reported enjoyment scores were affected by which story (Story 1 or Story 2) the participants read in the experimental (choice) condition).

A mixed ANOVA with condition (choice, no choice) as the within-subjects variable and experimental order (first, second) as the between-subjects variable revealed an interaction effect between experimental condition (the order in which the choice condition was given) and reported enjoyment scores (F(1, 108) = 10.204, p = .002), with scores more affected in the experimental condition when the experimental task

was second (control followed by experimental condition) (see Appendix O). There was no main effect of experimental order ($F(1, 108) = .513$, $p = .48$).

To test for story effects, data were analysed using a mixed ANOVA with condition (choice, no choice) as the within-subjects variable and story (Story 1 experimental condition, Story 2 experimental condition) as the between-subjects variable which showed no interaction effects ($F(1, 108) = .911$, $p = .32$) and no main effect for story order ($F(1, 108) = .568$, $p = .45$). This indicates that the effect of choice on reported enjoyment scores was not moderated by story (that is which story participants read in the experimental condition).

5.6 Summary

Situational interest manipulated through choice had a statistically significant, medium-sized effect on reading comprehension scores, supporting hypothesis 1. Scores were not moderated by either gender or reading ability level (as assessed by raw scores on NGRT), thus hypotheses 2 and 3 were rejected (although as expected, there was a main effect of ability on performance, where children in the top half of NGRT scored better on the reading comprehension tasks). Although the cross-over design randomised experimental order and story effect, interaction effects with experimental condition were explored. There was no interaction effect for experimental order and choice / no choice but there was a significant main effect of experimental order when children had the experimental (choice) condition first. An interaction effect of story was found where reading comprehension scores were higher for Story 2 compared to Story 1 in the experimental condition.

Situational interest manipulated through choice had a statistically significant, small-sized effect on reported enjoyment scores, supporting hypothesis 4. Scores were not moderated by either gender or reading ability level, thus hypotheses 5 and 6 were rejected. There was an interaction effect for experimental order and choice / no choice where scores were higher in the experimental condition when the experimental condition was second. There were no effects of story on reported enjoyment scores.

These findings indicate that reading comprehension performance and task enjoyment were significantly affected by participants having a perceived choice of story in the experimental condition compared to being given a story to read in the control

condition. This indicates that choice operated as an effective trigger for situational interest according to the hypotheses of this study.

Chapter Six

Novelty

This chapter sets out and critically evaluates studies and literature that inform our understanding of the construct of novelty and how it might operate as a trigger for situational interest. Through an examination of this body of work it presents the importance of novelty as a potential effective stimulus for interest development that has obvious practical benefits and application, whilst demonstrating the contribution that the current experimental studies make to existing research. In the current research, novelty as a trigger for situational interest is explored through two experiments (Study 2 and Study 3) which test the hypothesis that situational interest, operationalised as novelty, will make a difference to reading comprehension performance and reported task enjoyment. Study 2 introduces novelty through the way the reading comprehension story is presented to the participants, with a prologue to the story read aloud by a visitor to the classroom, before participants went on to read the storybook individually. In the control condition, the participants were given the storybook to read individually by their classroom teacher as part of their routine school work. Study 3 manipulates novelty through the use of non-textual features added to the experimental condition storybook where six scratch and sniff stickers were evenly spaced throughout the story with the written instruction ‘scratch and sniff’. In the control condition, the participants received the same storybook without the stickers. The exact hypotheses for these two studies are presented at the end of this chapter. The two subsequent chapters present the methods and results for Study 2 and Study 3.

6.1 Introduction

It is well-established that situational interest is a contextual factor, where interest stems from a feature of a task or activity and how the individual interacts with that feature, rather than arising from a characteristic of the individual. Novelty is commonly cited as such a factor (e.g. Berlyne, 1963; Hidi & Harackiewicz, 2000; Krapp et al., 1992; Schraw & Lehman, 2001). Discussion of its relationship with motivation originates from the work of Dewey (1913) and it continues to be closely tied to the

construct of interest and interestingness by researchers investigating motivation, curiosity and education and learning. As well as being a recognised key variable for situational interest, novelty has been recorded as an important variable in the role of attention in infants (e.g. Berlyne & Frommer, 1966; Gottfried, Rose & Bridger, 1977) and, at one time, was considered a possible explanation for variation across changes in productivity and performance generally in educational research (Cook & King, 1968).

However, in current research there is disagreement among researchers regarding how novelty is defined (Renninger & Hidi, 2016). In some research it is used interchangeably with the construct of curiosity (Rotgans & Schmidt, 2014) where situational interest and epistemic curiosity are synonymous terms, or it is described as a temporary collative factor[7] (Durik & Harackiewicz, 2007) only. Although frequently acknowledged in interest and motivation research and even commonly cited as an accepted trigger for interest, there is little evidence supporting any of these assertions, where, for example, its potential importance as a trigger for situational interest seems taken for granted and is not necessarily specifically investigated, or where it is acknowledged as an integral part of situational interest but not explicitly examined. There is a gap in knowledge demonstrating how novelty is identified and interpreted, how novelty might be operationalised, and indeed the mechanisms supporting the success of novelty as a trigger.

Furthermore, whilst this recognition extends across domains (e.g. Chen & Darst, 2001; Mitchell, 1993; Palmer & colleagues; Schraw & colleagues) few studies centre on reading. It is therefore argued that to establish what constitutes novelty in a reading task and how this might be effectively introduced in a classroom setting in order to capture children's interest at a critical age is both valuable and worthwhile. As Renninger and Su (2012) point out, it is important to understand if potential triggers, such as novelty, are significant for all learners, regardless of age or stage of interest development.

The current research is grounded in the theoretical view put forward by Hidi and Renninger (2006) in the Four-Phase Model of Interest Development which proposes that, in its earliest stages, interest can be initiated by a trigger in the environment that acts as a stimulus for typically passing interest, characterised by an immediate and

[7] Collative factors or properties for motivational stimuli were described by Berlyne (1963; 1966) as central to intrinsic motivation. They represent environmental stimuli that bring about a state of arousal because they do not automatically fit to a category in information processing. Key examples are novelty and incongruity.

affective response that raises attention, effort and enjoyment in an activity. In common with the evidence presented in Chapter Four about choice, and as explained, in spite of frequent acknowledgement of novelty as a trigger for situational interest, there is a paucity of research evidence to support this. The present examination of relevant literature will demonstrate that it is exactly this that supports the value of the focus on investigating novelty as a potential trigger for situational interest, in order to establish if there is any foundation to the repeated claims that novelty is an effective tool for this initial spark for interest development.

This chapter will first aim to set out a clear understanding of the essential elements that comprise novelty so that there is a clear interpretation of this construct with specific reference to its role as a potential trigger for situational interest. It will examine research that demonstrates how novelty links to increases in attention and engagement and elicits an affective response. It will critically evaluate the key literature and research that investigates the construct of novelty and explore how novelty acts as a trigger for situational interest, as understood by the theoretical framework of Hidi and Renninger's model, and determine how best to interpret novelty as such a trigger in reading comprehension activities and how this may be applied practically. In this way, it will set the scene for the two experiments undertaken in this research that manipulate novelty as a trigger for situational interest, and where the variables investigated are presenting the story in a reading comprehension task in an engaging way, that is different to the tasks that are typically encountered in the classroom. Additionally, these studies evaluate effects of gender and ability on the manipulation. With so few direct examples of experimental work investigating effects of novelty as a variable of situational interest, relevant evidence is discussed within the exploration of each study if appropriate and applicable.

6.2 The Construct of Novelty

Novelty has been researched and understood in different ways resulting in some ambiguity around its definition, and confusion about how different research can be unified. Separating the interpretations is challenging but informed critical evaluation of the arguments reveals that there is a clear case for novelty as an effective trigger for situational interest that has the additional asset that it has straightforward classroom application. In a literature review of research into situational interest, Schraw and Lehman (2001) discuss novelty as a key trigger for situational interest.

However, novelty is interpreted as curiosity, vividness, suspense and unexpectedness at various points, illustrating the complexity of evaluating relevant research and pointing to the multifaceted nature of novelty. It is clear therefore that novelty conveys several meanings within motivation research: the arguments for those that merit discussion and are important to this investigation follow.

Research informs us that there are distinct similarities between novelty and curiosity in motivation research. One similarity is that they both create an awareness in the individual of something not previously experienced, eliciting a state of arousal and desire to seek information to fill a gap in knowledge or experience. The central difference is that novelty can persist beyond the initial resolution of satisfying an information gap, whereas curiosity ends once it is satisfied. In a classroom setting, provided the experience does not become routine, a novel presentation of a task will create the same spark of interest going forwards and the interaction remain a novelty (e.g. Markey & Lowenstein, 2014). Curiosity is the result of a desire to close an information gap, once fulfilled, the construct ends but interest implies directed engagement to continue learning or prolong an activity. Situational interest originates from particular conditions in the environment; personal interest is generated from an enduring predisposition in the individual; the origins of curiosity are arbitrary. Some researchers argue that this reflects commonality, where both novelty and curiosity concern ideas that are not yet learned (Deci, 1992), and others fail to distinguish between these two constructs (e.g. Rotgans & Schmidt, 2014; Smock & Holt, 1962 as cited in Renninger & Hidi. 2016). Here, it is proposed that this (satisfying an information gap of arbitrary origin versus the continuing arousal of interest from environmental stimuli) is an important distinction that is integral to the interpretation of novelty as a feature of situational interest as understood by Hidi and Renninger's developmental model, and clearly separates these two constructs.

There are further distinctions between curiosity and novelty that are also central to this theoretical understanding. Firstly, an information gap leads to a state of curiosity that is not necessarily pleasant and remains until the gap is filled and the desire satisfied. Curiosity is as likely to be associated with negative as positive feelings in the individual and is commonly linked to a negative sensation until the information gap that curiosity represents is closed (e.g. Lowenstein, 1994 as cited in Markey & Lowenstein, 2014; Reeve & Deci, 1996). In contrast, the affective response elicited by novelty as a variable of situational interest is more typically a positive response to a stimulus and interest is typically associated with positive affect (Hidi, 2000; Reeve & Deci, 1996). Situational interest is characterised by increased engagement and

attention that is an automatic and effortless response. Thus, when situational interest is triggered, the response is a reaction to the particular content or activity and the individual may or may not be reflectively aware of the experience (Renninger & Hidi, 2016). In contrast, curiosity arouses a state that leads to a deliberate seeking of information, a purposeful action by the individual.

Despite these differences, the research literature for novelty and curiosity overlaps. Although primarily conceptualised as two separate constructs, there is no clear agreement in research on the similarities and differences. Some researchers suggest that actually there is a lack of clear evidence to support a distinction between the two, in spite of these acknowledged differences (e.g. Silvia, 2006). Notwithstanding, Silvia (2006; 2008), is a strong advocate of the central relationship linking novelty and interest, as well as the links between interest and performance outcomes. Furthermore, research on the concept and role of curiosity in motivation research is linked to and has been used interchangeably with novelty (e.g. Rotgans & Schmidt, 2014), and other researchers propose there is a clear case that these are two distinct constructs that operate differently and are supported by different mechanisms (Renninger & Hidi 2016).

Guthrie and Wigfield (1997) distinguish curiosity as a motivational state that is represented by a specific construct on the Motivations for Reading Questionnaire. The linked statements, (e.g. If a teacher discusses something interesting, I might read more about it; I read about my hobbies to learn more about them.), (see Appendix P for a list of the six statements), clearly demonstrate curiosity as a state of arousal that can be satisfied by seeking the information that fills the gap in knowledge that has been identified by the state of curiosity. It is also noted that a further distinction can be made in relation to the origin of the characteristic: curiosity is a state aroused in the individual, in contrast, novelty is a characteristic of an activity or content or stimulus in the environment of the individual. With reference to situational interest it is novelty that may then bring about an affective response in the individual, acting as a trigger for situational interest. Furthermore, it is also possible that novelty may elicit a state of curiosity. Thus, new information does not trigger situational interest just by virtue of being new information: it may depend on why the information is introduced or how it is presented that may then spark interest in the learner.

6.3 The Novelty Effect

In the 1960s it was suggested that a phenomenon known as the Hawthorne Effect or Novelty Effect was responsible for the effects of many educational studies: observed changes in performance and productivity in experiments were the result of the experimental condition being unfamiliar and a break from the norm. However, a review of educational research literature by Cook and King (1968) concluded that this critique was based on intuition rather than evidence-based empirical support. It was found that there was poor consensus in defining this effect in educational and wider research and such changes in behaviour were as likely brought on by other variables. Furthermore, they identified numerous limitations with the work, where age range, individual differences and individual versus group effects had not been considered. Notwithstanding, it is of value that Cook and King identified studies that investigated links between novelty and educational performance outcomes: in a field that lacks empirical evidence it is important to note that novelty has long been identified as having a potential impact in the classroom and that these links are worthy of further investigation.

6.4 Establishing an Understanding of Novelty

As shown hereto, novelty is recognised as having an impact on behaviour. A central characteristic of situational interest is that it impacts levels of attention: novelty has been shown to have a clear relationship with attention from studies with infants and young children. Early studies have demonstrated that for example, infants attend more to unusual 3D shapes (more often reached for and looked at) than more familiar shapes (Gottfried et al., 1977). A study by Berlyne and Frommer (1966) reported that kindergarten children (grades 3 and 6) showed higher levels of interest, in terms of number of questions asked about novel and unfamiliar stories compared to familiar stories. These examples illustrate that, where novelty represents something that is outside the typical routine of young children, it has the potential to elicit changes in attention and may promote higher levels of interest. These studies also indicate that novelty is effective with young children when it is understood as something that is not routine. However, the extent to which attention is affected and any impact on how information is processed from the related activities is not known.

Berlyne developed a theory of collative motivation which has been very influential in establishing the links between collative variables, like novelty, and interestingness and affective response. It suggests that motivation is dependent on the collative properties of stimuli where factors such as novelty, surprisingness and complexity might affect level of arousal regardless of the content of the task or activity. Berlyne's work seeks to establish an empirical base for his theory. For example, Berlyne (1963) investigated the relationship between novelty and interestingness by asking undergraduates to provide an immediate response on a 7-point likert scale of levels of interestingness or pleasingness found from looking at patterns that were categorised as either more or less irregular. Berlyne worked from the premise that the more irregular patterns would be rated as more interesting but less pleasing. Berlyne suggests that more irregular patterns increase arousal where the more uniform patterns limit this response. Berlyne's further studies in this area (e.g. Berlyne, 1970) led him to conclude that novelty increases the attention paid to a stimulus. Interestingness increases with novelty but repeated exposure to a stimulus then leads to a decline in the effects. These studies support the theoretical view that situational interest can be triggered by a feature of the environment that leads to a rise in attention, they also highlight the challenges of situational interest, where factors such as novelty may have a fleeting effect only and are susceptible to a rapid falling off due to their inherent characteristics and the delicacy of motivation.

Several studies identify novelty as an important trigger for situational interest even though their primary aim was not evaluating novelty as a variable. Clearly such studies must be interpreted with caution as the investigations have not centred on novelty itself and therefore extrapolating potential support for its efficacy carries limitations and can be deleterious to building a strong evidence base for an understanding of how novelty is operationalised. Nonetheless, they do provide indications for where further research might be usefully directed as well as demonstrating potential effects of novelty. Gehlbach and colleagues (Gehlbach et al., 2008) investigated the effects of role-playing simulations to encourage interest in social studies with middle-school aged students. The researchers concluded that the increase in interest, as measured by a pre and post intervention self-ranking measure, was the result of either challenge or engagement in social perspective taking. However, the reported rise in levels of interest was not reflected in a rise in ratings of importance for the subject. The authors therefore posit that this was possibly the result of using self-report measures and the subsequent unreliability of the tool or, that actually the changes in interest were due to a resulting shift in intrinsic enjoyment

of the task borne from the experience of participating in novel activities in the lessons. They propose that it is this difference in activity type that alters interest levels. This would account for the fact that the participants experience an increase in interest level but not in their opinion of social studies. However, this should be interpreted with caution as it is highly speculative: although the authors put forward the concept of novelty as a cause for changes in participant interest, novelty was not directly examined in this task.

Similarly, in a study with 10-12 year olds (*N* = 52), investigating predictors and outcomes of situational interest in a science task (what the authors describe as 'concreteness'), where the task characteristics were manipulated using a simulation program, Tapola, Veermans and Niemivirta (2013) report that, aside from the effects of their manipulation, the initial level of situational interest was high across both conditions. The authors propose that this is due to the novelty of the tasks, once again illustrating that novelty impacts interest levels for an activity.

A further study by Dobrow, Smith and Posner (2011), investigated the effect of grades on interest with MBA students in order to assess an intervention targeting the efficacy of choice as a potential trigger for cultivating subject interest. The study found a positive effect for choice. In their interpretation of the results, the researchers suggest that the findings are enhanced by the novelty of the intervention itself as well as the novelty of the role of the professor (different to the routine) in presenting the intervention. The resulting view of the researchers is that novelty may enhance the role of other triggers, such as choice. Once again, although this study is important to the current work in its interpretation of the role of novelty as a trigger and the influence of the presentation of the intervention, it must be referenced with caution as the researchers were not evaluating novelty. The researchers' interpretation of their findings stems from their understanding of the work of Cordova and Lepper (1996) which is evaluated below. This interpretation resonates with the notion of the novelty effect, for which findings have been inconclusive in educational research. Furthermore, any parallels must be drawn with caution due to the difference in age of the participants compared to the current studies and the potential sensitivity of variables to this factor.

How novelty is interpreted as a variable is also the subject of disagreement. As part of a study assessing adults' metacognitive awareness, Schraw and Dennison (1994) examined the effects of assigning a perspective to participants (college students) prior to their reading a story in an attempt to create differing levels of interest in order to

assess how purpose-driven interest impacts attention for a task. The authors suggest that by assigning a perspective the interestingness of the text was positively impacted. However, Renninger and Hidi (2016) argue that the findings are actually the result of the novelty of the presentation of the activity: taking a perspective when reading the text was a novel experience which triggered and maintained situational interest during the task, leading to higher levels of engagement and focus in completing the task. As well as illustrating some of the ambiguity of how novelty is identified and investigated, this example also highlights the challenges in and importance of explicitly isolating variables for clarification of which variables may be triggering situational interest.

There is only limited research that directly investigates the effects of novelty as a trigger for situational interest. Furthermore, interpreting what is meant by novelty as a concept further complicates this: it is important that if novelty as a variable is to be understood effectively in research, then there is a need to establish a clear interpretation of what constitutes novelty. The CORI studies (Guthrie, Wigfield and colleagues) assert the notion of novelty but again, any effects are assessed as part of the intervention put in place rather than discretely. It is therefore proposed that the evidence so far examined to determine the effects of novelty as a discrete variable provide neither clear definition nor strong support.

6.5 Novelty and Neuroscience

Emerging evidence is linking novelty to reward circuitry and this is strengthening the work that demonstrates that novelty is intrinsically motivating and supports its key role in triggering interest (Renninger & Hidi, 2016). A growing body of research illustrates the links between novelty and sustained task involvement (e.g. Azevedo, 2015 as cited in Renninger & Hidi, 2016) where the individual finds hooks by connecting to the task content. Novelty is categorised as a higher order reward so that it is associated with positive motivational behaviours, including increased levels of attention (Bunzeck, Doeller, Fuentemilla, Dolan & Duzel, 2009; Schultz, 2007a as cited in Hidi, 2016). It is upheld that the rewards stemming from novelty, for example, may have positive motivational effects because of the way in which they stimulate reward circuitry. Although such research offers a further dimension explaining the role of novelty as a motivational trigger, at this time, it is in its earliest stages and cannot directly illuminate the current research focus of this work. Nonetheless, it is important

to recognise that this is a growing body of work that has the potential to enhance understanding in this area, and, at initial exploration, supports current interpretations of the role of novelty (and choice) as a trigger for situational interest.

6.6 Situational Interest and Novelty

Research demonstrates that situational interest is environmentally triggered and, in reading and across other domains, can be sparked by text features such as the sentence content, by a visual stimulus such as an illustration in a text or an interactive object, through an auditory stimulus, or a combination of auditory and visual stimuli. Pressick-Kilborn (2015) states that researchers recognise that novelty is a key source that can be manipulated by teachers to create a supportive learning environment and trigger interest and many prominent researchers claim that novelty is a well-known trigger. Research by Jack and Lin (2014) examining situational interest in science learning has drawn on a wide range of research to evaluate the key criteria for triggering situational interest in the science classroom. They propose that the unifying element across research is novel learning activities. Lepper and Cordova (1992) suggest that even minor embellishments that create novelty in activities, such as creating a fantasy context, are sufficient to impact task engagement. Indeed, there are some studies that have demonstrated that novelty, as an inherent feature of text, may elicit high levels of interest (Hidi & Baird, 1986; Kintsch, 1980; Schank, 1979). It has also been shown that sentences which are novel can promote text-based interest (e.g. Anderson, 1982 as cited in Hidi & Baird, 1986; Hidi, 1990) and that sentences that reflect character identification, life themes, novelty and activity level positively impact sentence recall (Renninger & Hidi, 2016). However, as will be demonstrated through this consideration of relevant research, there are few studies that provide empirical evidence of the specific effects of novelty as a variable and no known research directly investigating reading performance with young children.

Mitchell (1993) examined the structure of situational interest on a large sample of high school students in mathematics tasks using an interest survey. He suggests tasks such as group work, using puzzles and using computers can trigger interest effectively. Schraw and Lehman (2001) suggest that these tasks increase interest because they are novel for the participants. Mitchell used a correlational model to identify the relationships between interest and the variables examined. As he points out, although he found strong correlations for these activities, the findings are limited

in their generalisability as they do not explain which aspects of the various activities are effective as triggers and it is acknowledged that such triggers are situated in a specific context. Mitchell's work is already discussed in greater detail in Chapter Two (section 2.5) and it is referenced here as a further example of the recognition of novelty as a potential trigger without explicit experimental investigation.

Dohn (2011) used observation, video recording, interviews and student work to identify how situational interest was triggered during a field trip (a museum visit) in a group of high school students (age 17-19). The findings described five key situational variables that trigger student interest, including novelty, which was interpreted as something new or different to the everyday or involving suspense (that is the participant did not know what was going to happen). Dohn also concluded that teachers can manipulate situational interest to increase levels of academic motivation for specific content areas through these five variables. The study carries several limitations that indicate however that the findings should be understood within the context of the study, restricting the generalisability of the findings: the participants were A 'Level science students and should therefore have some prior interest in the content, the sample size is small (16) and gender biased (13 girls, 3 boys) and the study was conducted in rural Denmark with a specific focus on situational interest in a museum context.

Studies by Palmer and colleagues (Palmer, 2004; 2009; Palmer, Dixon & Archer, 2016) have repeatedly identified novelty as a central trigger for situational interest across various age groups in the context of science learning. Palmer (2004) examined the effects of situational interest on attitudes to science in primary school student teachers. Using surveys and a small sample (four of the twenty-nine participants) of one-to-one interviews, Palmer evaluated if triggers created through novelty (discrepant information and science trivia activities) could positively impact the participants' attitude to science during a one term science module that was part of their teacher training. Palmer's findings indicate that practical tasks that enable hands-on involvement are a key trigger, along with meaningfulness and novelty. This study provides some empirical support for novelty as a trigger but there are several design and methodological issues that restrict the generalisability of the findings. It is a small sample size with a gender bias (83% female) of adults, (where the sensitivities of triggers to age have already been discussed). Furthermore, the surveys used leading questions where participants were asked to identify what they had found interesting. Additionally, this was an open question that was then used to categorise findings, the results and interpretation of the comments is therefore highly subjective.

In a more methodologically robust study in 2009 Palmer again identified novelty as a key trigger for situational interest. This study is of greater relevance as it was conducted with a large sample (*N* = 224) of school pupils (aged 14-15) drawn from five schools. Palmer taught a science lesson to small groups of students who were asked to rate their reaction to each section of the lesson (such as note-taking, experiment, demonstration) after each section was taught, using a 5-point scale. This was followed by a group interview to identify sources of interest. Palmer found that student interest levels were much higher for the demonstration for example over the note-taking segments, with interest highest for the demonstration and experiment sections and lowest for copying / note-taking. In the interviews students identified novelty (as categorised by Palmer by phrases such as 'never seen it before' or 'it's not what we usually do') as a key source of interest for the sections of the demonstration and the experiment: 90% of participants experienced an increase in interest during these two sections of the lesson. However, these results must also be interpreted with caution. Firstly, the lessons were taught to a highly reduced class size (only eight students). Furthermore, the participants actually identify learning (not novelty) as the source of interest in the different sections. Palmer interprets this as novelty, suggesting that when learning, what is learned is always new and thus novelty is always present. It is also possible that the difference in teacher and the small groups, in representing a change from the routine, also created novelty and therefore heightened situational interest.

Novelty, explained as new information and unexpected information, was identified as a key source of interest which investigated which text characteristics elicited most interest, as reported by college students, in a study by Wade, Buxton and Kelly (1999). Participants read a text on dinosaurs that was presented in two different formats – an informative encyclopaedia style text and an entertaining news piece type text – and were asked to identify which text characteristics were most interesting. The same characteristics were identified in both text types. Additionally, use of imagery and descriptive language was also highlighted as a characteristic that facilitated enjoyment in and interest for the texts. This study illustrates how novelty may work to bring about changes in level of interest for a text. It is perhaps aligned with the age group that the type of novelty has a more sophisticated interpretation in this example, reflecting how novelty may operate differently across different age ranges. However, the effects are evaluated through self-report and there was no measurement of any potential change to how the participants engaged with or understood the texts they had read.

The notion of the multidimensionality or multifaceted nature of situational interest is already discussed with reference to the work of Palmer and colleagues and Schraw and Lehman. This is also supported by the studies of Chen and colleagues who have conducted several investigations into the relationship between situational interest and novelty in the PE classroom, with a focus on activities that offer active engagement. In one study (Chen, Darst & Pangrazi, 1999), the researchers sought to evaluate and measure the different dimensions of situational interest. Through factor analysis, the researchers identified five dimensions of situational interest for PE, which included novelty, although it is noted that novelty was one of the two weakest components found.

Research in the area also comes with some contradictions. Lepper and Cordova (1992), whilst purporting that minor changes to tasks can promote engagement, also state that novelty purely for the sake of novelty simply acts as a distraction in an activity. It is suggested that such an interpretation is aligned with the notion of meaningfulness. Thus, in the same way as research has found that offering students a so-called choice that is better described as picking rather than choosing (Katz & Assor, 2007), it is argued that novelty cannot just be an arbitrary inclusion but must also be meaningful in some way.

The current studies do build on earlier work by the author (Fridkin, 2011, unpublished) investigating the effects of non-textual features on reading motivation, specifically looking at the effects of colour illustrations and colour scratch and sniff illustrations on reading comprehension performance and reported enjoyment of a story. The study was carried out with 38 Year Two pupils (age 6-7) and found that reading comprehension scores were significantly higher for the version of the storybook that included non-textual features (colour illustrations and scratch and sniff illustrations) and that boys significantly outperformed girls. Although Fridkin found no effect for enjoyment, she points out that focus groups carried out by the researcher indicated that the scratch and sniff feature of the experimental text was reported as both enjoyable and a positive element that would encourage further reading of similar books by all participants interviewed. The researcher proposes that this is due to the novelty and unexpectedness of the task eliciting situational interest. Furthermore, as Fridkin asserts, it is plausible that the null quantitative data for enjoyment may be attributed to the limitations of the measure used for enjoyment, which comprised only four questions with a low shared reliability, and that this should not negate the value of the findings from the qualitative data.

Understanding novelty as a factor of situational interest presents challenges in research, particularly with regard to how it is presented (it must be testable and enable robust measurement) and also how it is defined. The studies discussed above demonstrate novelty can be effective and as diverse as a teaching technique, a field trip, a puzzle, a hands-on task. Palmer et al. (2016) suggest that there are two categories of novelty: seeing and doing unusual activities; learning new or unusual content. It is important that studies in this field take these challenges on board and set out a clear interpretation of novelty and work to a design which focuses on that variable only, so that it's potential as a trigger for situational interest can be successfully evaluated.

6.6.1 Novelty through story presentation.

There is no formal evidence that supports the idea of a classroom visitor introducing a story acting as a trigger for situational interest. However, it is a format that readily encompasses the concept of novelty, that is, a break from the routine. A 2012 Ofsted School Survey Report, focussing on literacy, looks at how both primary and secondary schools can raise pupil attainment in English. The report is evidence-based and collates evidence from inspections of English between April 2008 and March 2011, as well as discussions with teachers and national test and examination results. Examples of good practice include extracurricular events promoting reading, and activities devised to ensure engagement […] with lots of emphasis on … listening.

Similarly, a government report on reading for pleasure (DfE, 2012) suggests that schools must actively promote reading for pleasure in order to stimulate motivation and engagement and one method is through events, such as author visits. It contributes to the Ofsted recommendation in the aforementioned report on literacy and standards in English (Ofsted, 2012) which encourages schools to develop policies that promote reading for enjoyment. Furthermore, author visits are widely promoted as a method to enthuse and inspire children and stir up interest for reading. There are numerous organisations that support schools in arranging author visits. The organisation, *authors aloud UK (*https://authorsalouduk.co.uk/*),* supports schools to host author visits and describes this as a way to promote reading for pleasure. Likewise*, BookTrust* (https://www.booktrust.org.uk/) actively encourages author visits to schools as a method to inspire children and 'bring reading to life'. The company contactanauthor.co.uk (http://contactanauthor.co.uk/) also claims that meeting an author can increase children's interest in books.

This practice is also advocated by the children's laureate organisation (http://childrenslaureate.org.uk). On this website, the poet, Andy Croft (n.d.), writes: 'the benefits of bringing poets into the classroom are incalculable.' Indeed, one of the key aspects of the role of children's laureate is to visit schools and libraries and read to children. Literary festivals such as The Hay Festival, which celebrated its 30th anniversary in 2017, are highly attended events where children's events are primarily focussed on giving children an opportunity to listen, at least in part, to authors reading excerpts from their books or poetry. The festival focuses on the joy that is acquired through reading and reflecting on what is read. According to the children's laureate website, the opportunity to have an author read aloud to children is further endorsed by the children themselves. One pupil, visited by recent laureate, Chris Riddell, described meeting an author as giving inspiration to read a book, and the reading specialist teacher from the same school describes the enthusiasm that continues after the visit and the legacy of an enthusiasm for reading.

Evidence from government sources, educators and literacy agencies indicates that a novel activity, such as listening to an author read aloud, promotes interest and enjoyment in reading. The examples presented endorse the suggestion that the opportunity to listen to the start of a story by a visitor (not the routine class teacher) embody the construct of novelty as a variable of situational interest.

6.6.2 Novelty through non-textual features.

Illustrations are an integral part of the novelty study which includes eight scratch and sniff stickers which the participants are expected to interact with, in addition to the illustrations in each story. It is therefore important to briefly review the evidence regarding the effects of illustrations on reading comprehension and interest, particularly as there is some conflict in this area.

Illustrations are commonly recognised as a method to introduce print to young children to promote engagement in a story and present reading as an enjoyable activity (Adams, 1990). Research shows that pictures enhance readers' enjoyment of narrative text (Anderson et al., 1987; Fang, 1996 as cited in Carney & Levin, 2002) and that text presentation can influence both expectations about enjoyment (e.g. Anderson et al., 1987; Lagrou, Burns, Mizerek & Mosack ,2006) and attitudes to the material (Brozo, 2010; Pressley, 2002). Illustrations, along with other non-textual features, can potentially influence reading in two ways: they can create situational interest and generate increased motivation to engage with and persist in reading a

text (Carney & Levin, 2002; Levie & Lentz, 1982); alternatively, they can provide contextual clues and encourage deeper processing that support text comprehension (e.g. Carney & Levin, 2002; Chun, 2009 as cited in Brozo, 2010; Gambrell & Jawitz, 1993). Dual-coding theory (Paivio, 1971; Sadoski, & Paivio, 2004), proposes that the processes used for decoding at word-level are different to those required for understanding visual representations. However, whilst capable of independent processing, these two systems are interconnected. This therefore indicates that illustrations can enhance and support written text comprehension because different cognitive processes are used, and thus the illustrations can complement text comprehension.

However, there is some disagreement about the effect of non-textual features, such as illustrations, on text comprehension, where it is claimed that illustrations may divert attention from the text (e.g. Dehaene, 2009) and interfere with cognitive processes thus having a negative effect on comprehension outcomes (e.g. Harber, 1980). Although there are apparent conflicts, in an extensive review of research investigating the effects of text illustrations on reading, Levie & Lentz (1982) conclude that the overwhelming majority of studies demonstrate that illustrations can improve text comprehension but that the mechanisms that support this effect are unclear.

Apart from the work of Fridkin (2011) discussed above, research investigating the motivational aspects of non-textual features on reading comprehension is limited. However, some evidence can be drawn from a study investigating the effects of text presentation on reading comprehension and fluency scores across two different presentation conditions (reading from a book versus reading from a typed sheet) which found that both of these aspects were significantly improved in the book condition for lower ability readers. The researchers posit that this could be linked to the expectations of readers who may have been expecting the book format to include illustrations (Lagrou, et al., 2006). Further evidence suggests that colour illustrations rather than black and white illustrations may further widen this difference in comprehension (Willows, 1980 as cited in Levie & Lentz, 1982). Although these studies appear to make some tenuous links about causality, it could be asserted that the studies do reflect that non-textual components in a text have the potential to impact online behaviour, that is the way the individual interacts with the reading material.

6.7 The Present Studies

Renninger and Hidi (2016), propose that two types of factor typically characterise situational interest: structural features such as novelty, surprise and ambiguity, and content features such as human activity, personalisation and intensity. In the present experiments the motivational dimension has been conceptualised as novelty, primarily because the activities are not typical of the classroom routine, through the visitor reading aloud the introduction to the story, or through the scratch and sniff interaction repeated throughout the story. It should also be acknowledged that each one also provides some interaction for the individual with the activities as they require the participant to attend to the story being read to them and to carry out the scratch and sniff for each of the stickers in the story. It is not suggested that a visit from a researcher amounts to or is as effective as a visit from the author of a well-known storybook or much-loved poet. Nonetheless, it is suggested that, particularly for younger children who have less world experience, that a visit from a researcher who comes specifically to read aloud to a class has some of these same characteristics and does represent novelty in the classroom and therefore has the potential to act as a trigger for situational interest. The three studies in the current research use the same storybooks which include coloured illustrations: clearly, as the illustrations are present for both control and experimental conditions, it is anticipated that any influence of the illustrations included is uniformly balanced in both conditions. The only study where the storybook has additional non-textual features is in the novelty through non-textual features study (experimental Study 3), where scratch and sniff

stickers are interspersed in the text of each story, relate to the story and are designed to elicit situational interest through novelty. The pictures themselves are deliberately not linked to text that is directly necessary for the reading comprehension questions, however, it is possible that, simply as illustrations, they offer additional engagement with the story.

Few studies have directly manipulated novelty either as a variable of situational interest with reading tasks or with this age group, in spite of claims that age may be a critical factor in determining the value of external triggers for interest development (Renninger, 2009). There is also a gap in evidence supporting understanding of differential effects by gender or ability. Nonetheless, novelty is recognised as a key source that can be manipulated by teachers to make learning meaningful (Pressick-Kilborn, 2015). There are many potential variables that may trigger situational interest, however for design purposes they must be easily testable insofar as they can be

directly manipulated and are not exposed to contamination from other factors such as prior knowledge. A common criticism of research on triggers of situational interest is reliance on self-report questionnaires (Krapp & Prenzel, 2011) and this has also informed the experimental design and choice of variables investigated. Additionally, novelty is potentially easily exploited in the classroom and therefore has accessible application. Finally, novelty, as established in this chapter, is much advocated by researchers but woefully lacking in research-based empirical support.

The proposed studies have two central aims: to understand if novelty in a reading text impacts the individuals' interaction, as realised through their online behaviour (attention, effort), with the text so that 1) reading comprehension performance is significantly improved and, 2) reported enjoyment is increased by manipulation of the variable. Both aims support our theoretical understanding of how situational interest is operationalised: supporting the hypothesis that novelty elicits an affective response that raises effort and attention with the task and this response leads to increased levels of enjoyment for the related task. Furthermore, they contribute to the knowledge of how interest may develop and illustrate both practical application and also an indication of how personal interest may be encouraged to develop.

Participants carried out both experimental and control tasks to evaluate effects of novelty on reading comprehension performance. Self-report questionnaires were completed following each condition to examine if reported task enjoyment was mediated by the effects of novelty. Focus groups were conducted after the final task to enrich understanding of the research questions. The methods and results for each study are presented in Chapters Seven (novelty through story presentation) and Chapter Eight (novelty through non-textual features) and the qualitative analysis of the data collected from the focus groups is described for all studies in Chapter Nine.

Hypotheses: Study 2 Novelty through Story Presentation

Hypothesis 1: There will be a difference in reading comprehension scores across the two conditions (novelty, no novelty).

Hypothesis 2: There will be a difference in reading comprehension scores across the two conditions which will be moderated by ability, where novelty will have a greater effect in children with lower reading ability.

Hypothesis 3: There will be a difference in reading comprehension scores across the two conditions which will be moderated by gender, where novelty will have a greater effect in boys compared to girls.

Hypothesis 4: There will be a difference in enjoyment scores across the two conditions (novelty, no novelty).

Hypothesis 5: There will be a difference in enjoyment scores across the two conditions which will be moderated by ability, where novelty will have a greater effect in children with lower reading ability.

Hypothesis 6: There will be a difference in enjoyment scores across the two conditions which will be moderated by gender, where novelty will have a greater effect in boys compared to girls.

Hypotheses: Study 3 Novelty through Non-Textual Features

Hypothesis 1: There will be a difference in reading comprehension scores across the two conditions (novelty, no novelty).

Hypothesis 2: There will be a difference in reading comprehension scores across the two conditions which will be moderated by ability, where novelty will have a greater effect in children with lower reading ability.

Hypothesis 3: There will be a difference in reading comprehension scores across the two conditions which will be moderated by gender, where novelty will have a greater effect in boys compared to girls.

Hypothesis 4: There will be a difference in enjoyment scores across the two conditions (novelty, no novelty).

Hypothesis 5: There will be a difference in enjoyment scores across the two conditions which will be moderated by ability, where novelty will have a greater effect in children with lower reading ability.

Hypothesis 6: There will be a difference in enjoyment scores across the two conditions which will be moderated by gender, where novelty will have a greater effect in boys compared to girls.

Chapter Seven

Experimental Study 2: Novelty through Story Presentation

This chapter presents a brief rationale followed by the methods and results for the experimental study investigating the effects of novelty through story presentation as a variable of situational interest on the reading comprehension performance and reported task enjoyment of young children. The study follows the methodological paradigm set out in Chapter Three that describes the ethics, design, materials and procedures that are central to the investigation of the effects of situational interest on reading comprehension performance and reported task enjoyment across all three studies of this research. This chapter describes the methodological elements specific to the investigation of the effects of novelty through story presentation on the reading comprehension performance and reported task enjoyment of children and then presents the results of the statistical analyses carried out to test the hypotheses for this study.

7.1 Rationale

This experiment investigates novelty as a variable of situational interest through the manipulation of the presentation of a story, specifically by having a visitor read aloud the introduction (prologue) to the story. It explores the hypothesis that novelty through story presentation will impact behaviour in a reading task. In line with the previous experiment, manipulating choice, the hypothesis draws on the theoretical model of Hidi and Renninger (2006) that proposes that situational interest can be elicited by environmental and task features to promote an increase in effort and attention for a task at a specific point in time and support higher levels of enjoyment for a task.

Novelty has been widely identified as a potential trigger for situational interest. It has been shown to stimulate situational interest (e.g. Schraw et al., 1998) and has a positive association with academic performance (e.g. Patall et al., 2010) and reading achievement (e.g. Guthrie et al., 2007a; Skinner et al., 1990; Sweet et al., 2008). The manipulation of the presentation of the story, that is having a visitor read the introduction (prologue) to the story, was selected as a source of novelty in a reading

comprehension task as it offers a simple and practical method to introduce novelty in the primary school classroom. Although story presentation itself has not been discussed in previous literature as a variable of situational interest, novelty is widely acknowledged as a key tool to elicit situational interest and therefore its associated effects. A visitor to the classroom changes the normal class routine, particularly when the visitor engages with the class as a whole. Recommendations from government reports, Ofsted and literacy groups conflate visits from authors and being read to with increases in reading enjoyment.

7.2 Methods

7.2.1 Pilot study.

In addition to the main pilot study described in Chapter Three, section 3.3, to fit the experimental design for this study, a prologue was written for each story. These were assessed and reviewed by an experienced primary school teacher, in conjunction with the main stories, to check that the design, language and content of the materials were well-suited to this task for this age group. The prologue details are described in full in section 7.3.2.1.

7.2.2 Design.

The experimental design is described in Chapter Three, section 3.4. and explains how the design was implemented for the three studies. For this study, the experimental condition was facilitated by the researcher, where a purposively written prologue to the main story was read aloud to the participants prior to their reading the main story. In the control condition, the participants' class teacher facilitated the activity, where participants read the materials individually as a routine class reading comprehension activity.

7.2.3 Participants.

The participants were drawn from the Year 4 classes of two two-form entry mainstream schools, in West Hertfordshire, England.

School 1 is located in a relatively affluent small town. It was categorised as 'Good' in its most recent Ofsted Report (May, 2014). It is a larger than average co-ed primary school (ages 3 – 11) with 425 pupils on roll at the time of testing. The pupils are

predominantly of White British heritage and numbers of pupils eligible for Pupil Premium or registered as Disabled, with SEN or School Action, from minority ethnic backgrounds or with English as an additional language are significantly below national averages.

School 2 is located in a similar small town of the county. It was categorised as 'Good' in its most recent Ofsted Report (November, 2013). It is a larger than average co-ed junior school (ages 7 – 11) with 278 pupils on roll. The large majority of pupils come from a White British background and the remainder from a large number of different ethnic backgrounds. Numbers of pupils with English as an additional language or eligible for Pupil Premium are below average. The proportion of Disabled pupils and those who have Special Educational Needs supported through School Action is above the national average and the proportion supported through School Action plus or with a statement of SEN is below average.

Information letters and consent forms (see Appendix A) were sent home via the schools in advance of testing, providing an overview of the purpose and structure of the study and an opportunity to withdraw consent by returning a reply slip, contacting the researcher by email or advising the class teacher. No questions regarding the study or requests for withdrawal were received.

Selection to the final sample required children to participate in both conditions of the testing phase. Absences from one or other of these led to the exclusion of 8 pupils (5 girls and 3 boys). A further criterion for inclusion was for reading ability scores to be in line (maximum of two inflections apart) with teacher assessment for reading ability as recorded by a current national curriculum level. There were no further exclusions on this basis.

Data provided by both schools showed that, at the time of testing, 1.8% (N = 2) of pupils tested spoke English as an additional language with neither at an early stage of learning English, 11.7% (N = 13) of pupils were classified as Pupil Premium and 4.5% (N = 5) were assessed as having learning difficulties. A total of 111 participants (62 girls, 49 boys) were included in the final sample.

7.3 Materials

7.3.1 Pre-test phase.

7.3.1.1 Motivations for reading questionnaire (MRQ): Adapted.

A detailed explanation of this measure is provided in Chapter Three, where the final instrument comprised a 38-item questionnaire (see Appendix B) with two practice questions. For this experimental study internal consistency was calculated using Cronbach's Alpha coefficient with a value of .85 for the 38 items indicating a good level of reliability for the scale items (Loewenthal, 2001). Concurrent validity is provided by the calculation of Pearson's r correlation coefficient for scores on the MRQ and the scores on the control condition (no novelty) enjoyment questionnaire. The data show the correlation r = .260, indicating weak correlation strength.

7.3.2 Testing phase.

7.3.2.1 Storybooks.

Two short stories were written and matched for both word length and difficulty and a detailed explanation of this measure is provided in Chapter Three, under the heading Storybooks. Additionally for this study, a single prologue, with minor adaptations to fit the storyline for each main story, was also written in order to fulfil the experimental design requirements (see Appendix Q). Each prologue was almost identical in length (Story 1, 334 words; Story 2, 345 words) and difficulty, as measured using a readability formula tool (see Appendix C). The same prologue was developed in order to standardise the affective response elicited by this part of the story and to ensure that any differences in performance could be attributed to the experimental manipulation rather than one prologue being more interesting than the other. Thus a total of two prologues and two stories were written.

7.3.2.2 Comprehension questions.

Further to the description of the comprehension questions provided in section 3.7.2.1, due care was also taken to ensure that there were no questions in relation to the prologue and only to the main text of the storybook.

7.3.2.2.1 Comprehension questions Story 1.

Internal consistency for the 11 questions (12 items) was analysed by calculating Cronbach's alpha across both conditions, giving an overall value of .39, indicating weak reliability (Loewenthal, 2001).

7.3.2.2.2 Comprehension questions Story 2.

Internal consistency for the 11 questions (12 items) was analysed by calculating Cronbach's alpha across both conditions, giving an overall value of .48, indicating a weak but acceptable level of reliability given the small number of items in the scale (Loewenthal, 2001).

7.3.2.2.3 Comprehension questions validity.

Concurrent validity was measured by calculating Pearson's r correlation coefficient for the three measures of reading (comprehension scores in the no novelty condition for each story and NGRT raw scores). These correlations are set out in Table 7.1 below. The data show that the correlations between the three measures are r = .54, between the two sets of comprehension scores, r = .55 between Story 1 comprehension scores and NGRT raw scores and r = .56 between Story 2 comprehension scores and NGRT raw scores indicating moderate correlation strength.

Table 7.1

Correlation Coefficients Matrix of Measures of Reading

	Comprehension Scores Story 1	**Comprehension Scores Story 2**	**NGRT Raw Scores**
Comprehension Scores Story 1		*.538*	*.554*
Comprehension Scores Story 2	*.538*		*.557*
NGRT Raw Scores	*.554*	*.557*	

7.3.2.3 Enjoyment questionnaire.

A detailed description for this measure is included in Chapter Three. Internal consistency for the questionnaire was analysed by calculating Cronbach's alpha, giving an overall value of .69, indicating an acceptable level of reliability.

7.4 Procedure

A detailed explanation of the procedure is provided in Chapter Three. This study focussed on the effects of situational interest, as brought about by novelty through story presentation, on reading comprehension performance and reported task enjoyment of a story. The following section describes the testing phase of the procedure that is specifically relevant to this experimental study.

7.4.1 Testing phase.

Experimental Condition (Novelty through Story Presentation). In this condition, participants were settled in their classroom and read the prologue of the story by a visitor (the researcher) whom they had not met previously. The storybook and reading comprehension questions were then distributed and participants were asked to read the story and then complete the accompanying questions on the answer sheet. The task was explained by the researcher and participants were additionally told that they could refer back to the story at any time whilst answering the questions, and that they would not be able to ask for any help during this activity. Participants were allowed as much time as they needed to complete the task.

On completion of the reading comprehension activity, participants were given a copy of the Enjoyment Questionnaire. Once the response format had been explained (the same as the previously completed adapted MRQ), participants were read each statement and given an opportunity to select their response for each item. Participants were able to raise their hand and ask for help and clarification throughout the administration of the exercise.

Control Condition (No Novelty). In this condition, the class teacher facilitated the reading comprehension activity with participants as part of normal class routine. The class teacher was provided with clear instructions to ensure that the exercise was administered in the same way for all four groups. Participants were given the prologue, story and reading comprehension questions. Participants were instructed to read the prologue and story and answer the accompanying questions on the answer sheet. They were additionally told that they could refer back to the story at any time whilst answering the questions and that they would not be able to ask for any help during this activity. Participants were allowed as much time as they needed

to complete the task. The procedure for this activity was identical to the procedure in the experimental condition from the point when participants had been given the story.

On completion of the reading comprehension activity, participants were given a copy of the Enjoyment Questionnaire. The procedure for this activity was exactly the same as in the experimental condition.

7.5 Results

This study set out to investigate the relationship between reading motivation and situational interest, as mediated by story presentation (novelty), and the comprehension and enjoyment of a short story. This was examined by measuring comprehension scores and enjoyment scores across two conditions, where participants were read the prologue to a story by a visitor which they then continued to read independently or where they were given a prologue and story to read solely independently and which was administrated by their class teacher as part of their typical school day.

Results are set out in two sections. The first section examines descriptive statistics for the key variables. The following section examines the quantitative data, analysing results evaluating the comprehension scores by condition, in relation to gender and ability, and also in relation to experimental order effects and story effects, and evaluating the reported enjoyment scores by condition and in relation to gender and ability, and also in relation to experimental order effects and story effects.

Chapter Nine uses thematic analysis to explore the qualitative data collected from the sample.

7.5.1 Descriptive statistics

The final sample for analysis consisted of 111 pupils from four Year 4 classes from two schools (62 girls, 49 boys).

Mean scores for NGRT (maximum score 48) and MRQ (maximum score 152) for all participants are set out by class and by gender in the table below. Mean reading score for boys (40.78) was lower than mean reading score for girls (41.66). This was not significant ($t(109) = -.745$, $p = .458$). Mean motivation for reading scores for boys

(111.37) was slightly higher than mean motivation for reading scores for girls (111.26). This was not significant ($t(109) = .037$, $p = .970$).

Table 7.2

Mean Scores for NGRT and Adapted MRQ Pre-tests by Class Group and Gender

			NGRT Raw Score		Adapted MRQ Score	
	Class	*N*	Mean	Standard Deviation	Mean	Standard Deviation
School I	***1***	*27*	*43.23*	*4.84*	*110.00*	*16.11*
	2	*27*	*40.28*	*6.73*	*105.28*	*12.81*
School II	***3***	*29*	*42.28*	*4.99*	*116.24*	*15.96*
	4	*28*	*39.43*	*6.36*	*113.50*	*13.20*
	Total	*111*	*41.27*	*5.92*	*111.31*	*14.93*
	Gender					
	Boy	*49*	*40.78*	*6.38*	*111.37*	*15.51*
	Girl	*62*	*41.66*	*5.55*	*111.26*	*14.58*
	Total	*111*	*41.27*	*5.92*	*111.31*	*14.93*

The relationship between reading (NGRT raw score, reading comprehension score in the control condition) and motivation (MRQ) and enjoyment (reported enjoyment score in the control condition) is set out in the table below.

Table 7.3

Correlation Coefficients Matrix of Measures of Reading, Motivation and Enjoyment

	NGRT Raw Score	Comprehension Scores Control	Enjoyment Scores Control	Comprehension Scores Experimental	Enjoyment Scores Experimental
MRQ	*.306***	*.107*	*.189*	*.222**	*.256***
NGRT Raw Score		*.487***	*.113*	*.571***	*.176*
Comprehension Scores Control			*.272***	*.417***	*.320***
Enjoyment Scores Control				*.013*	*.548***
Comprehension Scores Experimental					*.186*

A small correlation was found between children's scores for reported enjoyment and reading comprehension scores in the control condition only. A medium correlation was also observed between MRQ scores and NGRT raw scores, and the reading measures (reading comprehension scores in the control and experimental conditions and NGRT raw scores) and a small correlation between motivation and enjoyment measure for the experimental condition only.

7.5.2 Quantitative data analysis.

7.5.2.1 Comprehension measure.

The test for reading comprehension showed good discrimination, with children scoring across the full range of possible scores. Normality tests showed that the data

for comprehension scores followed a normal distribution and fulfilled assumptions for parametric analysis.

Hypothesis 1: ***There will be a difference in reading comprehension scores across the two conditions (novelty, no novelty).***

Observation of means by condition indicated that reading comprehension scores were higher for participants in the experimental condition (novelty through story presentation) $M = 8.61$, $SD = 2.43$, than in the control condition (no novelty) $M = 7.09$, $SD = 2.21$.

Mean comprehension scores by condition are illustrated in Figure 7.1 below.

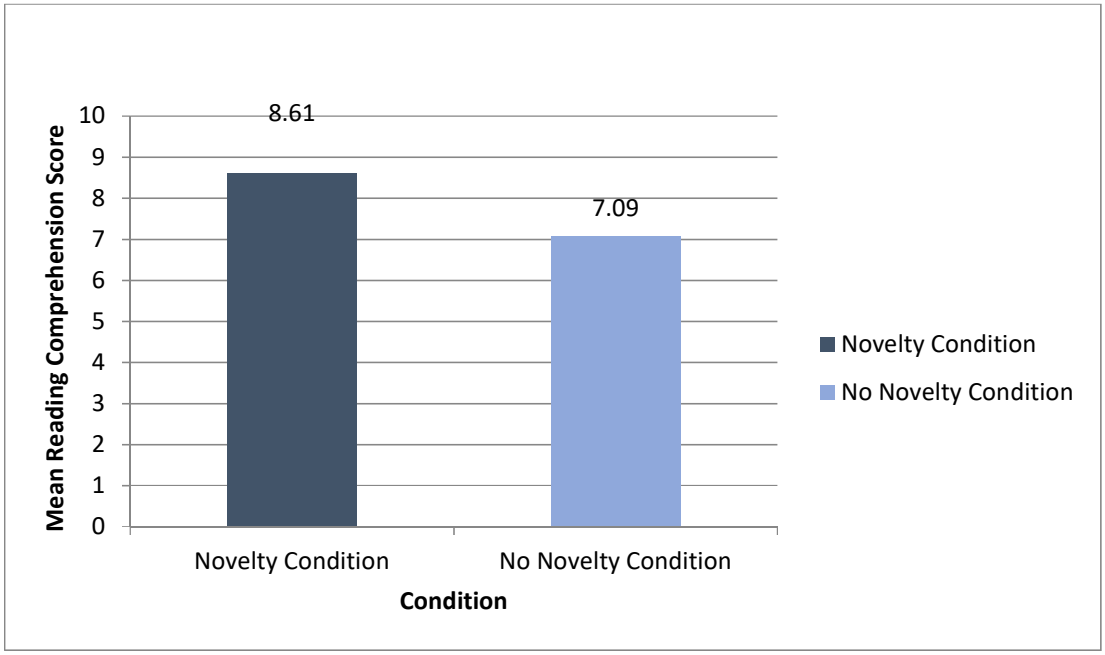

Figure 7.1. Mean comprehension scores by condition.

A Repeated Measures ANOVA was conducted to test the statistical significance of the effect of choice on reading comprehension performance.

The results showed that this difference was significant ($F(1, 110) = 51.52$, $p = .001$, $\eta_p^2 = .311$). Observation of the means indicated that the difference in mean scores across the two conditions supported the hypothesis in the expected direction, that is that mean scores were higher in the experimental condition (novelty) than in the

control condition (no novelty). These results indicate that reading comprehension scores were significantly affected by novelty through story presentation, where the prologue to the story was read aloud by a visitor, compared to reading the same story without a prologue read aloud by a visitor, with higher reading comprehension scores achieved in the experimental condition.

Hypothesis 2: ***There will be a difference in reading comprehension scores across the two conditions which will be moderated by ability, where novelty will have a greater effect in children with lower reading ability.***

A mixed ANOVA with condition as the within-subjects variable and NGRT level as the between-subjects variable was conducted, where the NGRT scores were dichotomised with a median split into high and low halves. There was no interaction effect between experimental condition and NGRT level ($F(1, 103) = .167$, $p = .683$) although there was a main effect of NGRT level ($F(1, 103) = 47.316$, $p = .001$) with children in the top half on the NGRT scoring better on the comprehension tasks. This indicates that the effect of novelty through story presentation on comprehension scores was not moderated by ability level, as recorded by scores on NGRT.

Hypothesis 3: ***There will be a difference in reading comprehension scores across the two conditions which will be moderated by gender, where novelty will have a greater effect in boys compared to girls.***

A mixed ANOVA with condition as the within-subjects variable and gender as the between-subjects variable showed no interaction between gender and experimental condition ($F(1, 110) = 2.13$, $p = .147$) and no main effect of gender ($F(1,110) = .083$, $p = .774$). This indicates that the effect of novelty through story presentation on comprehension scores was not moderated by gender.

7.5.2.1.1 Experimental order and story effects.

The cross-over design of the study accounts for differences in scores that could be attributed to experimental order or story. Further analysis was conducted to provide additional understanding of these effects and to evaluate their impact on the manipulation of the target variable.

Statistical tests were conducted to test for interaction effects of the experimental order (whether reading comprehension scores were affected if the participants were given the experimental condition first or second), and also between the experimental condition and story (that is whether reading comprehension scores were affected by which story (Story 1 or Story 2) the participants read in the experimental (novelty) condition).

A mixed ANOVA with condition (novelty through story presentation, no novelty) as the within-subjects variable and experimental order (first, second) as the between-subjects variable showed no interaction effect between experimental condition and the order in which the novelty condition was given on comprehension scores (F(1, 109) = 0.197, p = .658) and no main effect of order (F(1, 109) = .493, p = .484), indicating that reading comprehension scores were not moderated by experimental order.

To test for story effects, data were analysed using a mixed ANOVA with condition (novelty through story presentation, no novelty) as the within-subjects variable and story (Story 1 experimental condition, Story 2 experimental condition) as the between-subjects variable. This revealed an interaction effect for story (F(1, 109) = 4.952, p = .028) where participant reading comprehension scores were more affected by reading Story 2 in the experimental condition than by reading Story 1 in the experimental condition, (see Appendix R), and a main effect for story (F(1, 109) = 9.479, p = .003) with children scoring better on Story 2 compared to Story 1.

7.5.2.2 Enjoyment measure.

The test for reported enjoyment showed good discrimination, with children scoring across the full range of possible scores. Normality tests showed that the data for enjoyment scores followed a normal distribution and fulfilled assumptions for parametric analysis.

Hypothesis 4: ***There will be a difference in enjoyment scores across the two conditions (novelty, no novelty).***

Observation of means by condition indicated that enjoyment scores were higher for participants in the experimental condition (novelty through story presentation) M = 35.29, SD = 6.29, than in the control condition (no novelty) M = 34.02, SD = 6.17.

Mean enjoyment scores by condition are illustrated in Figure 7.2 below.

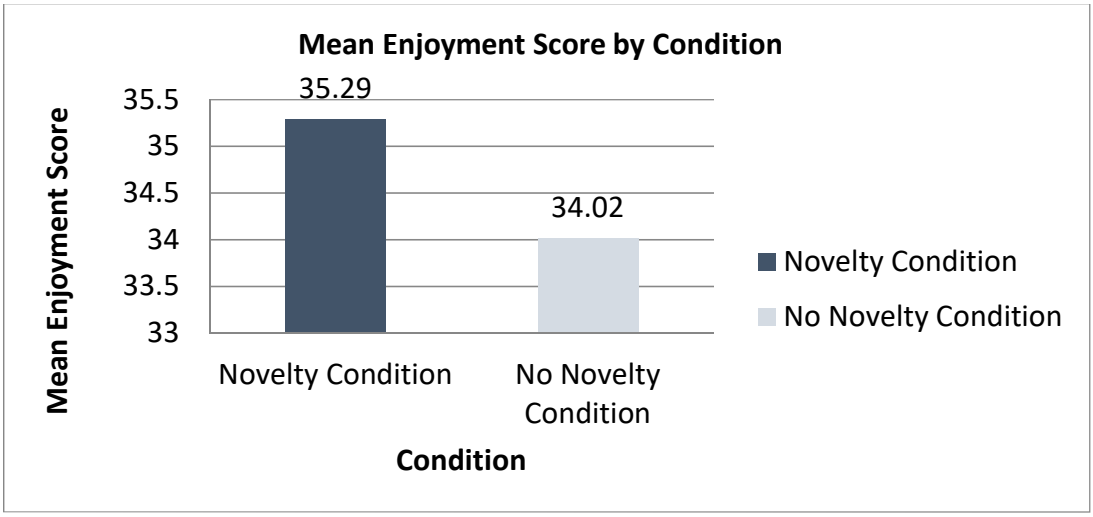

Figure 7.2. Mean enjoyment scores by condition.

A Repeated Measures ANOVA was conducted to test the statistical significance of the effect of novelty through story presentation on enjoyment of the reading task.

The results showed that this difference was significant ($F(1, 110) = 5.28$, $p = .023$, $\eta_p^2 = .048$). Observation of the means indicated that the difference in mean scores across the two conditions supported the hypothesis in the expected direction, that is that mean scores were higher in the experimental condition (novelty through story presentation) than in the control condition (no novelty). These results indicate that enjoyment scores were significantly affected by having the prologue to a story read aloud by a visitor compared to not having a visitor read the prologue to the story, with higher levels of enjoyment of the task reported for the experimental (novelty) condition.

Hypothesis 5: ***There will be a difference in enjoyment scores across the two conditions which will be moderated by ability, where novelty will have a greater effect in children with lower reading ability.***

A mixed ANOVA with condition as the within-subjects variable and NGRT level as the between subjects variable was conducted, where the NGRT scores were dichotomised with a median split into high and low halves. There was no interaction

effect between experimental condition and NGRT level (F(1, 103) = .531, p = .468) nor main effect of NGRT level (F(1, 103) = 1.83, p = .179). This indicates that the effect of novelty through story presentation on reported enjoyment scores was not moderated by ability level, as recorded by scores on NGRT.

Hypothesis 6: ***There will be a difference in enjoyment scores across the two conditions which will be moderated by gender, where novelty will have a greater effect in boys compared to girls.***

A mixed ANOVA with condition as the within-subjects variable and gender as the between subjects variable was conducted to investigate the effects of novelty on the reported enjoyment of the reading task by gender. The results showed that there was no significant interaction between these variables (F(1, 110) = .451, p = .503), nor main effect of gender (F(1,110) = .090, p = .765). These results indicate that reported enjoyment scores for the effects of novelty through story presentation, were not moderated by gender.

7.5.2.2.1 Experimental order and story effects.

The cross-over design of the study accounts for differences in scores that could be attributed to experimental order or story. Further analysis was conducted to provide additional understanding of these effects and to evaluate their impact on the manipulation of the target variable.

Statistical tests were conducted to test for interaction effects of the experimental order (whether reported task enjoyment scores were affected if the participants were given the experimental condition first or second), and also between the experimental condition and story (that is whether reported task enjoyment scores were affected by which story (Story 1 or Story 2) the participants read in the experimental (novelty) condition).

A mixed ANOVA with condition (novelty through story presentation, no novelty) as the within-subjects variable and experimental order (first, second) as the between-subjects variable revealed an interaction effect between order of the experimental condition and reported enjoyment scores (F(1, 109) = 4.149, p = .044) with participant scores more affected by having the experimental task first (experimental condition

followed by control condition) (see Appendix R). There was no main effect of order (F(1, 109) = .661, p = .418).

To test for story effects, data were analysed using a mixed ANOVA with condition (novelty through story presentation, no novelty) as the within-subjects variable and story (Story 1 experimental condition, Story 2 experimental condition) as the between-subjects variable which showed no interaction effects (F(1,109) = .2.286, p =.133) and no main effect for story (F(1,109) = .236, p =.628), indicating that reported enjoyment scores were not moderated by which story the participants read in the experimental condition.

7.6 Summary

Situational interest manipulated through novelty (story presentation) had a statistically significant, large-sized effect on reading comprehension scores, supporting hypothesis 1. Scores were not moderated by either gender or reading ability level (as assessed by raw scores on NGRT), thus hypotheses 2 and 3 were rejected (although as expected, there was a main effect of ability on performance, where children in the top half of NGRT scored better on the reading comprehension tasks). Although the cross-over design randomised experimental order and story effect, interaction effects with experimental condition were explored. There was no interaction effect for experimental order and novelty / no novelty. An interaction and main effect for story were found where reading comprehension scores were higher for Story 2 compared to Story 1 in the experimental condition, and children generally scoring better on Story 2. This interaction effect was also evident in Study 1 and may be attributed to the weaker internal consistency of the reading comprehension measure for Story 1: this is discussed further in Chapter Ten.

Situational interest manipulated through novelty (story presentation) had a statistically significant, small-sized effect on reported enjoyment scores, supporting hypothesis 4. Scores were not moderated by either gender or reading ability level, thus hypotheses 5 and 6 were rejected. There was an interaction effect for experimental order and novelty / no novelty where scores were higher in the experimental condition when the experimental condition was first. There were no effects of story on reported enjoyment scores.

These findings indicate that reading comprehension performance and task enjoyment were significantly affected by participants having novelty through story presentation in the experimental condition presentation (where a visitor read a prologue to and facilitated the reading comprehension task) in the experimental condition compared to the routine class teacher administering the task. This indicates that novelty presented in this way operated as an effective trigger for situational interest according to the hypotheses of this study.

Chapter Eight

Experimental Study 3: Novelty through Non-Textual Features

This chapter presents a brief rationale followed by the methods and results for the experimental study investigating the effects of novelty through non-textual features as a variable of situational interest on the reading comprehension performance and reported task enjoyment of young children. The study follows the methodological paradigm set out in Chapter Three that describes the ethics, design, materials and procedures that are central to the investigation of the effects of situational interest on reading comprehension performance and reported task enjoyment across all three studies of this research. This chapter describes the methodological elements specific to the investigation of the effects of novelty through non-textual features on the reading comprehension performance and reported task enjoyment of children and then presents the results of the statistical analyses carried out to test the hypotheses for this study.

8.1 Rationale

This experiment manipulates novelty through the inclusion of additional non-textual features in a story as a potential variable of situational interest and explores the hypothesis that novelty presented in this way will impact behaviour in a reading task. In line with the experimental studies investigating choice and novelty through story presentation, the hypothesis draws on the theoretical model of Hidi and Renninger (2006), that proposes that situational interest can be elicited by environmental and task features to promote an increase in effort and attention for a task at a specific point in time, and support higher levels of task enjoyment.

As set out in Chapter Seven, section 7.1, novelty is commonly identified as a trigger for situational interest and has been shown to stimulate situational interest. There is some precedent for the presentation of non-textual features as a potentially successful source of novelty (Fridkin, 2011, unpublished) but this is an under-researched area. However, the use of non-textual features (scratch and sniff stickers)

was selected as it represents a good example of how a reading text might be adapted to effectively introduce novelty in a task.

8.2 Methods

8.2.1 Design.

The experimental design is described in Chapter Three, section 3.4. and explains how the design was implemented for the three studies. For this study, participants were given a version of the story which included additional non-textual features (the scratch and sniff stickers) in the experimental condition and the story without these non-textual features in the control condition.

8.2.2 Participants.

The participants were drawn from the Year 4 classes of two two-form entry mainstream schools, in West Hertfordshire and South Buckinghamshire, England.

School 1 is located in a relatively deprived area of a large new town in West Herts. It was categorised as 'Requires Improvement' in its most recent Ofsted Report (March, 2015) which overlapped with the time of testing. It is a larger than average co-ed primary school (ages 3 – 11) with 429 pupils on roll at the time of testing. The pupils are predominantly of White British heritage and numbers of pupils from minority ethnic backgrounds or with English as an additional language are below national averages. Pupils recognised as eligible for Pupil Premium, Disabled, or with SEN are significantly above national averages.

School 2 is located in a central area of a small town in South Bucks. It received a grading of 'Good' in its most recent Ofsted Report (March, 2015) which overlapped with the time of testing. It is an average-sized co-ed junior school (ages 7 – 11) with 239 pupils on roll. Just over half of pupils come from minority ethnic groups and approximately one third of pupils speaks English as an additional language. These are both above national averages. The numbers of Disabled and SEN pupils are broadly average. Just under a third of pupils are eligible for Pupil Premium, which is above the national average.

Information letters and consent forms (see Appendix A) were sent home via the schools in advance of testing, providing an overview of the purpose and structure of

the study and an opportunity to withdraw consent by returning a reply slip, contacting the researcher by email or advising the class teacher. One request for withdrawal was received. There were no requests for further information.

Selection to the final sample required children to participate in both conditions of the testing phase. Absences from one or other of these led to the exclusion of 14 pupils (8 girls and 6 boys). A further criterion for inclusion was for reading ability scores to be in line (maximum of two inflections apart) with teacher assessment for reading ability as recorded by a current national curriculum level. There were no further exclusions on this basis. However, two pupils (1 girl, 1 boy) were withdrawn by their class teacher because it was felt that they would not be able to access the materials due to complex special needs (boy), and being at an early stage of learning English (girl).

Data provided by both schools showed that, at the time of testing, 28.1% (*N* = 27) of pupils tested spoke English as an additional language, 30.2% (*N* = 29) of pupils were classified as Pupil Premium and 15.6% (*N* = 15) were assessed as having learning difficulties. A total of 96 participants (49 girls, 47 boys) were included in the final sample.

8.3 Materials

8.3.1 Pre-test phase.

8.3.1.1 Motivations for reading questionnaire (MRQ): Adapted.

A detailed explanation of this measure is provided in Chapter Three, where the final instrument comprised a 38-item questionnaire (see Appendix B) with two practice questions. For this experimental study internal consistency was calculated using Cronbach's Alpha coefficient with a value .84, indicating a good level of reliability for the scale items (Loewenthal, 2001). Concurrent validity is provided by the calculation of Pearson's r correlation coefficient for scores on the MRQ and the scores on the control condition (no novelty) enjoyment questionnaire. The data show the correlation *r* = .39, indicating small correlation strength (Cohen, 1992).

8.3.2 Testing phase.

8.3.2.1 Storybooks.

Two short stories were written and matched for both word length and difficulty and a detailed explanation of this measure is provided in Chapter Three, under the heading Storybooks. Additionally for this study, the materials for the experimental condition were adapted to include six 'scratch and sniff' stickers with the accompanying written instruction '*scratch and sniff'* next to each sticker in each storybook. Although relevant to the story, the stickers were chosen so that they did not directly relate to the story content questioned in the reading comprehension, so that they could not directly influence participants' comprehension nor compromise the integrity of performance in the experimental condition. An example page from each story including a 'scratch and sniff' sticker can be found in Appendix S. Thus there were two stories and two versions of each story, where the version used in the experimental condition included six scratch and sniff stickers. The experimental and control versions of the stories were identical in format (font, font size, coloured illustrations) except for the addition of six scratch and sniff stickers in the storybook used in the experimental condition.

8.3.2.2 Comprehension questions.

Further to the description of the comprehension questions provided in section 3.7.2.1, due care was also taken to ensure that the questions did not relate to the story content reflected by the additional non-textual features (that is, the 'scratch and sniff' stickers).

8.3.2.2.1 Comprehension questions Story 1.

Internal consistency for the 11 questions (12 items) was analysed by calculating Cronbach's alpha across both conditions, giving an overall value of .75, indicating a good level of reliability (Loewenthal, 2001).

8.3.2.2.2 Comprehension questions Story 2.

Internal consistency for the 11 questions (12 items) was analysed by calculating Cronbach's alpha across both conditions, giving an overall value of .80, indicating a good level of reliability (Loewenthal, 2001).

8.3.2.2.3 Comprehension questions validity.

Concurrent validity was measured by calculating Pearson's r correlation coefficient for the three measures of reading (comprehension scores in the no choice condition for each story and NGRT raw scores). These correlations are set out in Table 8.1 below. The data show that the correlations between the three measures are r = .64, between the two sets of comprehension scores, r = .73 between Story 1

comprehension scores and NGRT raw scores and *r* = .59 between Story 2 comprehension scores and NGRT raw scores indicating medium correlation strength.

Table 8.1

Correlation Coefficients Matrix of Measures of Reading

	Comprehension Scores Story 1	**Comprehension Scores Story 2**	**NGRT Raw Scores**
Comprehension Scores Story 1		*.643*	*.728*
Comprehension Scores Story 2	*.643*		*.587*
NGRT Raw Scores	*.728*	*.587*	

8.3.2.3 Enjoyment questionnaire.

A detailed description for this measure is included in Chapter Three. Internal consistency for the questionnaire was analysed by calculating Cronbach's alpha, giving an overall value of .80, indicating a good level of reliability.

8.4 Procedure

A detailed explanation of the procedure is provided in Chapter Three. This study focussed on the effects of situational interest, as brought about by novelty through non-textual features in a storybook, on reading comprehension performance and reported task enjoyment of a story. The following section describes the testing phase of the procedure that is specifically relevant to this experimental study.

8.4.1 Testing phase.

Experimental Condition (Novelty). In this condition, participants were given a storybook and a question sheet. It was explained that the storybook included ‘scratch and sniff’ stickers that related to the story and participants were invited to interact with this activity as they read through the story. Participants were informed that after they had read the story through once, they should answer the reading comprehension questions on the sheet they had been given. They were told they could refer back to the story as much as they wanted throughout the activity and that they could have as much time as they needed to complete the task, although they would not be able to ask for any help during this activity.

On completion of the reading comprehension activity, participants were given a copy of the Enjoyment Questionnaire. Once the response format had been explained (the same as the previously completed adapted MRQ), participants were read each statement and given an opportunity to select their response for each item. Participants were able to raise their hand and ask for help and clarification throughout the administration of the exercise.

Control Condition (No Novelty). In this condition, participants were given a short story and a set of reading comprehension questions. Instructions for completion of the task were identical to those of the experimental condition except for those relating to the scratch and sniff element of the activity.

On completion of the reading comprehension activity, participants were given a copy of the Enjoyment Questionnaire. The procedure for this activity was exactly the same as in the experimental condition.

8.5 Results

This study set out to investigate the relationship between reading motivation and situational interest, as mediated by novelty through non-textual features, and the comprehension and enjoyment of a short story. This was examined by measuring comprehension scores and enjoyment scores across two conditions, where, for the experimental condition, participants read a story which included additional non-textual features (6 scratch and sniff stickers) compared to a control condition where participants read a story with no additional non-textual features.

Results are set out in two sections. The first section examines descriptive statistics for the key variables. The following section examines the quantitative data, analysing results evaluating the reading comprehension scores by condition, in relation to gender and ability, and also in relation to experimental order effects and story effects, and evaluating the reported enjoyment scores by condition, in relation to gender and ability, and also in relation to experimental order effects and story effects.

Chapter Nine uses thematic analysis to explore the qualitative data collected from the sample.

8.5.1 Descriptive statistics.

The final sample for analysis consisted of 96 pupils from four Year 4 classes from two schools (49 girls, 47 boys).

Mean scores for NGRT (maximum score 48) and MRQ (maximum score 152) for all participants are set out by class and by gender in the table below. Mean reading score for boys (36.00) was lower than mean reading score for girls (38.79). This was not significant ($t(95) = -1.61$, $p = .848$). Mean motivation for reading scores for boys (113.20) was lower than mean motivation for reading scores for girls (115.02). This was not significant ($t(95) = -.446$, $p = .641$).

Table 8.2

Mean Scores for NGRT and Adapted MRQ Pre-tests by Class Group and Gender

			NGRT Raw Score		Adapted MRQ Score	
	Class	***N***	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
School I	***1***	*22*	*38.36*	*9.01*	*113.41*	*29.33*
	2	*21*	*35.50*	*10.01*	*115.85*	*14.67*
School II	***3***	*26*	*36.21*	*8.23*	*113.17*	*16.50*
	4	*27*	*39.36*	*6.10*	*114.36*	*14.66*
	Total	*96*	*37.44*	*8.35*	*114.14*	*19.34*
	Gender					
	Boy	*47*	*36.00*	*8.08*	*113.20*	*16.23*
	Girl	*49*	*38.79*	*8.46*	*115.02*	*21.98*
	Total	*96*	*37.44*	*8.35*	*114.14*	*19.34*

The relationship between reading (NGRT raw score, reading comprehension score in the control condition) and motivation (MRQ) and enjoyment (reported enjoyment score in the control condition) is set out in the table below.

Table 8.3

Correlation Coefficients Matrix of Measures of Reading, Motivation / Enjoyment

	NGRT Raw Score	Comprehension Scores Control	Enjoyment Scores Control	Comprehension Scores Experimental	Enjoyment Scores Experimental
MRQ	*.308***	*.243**	*.387***	*.094*	*.296***
NGRT Raw Score		*.728***	*.047*	*.539***	*.013*
Comprehension Scores Control			*.162*	*.519***	*.032*
Enjoyment Scores Control				*.080*	*.452***
Comprehension Scores Experimental					*.024*

There was no correlation between children's scores for reported enjoyment and reading comprehension scores in either the control or experimental conditions. A medium correlation was observed between MRQ scores and NGRT raw scores, a strong correlation between the reading measures (reading comprehension scores in the control and experimental conditions and NGRT raw scores) and a medium strength correlation between the motivation and enjoyment measures.

8.5.2 Quantitative data analysis.

8.5.2.1 Comprehension measure.

The test for reading comprehension showed good discrimination, with children scoring across the full range of possible scores. Normality tests showed that the data

for comprehension scores followed a normal distribution and fulfilled assumptions for parametric analysis.

Hypothesis 1: ***There will be a difference in reading comprehension scores across the two conditions (novelty, no novelty).***

Observation of means by condition indicated that reading comprehension scores were higher for participants in the experimental condition (novelty) M = 7.17, SD = 2.69, than in the control condition (no novelty) M = 5.73, SD = 2.83.

Mean comprehension scores by condition are illustrated in Figure 8.1 below.

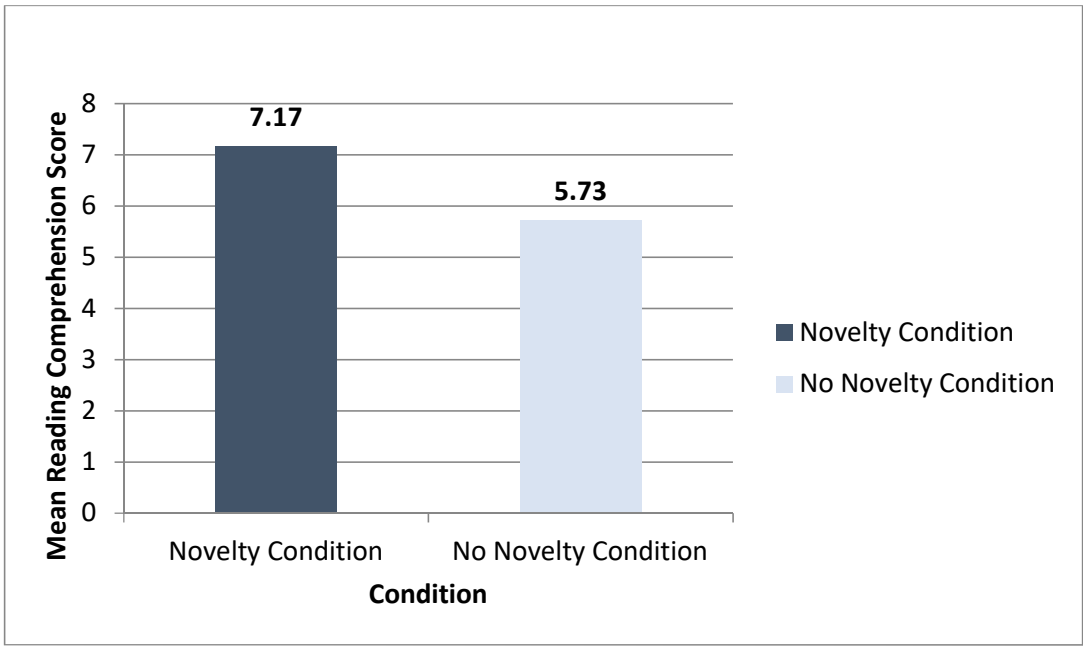

Figure 8.1. Mean comprehension scores by condition.

A Repeated Measures ANOVA was conducted to test the statistical significance of the effect of novelty through non-textual features on reading comprehension performance.

The results showed that this difference was significant ($F(1, 95) = 46.69$, $p = .001$, $\eta_p^2 = .330$). Observation of the means indicated that the difference in mean scores across the two conditions supported the hypothesis in the expected direction, that is that mean scores were higher in the experimental condition (novelty) than in the control

condition (no novelty). These results indicate that reading comprehension scores were significantly affected by reading a story with non-textual features compared to reading a story without non-textual features, with higher reading comprehension scores achieved for the experimental condition (novelty through non-textual features).

Hypothesis 2: ***There will be a difference in reading comprehension scores across the two conditions which will be moderated by ability, where novelty will have a greater effect in children with lower reading ability.***

A mixed ANOVA with condition as the within-subjects variable and NGRT score as the between-subjects variable was conducted, where the NGRT scores were dichotomised with a median split into high and low halves. There was no interaction effect between experimental condition and NGRT level ($F(1, 89) = .398$, $p = .530$) although there was a main effect of NGRT level ($F(1, 89) = 58.224$, $p = .001$) with children in the top half on the NGRT scoring better on the comprehension tasks. This indicates that the effect of novelty through non-textual features on comprehension scores was not moderated by ability level, as recorded by scores on NGRT.

Hypothesis 3: ***There will be a difference in reading comprehension scores across the two conditions which will be moderated by gender, where novelty will have a greater effect in boys compared to girls.***

A mixed ANOVA with condition as the within-subjects variable and gender as the between-subjects variable showed no interaction between gender and experimental condition ($F(1, 94) = .793$, $p = .376$) although there was a main effect of gender ($F(1, 94) = 6.255$, $p = .014$), with girls gaining higher scores on the reading comprehension tasks compared to boys.

8.5.2.1.1 Experimental order and story effects.

The cross-over design of the study accounts for differences in scores that could be attributed to experimental order or story. Further analysis was conducted to provide additional understanding of these effects and to evaluate their impact on the manipulation of the target variable.

Statistical tests were conducted to test for interaction effects of the experimental order (whether reading comprehension scores were affected if the participants were given the experimental condition first or second), and also between the experimental condition and story (that is whether reading comprehension scores were affected by which story (Story 1 or Story 2) the participants read in the experimental (novelty) condition).

A mixed ANOVA with condition (novelty through non-textual features, no novelty) as the within-subjects variable and experimental order (first, second) as the between-subjects variable showed no interaction effect between the order of the experimental condition and reading comprehension scores ($F(1, 94) = 2.372$, $p = .127$) and no main effect of order ($F(1, 94) = 1.530$, $p = .219$), indicating that reading comprehension scores were not moderated by experimental order.

To test for story effects, data were analysed using a mixed ANOVA with condition (novelty through non-textual features, no novelty) as the within-subjects variable and story (Story 1 experimental condition, Story 2 experimental condition) as the between-subjects variable. This revealed an interaction effect for story and reading comprehension scores ($F(1, 94) = 13.608$, $p = .001$), where participant reading comprehension scores were more affected by reading Story 2 in the experimental condition than by reading Story 1 in the experimental condition (see Appendix T). There was no main effect for story ($F(1, 94) = 3.008$, $p = .086$).

8.5.2.2 Enjoyment measure.

The test for reported enjoyment showed good discrimination, with children scoring across the full range of possible scores. Normality tests showed that the data for enjoyment scores followed a normal distribution and fulfilled assumptions for parametric analysis.

Hypothesis 4: ***There will be a difference in enjoyment scores across the two conditions (novelty, no novelty).***

Observation of means by condition indicated that enjoyment scores were higher for participants in the experimental condition (novelty) $M = 38.15$, $SD = 7.55$, than in the control condition (no novelty) $M = 37.68$, $SD = 8.20$.

Mean enjoyment scores by condition are illustrated in Figure 8.2 below.

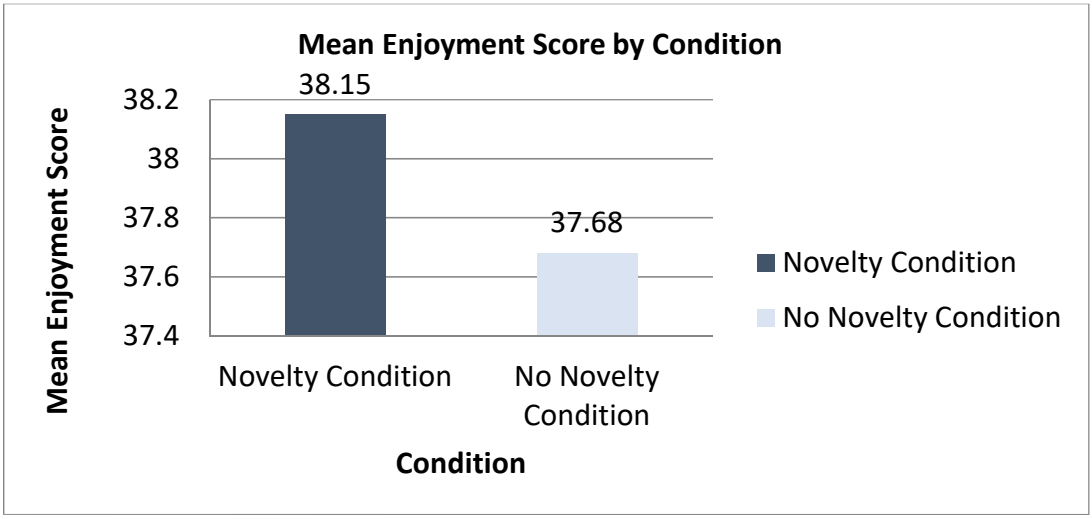

Figure 8.2. Mean enjoyment scores by condition.

A Repeated Measures ANOVA was conducted to test the statistical significance of the effect of novelty through non-textual features on enjoyment of the reading task.

The results showed that this difference was significant ($F(1, 109) = 5.35$, $p = .023$, $\eta_p^2 = .053$). Observation of the means indicated that the difference in mean scores across the two conditions supported the hypothesis in the expected direction, that is that mean scores were higher in the experimental condition (novelty through non-textual features) than in the control condition (no novelty). These results indicate that enjoyment scores were significantly affected by reading a story with novelty through non-textual features ('scratch and sniff' stickers) compared to reading a story with no novelty, with higher levels of enjoyment for the task reported for the experimental condition.

Hypothesis 5: ***There will be a difference in enjoyment scores across the two conditions which will be moderated by ability, where novelty will have a greater effect in children with lower reading ability.***

A mixed ANOVA with condition (novelty through non-textual features, no novelty) as the within-subjects variable and NGRT scores as the between-subjects variable was conducted, where the NGRT scores were dichotomised with a median split into high

and low halves. There was no interaction effect between experimental condition and NGRT level ($F(1, 89) = .993$, $p = .322$) nor main effect of NGRT level ($F(1, 89) = 1.026$, $p = .314$). This indicates that the effect of novelty, created through non-textual features, on reported enjoyment scores was not moderated by ability level, as recorded by scores on NGRT.

Hypothesis 6: ***There will be a difference in enjoyment scores across the two conditions which will be moderated by gender, where novelty will have a greater effect in boys compared to girls.***

A mixed ANOVA with condition as the within-subjects variable and gender as the between subjects variable was conducted to investigate the effects of novelty on the reported enjoyment of the reading task by gender. The results showed that there was no significant interaction between these ($F(1, 94) = 2.751$, $p = .101$) nor main effect of gender ($F(1, 94) = .033$, $p = .857$). These results indicate that reported enjoyment scores for the effects of novelty, created through non-textual features, were not moderated by gender.

8.5.2.2.1 Experimental order and story effects.

The cross-over design of the study accounts for differences in scores that could be attributed to experimental order or story. Further analysis was conducted to provide additional understanding of these effects and to evaluate their impact on the manipulation of the target variable.

Statistical tests were conducted to test for interaction effects of the experimental order (whether reported enjoyment scores were affected if the participants were given the experimental condition first or second), and also between the experimental condition and story (whether reported enjoyment scores were affected by which story (Story 1 or Story 2) the participants read in the experimental (novelty) condition).

A mixed ANOVA with condition (novelty through non-textual features, no novelty) as the within-subjects variable and experimental order (first, second) as the between-subjects variable revealed an interaction effect between the order of the experimental condition and reported enjoyment scores ($F(1,94) = 6.173$, $p = .015$) (see Appendix T), with scores more affected by the experimental condition when the experimental

task was first (that is experimental condition followed by control condition). There was no main effect of order ($F(1,94) = 1.601$, $p = .209$).

To test for story effects, data were analysed using a mixed ANOVA with condition (novelty through non-textual features, no novelty) as the within-subjects variable and story (Story 1 experimental condition, Story 2 experimental condition) as the between-subjects variable which revealed an interaction effect for story ($F(1, 94) = 13.608$, $p = .001$) (see Appendix T), where reported enjoyment scores were more affected by reading Story 2 in the experimental condition than by reading Story 1 in the experimental condition. There was no main effect for story ($F(1, 94) = 3.008$, $p = .086$).

8.6 Summary

Situational interest manipulated through novelty (non-textual features) had a statistically significant, large-sized effect on reading comprehension scores, supporting hypothesis 1. Scores were not moderated by reading ability level (as assessed by raw scores on NGRT), thus hypotheses 2 was rejected (although as expected, there was a main effect of ability on performance, where children in the top half of NGRT scored better on the reading comprehension tasks). In contrast to Studies 1 and 2, there was a main effect of gender but in the opposite direction to the stated hypothesis 3, where girls gained higher scores on the reading comprehension tasks compared to boys, thus hypothesis 3 was rejected and implications for this directional difference are discussed in Chapter Ten. Although the cross-over design randomised experimental order and story effect, interaction effects with experimental condition were explored. There was no interaction or main effect for experimental order and novelty / no novelty. An interaction and main effect for story were found where reading comprehension scores were higher for Story 2 compared to Story 1 in the experimental condition, and children generally scoring better on Story 2. This interaction was also evident in Studies 1 and 2 and potential explanations for this (such as the weaker internal consistency of the reading comprehension measure for Story 1 compared to Story 2 are also discussed in Chapter Ten).

Situational interest manipulated through novelty (non-textual features) had a statistically significant, small-sized effect on reported enjoyment scores, supporting hypothesis 4. Scores were not moderated by either gender or reading ability level, thus hypotheses 5 and 6 were rejected. There was an interaction effect for experimental order and novelty / no novelty where scores were higher in the

experimental condition when the experimental condition was first, a pattern also observed in Study 2. There was also an interaction effect of story on reported enjoyment scores where scores were higher for Story 2 compared to scores for Story 1 in the experimental condition.

These findings indicate that reading comprehension performance and task enjoyment were significantly affected by participants having novelty through non-textual features, the inclusion of scratch and sniff stickers, in the experimental condition compared to the control condition where no additional features were present. This indicates that novelty presented in this way operated as an effective trigger for situational interest according to the hypotheses of this study.

Chapter Nine

Triggers of Situational Interest for Reading Comprehension: The Pupil Perspective

The aim of Chapter Nine is to review the qualitative data collected for the three experimental studies that was analysed using thematic analysis. It provides an overview of the rationale for including these data, presents the design and methodology for this part of the research, and then explores the data itself through the common themes evident in the three experimental studies and, where appropriate, by each study individually.

Understanding and measuring motivation is challenging and much research primarily uses self-report measures to establish the mechanisms of this construct. However, a common criticism of such measures is that they require a high level of self-awareness, an ability that is especially demanding for young children. Situational interest has its own particular set of challenges as it is understood to elicit an unconscious response to a stimulus in the moment; the individual would therefore not necessarily be expected to recognise his response. In order to understand better and support interpretation of the quantitative research questions, focus groups were conducted for the three experimental studies (Merton & Kendall, 1946).

9.1 Rationale for Conducting Focus Groups

The main purpose of the focus groups was to enrich the understanding of the research questions by hearing directly from the participants about the reading activities. A further function was to strengthen knowledge of children's relationships with and motivation for reading and contribute to our understanding of those potential triggers for situational interest investigated by the three experimental studies.

Further aspects of reading motivation are also potentially captured by conducting focus groups. Research in reading development increasingly recognises the importance of the role of motivation (Schaffner et al., 2013; Sullivan & Brown, 2013; Wigfield et al., 2004). This research explores the relationship between potential triggers for situational interest with reading comprehension performance and task

enjoyment. Nonetheless, in order to fully understand the complexities of this relationship, it is also essential to recognise the complexities of motivation generally and situational interest specifically. Thus, the individual's interaction with triggers for situational interest is also determined by his own position and attitude. Furthermore, Hidi and Renninger's model for interest development (2006) indicates that situational interest is an initial stage in interest development: to further understanding of how to operationalise progression, focus groups might offer a window to other factors that need to be taken into account.

The primary foci therefore were to:

- Explore the relationship between the experimental manipulation and participants' experience of reading the stories and answering the comprehension questions.
- Explore the relationship between the experimental manipulation and participants' enjoyment of the stories
- Explore the participants' understanding of reading and how far the manipulation was motivating for them.
- Explore differences in these areas by both gender and ability.
- Identify individual factors which impact reading development.

9.2 Design and Methodology

The aim was to conduct eight focus groups, purposively organised by gender and ability (according to raw score on the NGRT) to reflect the research questions, across the two schools participating in each study. In each school, an equal number of participants from the two groups was selected for each focus group, in order to ensure that views were invited from a balanced sample of those who had experienced the different orders for both stories and for control and experimental condition. Participants were not aware that their experience of the activities differed from one another.

Participants were asked to share their opinions and habits following a semi-structured interview format with ten guiding questions (see Appendix I). They were encouraged to expand their answers beyond the basic response in order to enable a fuller understanding of their perceptions of the triggers for situational interest manipulated in each experimental task (the manipulated variable being choice or novelty), task

enjoyment and reading, in order to assess if the presence of the manipulation in their reading task had affected their interaction with the storybook, and to understand better the possible implications of situational interest.

Due to timetabling difficulties and pupil commitments in sports activities, it was only possible to run three focus groups in one of the schools taking part in the novelty through story presentation study; in one school that had participated in the choice study, the participants were all drawn from only one class due to timetabling difficulties (one class was off-site).

9.2.1 Participants.

For each of the experimental studies, a total of 32 participants was invited to join small discussion groups of up to four that were split by both gender and ability.

A total of 23 focus groups were conducted across the three studies (8 for Study 1, choice; 8 for Study 2, novelty through story presentation; 7 for Study 3, novelty through non-textual features with a total of 87 participants (M = 3.8). Where possible, each focus group consisted of four purposively sampled participants (i.e. 4 high ability boys; 4 low ability boys; 4 high ability girls; 4 low ability girls), however there were several instances where there were fewer participants because pupils had timetabling commitments or pupils were withdrawn by their teachers because it was felt that they would be caused anxiety by participating in the focus group. In order to maintain the integrity of the characteristics of each focus group, further pupils were only selected to join the groups where it was felt that their ability level was in a similar range to the other participants in that group.

Table 9.1 illustrates the number of participants by gender and ability, as well as mean scores for both the adapted Motivations for Reading Questionnaire and the New Group Reading Test (NGRT) and mean Reading Age.

Table 9.1.

Number of Participants for all Studies by Gender and Ability, Showing Mean Scores for Motivation, NGRT and Reading Age

All Studies	**Number of participants**	**Motivation Score**		**NGRT Raw Score**		**Reading Age**	
		Mean score	**Range**	**Mean score**	**Range**	**Mean age**	**Range**
Boys: high ability	22	123	90 – 145	46	43 – 48	11+	11 – 11+
Boys: low ability	24	108	62 - 146	26	12 - 33	7:05	6:08 – 8:05
All boys	46	115	62 – 146	35	12 – 48	9:02	6:08 – 11+
Girls: high ability	20	117	94 – 149	46	43 – 48	11+	11 – 11+
Girls: low ability	21	106	68 – 134	29	15 - 40	7:08	6:09 - 9:00
All girls	41	111	68 - 149	37	15 - 48	9:04	6:09 – 11+
Total	87	115	62 – 149	35	12 - 48	9:03	6:08 – 11+

9.2.2 Procedure.

All focus groups took place after the reading comprehension activities had been completed and on the same day as the final activity. These sessions were conducted in a separate classroom or designated quiet space during the school day with the researcher and the participating pupils present. Chairs were set up in a circle to support an informal atmosphere. The procedure for all focus groups in all schools was identical.

The class teachers were given a list of the groups and a randomised order and asked to send the participants to the allocated room.

The focus groups were conducted according to the main ethical procedures outlined in Chapter Three, section 3.2. In addition to this, the following structure was also followed, that emphasised the well-being of all participants.

On arrival, participants were told that they had been randomly selected from the whole cohort to come and talk to the researcher about the activities they had been doing. They were told that they were helping the researcher with work that was trying to understand more about how children their age felt about reading and whether or not having different activities (such as choice, being read part of the story by a visitor and extra features like scratch and sniff stickers) during a reading task was valuable. Participants were told that they did not have to take part at all, did not have to answer the questions if they did not want to and could leave and return to their classroom at any time. Participants were also assured of full confidentiality. A Code of Conduct was explained (see Appendix L). Participants were informed that the session was being audio-recorded. Participants were asked to give their consent and given an opportunity to ask any questions before the recording was started.

Each focus group followed the same format where an ice-breaker activity, started by the researcher, preceded the main questions (see Appendix I). These questions were adapted to reflect the manipulation of each study but were otherwise identical and were used to guide the researcher during each focus group in order to ensure that the same research questions were investigated in each setting.

The focus group questions were structured to reflect the research questions and investigate the views of the participants around the different reading stories and the manipulation, the comprehension questions and their enjoyment of the tasks. The initial questions were designed to be easy to answer to put the children at ease and support the group dynamics for ease of discussion (Greene & Hogan, 2005). Initial

questions were designed to be open-ended, such as ‘do you like reading?’ or ‘did you prefer either of the stories?’ to encourage participants to share their views whilst following a guided format. Follow-up questions, using ‘why’, were used to encourage participants to think more closely about their answers.

All participants were given an opportunity to speak and give their view for each question. Participants were free to ask questions at any time. At the end of the session, participants were invited to ask any further questions.

9.2.3 Analytic procedure.

Each audio recording lasted between 7 minutes 00 seconds and 13 minutes 27 seconds, (mean length 9 minutes 50 seconds) and was transcribed in full. This enabled initial familiarisation with the data, which is considered a worthwhile stage in analysis, particularly for initial identification of themes (Lapadat & Lindsay, 1999).

Following this, in order to carry out the analysis of the transcripts, a systematic review of the data was conducted in line with the recommendations of Braun and Clarke (2006). Initially, in order to deepen familiarity with the data, all of the data were read several times. This also allowed the early identification of codes and provided an opportunity to summarise ideas that were relevant to the research questions. Once all relevant features in the transcripts that related to the research questions had been coded, shared features within these codes were identified to form themes. (See Appendix U for a list of codes and Appendix V for a sample of coded transcript).

The analysis set out to enrich understanding of the participant perspective of the operationalisation of situational triggers for reading comprehension and task enjoyment. It is limited in that the interpretation of the qualitative data is dependent on the researcher’s interpretation of the transcripts and knowledge of the research area. In this way, it is accepted that underlying features and the presentation of themes are restricted by the researcher’s background and knowledge.

9.3 Description of themes.

The following is a description of the identified themes that emerged across all three experimental studies. (See Appendix U for a list of codes that map to each theme). Within the presentation for each theme, where relevant, information for how it relates

to gender and ability groups is also included along with any differences identified between the three studies.

9.3.1 Theme 1 – Affective response to the task.

This theme captures the affective response of the participants to the experimental variable and their perceptions of the manipulation on the reading comprehension task generally. The majority of participants expressed predominantly positive attitudes to the reading tasks overall (both control and experimental conditions). In response to the experimental activity, responses were overwhelmingly positive with children frequently expressing finding it enjoyable to do something new or different in the classroom. For example, Jake[8] (boys, high ability) said:

> *'I totally loved having the beginning read to me, it gives an idea about the characters and their life rather than just reading the story straightaway'.*

Paul (boys, high ability) responded:

> *'It got my brain ticking for me and I really like that'.*

The experimental version of the story used in Study 3 (that is with non-textual features as scratch and sniff stickers) elicited a more mixed reaction compared to the other two manipulations. Participants shared strong reactions to this activity with a mixture of positive and negative reactions. For example, Naomi (girls, high ability):

> *'I liked the scratch and sniff story because it was more fun'.*

However, Roland (boys, low ability) said:

> *'I didn't like the scratch and sniff because it didn't always smell nice and you had to scratch the paper'.*

The following two comments encapsulate the sense that the novelty was stimulating because it was different. Lorraine (girls, low ability):

> *'I preferred the scratch thing one because in some books well you don't normally get to sniff them.'*

[8] For the purpose of participant confidentiality, all names used are pseudonyms.

Louisa (girls, low ability):

> *'I liked the scratch and sniff one because when you scratched and sniffed it was like a surprise and I like surprises'.*

9.3.2 Theme 2 – Autonomy.

This theme describes the effect of the manipulated variable on reading enjoyment and children's relationship with their control over what they are reading. This theme was referenced predominantly in response to questions for those who had experienced the perceived choice of story (Study 1) but it was also evident when children were asked more generally about their reading preferences. Many children experience a degree of autonomy with their book choice as positive. Sarah (girls, high ability) explained:

> *'when you are choosing, it can lead into thinking about which one you might like to read. So, it's kind of better choosing 'cos then it gives you more time to think about what you are going to read.'*

Fern (girls, high ability) said:

> *'I liked choosing my book because I liked to see which I think is more interesting. But if you want to know which one I preferred then it was the second one because I preferred that story'.*

However, a few (two or three) children did not experience choice as positive, even if the outcomes for their performance may have been positive. This information may be of practical use in supporting children to develop confidence and personal interest in reading. For example, Abigail (girls, high ability) said:

> *'I liked you giving me the book because sometimes I make not really good choices'.*

Autonomy was also linked to topic preference by a few children, where being able to select reading material linked to hobbies or topics which the children are particularly interested in was seen as positive. Simon (boys, low ability) remarked:

> *'when you can choose, you know what the story is. I like sports books.'*

9.3.3 Theme 3 - Affective response effects on reading enjoyment.

This theme describes a further effect of the manipulated variable on reading enjoyment**.** All three manipulations elicited comments which reflected an affective response and demonstrated effects on enjoyment of the reading activity. Billy (boys, low ability) who participated in Study 2 (novelty through story presentation) said that he really enjoyed that whole story and that the beginning was:

> *'really nice and relaxing basically. I like that, it was enjoyable'.*

Leah (girls, low ability):

> *'I liked the scratch and sniff story because the pizza one smelled like a pizza.'*

Peter (boys, low ability):

> *'I didn't like the smelly one because the smells weren't nice'.*

Greg (boys, low ability):

> *'I think the scratch and sniff stickers made the story better but the smells were all horrible'.*

It was also linked to a favourable view of the reading task by a few children insofar as it was beneficial to understanding the story. Fred (boys, low ability):

> *'It gave you a head start'.*

9.3.4 Theme 4 – Affective response: impact on experience of a reading task.

This theme addresses the sense of the immediacy of affective response and how it can impact how a participant experiences a story. It reveals how the manipulation influenced how the participants interacted with the story. Neil (boys, high ability):

> *'I liked the scratch and sniff because it made you feel like you were there and you can smell what's happening'.*

Sam (boys, low ability):

> *'I liked the activity [scratch and sniff] 'cos it made you feel you were in the story'.*

Frank (boys, high ability):

> *'having the story read to you made you feel like the story was there in front of you'.*

Zac (boys, low ability):

> *'I liked the scratch and sniff one because it made you feel you were in the story and having an adventure'.*

9.3.5 Theme 5 - Effects of triggers of situational interest on perception of reading comprehension.

This theme describes the impact of the manipulation on children's perception of the ease of the task in response to questions about how they found the task comprehension questions. There were remarks across gender and ability about the activities being both easy and enjoyable. Joanne (girls, high ability):

> *'I really liked the scratch and sniff one because the smell part made you feel you were part of the story and you could picture the story and it just all felt easier'.*

Richard (boys, low ability):

> *'I think that choosing was better for the questions. I don't know why, it just was'.*

Edward (boys, high ability):

> *'I found those questions easier [scratch and sniff] but well I'm not sure but it was fun.'*

Blaise (boys, high ability):

> *'I thought the questions today [story without manipulation / scratch and sniff in experimental condition] were really hard'*

Ruth (girls, low ability):

> *'I liked the scratchy one because that one was easier'.*

Arthur (boys, hgh ability):

'I liked the scratch and sniff, it helped with the questions.'

Jack (boys, high ability):

'I didn't like the scratch and sniff, it made it hard to concentrate'.

Lucy (girls, high ability):

'I thought it was easier without scratch and sniff because you didn't get distracted so you could concentrate more'.

9.3.6 Theme 6 - Reading as a useful activity.

This theme describes reasons that influence children's judgement of reading as an activity. Sixteen children volunteered that reading was a valuable activity because it would help them to get a better education and achieve well at school. Of these comments 11 came from low ability participants. In contrast high ability participants were more likely to cite reading for relaxation or escapism as their motivation for reading. For example, Ray (girl, low ability) said:

'I like reading because when we go to secondary school and up in university and college ...when we go in the higher level, we'll know those words already'.

Kevin (boy, high ability):

'I like reading because it just sort of takes me away'.

Rahan (boy, high ability):

'I like reading because it helps you to be smart and you have to read to do almost everything in your life.'

9.4 Perception of Ease of Story and Comprehension Questions

In addition to the analysis of the oral responses to questions about the participants' perception of the level of difficulty of the stories and comprehension questions, in order to build further our understanding of the effects of the manipulation, the number

of responses for these questions was also recorded. Responses are set out in Tables 9.2 and 9.3.

Table 9.2

Number of Responses Recorded for Participant Rating for Ease of Story by Gender and Ability

		Story with manipulation easier	Story without manipulation easier	No difference in story's level of difficulty
Total number of responses		39	35	13
Number of responses by gender	Male	17	20	9
	Female	22	15	4
Number of responses by ability	High	22	12	7
	Low	17	23	6

The comments suggest that, in line with the theoretical position, overall response to the ease of story does not favour one version of the story over the other (that is that the introduction of a trigger for situational interest: the manipulation of choice of story or the use of novelty through either having a visitor read the prologue or by having additional non-textual features does not lead to a perception that the story in the experimental condition is easier): there is no conscious awareness that the presence of these features has impacted the ease of the story for these participants.

The number of responses by high ability participants indicates that almost twice as many high ability pupils perceived the story as easier when in the experimental condition compared to in the control condition.

The number of female participants who perceived the story as easier when in the experimental condition is higher than those who perceived the story as easier when in the control condition.

Chi-square tests of independence were calculated comparing participant rating for ease of story by gender (χ^2 (2, N = 87) = 0.48, p >.05) and by ability (χ^2 (2, N = 87) = 0.76, p >.05) indicating that there were no significant differences between these groups regarding their rating for ease of story.

Overall, there are no clear patterns emerging regarding the perception of ease of the story. This is in line with the theoretical position that triggers of situational interest promote an unconscious response to a stimulus.

Table 9.3

Number of Responses Recorded for Participant Rating for Ease of Comprehension Questions by Gender and Ability

		Comprehension questions from story with manipulation easier	Comprehension questions from story without manipulation easier	No difference in comprehension questions' level of difficulty
Total number of responses		13	20	54
Number of responses by gender	Male	8	4	34
	Female	5	16	20
Number of responses by ability	High	5	6	31
	Low	8	14	23

The number of participants who perceived there was no difference in the level of difficulty of the comprehension questions across the two stories is considerably higher than the number who perceived the questions from the story as easier when in either the experimental or control conditions. This is also true by both gender and ability. The pattern where participants perceive *no difference in level of difficulty* across the two stories, followed by the control condition story perceived as easier and the

experimental condition story perceived as least easy is also evident for counts by gender for girls and for both high and low ability groups.

Chi-square tests of independence were calculated comparing participant rating for ease of comprehension questions by gender (χ^2 (2, N = 87) = 1.72, p >.05) and by ability (χ^2 (2, N = 87) = 0.97, p >.05) indicating that there were no significant differences between these groups regarding their rating for ease of comprehension questions.

These responses are supportive of the theoretical position that the response to triggers of situational interest, operate on an unconscious level, that is that the reader is not aware that they are reading with higher levels of interest that then impact the accessibility of the reading material.

Furthermore, the data from these tables illustrate the importance of both the quantitative and qualitative data collected: together they provide a powerful and useful understanding of how situational interest is operationalised in the individual. The qualitative data underline the difficulty in measuring effects of situational interest and the challenges to using participant voice in understanding this motivational tool. These data alone cannot inform us that the manipulation is effective in raising reading comprehension performance but it does provide an additional dimension for how situational interest is perceived in this group and context.

9.5 Data Describing other Factors

In addition to enriching understanding around the research questions, the qualitative data also yielded information about contextual factors that affect reading. These data have also been incorporated because they describe those factors beyond cognitive skill and motivation that directly impact reading development. Furthermore, interest theory describes situational interest as an initial stage of interest development, a precursor to the development of personal interest. Thus, from a theoretical standpoint, if interest is to be developed further, these additional factors would need consideration.

Children's awareness of factors which support and inhibit their general reading habits also emerged from the thematic analysis and highlighted contextual factors that influenced their reading. This was revealed through answers to the initial questions

to put children at ease and talk generally about reading which focussed on whether or not children generally enjoyed reading and their reading frequency and habits. It suggests that in order to support children in their reading, there are factors beyond cognitive ability and motivation that need to be taken into account as well as distinct environmental advantages that support reading for some children.

Children's remarks reflected that there are several obstacles to their reading when at home. For example, Ellen (girls, low ability) commented:

> *'I do most of my reading at school because it's more quiet than at my house. It's a bit noisy.'*

Maisie (girls, low ability):

> *'I sometimes read if I get bored but I usually have to play with my little brother'.*

Tom (boys, low ability) shared:

> *'I don't like reading aloud, only in my head but at home it's hard to focus with my brother around.'*

Four children commented on disliking reading aloud and, on being asked why, two explained it was because it made them feel uncomfortable or nervous and two were unable to expand their answers. James (boys, low ability) explained:

> *'If I have to read aloud, when I make a mistake everyone knows but if I read in my head you can just guess a word or ask your mum or dad'.*

Some obstacles were simply because of a heavy workload or sports commitments, for example, Alice (girls, high ability) said:

> *'Sometimes I read but I have a really busy week most of the time with homework and swimming practice so when I am quiet I just pick up a book. I do try to read as much as possible'.*

Alex (boys, low ability):

> *'I don't really read outside of school at home because my mum's ill so I have other stuff to do.'*

It was also notable that, among more able readers, books enjoy a higher status in the home and with other family members. For example, Josh (boys, high ability) talked about his mum:

‘she’s always reading, especially on the train’,

Many of the more able readers made comments about parents reading regularly. In discussion, the enjoyment of reading from the majority of these children was palpable: for example, they talked with enthusiasm about reading under the covers after lights out. Furthermore, reading status and importance was underlined by regular reading aloud to family members. This was evident for both the more able and across genders. Although some less able children also read at home, it was apparent from comments that this was less frequent. Additionally, less able readers had less embedded reading habits. For example, many did not read routinely at bedtime, in contrast to more able readers who read at bedtime as well as at other points of the day / weekend.

9.6 Summary

The aim of this chapter was to conceptualise the participants’ perceptions of the operationalisation of the manipulated triggers for situational interest in the three experimental studies to support our understanding of the research questions and the quantitative data. Thematic analysis established 6 themes that revealed how some participants felt about both the experimental tasks in general, in relation to the reading comprehension questions and task enjoyment as well as how they felt about reading in general. Implications from the themes and participants comments in relation to the research questions are discussed in Chapter Ten.

Chapter Ten

Discussion

The purpose of this research has been to investigate the relationship between reading motivation manipulated through situational interest, and reading comprehension and enjoyment in young children. It has specifically examined how situational interest might be operationalised through the triggers of choice (experimental Study 1), novelty through story presentation (experimental Study 2), and novelty through non-textual features (experimental Study 3) using a purposively written short story with children aged 8-9 years old. As argued in the introduction, whilst an association between motivation and reading has been identified, which has considerable significance for children's learning, there is a lack of rigorous research demonstrating how stimulating motivation can bring about improvements in reading.

Situational interest has been widely identified as potentially eliciting and sustaining levels of interest in an activity (Hidi & Harackiewicz, 2000; Renninger & Su, 2012; Schraw & Lehman, 2001). Theory and research indicate that where this occurs it may support increases in effort, attention and enjoyment (Hidi & Renninger, 2006; Wigfield & Guthrie, 1997) and that increased levels of interest may positively impact reading activities and related reading comprehension performance (Bernstein, 1955; Guthrie & Wigfield, 2000; Hidi, 1990; Oakhill & Petrides, 2007). However, empirical evidence indicates that the influence of these affective and cognitive processes on learning and performance is not necessarily positive (Ainley, Hidi & Berndorff, 2002; Linnenbrink & Pintrich, 2002). Whilst, there is some evidence to suggest that both choice and novelty may act as potential triggers for eliciting situational interest (Cordova & Lepper, 1996; Guthrie and colleagues; Mitchell, 1993; Schraw and colleagues), findings are inconclusive and few studies isolate variables to directly examine their potential effects either in the domain of reading or with this age group (8-9 years old), a recognised key age in reading comprehension development (Hirsch, 2003).

Research also demonstrates that there may be gender and ability differences in the domain of reading comprehension and the influence of interest, where there is a wide gap in performance between top performers and other attainment groups (OECD, 2016), girls typically outperform boys (Bernstein, 1955; Brozo, 2010; Clark & Cunningham, 2016), and boys' reading comprehension performance is more likely

influenced by their level of topic interest (Anderson et al., 1987; Oakhill & Petrides, 2007), and where girls are more likely to persevere with lower interest texts (Ainley, Hillman & Hidi, 2002). Furthermore, it is also proposed that motivation and levels of interest in reading material are of greater importance to low ability readers and poorer comprehenders (deSousa & Oakhill, 1996; Logan et al., 2011). The present studies have therefore also examined differential effects of gender and ability.

For each experimental study, participants took part in a repeated measures investigation, reading a short story and completing a reading comprehension activity in both the experimental and control conditions. A cross-over design was used to eliminate order and story effects insofar as a balanced number of participants carried out each condition with each short story either first or second. After the reading comprehension task, participants completed a self-report questionnaire measuring enjoyment of the reading activity. The relationship between reading motivation and situational interest was examined by analysing reading comprehension performance scores and reported enjoyment scores from the questionnaires in the two conditions. At the end of the testing phase a number of pupils were selected to participate in focus groups to investigate the research questions. Transcripts from the focus groups were explored using thematic analysis.

The main findings of all three studies indicate that reading comprehension performance was significantly affected by the manipulation of the trigger for situational interest, where higher reading comprehension scores were achieved in the experimental condition (choice, novelty through story presentation and novelty through non-textual features) compared to the control condition (no choice, no novelty through story presentation and no novelty through non-textual features). These effects were not moderated by gender for either the choice study or the novelty through story presentation study nor by ability level across the three studies. As would be expected, a main effect of ability was found in all three studies, where participants in the top half of scorers on the NGRT achieved higher reading comprehension scores. A main effect of gender was found for the novelty through non-textual features study, with girls achieving higher reading comprehension scores compared to boys.

All three studies found that reported task enjoyment was significantly affected by the manipulation of the trigger for situational interest, where higher levels of enjoyment were reported for the task in the experimental condition (choice, novelty through story presentation and novelty through non-textual features) compared to the control condition (no choice, no novelty through story presentation and no novelty through

non-textual features). These effects were not moderated by either gender or ability level across the three studies.

Exploration of the qualitative data generated the identification of six themes (affective response to the task, autonomy, affective response effects on reading enjoyment, affective response impact on experience of a reading task, effects of triggers of situational interest on perception of the reading comprehension task, reading as a useful activity) as well as identifying other factors which possibly contribute to understanding of reading motivation for these participants.

The main findings of this research extend existing knowledge about the relationship between reading motivation and situational interest and provide empirical evidence that demonstrates how choice and novelty might be considered effective triggers for situational interest and bring about positive effects on reading comprehension performance and reported task enjoyment. They also develop our understanding of precisely how such variables might be operationalised in a reading task and offer further insight into the relationship between reading motivation and age, gender and ability.

This chapter discusses the research findings from the three experimental studies in relation to the current research questions and previous research literature. It explores the contribution of this research to our understanding of reading motivation and situational interest, highlighting new knowledge emerging from the findings of these studies. It discusses the strengths and limitations of the studies in relation to the design, methodology and measures. The final sections consider implications for future research.

10.1 Effects of Situational Interest on Reading Comprehension Performance and Reported Task Enjoyment

10.1.1 The role of choice.

The main purpose of Study 1 was to investigate if choice acts as a trigger for situational interest and therefore if, by providing a choice of material in a reading comprehension exercise, reading comprehension performance and reported task enjoyment would be enhanced. The findings of the current study support the hypothesis that there would be a difference in reading comprehension scores across the two conditions and, in line with the theoretical view, indicate that choice has had

a positive effect on performance in a reading task. The findings also support the hypothesis that there would be a difference in reported task enjoyment scores across the two conditions in the expected direction, with scores indicating an increase in reported task enjoyment in the experimental condition, underlining the theoretical link to situational interest (Hidi & Renninger, 2006). Interest theory informs us that these changes are due to a favourable influence on effort, attention and perseverance as a result of the manipulation of the variable.

Although widely cited as a powerful and effective motivational tool, prior studies investigating choice have reported contradictory results, which have been described as confusing (Clark & Phythian-Sence, 2008). This study provides empirical support for the value of choice in creating situational interest and it is suggested that previous inconsistent findings may be the result of how situational interest through choice has been operationalised. The current study extends understanding of the mechanisms of choice and overcomes prior difficulties by providing a strong methodological paradigm that isolates the potential effects of choice and illustrates the possible characteristics necessary for choice to function as a motivational tool in the domain of reading with young children, as well as measuring performance scores as an outcome of the manipulation rather than relying solely on self-report measures, which has been a criticism of research in this area (Krapp & Prenzel, 2011; Renninger & Bachrach, 2015).

The concept of meaningfulness has been discussed (Assor, 2012) and it has been proposed that choice needs to offer participants involvement in the selection rather than a ‘blind’ choice (Flowerday et al., 2004) or an expression of preference (Flowerday & Schraw, 2003), both of which have been ineffective in these previous studies. The current study ensured careful interpretation of meaningfulness by providing participants with story reviews, as well as the cover and first page of a story in order to support the perception that meaningful (involved) choice was being made. It also controlled for variables such as prior interest in the task type or content. The successful operationalisation of choice in this research demonstrates that the sensitivity of choice must be carefully managed if it is to function successfully as a trigger for situational interest: it appears important that the choice offered is salient and enables involvement in the process.

The importance of the number of choices offered on the effectiveness of choice has also been considered and the current study supports the consensus that an optimal amount may be between two and four options (e.g. Katz & Assor, 2007), and indicates

that choice can indeed operate successfully with as few as two choices, when those choices are meaningful. It is proposed that, if the choice offered represents a realistic and involved choice, fewer choices may be preferable, so that authenticity is maintained (typically, we are not faced with high numbers of choices) and the individual is not overwhelmed with the process of decision-making, as it has been suggested that this could have detrimental consequences on other behavioural factors (Iyengar & Lepper, 2000).

Situational interest would be expected to elicit increases in task enjoyment, and the current findings support this. Furthermore, links between motivation and enjoyment are discussed by several prominent researchers in the field who have reported that use of choice can promote higher levels of reading enjoyment for young children (Brozo, 2010; Eccles, 2005; Guthrie & Wigfield, 2000). Research informs us that reading enjoyment has a significant relationship with several positive reading behaviours such as increases in reading frequency and reading amount. These are highly desirable as such behaviours are associated with increases in reading achievement (Baker & Wigfield, 1999).

10.1.2 The role of novelty.

The main purpose of Studies 2 and 3 was to investigate if novelty (through story presentation and non-textual features) acts as a trigger for situational interest and therefore if, by changing the way that a story is presented to children (that is by having a visitor read aloud the story prologue) or by including additional non-textual features (that is, scratch and sniff stickers) reading comprehension performance and reported task enjoyment would be enhanced. A secondary aim was to examine any differential effects by gender and ability. The analyses demonstrated that novelty, as operationalised in both studies, does positively impact both reading comprehension performance and reported task enjoyment. The findings provide empirical support for the use of novelty as a motivational variable and indicate that the way a story is presented to children (either by introducing the story in a novel way or by including additional non-textual features) can impact their engagement with the story and bring about the effects of situational interest. Therefore, as in Study 1, this adds support for Hidi and Renninger's (2006) theoretical view of interest development.

Whilst novelty is also widely espoused as a powerful motivational tool, there is a paucity of empirical evidence to support this claim. The findings of these studies exemplify how novelty can be successfully operationalised in the classroom for a

reading activity with this age group to elicit the effects of situational interest, under the premise that novelty is defined as a break from the routine. It draws on the common proposal that author visits stimulate reader interest (e.g DfE, 2012), and that novelty can be interpreted as doing unusual activities (Palmer et al., 2016).

There is a lack of knowledge supported by empirical evidence for how to define novelty (Renninger & Hidi, 2016) and few studies which demonstrate how it might be operationalised as a trigger for situational interest, and none known investigating its effects on a reading task with children. In spite of this, novelty has been commonly recognised as important to education and learning by motivation theorists and researchers (e.g. Krapp et al., 1992; Pressick-Kilborn, 2015; Schraw & Lehman, 2001) and it is described as having motivational properties by several studies which did not necessarily set out to study effects of novelty (e.g. Gehlbach et al., 2008). It is also claimed as integral to studies investigating CORI (Guthrie, Wigfield and colleagues), but, as with choice, the CORI studies analyse the composite effect of the intervention rather than identifying the contribution of the discrete variables.

The current studies, which expressly investigate two types of novelty, provide empirical support for the notion that novelty is an effective trigger for situational interest, and succeed in addressing these gaps in knowledge. Where prior research has identified novelty as the trigger only speculatively (Dobrow et al., 2011), or it has been attributed as the possible trigger by other researchers (as by Schraw & Lehman, 2001 regarding Mitchell's work, 1993), or where the findings are influenced by extraneous variables (Dohn, 2011), this work provides direct evidence that novelty can be successfully operationalised to elicit the effects of situational interest, therefore extending knowledge by investigating novelty as a motivational variable.

Although Palmer (2009) identified novelty as a trigger for situational interest, this was done through self-report measures and these conclusions were based on the interpretation of the researcher. The current studies therefore not only make a significant contribution to existing knowledge by directly investigating effects of novelty as operationalised through two potential triggers but also by examining effects by looking at performance outcomes on a reading comprehension activity, as well as reported task enjoyment, and through analysis from qualitative data.

Although bringing in authors to read aloud to children is encouraged practice, there is little precedence for investigating effects of novelty through story presentation. Study 2 provides empirical evidence that this approach can operate successfully as

a trigger for situational interest, and both improve task performance and reported enjoyment.

It has been suggested that non-textual features can interfere with cognitive processes in reading and distract the reader from the text (e.g. Dehaene, 2009), whilst others have supported the view that they can support text comprehension (see Levie & Lentz, 1982). The current research adds empirical support to the view that non-textual features can support reading comprehension performance. This is in line with Fridkin's study (2011) which also found non-textual features effective as a trigger for situational interest for improving reading comprehension performance. The current study also found that novelty through non-textual features successfully increased reported task enjoyment. This stands in contrast to Fridkin's findings but she points out that the measure used was limited as the questionnaire consisted of a very small number of questions, and in fact participants did report higher levels of enjoyment for the experimental condition in post-test focus groups.

10.1.3 Evidence for situational interest.

The effects of triggers in studies of situational interest are difficult to interpret because they may be a composite of several variables (see studies by Guthrie, Wigfield and colleagues) or fail to isolate the effects of the variable under investigation, using designs where prior knowledge or established preference are common confounds (e.g. Flowerday & Schraw, 2003). To this end, the materials and methodology used in the current studies were designed to provide a robust paradigm that could evaluate potential triggers effectively.

The methodology and design strengthen the findings. The design of the choice study used perceived choice, therefore eliminating effects of confounding variables such as those mentioned. This study provides strong evidence that changes in reading performance and task enjoyment are the result of the effects of the manipulated variable (choice). Similarly, in the studies investigating novelty, a design that isolated the manipulated variables was implemented. In the control condition for all three studies, the reading activity was conducted by the class teacher so that there were no additional novelty effects by having a visitor carrying out activities with the pupils and so that any potential effects might be interpreted as being a result of the manipulation.

A further consideration with motivation and situational interest research is an over-reliance on the use of self-report as a measure (e.g. Krapp & Prenzel, 2011). This is a key challenge with research in this area as motivation is not tangible and therefore not readily measurable, potentially posing particular difficulties for children. There are considerable limitations associated with self-report, which relies on a subjective account, limitations which are particularly apparent for situational interest as it elicits an unconscious and affective response to a stimulus. Additionally, there are specific challenges for young children who may lack the necessary level of self-awareness to evaluate their own sense of motivation, a challenging concept to define and understand. It has been reported that this challenge of conceptualising motivation and interest leads to age-related interpretations (Frenzel et al., 2009). The current studies have measured changes in reading comprehension performance as an outcome and have therefore aimed to provide a more robust measure of the effects of the manipulations. Self-report has been used to investigate enjoyment levels which are more easily rateable and where the concept of enjoyment is more straightforward for children to understand. Overall understanding of the effects of the manipulation have been further explored and enriched by the use of focus groups to extend knowledge of the experience of the effects of situational interest for these participants.

The effect sizes for all three triggers on reading comprehension scores (choice, η_p^2 = .212, novelty through story presentation, η_p^2 = .311, novelty through non-textual features, η_p^2 = .330) underline the potentially strong effects that situational interest can bring about, where effect sizes range from medium (choice) to large (novelty) and indicate that choice and novelty are valuable motivational tools. The effect sizes on the reported enjoyment scores were more modest (choice, η_p^2 = .054, novelty through story presentation, η_p^2 = .048, novelty through non-textual features, η_p^2 = .053), representing small sized effects, but these are in line with expectations where enjoyment would be anticipated to increase at a more moderate pace through repeated positive interaction. Furthermore, this is a reported effect and is therefore also potentially susceptible to the limitations of such a measure, particularly as a central characteristic of situational interest is that the individual may not be reflectively aware of any response elicited (Renninger & Hidi, 2016). It is also worth noting that analysis of comments from the focus groups and the chi-squared counts support these findings and theoretical descriptions of situational interest, where participants were not consciously aware of the effects of the manipulations. However, it is important to bear in mind that the age of the participants may have restricted their ability to articulate their perceptions.

The analysis of the experimental order and story effects revealed some patterns that would merit further exploration, although some inconsistencies in these findings make them difficult to interpret. For the choice investigation only there was an effect of experimental order for the reading comprehension scores, where participants who carried out the experimental condition first had higher scores in both the experimental and control conditions for reading comprehension. That is that in addition to the significant effect of the manipulation on reading comprehension performance and reported task enjoyment, those participants who had the choice condition first had significantly higher scores in reading comprehension for the choice and the no choice condition when compared to participants who had the experimental (choice) condition second. It is not clear why this effect was only evident for the study investigating choice: this may represent an additional effect for choice.

The analyses revealed an interaction of story on reading comprehension performance where the experimental effect was more marked for Story 2 than Story 1 in all three studies. It is possible that this is linked to the reliability of the measures used, which is discussed below. Although the design ensured that the use of each story in each condition and order was balanced, the analyses have shown that the reliability of the measures was a limitation of this research where internal consistency fluctuated from acceptable to weak across the three studies.

There was also an interaction effect for experimental order on reported enjoyment scores in all three studies. However, for Study 1 (choice) the effect was in one direction, where reported enjoyment scores were more affected by the experimental condition when the experimental condition was second, and in the other direction for Study 2 (novelty through story presentation) and Study 3 (novelty through non-textual features) where reported enjoyment scores were more affected by the experimental condition when that condition was first. There is therefore no notable pattern emerging for all triggers. The difference may be attributed to differences between effects of choice and novelty but there is no clear explanation about why this may have occurred.

There was an interaction effect of story on enjoyment scores for the novelty through non-textual features only, where reported task enjoyment was more affected by reading Story 2 in the experimental condition compared to reading Story 1 in the experimental condition. This may have been linked to the scratch and sniff stickers where some participants expressed preference for the smell of some stickers compared to others.

The patterns for experimental order effects for choice on reading comprehension performance, and the story effects for novelty through non-textual features on reported task enjoyment may be down to characteristics that are particular to those specific triggers or the experimental design. The inconsistencies identified may be due to the differences in the internal consistency of the measures used (which also varies across the three studies) or differences in the participant groups. However these differences make it difficult to interpret these effects although it could be argued that they may merit closer investigation in future studies.

The theoretical view (Hidi & Renninger, 2006) proposes that situational interest effects changes in levels of enjoyment, attention and effort. The current studies have investigated reading comprehension scores as an outcome measure of the effects of situational interest in a reading comprehension task, as well as reported task enjoyment as an indication of the presence of situational interest. To understand better the relationship between reading comprehension and motivation / enjoyment the correlations between these variables were investigated in the three studies. As would be expected, each measure (that is the reading comprehension measure and the reported enjoyment measure) shows medium to strong correlation with its corresponding baseline measure (NGRT and MRQ), except in Study 2 where the MRQ and reported enjoyment in the experimental condition only are correlated. The pattern of correlations between the reading measures and reported enjoyment measures is similar across all studies, with small positive correlations, although only in Study 2 did this reach statistical significance for the reading measures. The correlations show that reading comprehension and enjoyment in the experimental condition are not correlated, indicating that these studies provide no evidence that reading comprehension performance is mediated by enjoyment. As stated, theoretically, when situational interest is introduced, enjoyment is only one element that might be expected to be stimulated and thus this finding indicates differences in the relative importance of enjoyment as a factor of interest and motivation. It could be suggested that enjoyment operates differently at the individual level in response to situational interest. To understand better how situational interest might be mediated by the range of variables, how these interact and how they might contribute to interest development, future studies should investigate enjoyment and also attention and effort in order to gain a clearer insight into how each one contributes to this initial phase of interest development. These correlations highlight that it is important to acknowledge that the impact of task enjoyment represents just one factor that

potentially influences task interaction and performance outcome and confirms the independence of each construct.

10.1.4 Gender and ability effects.

Prior research and theory indicate gender and ability differences in reading comprehension performance and motivation and interest in reading texts, with girls typically outperforming boys, boys more likely influenced by interest, and low ability pupil performance better enhanced by interest. Therefore, understanding whether situational interest is moderated by gender and ability is of interest. Cordova and Lepper (1996) reported on effects for gender when investigating choice, they found positive effects of choice but no effects for gender. Bernstein (1955) found boys' reading comprehension performance was significantly more influenced by interest than girls'. Nonetheless, typically, studies investigating situational interest do not report on how gender and ability groups respond to effects of situational interest and where it is reported in studies, the empirical evidence is inconsistent.

Oakhill and Petrides (2007) have identified that gender imbalance in performance on reading comprehension tasks can be based in level of topic interest, where boys' performance is moderated by their level of interest in the text topic. The research materials for the current studies were designed to appeal across genders with main protagonists from both genders and stories that included sports as one of the main themes. This, together with the cross-over experimental design, could therefore preclude potential differences in gender performance resulting from topic interest and differences might therefore more likely be the result of the effects of the manipulation of the variable.

The findings showed no differential effects by gender on reported enjoyment scores in all three studies and no effects by ability on reading comprehension performance in the studies investigating choice and novelty through story presentation. However, there was a main effect of gender, with girls achieving higher scores than boys on the reading comprehension tasks, for the study investigating novelty through non-textual features. It is posited that this could be because the novelty element was more appealing to girls rather than boys.

The qualitative data (discussed below) also investigated effects by gender and ability where participants were asked about their perception of the ease of the stories and

of the reading comprehension questions. Chi-squared analyses of these data found no effect by gender or ability.

In contrast to some researchers, (e.g. deSousa & Oakhill, 1996; Logan et al., 2011) who have suggested that motivation and levels of interest in reading material are of greater importance to low ability readers and poorer comprehenders, the findings from the current studies indicate that situational interest through both choice and novelty is not moderated by ability. This is in line with findings by Guthrie et al. (2009) who found that all ability groups performed better on post-test measures, including reading comprehension, compared to the control group following a 12-week CORI intervention.

The findings are inconclusive about whether effects of situational interest are moderated by gender. Whilst neither choice nor novelty through story presentation reading comprehension performance was moderated by gender, there was an effect in the study investigating novelty through non-textual features. This difference may be attributed to a difference between the groups that participated in the three investigations that the researcher either overlooked or was not aware of. A further possible explanation is that this particular manipulation, using scratch and sniff stickers, was more attractive to girls. It would be of interest to compare effects within groups and explore such themes through focus groups to understand better this difference in effects in future research.

The findings here demonstrate that situational interest can be successfully operationalised to increase task enjoyment across all ability groups but that, in terms of effects of task performance, some variables may be more sensitive to gender effects.

10.1.5 The pupil perspective: qualitative data findings.

Capturing how situational interest is operationalised is challenging and the potential triggers are difficult to identify as participants are not necessarily aware that their interest has been stimulated (Renninger & Bachrach, 2015). Focus groups were conducted to support understanding of how reading motivation and specifically situational interest functions in young children. The aim was to develop insight from the participants about their experience of the reading comprehension materials and their enjoyment of the activities. There was a further focus on differential effects of gender and ability which was reflected in the organisation of the participating groups.

However, there are specific limitations regarding these data that must be borne in mind. Firstly, the data gathered must be interpreted with caution as themes established represent the subjective view of the researcher. Although a bottom up approach was taken in the initial thematic analysis, the researcher has a developed awareness of research literature in the field and this may have influenced how the transcripts were interpreted. Furthermore, the researcher approached the data with clear research questions grounded in theory and prior research and it is therefore suggested that the findings are routed in the context of the specific research questions of this thesis.

The participants were selected based on their gender and ability to reflect the research questions but their views may not be representative of the whole group. Although class teachers were consulted about the suitability of the participants selected, it was noted that some participants had to be actively encouraged to share their opinions and other participants encouraged to listen to others. Whilst clear themes emerged during analysis, it should be borne in mind that there was wide variation in the ability of the participants to articulate and extend their ideas.

Furthermore, the focus groups took place immediately following the end of testing and therefore the first story and associated test would have been completed up to a week prior to the focus group. Although the focus groups were organised to reflect a balance of participants from the testing groups, recall for the two stories may not have been even.

The participant responses and the themes identified from the focus group discussions enrich the understanding of the research questions. For example, analysis of the transcripts revealed that, for some participants, the manipulation gave a positive effect on enjoyment of the story and ease of the questions and reflected the importance of autonomy for some participants in their learning.

Hidi and Renninger (2006) describe situational interest as an interplay between cognitive and affective variables. This is interpreted as interest operating by positively impacting attention, effort and perseverance. It is suggested that some support for this is articulated in comments that reflect a connection between the manipulation and cognition, such as this statement from a high ability girl:

> *'when you are choosing, it can lead into thinking about which one you might like to read. So, it's kind of better choosing 'cos then it gives you more time to think about what you are going to read'.*

Or from this high ability boy:

'It got my brain ticking for me and I really like that'.

The theoretical view informs us that situational interest elicits an unconscious response of increased levels of attention, effort and perseverance so that improved outcomes (reading comprehension performance and task enjoyment) might be anticipated in associated tasks. The quantitative analysis of the data from each experiment supports this in that significantly higher scores were achieved in the experimental conditions for each experiment compared to the control condition and that reported task enjoyment was higher in the experimental condition compared to the control condition for each experiment also.

It was therefore useful to be able to ask participants directly about their experience of the manipulation. Given that the response elicited by situational interest is not on a conscious level, it was therefore not anticipated that participants would be aware that they had found the story or the comprehension questions from the experimental condition easier than the story and questions from the control condition, although these effects were evident through analysis of the quantitative data.

Participants were asked if they had found one story easier than the other from the two stories read (comparing the story with manipulation to the story without manipulation). The observed count of responses indicated no significant pattern for ease of one condition over the other. It is proposed that these findings support the findings of the quantitative analysis and theoretical view insofar as the response elicited by the manipulation is unconscious and therefore participants were not aware that there was a change in their behaviour (such as their engagement) when they read the story and therefore neither story was perceived as easier to read than the other, regardless of the manipulation of the text. The quantitative data analysis informs us that in fact participant performance was significantly better for the manipulated story and therefore the participant would have found it easier to read.

The chi-square calculations analysing participant responses regarding ease of story by gender and ability were not significant. This further supports the quantitative data analysis that found no differential effects by ability. Findings for the novelty through non-textual features investigation only were moderated by gender, where girls performed better than boys: it is probable that the focus group sample is too small to find effects by study. The findings from these data therefore suggest that the manipulation did not impact participant perception for the ease of the story read by

gender or ability group. These results must be interpreted with caution, as discussed above.

In spite of the limitations discussed, these findings extend current knowledge by providing evidence in support of the idea that situational interest operates on an unconscious level in line with a motivated state, where changes in levels of attention, effort and perseverance are seemingly effortless when occurring. Furthermore, it develops our understanding that, according to these data, such changes were not moderated by gender or ability and that operationalising situational interest for this age group with reading material may be beneficial to all groups.

Participants were also asked if they had found the comprehension questions from one story easier than those from the other story they had read (comparing the comprehension questions from the story with manipulation to those from the story without manipulation). The observed count of responses indicated that the majority of participants reported no difference in perceived level of difficulty of the reading comprehension questions across the two conditions. It is proposed that these findings support the findings of the quantitative analysis and theoretical view in a similar manner to the findings of the responses to the question regarding general ease of the story. That is that the response elicited by the manipulation is unconscious and therefore participants were not aware that there was a change in their behaviour and as such there was no awareness that one set of questions was easier than the other. The quantitative data analysis informs us that in fact participant performance was significantly better for the manipulated story and therefore the participants should have found the questions easier to answer.

The chi-square calculations analysing participant responses regarding ease of reading comprehension questions by gender and ability were not significant. This implies that the manipulation did not impact participant perception for ease of the reading comprehension questions by gender or ability group. This further supports the quantitative data analysis that found no differential effects by gender or ability.

As discussed, these results are subject to several limitations and must also be interpreted with caution. Nonetheless, these findings also extend current knowledge by providing evidence in support of the idea that situational interest operates on an unconscious level in line with a motivated state, where changes in levels of attention, effort and perseverance are seemingly effortless when occurring. Furthermore, it develops our understanding that such changes were not moderated by gender or

ability and that operationalising situational interest for this age group with reading material may be beneficial to all groups.

There were further incidental findings from the focus groups that might be of interest when considering reading development and learning where participants commented on a range of supports and external obstacles. These included caring for siblings, home being a noisy environment and the intrusion of other commitments such as school work and sports. It was also notable that higher ability participants commented on the high status of reading at home. These suggested an uneven picture of contextual factors which impact reading habits.

10.2 Limitations of the Studies

In addition to those limitations already discussed in section 10.1.5, that are pertinent to the qualitative data analysis only, there are several limitations to this research and the experimental studies.

As indicated throughout, the investigations are defined by the age of the participants as well as being placed within the domain of reading motivation. Whilst the findings clearly extend knowledge regarding which triggers might be effective for eliciting situational interest and develop understanding of how best to operationalise them with this age group of children from the south-east of England, it is important to recognise that these findings may be limited in wider relevance insofar as our understanding of the developmental progress of motivation and interest is rudimentary. The effectiveness of specific triggers is influenced by the ways in which they are operationalised. Although there was a good sample size to consider overall effects of situational interest, each study was conducted across four classes in just two schools and this could present a limitation in interpreting the findings.

Further to this, although efforts were made to recruit similar schools within each of the three studies, there were inevitable differences. The participant groups were balanced by gender and ability within each class in each school only and the findings may be limited in differences in groups across schools.

The irregularities in internal consistency of the main measure across the three studies is a limitation. For the choice study internal consistency for the comprehension questions for Story 2 is weak; for the novelty through story presentation the internal consistency for the comprehension questions for both stories is weak and yet for the

novelty through non-textual features, the internal consistency for both stories is good. There is no clear explanation for this. It is possible that the mix of literal and inferential question type affected the homogeneity of the measure. Nonetheless, comparable and good internal consistency across all three investigations would have been desirable and added greater reliability to the interpretation of the results of the current studies. Furthermore, the correlations of the reading comprehension measures and NGRT raw score range from moderate to good, with correlations in Study 3 (novelty through non-textual features) the strongest. In spite of careful design, the pilot study and expert advice, this would indicate that there is some doubt across the validity and reliability of the outcome measures and this limits the reliability of the findings, particularly for the first two studies (choice and novelty through story presentation) which showed the weakest correlations. It is unclear why there are differences in the internal consistency and correlation calculations across the three studies: it has been suggested that alphas provide a conservative estimate of reliability and it is possible that in some part these fluctuations and findings may be attributable to this and perhaps differences in groups. However, it is worth noting that poor internal consistency typically undermines the likelihood of finding significant effects due to increased error (Pedhazur & Schmelkin, 1991) and the three studies found both significant effects for the manipulation on reading comprehension performance and medium to large sized effects.

Several steps could have been taken to improve this work if the findings of Study 1 had been used to inform Studies 2 and 3. Given the poor internal consistency of the reading comprehension measures, it would have been worthwhile to review the questions and include a greater range of each question type to address this. In fact, this has subsequently been done in replications of Study 1 to positive effect. This may also have provided an opportunity to reflect on the comparative difficulty of the stories: although readability tools indicated the stories were well-balanced, in reality participants consistently appeared to find Story 2 easier. Furthermore, the post-Study 1 focus groups would have provided a way to explore these issues from the perspective of the participants. This work would also have benefited from adjustments to the questions asked during the Focus Groups based on the findings from Study 1. The overall findings of this research would have been improved if participants had been asked more searching questions about their experience of the manipulation and asked directly about the characteristics associated with triggered situational interest. For example, changes in level of attention and effort given to each reading task or higher levels of perseverance with one task over another. The quality of data from all

focus groups would have been ameliorated if participants had been given an opportunity to explore better their perceptions of the manipulations as this might have provided greater insight into the nature of situational interest and what the participants believed to have provoked changes in their enjoyment or interest in the activities. Although not addressed in time to benefit the current research, further research in this area should take these weaknesses into account.

10.3 Future Directions

This research has addressed the need for a better understanding of how situational interest is operationalised and which triggers might be effective in the domain of reading comprehension with children aged 8-9 years old. It directly investigates the processes that mediate the links between intrinsic reading motivation and reading comprehension performance and reported task enjoyment. It provides empirical evidence that both choice and novelty through story presentation and novelty through non-textual features operate as triggers for situational interest and as such can bring about increases in reading comprehension performance scores and reported task enjoyment. It demonstrates that, where these variables are carefully managed in the classroom setting, they may contribute to reading motivation as operationalised through situational interest. This research clarifies that these variables need to be sensitively managed and offers examples of how they may be effectively operationalised. It provides empirical evidence that situational interest can be successfully implemented to increase academic performance and reading enjoyment across ability level but that there may be sensitivities in how task performance is moderated by gender.

The current studies illustrate that it is possible to successfully manipulate and introduce situational interest in reading comprehension tasks so that performance and task enjoyment are improved, and provide empirical support for situational interest as described by interest theory (Hidi & Renninger, 2006). It is suggested that the finding that situational interest can be operationalised in a classroom setting is an important contribution to existing knowledge that could be used to support children's reading motivation on a practical level. The findings of these studies imply that motivation, elicited through situational interest, an intrinsic motivator, can have a positive effect on achievement. Intrinsic motivation is highly desirable for academic achievement (Hidi & Harackiewicz, 2000) as it has long-term value and supports the development of personal interest in a subject. The current findings strengthen our

understanding of how motivation might be operationalised to bring about such positive effects.

The findings suggest that choice and novelty can act as powerful motivators and potential hooks in children's reading development. On a practical level, this implies that exposing children to a variety of books, in terms of the choice of book offered, content and presentation through reading schemes and classroom / library book display may be beneficial. There is an indication that even small adjustments to the reading environment and comprehension tasks might bring about relatively significant improvement to the outcome of the interaction: a potentially valuable finding that may be simply implemented. However, whether this effect is sustained or can be further developed would need greater exploration as the current studies do not contribute to this. Certainly, if such 'catch' facets are viable then there is an indication that interest can be aroused at a base level. Further exploration to explore the nature of interest beyond this initial phase and how it progresses or if it can be maintained from this point would be highly valuable for practitioners. The CORI studies have already indicated that situational interest might provide a key method to raise interest and attainment in reading tasks but the value of individual triggers was unclear due to composite analysis of outcomes in these studies. Interpreting the current findings in light of CORI studies indicates that the triggers investigated may operate as useful tools to 'catch' interest and that repeated intervention over time, as in the CORI studies, could lead to a more sustained effect. Studies assessing such effects over time are limited and therefore our knowledge about the progression of interest development from the 'catch' phase would benefit from future exploration.

This research points us to consider further areas that would merit new and more thorough future research to improve further our understanding of the relationship between situational interest and reading motivation, in addition to those points raised earlier in this discussion. Prior research informs us that children's motivation may be domain specific (Eccles, Wigfield, Harold, & Blumenfeld, 1993; Gottfried, 1990) and the current findings are situated in reading comprehension of a narrative story only, it would therefore be of interest to investigate whether those variables investigated in the current research are effective across other domains.

Similarly, interest theory suggests that interest is developmental (Hidi & Renninger, 2006) and there is evidence that situational interest may be sensitive to age. It is highly likely that situational triggers will operate differently across age groups and that there will be individual differences. This factor may, in some part, explain inconsistent

findings from prior research. It is unlikely that a 9-year-old and a 15-year-old would share the same view of novelty for example; similarly, group work may be an effective trigger for an individual high on sociability but not for a person with low sociability (Renninger & Hidi, 2016). Further investigation into how these variables may be successfully operationalised across age groups would therefore also appear to be worthwhile.

Furthermore, the participants were drawn from children attending schools in the south-east of England. Prior research has indicated that triggers for situational interest may be culturally situated (Wigfield et al., 2016) where choice, for example, is not effective in some groups. Findings cannot therefore be extrapolated to other cultural groups without further investigation. The triggers investigated in this research were found to be effective for 8-9 year olds with narrative stories, further research would be necessary to establish if similar findings might be expected with other groups and subject areas. Likewise, investigations into other potential triggers would be beneficial.

Hidi and Renninger (2006) propose that situational interest acts as a potential preliminary stage in interest development and is an important phase in the development of intrinsic motivation. Where research indicates that there are links between a decline in reading activity and enjoyment recorded amongst primary school pupils and lack of motivation and task pleasure (Sainsbury & Schagen, 2004), a potential method to stimulate these is valuable. Current research is yet to investigate if the effects of situational interest are sustained over time or if they might influence interest development: this would certainly also be a valuable area for future research.

10.4 Conclusion

This research confirms understanding that choice and novelty are effective motivators and powerful triggers for situational interest, able to stimulate intrinsic motivation and lead to changes in how the individual engages with a task, potentially increasing levels of effort, attention and perseverance, and increasing task enjoyment. Where there have been inconsistencies in prior research, the current studies take forward existing knowledge by identifying how the mechanisms surrounding the operationalisation of choice and novelty are sensitive to variables such as prior knowledge and the interpretation of meaningfulness, demonstrating that when these

are accounted for, these triggers can elicit positive changes in behaviour with a reading text.

Where triggers for situational interest have been used to effect to improve task performance and enjoyment, the triggers under investigation have been one of a number of tools and strategies used to promote motivation, or have not been the subject of convincing empirical research. The current studies provide strong empirical evidence in favour of choice and novelty as motivational tools. Furthermore, investigations have typically used reading comprehension performance as a vehicle for assessing effects through other subjects such as science. These studies present evidence that choice and novelty are effective motivational triggers for reading as an activity and narrative stories in particular. This is highly valuable as it may be the forerunner to raising interest and reading motivation in its own right and be important for literacy development.

Whilst this research effectively extends knowledge of how to successfully operationalise choice and novelty to stimulate the effects of situational interest, it is important to understand their effectiveness within the boundaries of the current studies. Hidi and Renninger (2006) recognise the organic and context driven nature of triggers for situational interest; this research enables careful testing of three such triggers, demonstrating the high potency of situational interest whilst providing possibilities for practical application to take forward. The present studies provide evidence of some ways of triggering situational interest, and the significant impact that this can have on children's reading. It is not suggested that practitioners should provide perceived choice or novelty in all reading activities; rather these are part of a tool set in classroom practice that indicates that, for children in this age group, the use of triggers of situational interest can support interest and motivation in reading.

The fact that some able readers choose not to read and therefore not only miss out on the positive experience that reading can bring but are also at risk of lacking fundamental skills that contribute to lifelong success, is an issue that merits investigation. The tailing off of children's positive reading attitudes and general motivation as they move through the school system suggests a need to address traditional aspects of teaching and learning. These studies draw attention to and help build knowledge of the fact that, in order to understand barriers to reading, it is necessary to look beyond the acquisition and development of fundamental reading skills and the underlying cognitive processes: an approach which encompasses these along with motivational triggers may be highly beneficial. This research extends our

knowledge and understanding of the role of motivation to support both reading performance and reading enjoyment. The findings inform us that these can both be enhanced by manipulations that can be readily implemented in the primary school classroom and that appear to be beneficial to children regardless of gender or ability level.

In spite of limitations, the findings build on prior research that indicate that the role of motivation, and in particular situational interest, can play a crucial role in helping young readers start out on the path to becoming competent lifelong readers. The findings provide clear evidence that reading comprehension and reading enjoyment may be improved by the introduction of choice and novelty. Additionally, the findings inform us that it is likely that these effects are beneficial across abilities although, in some cases, effects may be more pronounced for girls compared to boys.

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Appendices

Appendix A

Information letter and opt-out consent form

Leading education and social research
Institute of Education
University of London

The Impact of Motivation on Children's Reading Comprehension: Differential Effects of Gender and Reading Ability

A research project

Autumn 2014

Information for parents / guardians

My name is Lisa Fridkin and I am currently a doctoral student at the Institute of Education, University of London. I am a qualified teacher and have worked with children for over twenty years.

This leaflet tells you about my project.

I hope the leaflet will be useful. If you have any further questions please contact me at lfridkin@ioe.ac.uk

What is this project about?

I am looking at the different things that influence children's motivation when they read a story and how that may affect their understanding of it.

What will my child do if they take part?

Your child will read two short stories and then answer some questions about them. Some children may participate in a short discussion of the stories after reading them. The stories are fun and I hope that your child will enjoy the experience and also benefit from some extra reading. Your child will be free to stop taking part at any time.

All information will be fully confidential. Children's names will not appear in any part of the study. The results of the study will be shared with the school.

I have enhanced DBS disclosure and this project has received ethical approval from the Research Ethics Committee at the Institute of Education.

Before your child takes part, I will explain the research and ensure they understand that they can opt out of the exercise at any time. If you do not want your child to take part please return the slip on the attached form or email me at lfridkin@ioe.ac.uk

Thank you for reading this leaflet.

Leading education and social research
Institute of Education
University of London

The Impact of Motivation on Children's Reading Comprehension: Differential Effects of Gender and Reading Ability

A research project

Autumn 2014

Consent form

Dear Parent / Guardian

Please find attached an information leaflet about this project. If you do NOT want your child to take part in this activity, please either return the slip below to your child's class teacher or email lfridkin@ioe.ac.uk

Thank you,

Lisa Fridkin

PhD Researcher, Institute of Education.

I do NOT want my child to take part in the research project, *The Impact of Motivation on Children's Reading Comprehension: Differential Effects of Gender and Reading Ability.*

Child's Name: _____ Class: _____

Parent / Guardian Name _____ (please print)

Signed: _____ Date: _____

Appendix B

Motivations for reading questionnaire: Adapted

Name: _____ Class: _____

Reading Questionnaire

I am interested in your reading. The sentences in this questionnaire describe how some learners feel about reading. Read each sentence and decide whether it describes a person who is like you or different from you. **There are no right or wrong answers.** I only want to know how you feel about reading. For many of the statements, you could think about the kinds of things you read in your class.

Here are two examples to try before we start the ones about reading:

If the statement is **very different from you**, circle a **1**.

If the statement is **a little different from you**, circle a **2**.

If the statement is **a little like you**, circle a **3**.

If the statement is **a lot like you**, circle a **4**.

I like ice cream.	1	2	3	4
I like spinach.	1	2	3	4

Okay, here are the ones about reading. Remember, there are no right or wrong answers. I am just interested in YOUR ideas about reading. To give your answer, circle ONE number on each line.

I will read each of the statements carefully, and then you need to circle your answer. Listen to each sentence and decide whether it describes a person who is like you or different from you.

1. I visit the library often with my family.	1	2	3	4
2. I like hard, challenging books.	1	2	3	4
3. I know that I will do well in reading this year.	1	2	3	4
4. I do as little schoolwork as possible in reading.	1	2	3	4
5. It is very important to me to be a good reader.	1	2	3	4
6. I read because I have to.	1	2	3	4
7. I like it when the questions in books make me think.	1	2	3	4
8. I read about my hobbies to learn more about them.	1	2	3	4
9. I am a good reader.	1	2	3	4
10. I read stories about fantasy and make-believe.	1	2	3	4
11. I often read to my brother, sister, friend, or relative.	1	2	3	4
12. I don't like it when there are too many people in the story.	1	2	3	4
13. I read to learn new information about things that interest me.	1	2	3	4

Please Turn Over

If the statement is **very different from you**, circle a **1**.

If the statement is **a little different from you**, circle a **2**.

If the statement is **a little like you**, circle a **3**.

If the statement is **a lot like you**, circle a **4**.

14. My friends sometimes tell me I am a good reader.	1	2	3	4
15. I learn more from reading than most pupils in the class.	1	2	3	4
16. I like to read about new things.	1	2	3	4
17. I like hearing the teacher say I read well.	1	2	3	4
18. I like being the best at reading.	1	2	3	4
19. If a book is interesting, I don't care how hard it is to read.	1	2	3	4
20. I sometimes read to my mum or dad.	1	2	3	4
21. My friends and I like to swap things to read.	1	2	3	4
22. I read a lot of adventure stories.	1	2	3	4
23. I don't like reading something when the words are too difficult.	1	2	3	4
24. I make pictures in my mind when I read.	1	2	3	4
25. I enjoy reading books about people in different cultures.	1	2	3	4
26. I usually learn difficult things by reading.	1	2	3	4
27. I don't like vocabulary questions.	1	2	3	4
28. Complicated stories are no fun to read.	1	2	3	4
29. I feel like I make friends with people in good books.	1	2	3	4
30. My mum or dad often praise my reading.	1	2	3	4
31. Finishing every reading task is very important to me.	1	2	3	4
32. I like mysteries.	1	2	3	4
33. I talk to my friends about what I am reading.	1	2	3	4
34. If I read something interesting, I sometimes lose track of time.	1	2	3	4
35. I read to improve my marks.	1	2	3	4
36. I like to tell my family about what I am reading.	1	2	3	4
37. If the project is interesting, I can read difficult material.	1	2	3	4
38. I enjoy reading books about people in different countries.	1	2	3	4

Appendix C

Readability formulae

List of the readability formulae from readabilityformulas.com, which uses a range of 7 recognised readability formulae, used to calculate an average grade level, reading age and text difficulty for Story 1, Story 2, and the two prologues used in Study 2.

1. The Flesch Reading Ease formula
2. The Flesch-Kincaid Grade Level
3. The Fog Scale (Gunning FOG Formula)
4. The SMOG Index
5. The Coleman-Liau Index
6. Automated Readability Index
7. Linsear Write Formula

'Yeah. Give me a sec. Coming,' he muttered, struggling to get his trainers on so he could join the others in their daily game of football.

As Jack arrived in the playground some of his friends were already kicking the ball. Other children were lost in their own games. He saw some classmates swinging on the climbing frame, others playing chase and a small group chatting and laughing over by the wall.

Anna and Beth were standing and just watching the game of football. One of the others called out to them and they joined the game.

Jack noticed that his best friend, Danny, was standing by the wall chatting too. Danny didn't like playing football. He played sometimes but it just wasn't his thing.

Suddenly, the ball was at Jack's feet and his focus shifted to the game. He passed the ball and ran on ahead. Billy pretended that he was going to kick the ball back to him but instead carried on running forwards.

Billy kicked the ball hard. He was aiming for between the two beanbags – their makeshift goal – but he was off-target.

Some of the others groaned. Billy looked upset.

Appendix E

Story 2 sample pages

Alice and Ben looked at each other and burst out laughing.

'Wow!' said Alice, 'I can't believe we're really here and we're really going to do this.'

'I know,' said Ben, 'but it's brilliant, isn't it?', and with that he leapt into the air, arms wide and started a crazy dance.

Alice laughed harder. In fact, neither of them could stop smiling.

Alice and Ben Draper were 10 year old twins. They often thought they never really did anything exciting. Their mum and dad both worked very long hours in the city. In the school holidays they were usually packed off to stay with grandparents or spent long days in activity camps.

2

They had both been inspired by the last winter Olympics and been desperate to try winter sports ever since. To their surprise, their pestering had paid off and now, here they were, quite overwhelmed, in a beautiful chalet, in a pretty, snow-covered village in the Swiss Alps.

This was to be their first ever skiing holiday, in fact their first ever holiday abroad. Tomorrow they would be out on the slopes.

3

Appendix F

Comprehension questions - Story 1

Just another Ordinary Day
Comprehension Questions

Name: _____

Answer each question about the story you have just read.

1. How does Jack feel at the start of the story? Tick the correct box.

Tired ☐ Worried ☐ Confused ☐ Annoyed ☐

2. Why does Jack think that it must be early?

_____

_____

3. What does Jack do on Page 3 that tells us that he is scared?

_____

_____

4. When Candy comes bounding into his room, how do you think Jack feels? Tick the correct box.

Annoyed ☐ Upset ☐ Relieved ☐ Excited ☐

5. Although Candy isn't allowed upstairs, how do we know that she gets on Jack's bed regularly?

_____

_____

6. Which words on Page 5 tell us that Jack finds it difficult to get his trainers on?

_____

_____

7. How do we know that not all of the children enjoy playing football at break time?

_____

_____

Just another Ordinary Day
Comprehension Questions

Name: _____

8. Choose the best group of words to fit the story. Put a ring around your answer.

a. Pages 6 and 7:

describe what happened at school the day before	show you that Jack has lots of friends	tell you what Jack likes doing at school

b. Some of the children 'groaned' because:

they don't like Billy	they are disappointed that Billy didn't score	they have hurt themselves

9. What do you think the 'rustling noise' was that Jack kept hearing?

_____

_____

10. Why is everyone giggling and looking at Jack on page 8?

_____

_____

11. How do you think Jack feels when he hears 'footsteps rushing towards his bedroom'? Tick all the boxes that apply.

Jealous	☐	Happy	☐	Worried	☐
Tired	☐	Excited	☐	Annoyed	☐

Appendix G

Comprehension questions - Story 2

A Snowy Adventure: Comprehension Questions Name: _____

Answer each question about the story you have just read.

1. How do Alice and Ben feel at the start of the story? Tick the correct box.

Annoyed ☐ Scared ☐ Excited ☐ Disbelieving ☐

2. Why does Alice 'laugh harder' at Ben?

_____

_____

3. Choose the best group of words to fit the story. Put a ring around your answer.
a. The purpose of pages 2 and 3 is to:

encourage you to watch the Winter Olympics	explain why this holiday is important to Alice and Ben	tell you what it's like to go skiing

b. These pages also describe:

what you can do in the school holidays	what happens at a ski resort	how Alice and Ben are feeling

4. Which words in the story tell you that Alice and Ben have never visited the Swiss Alps before.

_____

_____

5. What word on page 6 tells us that Alice doesn't give up easily?

_____

6. What **didn't** Alice and Ben learn to do? Tick the correct box.

control the skis ☐ turn ☐

use their poles ☐ snowplough ☐

1

A Snowy Adventure: Comprehension Questions Name: _____

7. Which words tell us that Alice was surprised to find out that Ben was nervous about skiing too? Tick the correct box.

You looked so cool and confident	☐	No way!	☐
I should have known	☐	All of these phrases	☐

8. Why does the ski instructor want to speak to Alice and Ben's parents?

_____

_____

9. Why do you think Alice and Ben are described as 'new skiers'?

_____

_____

10. At the end of the story, why are Alice and Ben 'grinning from ear to ear'?

_____

_____

11. Think about the different emotions that Alice and Ben experience during the story. Tick all the boxes that describe their feelings.

Jealous	☐	Happy	☐	Nervous	☐
Tired	☐	Excited	☐	Annoyed	☐

Appendix H

Enjoyment questionnaire

Story Questionnaire **Name:**_____

Which story did you just read? Please circle the title.

The Snowy Adventure / Just Another Ordinary Day

These sentences describe how some students felt about the story you have just read. Listen to each sentence carefully and decide if that person is like you or different to you. Circle the number that best tells us most about you. There are no right or wrong answers.

If the statement is **very different from you**, circle a **1**.

If the statement is **a little different from you**, circle a **2**.

If the statement is **a little like you**, circle a **3**.

If the statement is **a lot like you**, circle a **4**.

Example:

I like chocolate cake	1	2	3	4

Now circle your answer for these sentences.

I really enjoyed this story.	1	2	3	4
I was interested in what was going to happen.	1	2	3	4
I found it difficult to keep going.	1	2	3	4
The questions were easy.	1	2	3	4
The story made me feel good about reading.	1	2	3	4
I wasn't bothered about reading this story.	1	2	3	4
I would like to read more stories like this.	1	2	3	4
I found it difficult to concentrate for the whole story.	1	2	3	4
Answering the questions was difficult.	1	2	3	4
This story was boring.	1	2	3	4
I had to try hard to answer the questions.	1	2	3	4
I was sorry when the story ended.	1	2	3	4
I found all the questions easy to answer.	1	2	3	4
I would tell my friends to read this story.	1	2	3	4

Appendix I

Focus group questions

These questions were from Study 1 (choice). Questions were adapted to reflect the focus (manipulation) of each study.

Choice Study: Focus Group Format & Questions

4 Groups of 4 pupils split by gender and ability

Ice breaker (Hello, state name and one like / one dislike)

Explain that talking about reading in general and stories and questions they have just looked at.

Proposed Questions & Order:

1. Do you like reading? (Why do you say that?)
2. Do you read much outside of school? (How often?)
3. Thinking about the two stories you read, did you prefer one over the other? (Why do you say that?)
4. Did you think one story was easier to read? (Why do you say that?)
5. What about the questions, did you think the questions were easier for one story? (Why do you say that?)
6. Did you find one story less interesting or enjoyable to read? (Why do you say that?)
7. Would you recommend either of the stories to your friends? (Why is that?)
8. Did you like having a choice about which story to read? (Why is that?)
9. Did you prefer being given a story, having a choice, or didn't that make a difference when you were reading?
10. Did you prefer being given a story, having a choice, or didn't that make a difference when you were answering the questions?

    Do you want to tell me anything else about the stories or the questions?

Thank you + debrief.

Appendix J

Comprehension questions answers – Story 1.

Story 1 - Birthday Story (Just another Ordinary Day / Something's Going on…)

Comprehension Questions: Answers.

1. confused. (1 mark)

2. he could hear the birds in the garden (accept: there were no other noises in the house). (1 mark)

3. held his breath (1 mark)

4. relieved (1 mark)

5. he curled up with the dog in a familiar pose (1 mark)

6. struggling to get his trainers on (1 mark)

7. because they were doing lots of different things (accept list of other activities / Danny didn't like playing football) (1 mark)

8. a - describe what happened at school the day before (1 mark)

   b – they are disappointed that Billy didn't score (1 mark)

9. the wrapping paper on his gifts / his family getting his presents ready (1 mark)

10. because they know the cake is coming / they know about the surprise (1 mark)

11. happy + worried + excited (3 marks max)

Appendix K

Comprehension questions answers – Story 2.

Story 2 - Skiing Story (A Snowy Adventure / Wishing on a Star)

Comprehension Questions: Answers.

1. excited (1 mark)

2. because he was doing a crazy dance (accept: being silly) (1 mark)

3. explain why this holiday is important to Alice and Ben (1 mark)

4. a - how Alice and Ben are feeling (1 mark)

   b - this was their first ever skiing holiday / their first ever holiday abroad (1 mark)

5. determined (1 mark)

6. use their poles (1 mark)

7. all of these phrases (1 mark)

8. because they had made so much progress / to praise them (1 mark)

9. because this is their first time skiing / they have just learned to ski (1 mark)

10. because their parents say they might go back next year (1 mark)

11. happy + nervous + excited (3 marks max)

Appendix L

Focus group Code of Conduct

Focus Groups

Code of Conduct

Thanks for taking part in this group. It's really important to have a few rules so that everybody understands the way we are expected to behave during our discussion. It's really important that we all stick to these rules, so I'm going to go through them with you and then you can have a chance to read them too and ask any questions.

1. YOU DON'T NEED TO SAY ANYTHING.
   Nobody has to answer anything if they don't want to. (Remember you can leave the discussion if you want to go back to class at any time – no-one will mind).

2. LISTEN TO EACH OTHER.
   We must listen to each other with respect.

3. NO SHOUTING OUT.
   If we have something we really want to say, we can raise our hand. There's no need to interrupt one another.

4. EVERYONE IS RIGHT.
   There are no right or wrong answers – everyone can have their own opinion.

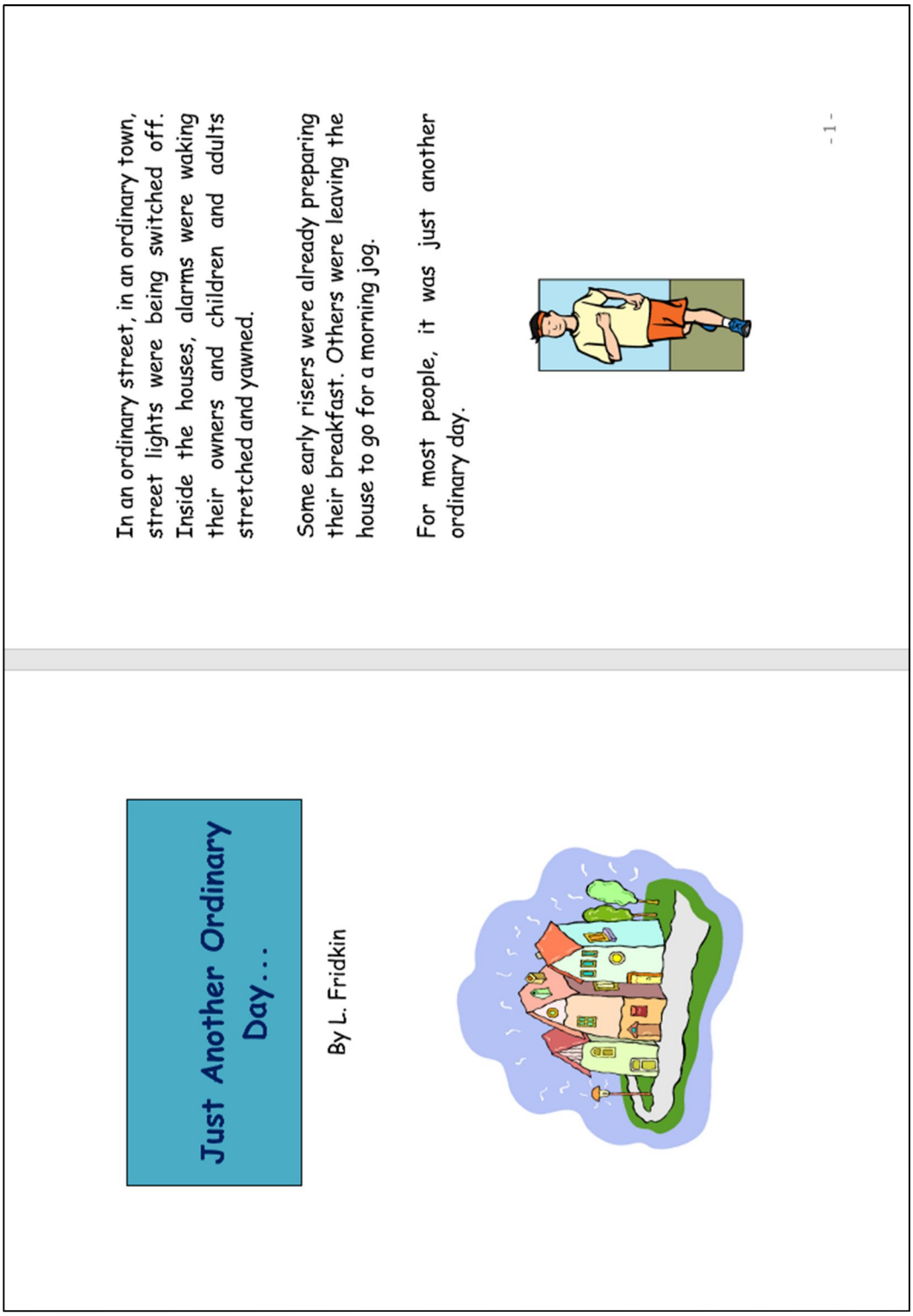
5. WE ALL HAVE A RIGHT TO PRIVACY.
   Anything we say in here, we say in private (so that means, we don't talk about it to other people).

Any questions?

Appendix M

Study 1 cover pages and first pages for Story 1 and Story 2

Story 1 – Just another Ordinary Day



Just Another Ordinary Day...

By L. Fridkin

In an ordinary street, in an ordinary town, street lights were being switched off. Inside the houses, alarms were waking their owners and children and adults stretched and yawned.

Some early risers were already preparing their breakfast. Others were leaving the house to go for a morning jog.

For most people, it was just another ordinary day.

- 1 -

Story 1 – Something's Going on...

Something's Going On!

By L. Fridkin

There was a boy standing at the very top of the mountain. His arms were wide open. He looked as though he was shouting. Whatever he was saying, the sound was muffled.

Suddenly he started running. A second boy appeared. They were running, one after the other, down the north face of the mountain.

The first boy fell, tumbling hard, a blur of arms and legs.

Flashes of colour and noise... What on earth was going on?

And then, just like that, the dream ended.

Story 2 - A Snowy Adventure

A Snowy Adventure

By L. Fridkin

The air smelled fresh and clean. The ground sparkled as though full of precious stones. The sun shone brightly.

All around pretty wooden houses were lined up in neat rows with a carefully cleared path leading to each front door.

Smoke curled from chimneys, reaching up to the blue sky above.

Just beyond the edge of the houses, snow-capped mountains stood grandly.

Everything looked as if it was from a postcard or a magazine.

1

Wishing on a Star

By L. Fridkin

Have you ever really, really wanted to do something but thought that it would never happen.

Is there something that has captured your imagination and left you thinking that you would love to try that something out?

What is it that you have felt inspired to do?

Swim with dolphins?

Write and perform a song?

Take a trip to the moon?

Meet your favourite football player or pop star?

Appendix N

Story reviews

Reviews

Megan (aged 9)

I read this story because the first page attracted me. I really enjoyed it. The main character reminded me of my brother – I'm not sure if that's good or bad. I would like to read more stories like this as it was interesting and I found it easy to read.

Stuart (aged 8)

This story looked like it was going to be interesting. I think a lot of people would like reading this story. I enjoyed reading it and wanted to find out what was going to happen. It was exciting and I really liked the ending.

Paul (aged 10)

This is a good story. It was interesting and I kept wondering what was going to happen next. I would tell my friends to read this as I think they would probably enjoy it. Sometimes it was funny and it made me think too.

Amy (aged 9)

I liked the way that things happened in this story. The characters were familiar and easy to imagine. It was nice to read and the ending made me smile. I think my friends would enjoy this story, I will definitely tell them about it.

Appendix O

Plots showing experimental order and story effects for Study 1 (Choice).

Figure O1.

Experimental order effect on reading comprehension score

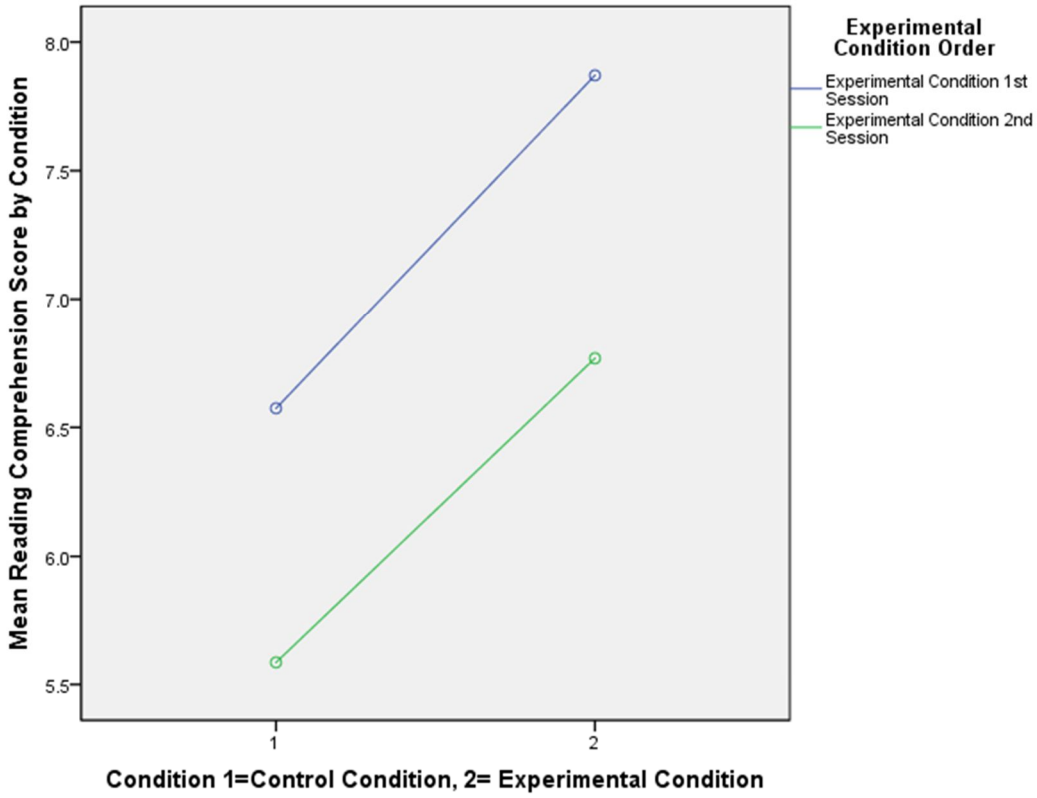
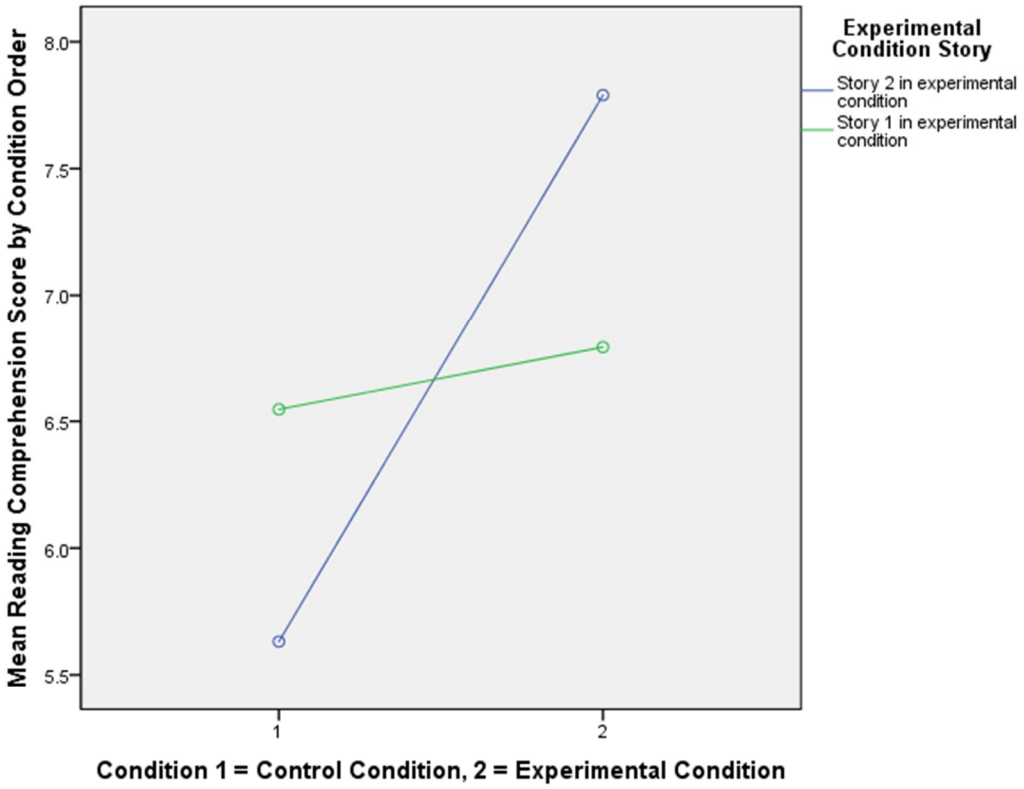


Figure O2.

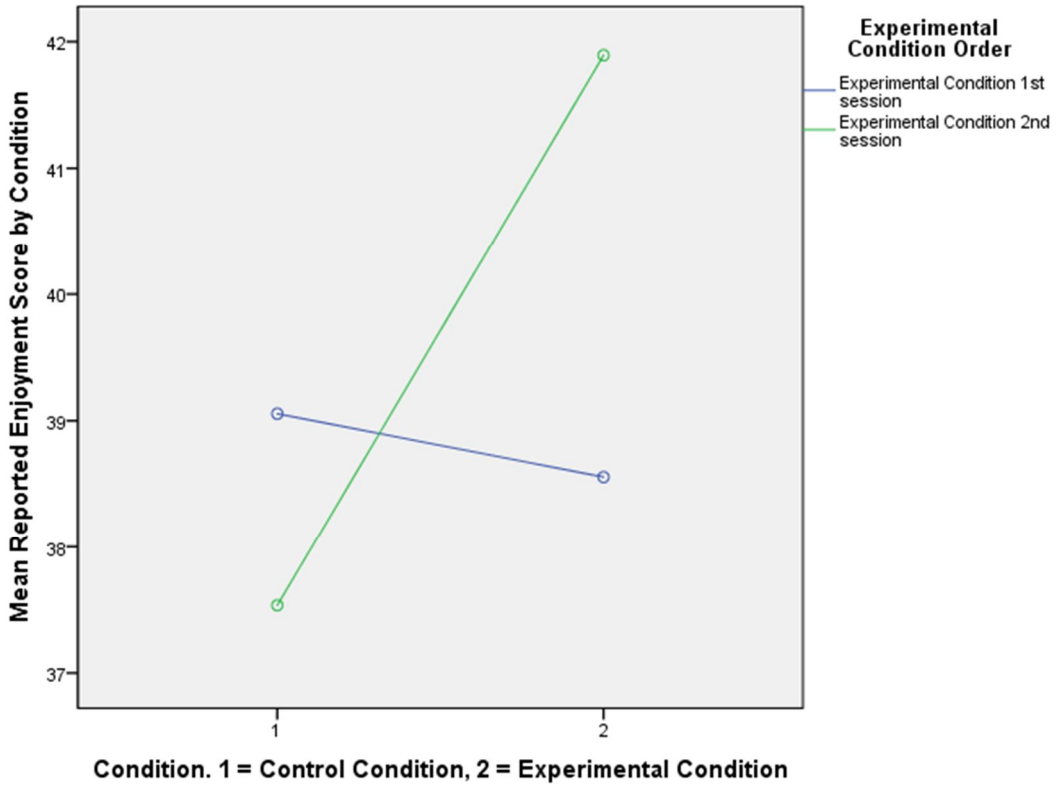
Experimental condition story [9] effect on reading comprehension score



[9] Experimental condition story: that is which story was read in the experimental condition.

Figure O3.

Experimental order effect on reported enjoyment score



Appendix P

Curiosity statements from the Motivations for Reading Questionnaire

Construct 3, Reading Curiosity (6 items) taken from Motivations for Reading Questionnaire (Wigfield & Guthrie, 1997).

If the teacher discusses something interesting I might read more about it

I have favorite subjects that I like to read about

I read to learn new information about topics that interest me

I read about my hobbies to learn more about them

I like to read about new things

I enjoy reading books about living things

Appendix Q

Study 2 prologues

Story 1 prologue

Just another Ordinary Day...

PROLOGUE

The chocolate cake was huge. It looked and smelled delicious. Jack wondered if his mum would notice if he took a small slice? He leaned in and sniffed deeply. The rich, sweet scent was so powerful he could almost taste it.

‘Chocolate cake, my favourite...’ he thought, ‘I’m sure mum won’t mind if I just sneak a...’

‘Caught you!’ Jack jumped guiltily but his brother grinned at him. ‘You weren’t gonna try to steal a bit of mum’s cake, were you?’ The two boys looked at each other and laughed. ‘Mmmm, smells fantastic!..’

‘C’mon. We’d better get out of here before temptation gets the better of us and we end up in trouble. Park?’’

The two boys jostled to the door, slid on their trainers, grabbed a well-worn ball and squeezed through the front door together.

‘Off to the park, mum’ they yelled in unison as the door slammed shut behind them.

An hour passed rapidly as the boys kicked their ball backwards and forwards in the weak sunshine. By the time they got home, they had forgotten about the cake that had looked so inviting earlier, though they were both hungry and relieved to see that the table was set for their evening meal.

‘Upstairs and wash up ready for supper’, called their mum.

In minutes they were back at the table, passably clean (if you didn't look too closely) and munching at steaming plates of pasta and sauce. And of course, they each enjoyed a large slice of that delicious chocolate cake for pudding.

'Straight to your homework after you finish' said their mum, just as they were scraping the last crumbs off their plates.

'But, mum....'

'No buts, thank you very much. You should have done your homework BEFORE the park but seeing as it's well, you know, seeing as it's the day it is... Well, anyway, homework after supper!'

The rest of the evening passed by in its typical way and by 8.30 both boys were calling out their goodnights.

Story 2 prologue

A Snowy Adventure

PROLOGUE

The chocolate cake was huge. It looked and smelled delicious. Ben wondered if his mum would notice if he took a small slice? He leaned in and sniffed deeply. The rich, sweet scent was so powerful he could almost taste it.

‘Chocolate cake, my favourite...’ he thought, ‘I’m sure mum won’t mind if I just sneak a...’

‘Caught you!’ Ben jumped guiltily but his sister grinned at him. ‘You weren’t gonna try to steal a bit of mum’s cake, were you?’ The two of them looked at each other and laughed. ‘Mmmm, smells fantastic!..’

‘C’mon. We’d better get out of here before temptation gets the better of us and we end up in trouble. Outside?’’

The children jostled each other to the door, pulled on warm boots, grabbed gloves and squeezed through the front door together.

‘Heading outside, mum’ they yelled in unison as the door slammed shut behind them.

An hour passed rapidly as they slid and ran backwards and forwards in the weak sunshine. By the time they headed back inside, they had forgotten about the cake that had looked so inviting earlier, though they were both hungry and relieved to see that the table was set for their evening meal.

‘Go and wash up ready for supper’, called their mum.

In minutes they were back at the table, passably clean (if you didn’t look too closely) and munching at steaming plates of pasta and sauce. And of course, they each enjoyed a large slice of that delicious chocolate cake for pudding.

‘Right, we want you two to have an early night tonight,’ said their mum, just as they were scraping the last crumbs off their plates.

‘But, mum....’

‘No buts, thank you very much. You’ve had a long day and tomorrow, well, who knows! It’s definitely going to be busy and we want you both to get a good night’s sleep. Understood?’

Surprisingly, they both went unresistingly to bed, despite the strong sense of excitement around them, both impatient to get their night’s sleep out the way so that tomorrow could start.

Appendix R

Plots showing experimental order and story effects for Study 2 (Novelty through Story Presentation).

Figure R1.

Experimental condition story effect on reading comprehension score

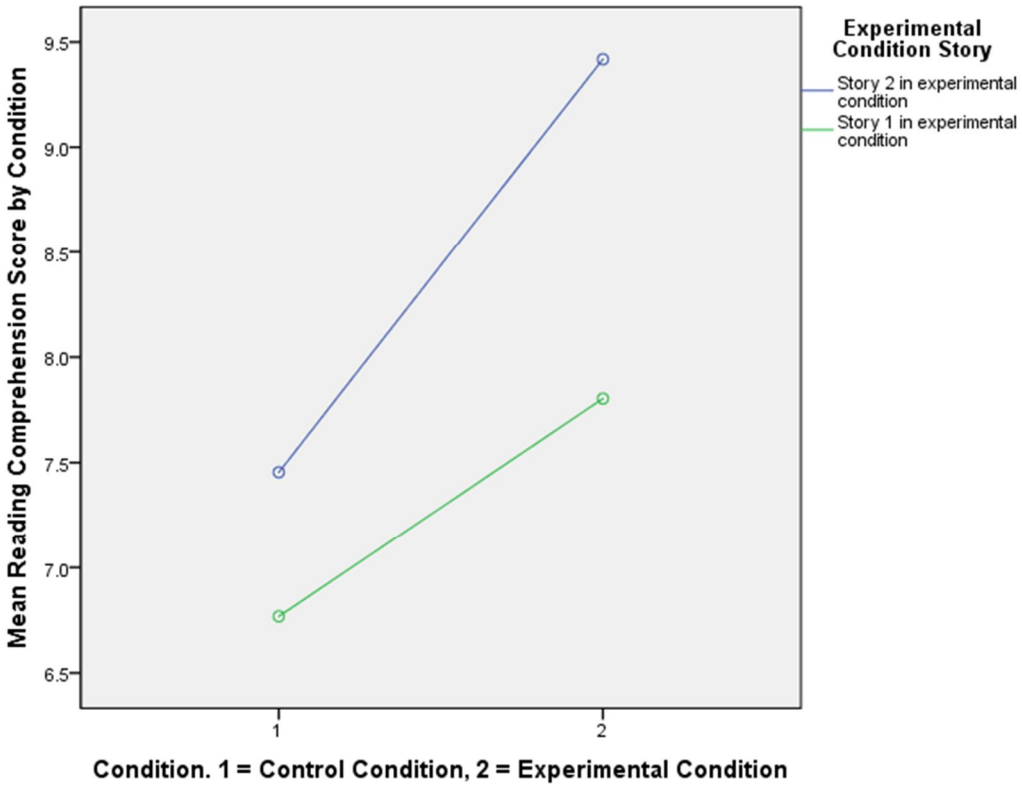
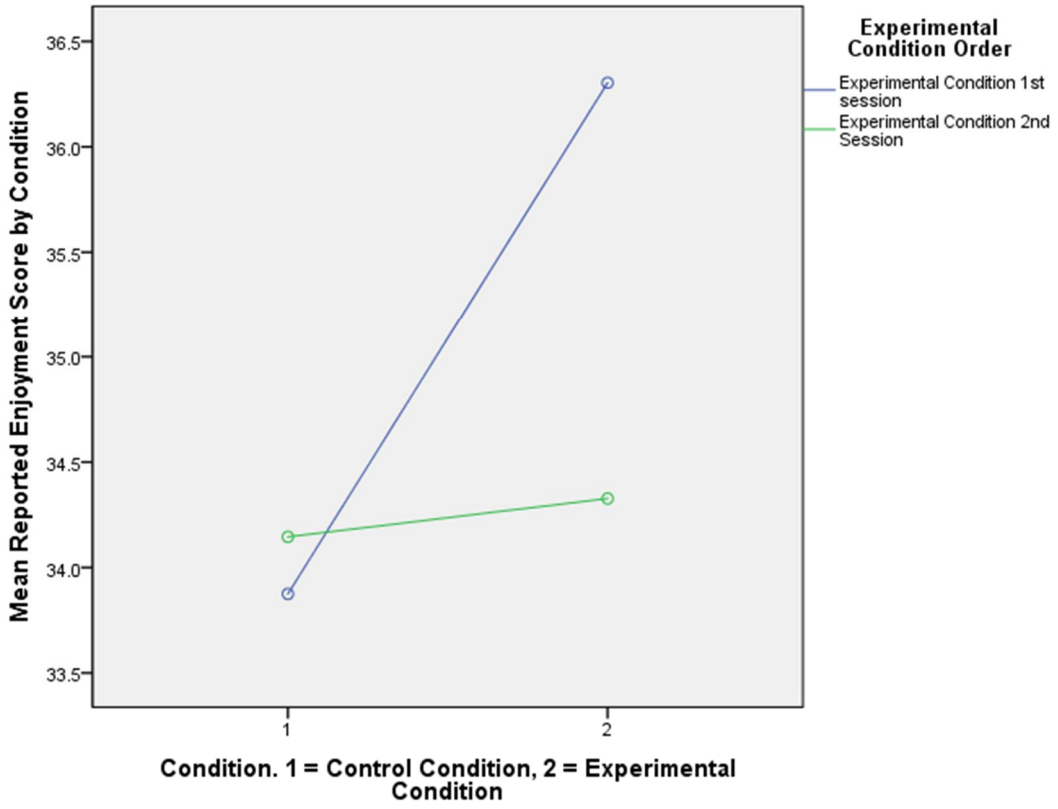


Figure R2.

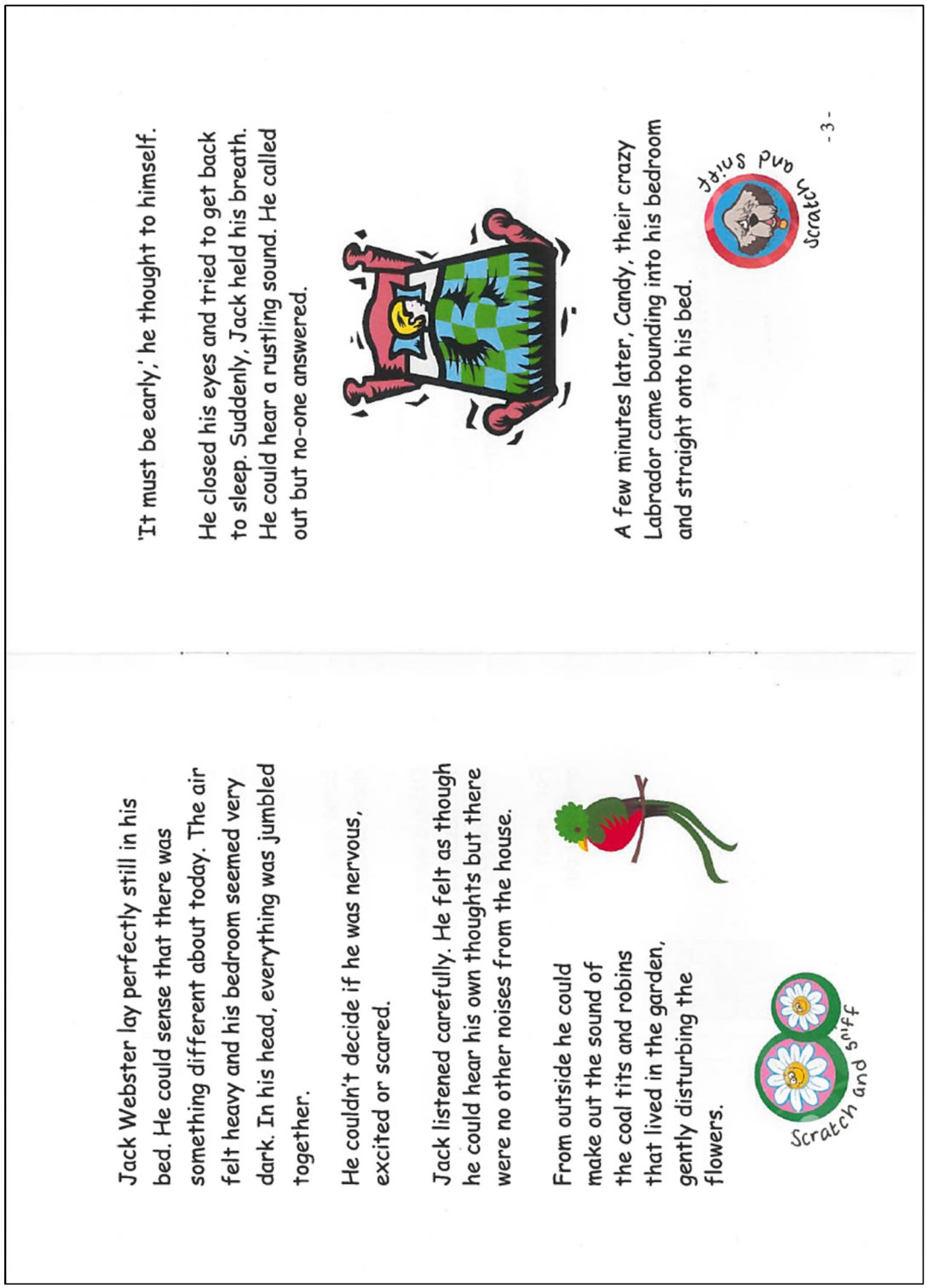
Experimental order effect on reported enjoyment score



Appendix S

Study 3 sample pages showing non-textual features (scratch and sniff stickers).

Story 1 sample pages



abroad. Tomorrow they would be out on the slopes.

The next morning they were both up early. They ate a huge breakfast and rushed back to their room to get ready.

They pulled on their new ski gear: layers and layers of clothing.

'I can't believe we need to wear this much! It looks so beautiful and sunny outside', said Alice.

Ben pulled on his beanie, 'Whatever! Just get me out to the snow!'

Alice and Ben's mum and dad checked they had everything and the four of them set off to the ski school. The twins were enrolled on a beginners' course for the week.

'Good luck!' called their mum and dad, 'we'll be back to get you at lunchtime. Have fun and be careful!'

The twins nodded their assent but they weren't really listening. They were too excited and enjoying taking in their new surroundings.

Appendix T

Plots showing experimental order and story effects for Study 3 (Novelty through Non-Textual Features).

Figure T1.

Experimental condition story effect on reading comprehension score

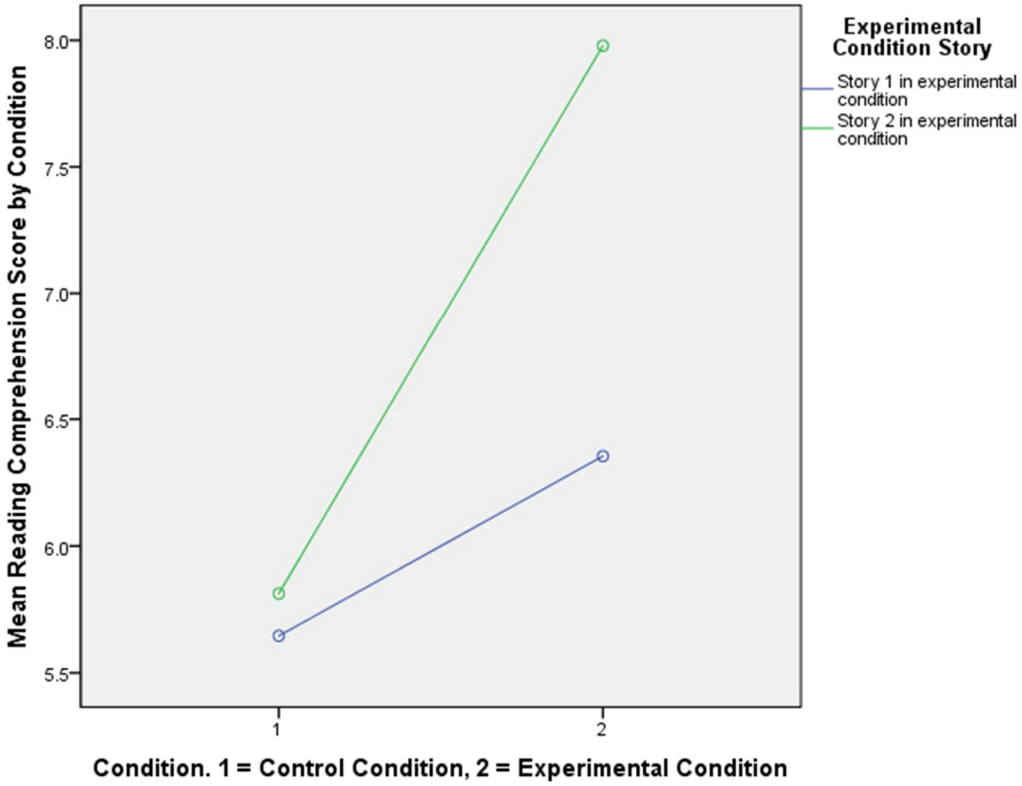


Figure T2.

Experimental order effect on reported enjoyment score

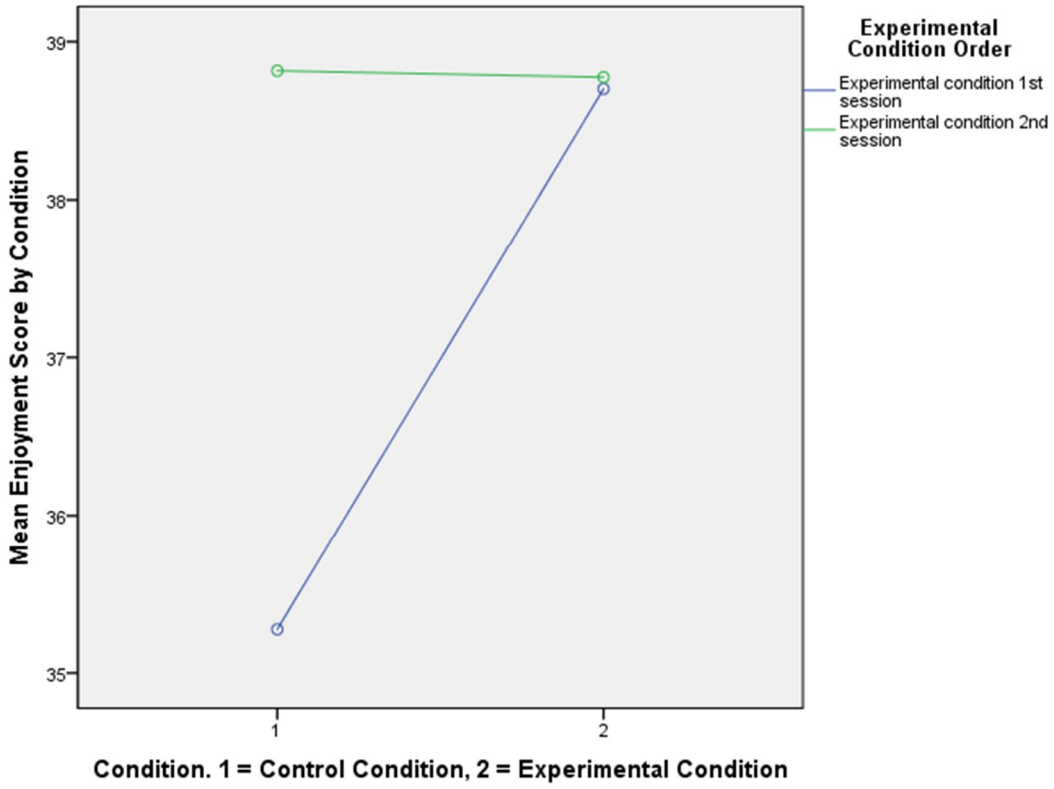
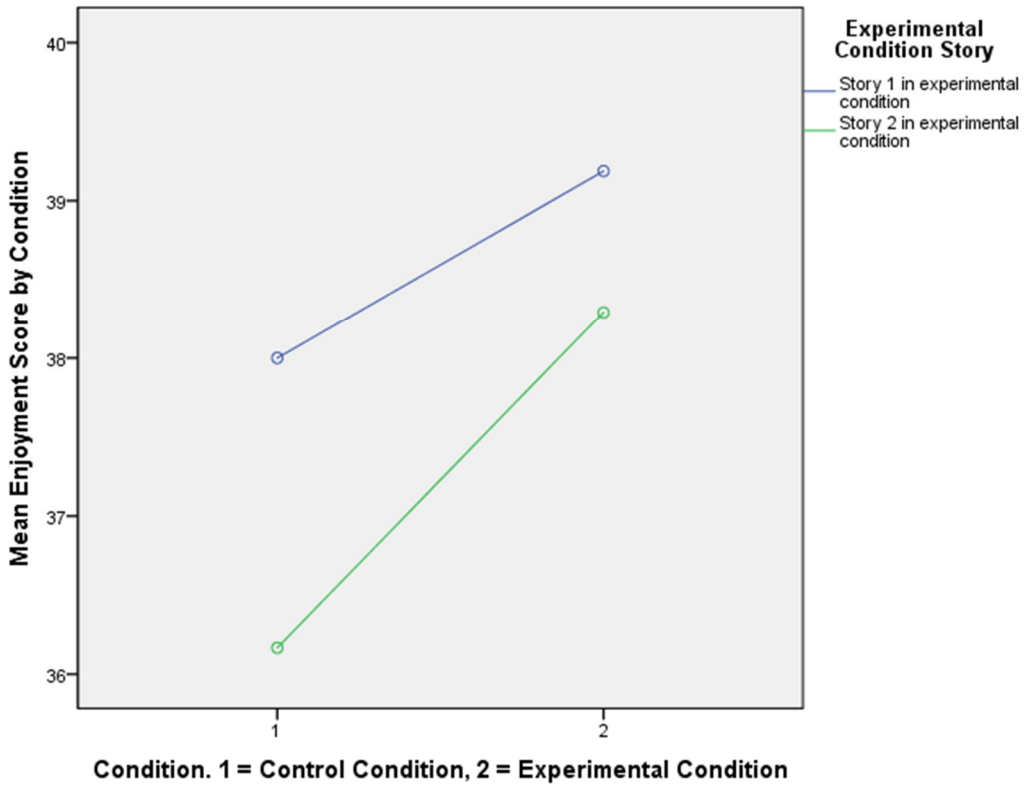


Figure T3.

Experimental condition story effect on reported enjoyment score



Appendix U

List of codes

Qualitative data analysis: initial codes from transcripts studies 1 – 3 mapping to themes.

Thematic Analysis: Coding

	Initial codes	Basic themes	Main themes
1	Like reading	Positive attitude to reading	
2	Like reading to develop learning	Useful - future	Reading as a useful activity/ beneficial
3	Like reading to discover stories	Useful - interest	Reading as a useful activity/ beneficial
4	Like reading for escapism	Useful - relaxing	Reading as a useful activity/ beneficial
5	Like reading – use imagination	Useful – interest / creative	Reading as a useful activity/ beneficial
6	Like reading for interest	Useful - interest	Reading as a useful activity/ beneficial
7	Like reading – future career	Useful – future	Reading as a useful activity/ beneficial
8	Like reading - important	Useful – education / future	Reading as a useful activity/ beneficial
9	Like reading - particular author	Reading influence / preference	Reading influences / Obstacles to reading

10	Like reading – specific genre	Reading influence / preference	Reading influences / Obstacles to reading
11	Like reading – fiction only	Reading influence / preference	Reading influences / Obstacles to reading
12	Like reading – non-fiction only	Reading influence / preference	Reading influences / Obstacles to reading
13	Like reading – challenge / level	Reading influence / preference	Reading influences / Obstacles to reading
14	Like reading – helps with other subjects	Useful - education	Reading as a useful activity/ beneficial
15	Dislike reading	Reading influence / preference	Reading influences / Obstacles to reading
16	Dislike reading aloud – make mistakes	Reading influence / preference	Reading influences / Obstacles to reading
17	Dislike reading aloud – self-conscious	Reading influence / preference	Reading influences / Obstacles to reading
18	Read at school only		Reading influences / Obstacles to reading
19	Read at school and home		
20	Read mostly at home		

21	Home is noisy	Obstacles to reading	Reading influences / Obstacles to reading
22	Other responsibilities (homework / sports / caring for siblings or relatives / language barriers)	Obstacles to reading	Reading influences / Obstacles to reading
23	Reading high status at home	Reading influence - parents	Reading influences / Obstacles to reading
24	Reading low status at home	Reading influence - parents	Reading influences / Obstacles to reading
25	Read to parents / relative often	Reading influence - parents	Reading influences / Obstacles to reading
26	Read to parents / relative never or rarely	Reading influence - parents	Reading influences / Obstacles to reading
27	Opinion of manipulation: I just liked it / positive but no reason (more enjoyable)	Positive response to task - enjoyment	Affective response to task
28	Opinion of manipulation: I didn't like it / negative but no reason	Disliked task	Affective response to task
29	Opinion neither positive nor negative	No clear influence	Affective response to task
30	Opinion of manipulation positive: made reading story more fun / positive impact	Positive response to task - enjoyment	Affective response to task

31	Opinion of manipulation positive: could connect more to story	Positive response to task - connection	Affective response to task
32	Opinion of manipulation positive: choosing allows personal preference (Study 1) story type / able to consider / personal	Positive response to task - connection	Affective response to task
33	Opinion of manipulation negative: dislike of choosing (lack of confidence) (Study 1)	Negative response to task - confidence	Affective response to task
34	Opinion of manipulation positive: got brain going (Study 2)	Positive response to task - connection	Affective response effects on reading enjoyment
35	Opinion of manipulation positive: relaxing being read to (Study 2)	Positive response to task - relaxing	Affective response effects on reading enjoyment
36	Opinion of manipulation positive: it was different (Study 2)	Positive response to task - novelty	Affective response to task
37	Opinion of manipulation negative: prefer reading alone (Study 2)	Negative response – dislike of manipulation	Affective response effects on reading enjoyment
38	Opinion of manipulation positive: loved smells (Study 3)	Positive response to task - enjoyment	Affective response effects on reading enjoyment
39	Opinion of manipulation positive: made story come alive / put you in the story (Study 3)	Positive response to task - connection	Affective response – impact on experience / connection to task

40	Opinion of manipulation negative: affected concentration (Study 3)	Negative response to task - distracting	Affective response – impact on experience / connection to task
41	Opinion of manipulation negative: disliked smells (Study 3)	Negative response – dislike of manipulation	Affective response effects on reading enjoyment
42	Opinion of manipulation positive: surprise	Positive response to task - novelty	Affective response – effects on enjoyment
43	No story preference and no reason	Effect on difficulty / ease of stories	Effects on perceptions of reading task
44	Study 1: preferred being given story (no reason)	Negative response – dislike of manipulation (choice)	Autonomy
45	Study 1: preferred choosing	Positive - autonomy	Autonomy
46	Control story easier	Effect on difficulty / ease of stories	Effects on perceptions of reading task
47	Experimental story easier	Effect on difficulty / ease of stories	Effects on perceptions of reading task
48	Manipulation made no difference to story	Effect on difficulty / ease of stories	Effects on perceptions of reading task

49	Manipulation made questions easier	Effect on difficulty / ease of questions	Effects on perceptions of reading comp.
50	Manipulation made no difference to questions	Effect on difficulty / ease of questions	Effects on perceptions of reading comp.
51	Questions the same	Effect on difficulty / ease of questions	Effects on perceptions of reading comp.
52	Questions all easy	Effect on difficulty / ease of questions	Effects on perceptions of reading comp.
53	Manipulation made questions enjoyable	Effect on difficulty / ease of questions	Effects on perceptions of reading comp.
54	Manipulation made questions more difficult	Effect on difficulty / ease of questions	Effects on perceptions of reading comp.
55	Neither story recommended	No clear influence	Effects on perceptions of reading comp.
56	Experimental story recommended (based on manipulation)	Positive effect of manipulation	Effects on perceptions of reading comp.
57	Experimental story recommended (no reason)	No clear influence	Effects on perceptions of reading comp.

58	Control story recommended (no reason)	No clear influence	Effects on perceptions of reading comp.
59	Both stories recommended	No clear influence	Effects on perceptions of reading comp.

Appendix V

Sample of coded transcript

Sample of hand-coded transcript taken from Study 1 (Choice) for a group of low ability girls.

Study	Choice
School	1
Group	Girls, Low Ability (participants = Cara, Rachel, Martha, Amy)* Experimental Condition Story: Story 1 – Cara, Rachel, Amy; Story 2 – Martha
Date	Autumn 2014

Transcript from ice-breaker.

Interviewer (I): So my first question is whether or not you like reading and if you do, why do you like it and if you don't why don't you like it? Go on then Rachel, do you want to start?

Rachel (R): I like reading because when we go to secondary school and up in university and college in the books like we find difficult words and when we go in the higher level we'll know those words already and we wouldn't need to spell it out. Reading for learning (C2)

I: That's an interesting reason, I hadn't thought of that.

Martha (M): It's interesting to know what happens in the stories Reading for interest (C6)

Amy (A): I like reading because I like finding out what stuff comes next. So if it's like an adventure story, I like to find out if this happens or that happens. Reading for interest C6 Reading for genre C10

Cara (C): I like reading stories because they give me more time to practise writing words when I grow up. Reading for learning C2

I: do you read much outside of school or do you do most of your reading when you are at school?

C: I do most of my reading at school. Read at school C18

R: I do most of my reading at school because it's more quiet than at my house. It's a bit noisy. Read at school (noise) C18/21

M: I do some at home to my mum and dad, and sometimes I do it at school. Read sch. and home C19

A: I do some at home, so my mum and dad listen to me and I do most reading at school but if I don't see my nan and my other family members then I can like Skype them and read then. Read sch. and home C19

I: so you do Skype reading to your nan?! Do you all know what Skype is?

All: yeah

I: and thinking about the reading that you did today and yesterday, did you prefer one story more than the other, so the story when you got to choose the story or the story that you were given? And why? Go on R.

R: I like to choose my books because I think that if I don't choose them well, I know I really like hard books, easy books, all right books, so that's why I like to choose. Reading for challenge C13

I: And in the activity?

Enjoy choosing (preference)

R: yeah, choosing is better. Preference for choice / Positive opinion C12 / C45

M: I like to choose my books because um I like certain ones instead of maybe um football ones, so like I would like more adventure ones. And so I like to choose mine. Reading for genre C10

I: and in the activity?

M: the story that I chose because I was choosing it. Preference for choice C45

A: um I like the activity where you had to choose your books because some books, like football or some things that I am not used to I don't really tend to read. Preference for choice C45 Reading for genre C10

I: mmm so are you saying that you liked it when you could choose because you could check that it was something that you might be interested in?

All: yeah, and something that you could read and keep going. Choice good C Reading for interest C6

C: The one that I read, I wanted um basically to put 4s and 1s because I really enjoyed it and it was all easier. *(I: the story or the questions?)* All of it. Preference for choice story and for choice questions

I: and so do you mean that you didn't feel like that about the one you were given to read?

C: I like reading science books about bugs and birds to see what their personality is. Preference for genre C10

I: did you prefer choosing a book, being given the story or it didn't make any difference?

C: it didn't make any difference. No story preference C29 / C43 / C48

I: and what about the questions afterwards about the stories. You (C) have already said that you found the questions easier to do when you chose the story. What about the rest of you? Did it make any difference?

M: No, not for me. No questions difference C50

A: for me I chose the questions where I chose my book a bit easier. The other one it was a bit longer and that wasn't the best one that I read. Choice questions easier C49

I: So are you saying then that you found the story that you chose or the one you were given more enjoyable?

All: yeah... when we chose.. yeah that one... Preference for choice, more enjoyable C47

R: I found them a bit difficult because in my religion I don't read that much in English. So I had to get used to it. *(I: story and questions?).* Yeah, probably. Obstacle: English not home language C22

A: I thought it was easy and kind of hard.

I: And was one story less interesting?

All: not really / no... no difference no difference in stories C48

M: I liked choosing Choice preference C45

I: And would you recommend a story?

C. no, not really. Stories not recommended C55

I: Thinking about answering the questions, did you prefer being given a story, having a choice or did that make no difference when you answered the questions?

R: No difference. No difference across questions C51

C: I liked it when we were choosing. It was more enjoyable. Preference for experimental condition (more enjoyable) C45

M / A: It didn't matter / no difference. no difference C51

I: Ok everyone. Thank you all. That's the end of the official questions. Does anyone want to tell me anything else either about the activities or about reading?

M: that I would like to do more activities

Positive impact of task on engagement

I: is that because you like reading or because you like having visitors coming in?

All: yeah, like you, yeah...

* names changed for confidentiality