LEARNING TO EDIT: THE EFFECTS OF REVISION TEACHING ON THE REVISIONS MADE BY 9-
AND 10-YEAR-OLD CHILDREN IN ENGLAND

RICHARD THOMPSON

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INSTITUTE OF EDUCATION, UCL

1

Declaration

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

Signed: RICHARD THOMPSON

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Abstract

Revision generally emerges later than other skills in writing development: developing writers often revise less frequently and less successfully than more accomplished counterparts. Findings regarding the impact of revision teaching on writing quality have been mixed and sometimes contradictory. The field has been dominated by psychological research into the cognitive processes of the individual, which has not generally considered the role of the context of revision teaching, including children's prior knowledge and skills. This research adopted an alternative perspective by using qualitative methods to examine the relationship between revision teaching and children's writing in greater depth, including a thorough examination of the context in which the revision teaching took place.

This research used a case study design to examine the effects of a six-week period of revision teaching. Participants were 16 year 5 children across three classes in one inner-city school and their teachers. Data were collected before, during and after revision teaching and included multiple texts written by each child, interviews with the children and their teachers and lesson observations. Data were analysed against existing typologies of revision but also using qualitative techniques.

Findings revealed: (i) revision teaching was effective in changing children's conceptions of revision; (ii) revision teaching led to an increase in the frequency of children's revisions and a change in the types of revisions made; but (iii) it was inconclusive whether the revision teaching had any effect on the overall quality of children's writing. Instead, the impact of revisions on the quality of children's writing was related to their prior attainment in writing. It was concluded that, for revision teaching to have a positive impact on writing quality, broader knowledge than that developed through the revision teaching is required. Revision should therefore be considered the application of knowledge rather than a discrete and transferable skill.

Impact Statement

This research explored the effects of a particular approach to the teaching of revision, namely a combination of direct instruction and developing audience awareness, on the revisions made by participating children. Its findings shed light on how revision might be taught effectively but also on the nature of revision itself, both of which could be of benefit to teachers seeking to improve the quality of children's writing by developing their ability to revise. In particular, this study identified the ways in which direct instruction can support children when they learn to revise but also the fact that it has significant limitations. These findings could be beneficial to teachers by acting as a guide to understanding when revision teaching might be most likely to have a positive impact on the quality of children's writing and when this time might be better spent developing other aspects of writing. In addition, teachers and school leaders could make use of the findings of this study when considering how to integrate revision into their wider curriculum. Based on this study, the productivity of revision teaching as regards enhancing the quality of children's writing is dependent on other knowledge and, as such, careful consideration is required to determine where revision teaching should be positioned in the wider sequence of learning.

This study also makes a contribution to the understanding of what revision is. In light of the findings reported here, the dominant view of revision as a discrete and transferable skill is questioned in favour of an understanding focussed on the application of wide-ranging writing knowledge. This is important to teachers because it means there are no shortcuts in the development of revision: it cannot be taught over a limited series of lessons and then applied to any text. An understanding of the role of writing knowledge in revision will therefore support teachers to plan lessons, or sequences of lessons, that are more likely to contribute to children making more effective revisions and therefore enhancing the quality of their writing.

The insights into revision offered by this study could also be beneficial more widely in education beyond the classroom. With regard to policy, refinements could be made to the treatment of revision in the National Curriculum, for example with regard to how early revision teaching begins. In addition, further guidance on the nature of revision and how it develops could be incorporated into non-statutory guidance within the National Curriculum:

this would support teachers to ensure that their revision teaching is productive in enhancing the quality of children's writing. Similarly, teacher education institutions could review how revision is presented to trainee teachers. This could support new teachers to avoid the misconception of revision as a discrete and transferable skill and develop their understanding of the role of writing knowledge both in revision and in writing more widely. Ultimately, changes within the wider sphere of education to the treatment of revision could have the power to enhance the quality of writing of many thousands of children.

Finally, this research could have an impact on academic treatments of revision. This impact could arise from this research's theoretical contribution: future research could build on the understanding of revision as the application of writing knowledge. However, there could also be an impact on methodological decisions by researchers. This research has demonstrated the fruitfulness of a qualitative research design for the study of children's revisions and identified links between children's revisions and the teaching they had received in English generally (i.e. beyond specific revision teaching). As such, further qualitative work into revision could offer further insights, while additional research into the links between children's revisions and wider teaching might be helpful. In addition, beyond qualitative work, in light of the findings from this research, researchers should consider whether or how wider teaching has affected children's revisions when examining the effects of revision teaching.

In summary, the most significant impact of this research is likely to be pedagogical: the insights offered can provide a guide to teachers regarding how to approach supporting developing writers to make effective revisions. However, there are also potential impacts more widely within education, for example with regard to policy and teacher education, in addition to possible impacts on future research and the academic treatment of revision. For some of these potential areas of impact to be realised, it will of course be important to disseminate these findings. Here, it is hoped that the researcher's position as the author of this research and a school leader may be helpful. Dissemination should include both traditional academic dissemination, for example by publishing in journals, but also using the findings to explore best practice with individual teachers and in individual schools.

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Table of Contents

List of Figures

List of Tables

List of Appendices

1   <u>Introduction</u>

Writing has been one of the most transformational advances in the history of humanity, and continues to provide a tool of incredible versatility to support the maintenance of personal and professional relationships, to create worlds, to tell stories, to share information, to heal psychological wounds, to combat loneliness and more besides (Graham, 2018). This power and versatility, alongside the ubiquity of the written word in the modern world, has made teaching children to write confidently a central aim of education systems around the globe (Barton, 2007; Wyse, 2011). This is given additional urgency due to the fact that literacy is not only valuable in itself but also gives access to the medium through which other parts of the curriculum are taught (Ofsted, 2022). However, despite the fundamental importance of children learning to write, concerns about children's attainment in writing have been raised in countries around the world (Graham & Rijlaarsdam, 2016) and some have suggested that this is due to the quality of writing teaching children receive (Graham, 2019). In England, the number of children not reaching 'age-related expectations' at the end of key stage 2 has remained stubbornly between a fifth and a quarter of all children since new national assessments were introduced in 2016, and this has only been exacerbated by the disruption caused by COVID-19. There is, then, a clear and convincing argument for the value of research that seeks to understand which pedagogical choices available to teachers are most likely to support children's attainment in writing in particular contexts.

Given the complexity of the writing process, it has been argued that to understand its development adequately, one must understand its constituent parts (Graham, Gillespie, & McKeown, 2013). One such constituent process within writing is revision: the act of rereading, evaluating and, where appropriate, making changes to text in order to improve it. This is of particular interest because it is often viewed as essential by expert writers (Wyse, 2017) while the extent, nature and effectiveness of revisions is a key difference between developing and expert writers (Faigley & Witte, 1981; Flower, Hayes, Carey, Schriver, & Stratman, 1986). Indeed, even among children, almost all of whom could plausibly be considered developing writers, older children make more revisions and more effective revisions than younger children (Beal, 1990; Limpo, Alves, & Fidalgo, 2014) and revision has frequently been identified as one of the last constituent processes within writing to emerge

(Bereiter & Scardamalia, 1987; Berninger, 2000; Berninger, Fuller, & Whitaker, 1996; Berninger & Swanson, 1994).

As a primary school teacher in England, my experiences of developing writers echoed these research findings. I had noticed that children I taught revised their writing only infrequently, and in some cases only when prompted to do so. Furthermore, children's revision processes were not always effective: it was common for revision to be somewhat cursory and limited to minor adjustments. In short, the power of revision to improve a text fundamentally, to sharpen the message to better achieve the aims of the text, was seldom realised in the children's writing. This experience, together with a desire to understand how best it could be addressed, formed the foundation of the motivation to undertake this research. Given the importance ascribed to revision by expert writers, the fact that it constitutes a key difference between expert and novice writing and the apparent difficulty it poses to children when learning to write, it is plausible that teaching children to revise will improve the quality of their writing by making their writing process more similar to that of expert writers. Research can contribute important knowledge to this endeavour by examining the effects of different approaches to the teaching of revision both on children's revisions and on the quality of their writing more generally. This is particularly the case given that, in England at least, the teaching of revision appears to be infrequent (Dockrell, Marshall, & Wyse, 2016).

Significant research into revision began in the 1980s when the notion of writing as a linear process was challenged by a number of scholars arguing that revision could occur during the writing process ('online revision') as well as after it (Fitzgerald, 1987; Sommers, 1980). One of the most significant achievements during this early phase of research was the development of cognitive models of writing (Bereiter & Scardamalia, 1987; Flower & Hayes, 1981), of which revision features as a constituent part, and of revision itself (Bereiter & Scardamalia, 1987). These have been added to, challenged and refined in the intervening years (Berninger, 2000; Berninger & Amtmann, 2003) but remain dominant in the field. A second major advancement in this period was the establishment of a number of taxonomies of revision types (Bridwell, 1980; Faigley & Witte, 1981; Sommers, 1980), many of which have been used or built upon by more recent work (Crawford, Lloyd, & Knoth, 2008; Limpo et al., 2014). However, despite the contribution of these taxonomies in moving forward knowledge about revision, and in particular how revisions differ among different groups of

writers, some have argued that these may obscure the thinking that underlies particular revisions (Eklundh & Kollberg, 1996). As such, there is a need for research that reveals this underlying thinking.

With regard to studies concerning the teaching of revision, there is significant evidence that teaching can affect children's revisions (Allal, 2004; Limpo et al., 2014) but findings with regard to the impact of this on the quality of writing have been more mixed (Brakel, 1990; Englert, Raphael, Anderson, Anthony, & Stevens, 1991; Saddler & Asaro, 2007), especially in studies with struggling writers (Graham, 1997; MacArthur, Graham, & Harris, 2004). More specifically, research has found possible effects on children's ability to revise when teaching seeks to develop their understanding of the perspective of the audience of their writing (Holliway & McCutchen, 2004; Rijlaarsdam, Couzijn, Janssen, Braaksma, & Kieft, 2006); when developing writers are offered feedback from their peers (Boscolo & Ascorti, 2004; Cho & MacArthur, 2010) and when developing writers are given support to set goals for their writing to achieve (Graham, MacArthur, & Schwartz, 1995; Midgette, Haria, & MacArthur, 2007). Working memory is likely to constrain revision in developing writers (McCutchen, 1994) and, as such, some studies have investigated whether executive support leads to developing writers making more effective revisions, though findings regarding the impact of this on quality of writing have been mixed (De La Paz, Swanson, & Graham, 1998; Stoddard & MacArthur, 1993). A small number of studies have investigated the possible impact of explicit instruction on the revision of developing writers (Allal, 2018; De Smedt & Van Keer, 2017) but the evidence based here is somewhat limited. In summary, research suggests that revision teaching can have an impact on children's revisions and has identified a number of promising approaches to this teaching. However, given that the aim of revision teaching is ultimately to improve the quality of learners' writing, the fact that findings regarding this are so mixed is significant.

It should be noted that the majority of the studies mentioned above, and indeed the majority of research that contributes to the evidence base on revision in general, deploys a psychological or cognitive theoretical framework, often drawing on the cognitive models mentioned above. Relatedly many studies take an experimental approach, with the consequence that evidence concerning the impact of revision teaching is rarely considered in light of wider teaching in English that participating children have received. That is to say,

children's existing skills and knowledge with regard to writing, as well as what they have been taught or what is taught at the same time as the revision teaching, is a neglected aspect of context in many studies. Regarding the context of this particular study, it is also relevant that very few of the studies into revision surveyed for this research collected data from England.

The present research aimed to add to knowledge about revision teaching by examining the interaction between an approach to the teaching of revision dubbed 'enhanced direct instruction' and the revisions made by children in a regular classroom. 'Enhanced direct instruction' consists of direct (or explicit) instruction of revision with a particular focus on the consideration of the audience of a text. When teaching, teachers model the process of revision to children by thinking aloud while revising a text, in particular considering the effects that different revisions may have on the reader. A case study design was used in order to offer a detailed description of the context of the teaching: unlike many other studies into revision, the present research aimed to understand how 'enhanced direct instruction' of revision interacted with children's prior skills and knowledge in English. Furthermore, to avoid the potential problem of revision taxonomies obscuring the thinking underlying revisions, thematic analysis was used so the understanding of revisions made was not limited to existing taxonomies. For the purposes of the literature review below, no other studies were found that took this approach.

The research questions underpinning this research consist of a primary question alongside three subsidiary questions:

> Primary Question: Does 'enhanced direct instruction' of revision support children to make meaning change revisions in their writing?

> Subsidiary Questions:

> 1. In what ways is children's understanding of the role of revision in writing affected by this 'enhanced direct instruction' of revision?
> 2. What are the relationships between this 'enhanced direct instruction' of revision and the revisions made by children in their own writing?
> 3. What are the relationships between this 'enhanced direct instruction' of revision and the quality of children's writing?

Naturally, this dissertation draws on a number of concepts from the wider research literature. Table 1.1 below offers a definition of how some key terms are intended to be understood throughout:

Table 1.1 Key terms used in this dissertation.

Term	Definition
Revision	'Revision' refers to making changes to written text with the aim of improving it. In this dissertation, revision should be considered synonymous with 'editing', a term frequently used by participants and therefore present especially in interview data. An original and more technical definition of revision is offered in section 2.5 alongside a review of definitions offered by other researchers.
Surface change	Following Faigley and Witte (1981), surface changes are generally minor and superficial revisions that have only a very limited impact on the meaning of the text. They include changes to spelling, tense, punctuation and format. In the context of children's writing, surface changes are commonly minor alterations, often viewed as 'corrections' by the child.
Meaning change	Following Faigley and Witte (1981), meaning changes are more significant revisions than surface changes, notable for the fact that they alter the content or meaning of the text. Meaning changes include adding or deleting material, manipulating syntax to change meaning, distributing meaning from one sentence into several or consolidating material from multiple sentences into one.
Writing knowledge	Writing knowledge is the broad range of knowledge that writers draw on in order to write. This includes metaknowledge about the processes involved in writing, including revision; knowledge of conventions in writing, including genres; knowledge of the intended reader and how best to tailor writing accordingly and linguistic knowledge including syntactic and lexical options to choose from when writing.
Conception of revision	A writer's conception of revision is their understanding of what revision is, how they perceive its purpose and their metaknowledge of the actions to undertake when revising. Based on the above definition, a writer's conception of revision is part of their writing knowledge.
Standard English	Following Trudgill (1984: 32), Standard English is "a set of grammatical and lexical forms typically used in speech and writing by educated native speakers". In this dissertation,

	children's writing is often described as either 'standard' or 'non-standard' based on this definition. A fuller description of the how Standard English is considered in this research is offered in section 2.4.
Direct instruction	Direct instruction is an approach to teaching which focuses on clear and explicit explanations and models. In the context of revision, it involves *explaining* to inexperienced writers what revision is, why it is important and how to approach it as well as *showing* them how it can be done by directly modelling the process before them.
'enhanced direct instruction'	'Enhanced direct instruction' is an original term coined for the purposes of this research. It consists of direct instruction of revision, as described above, with a particular focus on the consideration of the audience of a text.

This dissertation is divided into five chapters. Following this introduction, chapter 2 offers a systematic review of the existing research literature as it relates to the present research. This includes a detailed examination of various theoretical treatments of revision and writing generally as well a description of how this informs the theoretical framework for this research. In addition, empirical work concerning the teaching of revision is reviewed in depth in order to offer an understanding of what is currently known about the issue. Chapter 3 provides an account of the methods used in this research. This includes a description of why a case study design was selected, as well as some epistemological assumptions underpinning this choice. Practical concerns are also addressed, including how participants were selected, how data was collected and analysed and the steps taken to ensure the validity of the data. This chapter also includes details of the steps taken to address ethical concerns arising from the research. Chapter 4 presents the findings from the research in three parts. First, the case of an individual participating child is described; this offers a clearer understanding of how the revision teaching took place with reference to examples of specifics texts and revisions. Next, findings from the cohort as a whole are presented; this section seeks to identify patterns in the relationship between the revision teaching and its effects. This is followed by three case studies of children selected to shed further light on a number of the phenomena arising from the cohort-level data. Finally, chapter 5 provides a discussion of the findings and a number of conclusions. This chapter also seeks to integrate the findings from this research into the existing body of knowledge about the teaching of revision and outlines some implications and limitations of the research.

2 <u>Literature Review</u>

2.1 Cognitive models of writing

Writing is not yet subject to a unified theoretical conceptualisation; instead, it is treated in profoundly different ways in 'disciplinary silos' (Wyse, 2017), the most notable of which are the psychological and the sociocultural (Magnifico, 2010; Wyse, 2017). Both psychological and sociocultural emphases shed significant light on the phenomenon of writing but benefit from different loci of interest. Psychological approaches to the study of writing have tended to focus on the individual writer and the mental processes he or she goes through in order to produce text. In contrast, sociocultural approaches to writing take a much wider view, seeing the writer as enmeshed in a wider social and cultural context, which itself impacts upon their writing in innumerable ways. There is merit in both of these conceptions of writing, and indeed a consideration of both is necessary in any attempt to work towards a fuller understanding of writing.

One of the central concerns of psychological work investigating writing has been the development of an accurate cognitive model to describe the writing process, partly to inform effective writing instruction (Hayes & Flower, 1986). One of the earliest of these models was the *Cognitive Process Theory* developed by Flower and Hayes (1981) which considers writing to consist of three parts: the task environment (i.e. the text that needs to be written and for what purpose as well as the text written so far), the writer's long term memory (which includes knowledge about the topic of the text but also the audience and other factors) and cognitive processes organised and orchestrated by the writer. These processes include planning, translation (turning ideas into actual sentences) and revision, while a 'monitor' governs which process should be deployed at any given time. Importantly, Flower and Hayes see these processes as akin to a toolbox; there is no set order in which they are deployed, and they may well be used concurrently. As such, writing is not seen as a single, monolithic process but rather a multiplicity of mutually embedded processes which writers use to best meet their current needs. This acknowledges how these processes can be interleaved: writers often move between planning, writing and revision seamlessly throughout the composition process. As a result, our understanding of writing moved away from what

Sommers (1980) describes as a "parody of writing" which sees planning, writing and re-writing as immutably sequential steps in the writing process.

Despite the age of Flower and Hayes' model, many of the ideas it contains remain current in psychological thinking about writing. In particular, the distinction between the writer, the task environment and the writer's long term memory; the importance of the text produced so far and, perhaps most of all, the attempt to identify constituent processes within writing all remain influential (Hayes, 2012). The ideas contained in the *Cognitive Process Theory* thus have a significant legacy in subsequent psychological work on writing, both with regard to empirical research and theoretical treatments of writing. First, by conceptualising writing as a set of processes, the focus of study was shifted away from written outcomes towards the means by which they were constructed: what the writer *does* has become as significant as what they *produce*. Second, the identification of constituent processes within writing has led to the study, and on occasion modelling, of these processes in isolation as well as within the wider process of writing.

However, following the publication of Flower and Hayes' model of writing, new empirical evidence emerged that has led to a relative consensus among psychologists studying writing that the model requires a number of alterations, and indeed Hayes has offered a number of updated models (Hayes, 2012; Hayes & Olinghouse, 2015). In their seminal book, *The Psychology of Written Composition*, Bereiter and Scardamalia (1987) seek to explain the significant differences they had found in their empirical work between novice and expert writers. Critically, these differences concerned whether and how different writers used different cognitive processes identified by Flower and Hayes; most notably that less experienced writers tended to use both planning and revision processes significantly less often and with significantly less success than their more experienced counterparts. To account for this difference, Bereiter and Scardamalia offer a duplex model of writing: less expert writers use a "knowledge telling" approach, while more expert writers use a "knowledge transforming" approach. Knowledge telling is a model by which a writer relies very heavily on the topic of a text and the text already produced in order to initiate further writing. As a result, revision and planning processes are very local, a phenomenon characterised by the question 'what shall I say next?', which is emblematic of knowledge telling. In contrast, knowledge transforming relies on content but also, crucially, rhetorical

considerations in what Bereiter and Scardamalia describe as a "two-way interaction between continuously developing knowledge and continuously developing text". Bereiter and Scardamalia's work is important for two main reasons. First, it constitutes an early example of the application of the theory that writing is composed of a set of underlying cognitive processes, given that the deepening of knowledge about the development of writing skills it offers is grounded in data that considers these processes separately. Second, this work highlights the significant differences in the nature of the process of writing between novice and expert writers.

The process of translation in the Flower and Hayes model (that is to say, the process by which ideas are turned into sentences) has received particular scrutiny notable for the fact that much of the criticism has emerged from empirical work with children and developing writers. In common with Bereiter and Scardamalia, Virginia Berninger and her colleagues recognised that Flower and Hayes' conception of writing is not sufficient for beginning and developing writers (Berninger & Swanson, 1994), partly because the process of translation is more complex than they originally described (Berninger et al., 1996). Perhaps most significantly, they follow Frank Smith (Smith, 1982) in dividing translation into two separate processes: composition (including idea generation and finding sentences to express them) and transcription (which includes handwriting, spelling etc). Empirical evidence for the separation of composition and transcription within translation is abundant. Berninger and Swanson (1994) found that children can develop in these areas at very different speeds while De La Paz and Graham (1995) found that if children with learning difficulties dictated their text rather than writing it themselves, the texts were of a higher quality, suggesting that transcription posed a particular difficulty over and above that of creating sentences. Furthermore, research into handwriting specifically has not only found a correlation with writing quality in children (Berninger, Cartwright, Yates, Swanson, & Abbott, 1994; Graham, Berninger, Abbott, Abbott, & Whitaker, 1997) but also that handwriting practice can improve writing quality (Jones & Christensen, 1999). Importantly, similar evidence has been found in research involving children learning to write in a range of languages including French (Olive, Favart, Beauvais, & Beauvais, 2009), Dutch (Drijbooms, Groen, Alamargot, & Verhoeven, 2020) and Portuguese (Alves et al., 2016). Taken together, these studies provide compelling evidence for the existence of separate processes of transcription and composition within

Flower and Hayes' wider process of translation, and indeed Hayes himself has acknowledged the distinction between these processes (Hayes, 2012).

Many scholars have sought to explain the mechanism by which handwriting, or indeed transcription generally, can constrain the quality of children's writing and there is now broad consensus among psychologists that this is due to working memory. Working memory is a limited resource and, as such, if a child's working memory is burdened by transcription, this leaves less capacity available for other processes, such as planning and revision, that may improve the overall quality of their writing (Graham et al., 1997; Olive, Favart, et al., 2009). Importantly, a number of studies have found that transcription places less of a burden on the working memories of experienced writers than developing writers (Bourdin & Fayol, 1994; Olive, Alves, & Castro, 2009). That is to say, transcription places more of a burden on the working memory of writers whose transcription skills are still developing (MacArthur & Graham, 2017). This suggests that, as transcription skills become more fluent, they place less of a burden on a writer's working memory, which in turn allows them to deploy more of their working memory resources to other writing processes that may improve the quality of their writing. Indeed, studies involving children of different ages have shown that transcription is a more significant constraint on writing quality among younger children than older children (Berninger & Graham, 1998; Berninger & Swanson, 1994; Limpo et al., 2014).

This exemplifies the role of working memory in a psychological understanding of the development of writing: when lower order skills (principally including transcription skills such as spelling and handwriting) are not fluent and automatic, this interferes with children's ability to engage in higher order skills, which include planning and revision. This in turn constrains the overall quality of the text they produce. In addition to transcription, there is empirical evidence that translation generally can also constrain writing quality before it becomes automatic. For example, studies have found a correlation between the fluency with which children access vocabulary and create sentences and the quality of the texts they produce (McCutchen, 1994; Truckmiller, Shen, & Sweet, 2021) and interventions that target oral sentence generation have been shown to have a positive impact on the quality of writing (Arfé, Festa, Ronconi, & Spicciarelli, 2020).

There also exists more general evidence for the role of working memory in writing. For example, Berninger et al. (1994) conducted a broad battery of tests with 300 children in

grades 4-6 and found that multiple different working memory measures correlated with the children's writing quality. Swanson and Berninger (1994) also found that working memory is predictive of writing quality because of the sheer number of goals and processes that the working memory is required to coordinate during writing. More recently, Kim and Scatschneider (2017) found working memory to be the second most significant factor for predicting writing quality for children in first grade of the eight factors they investigated. Findings in line with those described above led McCutchen (1996) to propose a "Capacity Theory" of writing which suggests working memory as an overarching organising principle in a model of writing. With reference to Bereiter and Scardamalia's (1987) work, McCutchen suggests that developing writers rely on less sophisticated strategies when writing (such as knowledge telling) precisely because their working memory cannot meet the simultaneous demands of multiple complex cognitive processes. Increasing fluency in writing processes subsumed under translation, including transcription, is thus central to the early stages of the development of writing as the emergence of higher order processes in writing depends on this fluency due to the constraints of working memory (Kim, Otaiba, Sidler, & Gruelich, 2013; McCutchen, 2023).

In light of the dissatisfaction with the Flower and Hayes model of writing arising from the evidence for separate processes of composition and transcription, as identified for example by Juel, Griffith and Gough (1986), as well as the relative consensus regarding the role of working memory in writing, Berninger (e.g. Berninger 2000) proposed a powerfully simple model of writing with four components:

1. Transcription. This includes handwriting, spelling and, sometimes, punctuation.
2. Composition. This has previously been referred to as text generation and includes ideation and finding the sentences to express it.
3. Executive functions. Most notably, these include planning and revision.
4. Memory. This mediates the other three components and includes a role for working memory (as a processing space) as well as long term memory (as a source of content knowledge, vocabulary etc.)

The separation of translation into transcription and composition in this *Simple View of Writing*, and the related *Not so simple view of writing* (Berninger & Amtmann, 2003) has been influential in writing research but is not uncontested. For example, in his updated

model of writing, Hayes (2012) identifies four constituent processes within translation. The first of these is the 'proposer', which is focusses on content and suggests ideas for inclusion in the text. This may draw on the sensory environment, the writer's memory, goals for the writing itself, any of the text that is already written, the input of collaborators or other sources. The second process is the 'translator', which transforms the idea from the proposer into a string of language, while the third process, the 'transcriber', takes the string of language from the translator and turns it into written text, for example by applying spelling rules. The final process is the 'evaluator', which examines the adequacy of any of the other three processes and may lead to revision, whether it be of an idea before it is written or of existing text.

In addition to attempting to model the internal structure of the translation process, Hayes' updated model also builds on Bereiter and Scardamalia's (1987) concept of writing schemas. Writing schemas are bodies of knowledge held by writers that determine the strategies they take in particular writing tasks and include an understanding of features that a successful written outcome might include. For example, writers may have differing schemas that inform how they approach writing texts of different genres, or how they approach particular constituent tasks within writing such as planning and revising. Importantly, the schemas held by developing and accomplished writers appear to be remarkably different (Bereiter & Scardamalia, 1987), and indeed Hayes and Olinghouse (2015) argue they represent a particularly significant difference. In addition to the role of working memory outlined above, it is argued that children's writing schemas affect the quality of their writing. For example, their schema for a particular text may not include details of what might make it successful or their schema for the process of revision may only include making minor changes and therefore undermine the potential of revision to improve the quality of the text.

In summary, a psychological view of writing includes three overarching principles:

1. Writing is a composite of cognitive processes. These processes include, but may not be limited to, transcription, composition, planning and revision.
2. Working memory plays a central role in writing. Due to its complex nature, writing places a heavy burden on working memory. This means the concept of fluency is key to understanding development of writing: writers must become fluent in lower-order writing skills (e.g. spelling and handwriting) so that these

23

require less working memory, which in turn makes available capacity for higher-order writing skills such as planning and revision.

3. Writing depends on schemas. Writing schemas include those that pertain to the writing of particular types of text as well as those that pertain to different parts of the writing process, such as revision.

It should be noted that, though the three principles outlined above are central to many psychological understandings of writing, a wider survey of psychological work on writing may also involve other components such as self-regulation and motivation (MacArthur & Graham, 2017).

The impact of the three theoretical principles above has been significant. In education, the idea that there exist component processes within writing has allowed for research that examines these processes separately, how they develop and how teaching can support them. Indeed, the research project presented in this dissertation is one such study, but it builds on the many studies into revision that have gone before, while there also exists a significant body of work into planning (Galbraith, Ford, Walker, & Ford, 2005; Kellogg, 1988; Tracy, Reid, & Graham, 2009) and various elements of transcription. It should be noted that the impact of the theory that writing is a complex process composed of multiple constituent cognitive processes has not been limited to educational research. In England, the National Curriculum for writing is built around the dimensions of 'transcription' and 'composition', while as part of the latter "children should be taught how to plan, revise and evaluate their writing" (Department for Education, 2013). Similarly, Ofsted, the influential inspectorate of schools, state that "Pupils need sufficient capacity in their working memory to plan, compose and review effectively. This requires transcription skills to be secure." (Ofsted, 2022). Given its influence on educational research as well as its espousal by key public sector bodies, it would be reasonable to describe the idea that writing is composed of a number of underlying cognitive processes as dominant in the field of education in England.

With regard to the present research project, the idea that writing is a complex process consisting of various component cognitive processes is accepted. It is manifestly true that writing involves different processes, including planning, composition and revision, and the evidence now available supporting the distinction between various cognitive processes, such as that between transcription and composition, is compelling. To this extent, psychological

work has informed the theoretical framework for this study in important ways. However, this study is not psychological in nature, nor does it adopt a psychological theoretical framework.

Perhaps most significantly, this is because cognitive models do not acknowledge the centrality of choice to writing; their focus on processes leads to an underappreciation of the active decision-making of the writer. That is to say, cognitive models focus on *what* writers do rather than *how* they do it. For example, the process by which ideas are transformed into sentences, generally known either as "translation" (Flower & Hayes, 1981) or "composition" (Berninger, 2000), forms a major part of the cognitive models of writing yet they offer relatively little insight into *how* writers produce sentences to represent ideas. This treatment of composition as a single entity masks a significant complexity: during this process, writers make a vast number of decisions with regard to vocabulary, syntax, semantics, pragmatics and more besides to craft their message, and this myriad of choices is hidden by the single label of translation or composition. With regard to the development of writing, composition is thus not a process that can be simply 'acquired' but is rather the outcome of the accrual of substantial knowledge. Children must acquire extensive linguistic resources including vocabulary, syntax and more, in addition to sufficient knowledge about when different options might be most appropriate, in order to make the decisions required for effective composition. In the context of education, if teachers seek to support children in making increasingly optimal choices, and thereby improve the quality of their writing, an understanding of the choices writers make and the linguistic resources they require to do so is critical.

However, despite somewhat general acknowledgements that writing requires a range of linguistic resources (Chenoweth & Hayes, 2001; McCutchen, 2023), a psychological theoretical model does not offer the theoretical tools to understand how a writer makes these decisions or, by extension, how to support children in making more optimal choices. This gives the cognitive models a somewhat descriptive rather than explanatory quality: they suggest writers 'generate' text but offer little insight into how writers make the decisions involved in doing so, what considerations they might need to bear in mind or the possible options that they may be deciding between. In the case of revision specifically, cognitive models make clear that revision is part of writing, but do not provide detail about *how*

writers make decisions regarding which text to revise or how to improve it. In short, by emphasising process, cognitive models make clear *that* writers make decisions but not *how* they make these decisions.

A second limitation of the cognitive models of writing described above is that they provide only a limited account of how developing writers acquire the component cognitive skills involved in writing. With regard to transcription, the concept of fluency and the related constraining role of working memory offer helpful insight into the development of writing. The decades of research on how developing writers differ from their more accomplished counterparts and the empirical evidence that a lack of fluency in transcription can constrain overall writing quality and impede the emergence and development of higher-order processes in writing is compelling.

However, it is unclear how the concept of fluency may apply to composition. Effective composition requires judgement: it relies on extensive knowledge of available linguistic options as well as knowledge of when each might be an appropriate choice. Critically, part of what makes composition difficult is that the knowledge required differs extensively from text to text. For example, optimal vocabulary choices will depend on, for instance, the topic at hand, the required level of formality and the audience of the text and what they are believed or assumed to know. As such, making effective vocabulary choices requires not only that a writer have a broad vocabulary to choose from, but also the knowledge to understand how these factors will affect whether a particular choice is more or less appropriate. Composition is, as such, profoundly different to transcription: the latter consists of a finite body of knowledge, be it letter formation in the case of handwriting or phoneme-grapheme correspondences and the words in which they are used in the case of spelling. As such, fluency in handwriting and, to a great extent, spelling can be developed in one text then applied to another. In contrast, the body of knowledge required for effective composition differs from text to text and is therefore infinite. In short, though the psychological concepts of fluency and working memory may be helpful in understanding what may impede effective composition, they are less helpful in understanding how composition develops once these impediments have been removed. The case of revision is similar: cognitive models offer an understanding of why revision may be difficult, given the high levels of cognitive demand it

presents, but they do not offer an understanding of how writers develop the judgement to know which text to revise or how to improve it.

For the purposes of this research project, some of the fundamental tenets of the psychological view of writing are accepted. In particular, it is accepted that writing is a composite of other processes and that fluency in some of the lower order of these processes allows for the emergence and development of other, higher order processes. The argument that this is due to the limited capacity of working memory and fluency reducing the working memory burden of these processes is also compelling. However, there are two significant limitations of the cognitive models of writing. First, they offer only a limited account of translation or composition: writers make a wide range of decisions when turning their ideas into text and the cognitive models do not offer the theoretical tools to explain how these decisions are made or the resources needed to do so. Importantly for this study, this is also true of revision: cognitive models explain that writers do revise, but do not provide an account for how they make decisions about which text to improve and how to do so. Second, and relatedly, beyond the concept of fluency, cognitive models do not explain how particular processes are acquired. For example, if composition is taken to involve a wide range of choices, cognitive models do not explain how children acquire the range of choices or how they develop the necessary judgement to decide which choices are more optimal. This is critical for the present research because revision relies on similar judgement both to locate text that requires revision and to write superior text. As such, a theoretical framework is required which acknowledges the importance of developing this judgement and the central role of choice in writing.

2.2   Sociocultural views of writing

Central to sociocultural views of writing is an acknowledgement of and interest in the social and cultural circumstances surrounding the individual writer (Bazerman, 2015; Heap, 1989). While the psychological view described above may be characterised by a primary interest in the internal cognitive processes of the individual writer, the sociocultural view sees the writer enmeshed in a wider social and cultural context which profoundly affects the linguistic and other choices writers make. The writer's position in wider society and the culture and

history of that society all play a role in how meaning is derived from the written word (Kress, 1982). This reflects Dewey's position that foregrounds language as communication rather than the "expression of something antecedent", widening the focus beyond the individual user of language (Dewey, 1958: 179). As such, the context in which a text is produced, including its purpose, its audience and their relationship to the writer, prior texts and the wider culture are all important to a sociocultural understanding of writing.

A primary object of concern for many scholars connected with a sociocultural view on writing or language generally is meaning. Their concern is less focussed on the *process* by which a writer creates text but rather how writers use language to craft meaning and how wider cultural and other factors influence this meaning-making. Lev Vygotsky, whose influence on the sociocultural view of writing may appear paradoxical given the impact of his psychological work, suggests that language, and, by implication, writing is an "indirect (mediated) activity" (Vygotsky, 1978). This involves the use of tools and signs, both of which are means of mediating between the individual and the wider environment in which they find themselves. Vygotsky draws on Marx's thinking in his understanding of a tool as something that an individual uses in order to make changes to an object or objects in their physical environment such that they better suit the individual's uses of that object. In contrast, signs do not make changes to the environment directly but rather carry a meaning that may result in behavioural changes in the individual themselves or another individual (Vygotsky, 1978).

Importantly for the context of education, Vygotsky argues that signs develop through a process of internalization, which he defines as "the internal reconstruction of an external operation" (Vygotsky, 1978: 55). He uses the example of infants learning to point to exemplify this. Young children may initially reach out towards something in an attempt to grasp it, but an adult near them may understand the child's desire from this action and pass them the object in question. Over time, the child learns that they can use pointing (a sign) to express their desire to others, who will then act on the intention of the sign and give them what they want. Crucially, during this process of internalization, "an interpersonal process is transformed into an intrapersonal one" (Vygotsky, 1978: 56). In the example given above, it is only when the adult shares their cultural understanding of pointing with the child that the child can internalize this and understand the meaning of pointing for themselves. The

acquisition of signs, of which words and language are important examples, is thus one of enculturation as children learn to use signs in appropriate situations to make meanings which others understand. As such, learning to write is not seen as the acquisition of specific cognitive processes by the writer but rather the development of cultural understanding regarding when different words and language forms can be used appropriately to make particular meanings.

Part of the reason why learning to write is so complex and the process of enculturation described above so important is that meaning itself can be understood to derive from the context in which language is used. One prominent proponent of this view was Bertrand Russel, who argues in *An inquiry into meaning and truth* that three elements inform the meaning of a sentence, all of which are notable for their focus on social context: "the environmental causes of uttering it [i.e. context], the effects of hearing it [i.e. audience] and (as part of the causes of the utterance) the effects which the speaker *expects* it to have on the hearer [i.e. purpose]" (Russel, 1940: 27). Furthermore, Russel outlines two aspects of learning to speak: muscular dexterity and using words "on appropriate occasions". As such, meaning for Russel is an interaction between language and the context of its use, and learning to make meanings therefore becomes a process of socialisation into the appropriate use of language forms.

Another significant philosophical contribution to the argument that meaning is an interaction between language and the context in which it is used was made by Russel's student Ludwig Wittgenstein. Wittgenstein coined the term "language games" to describe "the whole consistency of language and the action into which it is woven" (Wittgenstein, 1953: 5). The notion of language being woven into action is the basis for the slogan subsequently attributed to Wittgenstein's work: "meaning is use", which sees linguistic meaning being embedded into human actions more widely (Hanna, 2010). In language games, the meaning of words is determined by how they are used by individual speakers (ibid.). "Meaning is use" encapsulates an important advance in the understanding of meaning because it broadens the types of meanings that can be accounted for. For example, implicature (when meaning is implied, not directly stated), indexality (when reference is made in language to the immediate context where the reference is made), hyperbole and sarcasm all rely on the context of language to be appropriately understood. This idea cannot

be overemphasised: Wittgenstein is not merely suggesting that language has a social dimension because it is used to communicate ideas between individuals and groups. Much more profoundly, he is arguing that meaning itself is determined by social context, making the two inextricable.

The idea that social context at least contributes to meaning supports the notion that children go through a process of enculturation in which they develop understanding about the interaction between words and language and social context. However, taken together, they imply a concept made more explicit in Hallidayan *systemic functional linguistics*: choice (Halliday, 1975, 1985). Based on their knowledge of the social context and how this will affect meaning, individuals make choices about which words or language forms are likely to be most apt in making meanings most closely reflecting what they intend. Kress (1982, 1997) is clear that the centrality of social context to meaning in spoken language is mirrored in written language: as writers are social individuals with cultural knowledge, purposes and intentions, social context inevitably plays a role in the production of written texts. As such, choice is a key organising principle in the sociocultural understanding of writing: writing is a process of matching intended meaning with possible ways of conveying it in light of the specific social context in which it is used (Kress, 2003).

The Hallidayan notion that writers make choices when producing text not only enjoys the ecological validity of reflecting many writers' experiences of the writing process, but also offers a theoretical understanding of developing writers. If writing consists of making choices, the writing of developing writers will be constrained by the number of options with which they are familiar and their judgement concerning which options are the most appropriate: writing is thus underpinned by extensive knowledge. This can be explained with reference to the Hallidayan notion of "meaning potential" (Halliday, 1975): language is seen as a semantic system in which formal structure is not the primary focus. This means that children learn language "as a system of meanings in functional contexts, these contexts becoming, in turn, the principle of organization of the adult semantic system" (Halliday, 1975: 9). In other words, Halliday rejects the notion that language is 'acquired' as if through absorption and sees it as centred around meanings and, crucially, how these interact with social contexts. The teaching of writing thus becomes a process of equipping developing writers with (i) a knowledge of available options (including vocabulary and grammar) for

selection in their writing and (ii) a knowledge of how these interact with social context in order to allow the developing writer to make increasingly optimal choices.

If writing consists of choices, and the teaching of writing includes equipping a developing writer with the knowledge required to make apt choices, it is important to consider the factors that may determine whether or not a given choice is appropriate. Among the more heavily researched of these considerations is audience awareness (Bazerman, 2017). Theoretically, the link between effective writing and an awareness of the potential reader(s) is not new. As early as 1929, there were some who considered the word and its ability to carry meaning as a product of the relationship between speaker and hearer, or indeed writer and reader (Volosinov, 1973). Subsequent empirical work has also found a clear relationship between audience awareness and the quality of written composition, both in adult writers (Berkenkotter, 1981; Sommers, 1980) and children (Frank, 1992). This is because effective writers use their knowledge of the text's audience, including their needs, probable knowledge and expectations, to inform the choices they make with regard to content, vocabulary, grammar and form more generally (Alamargot, Caporossi, Chesnet, & Ros, 2011). This helps to explain the complexity of writing: it requires negotiation between the writer's intended meanings and the anticipation of how the perceived reader will respond (Brandt, 1990).

Naturally, if successful writers make choices to reflect their knowledge of the audience of the text, then learning to write must include building an understanding of the expectations and demands of a reader (Bawarshi, 2003) so that a developing writer can make such choices. Indeed, some research has suggested that merely specifying an audience for children's writing (rather than allowing them to assume that the writing is merely for evaluation by a teacher) leads to higher quality written outcomes (Block & Strachan, 2019; Cohen & Riel, 1989). Other research has suggested that particular approaches to teaching may support children's developing audience awareness. This includes giving children the opportunity to experience similar texts, both successful and less successful ones, as readers themselves before writing (Holliway & McCutchen, 2004) and providing specific goals related to audience awareness such as anticipating and rebutting alternative arguments in persuasive writing (Midgette et al., 2007). For these reasons, it is not surprising that there have been high-profile pedagogical methods that have sought to foreground the importance

of audience in writing. One notable example is the 'process approach', primarily associated with Donald Graves. This approach focuses on writing as a craft; children are encouraged to select their own topics for compositions in order to increase motivation, while genuine purposes and audiences are sought in order to focus children's attention on the text's meaning (Graves, 1983). The teacher then works in a role akin to an editor in writing workshops where children are encouraged to share their work and offer each other feedback, essentially acting as an audience for each other's writing, before redrafting their texts.

Interestingly, though audience awareness is a sociocultural consideration, some studies have researched it in relation to psychological concepts. For example, Carvalho (2002) suggested that audience awareness may present a particular challenge to developing writers because of the psychological concept of working memory. Because the latter is limited, if a writer is yet to become fluent in lower order processes in writing, their working memory does not have sufficient capacity to allow for a consideration of the needs of an audience. Carvalho's study examined the effect of procedural facilitation on audience awareness in fifth and ninth grade students. Participating children were taught to use a simplified and highly scaffolded process involving prompts during the writing process to promote audience awareness. The study concluded that such procedural facilitation may support the development of audience awareness and thereby allow children to produce higher quality texts by reducing the burden of audience awareness on working memory. This study is interesting not only for its own findings, but also for its blending of theoretical concepts from the sociocultural and psychological traditions.

In addition to knowledge about the audience for a text, another consideration that guides a writer's choices and contributes to their appropriateness is genre. An understanding of genre helps a writer to identify possible audiences for the text as well as criteria for evaluation and probable expectations that should be met (Bazerman, 2017). Genre may also guide more fine-grained decisions by being associated with particular vocabulary or language forms (Hyland, 2004) or particular content. As such, genre acts as a constraint on the writer (Pinto, Tarchi, & Bigozzi, 2020) by creating expectations of the written outcome that ultimately limit the choices available to them. However, an understanding of these constraints is ultimately supportive of effective writing: successful writers use their prior

knowledge of genres to identify similarities and differences in new writing situations (Reiff & Bawarshi, 2011), which thereby supports effective decision-making during composition.

Given the role of genre in guiding and constraining the choices made by the writer, it is important for developing writers to acquire a strong understanding of genres and knowledge of the language associated with them in order to ensure the choices they make in their writing are appropriate. This is likely to pose a particular difficulty to developing writers because different genres place different demands on them with regard to both language and content (Pinto et al., 2020; Zecker, 1996). In addition, some research has suggested that children may be significantly more familiar with the language associated with fictional narratives than with other genres (Durrant & Brenchley, 2019). Consequently, effective writing teaching must equip children with a wide range of genre knowledge: first, to support them in making optimal choices within these genres and, second, so that this knowledge can be applied to novel writing situations.

In summary, the sociocultural view of writing offers a very different understanding of writing to cognitive models. This is primarily due to a different focus of interest; while cognitive models seek to understand the internal processes of the individual writer, the sociocultural view is broadly more concerned with the social aspects of writing, in particular meaning and how meaning is established. As such, the notion of *choice* becomes a key organising principle of writing: writers make choices, both with regard to the language they use and to the content they include. Writing could thus be said to rely to a significant degree on the writer's judgement and learning to write involves honing this judgement over time. However, this judgement is underpinned by wide-ranging knowledge: writers need knowledge of available options (e.g. by having a broad vocabulary) but also of how the audience of the writing, the context and the genre both constrain and inform which options are likely to be more appropriate on a given occasion. If one accepts the importance of choice in writing, as well as the role of context and audience in meaning-making, there are potential implications for the teaching of writing. This is because the development of writing is no longer a matter of acquiring cognitive skills but of developing mastery of a set of "social practices" (Beach, Newell, & VanDerHeide, 2015), and learning to use them appropriately. Difficulties may therefore arise when children learn to write if the text they are trying to produce is situated within a social structure of which they have had little or no experience (Kress, 1982). Clearly,

then, the teaching of writing must support children's development of the extensive knowledge required to make optimal choices in their writing.

2.3   Knowledge and choice: a theoretical framework

Despite the "disciplinary silos" (Wyse, 2017) described above, some have suggested that the psychological and sociocultural approaches to writing are not necessarily mutually exclusive and have a certain complementarity. The psychological view focuses on the individual writer while the sociocultural focuses on the wider context. Ivanič (2004) formalises this idea and proposes a "multi-layered view of language". She presents this model as a series of concentric circles with the text at the centre, surrounded by the individual's cognitive processes and then the social and cultural context. This approach does hold a certain appeal: it very explicitly takes the position that psychological and social processes are both at play as parts of the complex phenomenon of writing. This model reflects Bruner's (1990) notion of cultural psychology: Bruner argues that culture should be put at the centre of psychology because humans cannot exist without it, bridging the gap between psychological and sociocultural approaches to meaning and language.

Graham (2018) offers a more recent attempt to unite the cognitive and sociocultural elements of writing within a single model: the "Writer(s)-Within-Community" model. In this model, writing is explicitly considered to be shaped both by the writing community in which a writer is embedded and the cognitive capabilities and resources of the individual writer. The "writing community" consists of writers, possibly alongside collaborators, including teachers, who are working to accomplish one or more purposes by creating a text that will have one or more readers. This understanding of the writer-in-community provides scope for the inclusion of important sociocultural considerations of writing, such as its aims and purposes, the writer's consideration of the needs of the reader and wider social, cultural, institutional or indeed political forces.

However, the Writers-Within-Community model also explicitly considers the cognitive resources of the individual writer. These include a range of resources that are familiar from the cognitive models of writing described above. First, these resources include knowledge in long term memory, such as knowledge of oral language, relevant content knowledge and

specialised writing knowledge. Second, the model outlines "control mechanisms" such as working memory and executive functions. Third, the model includes a group of cognitive processes labelled "production processes", which include ideation, translation and transcription among others. Crucially, the Writers-Within-Community model does not merely outline the sociocultural and cognitive factors involved in writing separately. Rather, it is a central tenet of the model that there is significant interaction between the two elements of the model. For instance, while the overall aim of a text may be informed by the writing community, the particular language chosen to achieve this aim is drawn from choices available in the long term memory.

The Writers-Within-Community model also has implications for the development of writing. If writing is shaped both by the writing community and by the resources of the individual writer, it is logical that both of these elements will also contribute to the development of writing. For example, when developing writers join a writing community, which could include a primary school classroom, they may learn about the purposes of writing or how writing is received by an audience, as well as possible choices that may support them to achieve particular effects in their texts. However, writing development is also underpinned by individual cognitive changes, such as the automation of transcription skills to reduce their burden on working memory as described above.

In short, both the cognitive and sociocultural views of writing have contributed to our understanding of writing and its development, and scholars are increasingly clear that the two views are not mutually exclusive. It is for this reason that, though the research reported here is primarily sociocultural in nature, the theoretical understanding of writing borrows elements of the frameworks developed by both traditions, as outlined in the four key ideas below:

1. **Choice is at the heart of writing.** Writers must make choices with regard to content, form and language. Considerations such as audience, context, purpose and genre constrain and inform this decision-making.

2. **The ability to make apt choices is underpinned by knowledge.** The judgement required to make apt choices in writing requires extensive knowledge (i) of available linguistic and other options and (ii) of how sociocultural factors interact to determine the appropriateness of a given choice.

3. **Writing is a composite of processes.** Writing is made up of a number of component cognitive processes such as planning and transcription, and revision is one such process. All of these processes require choices to be made by the writer and are therefore supported by the knowledge described above.

4. **Working memory constrains writing.** Due to the complexity of the writing process and the limited capacity of working memory, automaticity is required in lower-order elements of writing in order to allow the writer to attend to higher-order considerations.

From this perspective, learning to write is the development of as full an awareness as possible of the available options alongside an understanding of how contextual factors (including the audience, purpose and wider sociocultural context of the writing) may mediate which choices are more appropriate in a given piece of writing. That is to say, learning to write involves the acquisition of linguistic resources (Blommaert, 2013) alongside knowledge of the conventions governing their appropriate usage. It should be noted that it may be possible for children to acquire these resources without a wider awareness of what may make particular choices appropriate on a given occasion. Evidence from questionnaires completed by children about their own writing suggest that teacher approbation can be a key factor in children considering the success of their writing. For example, Lambirth (2016) conducted a questionnaire across 17 primary schools in England and found such a response from over 40% of children responding to a question about what made a piece of writing effective. This suggests that children's successful choices in writing may sometimes mask at least some degree of performativity. That is to say, children's writing may reflect what they believe their teachers want to see in their writing as well as the results of their own decisions about which choices may be appropriate.

Effective writing thus relies on a wide range of knowledge, and the importance of various forms of knowledge represents a notable commonality in virtually all models of writing from varying traditions (Saddler & Graham, 2007). For example, in the *Cognitive Process Theory*, there is a role given to long term memory as a store of this knowledge that can be deployed during one of the constituent cognitive processes of writing. In the *Simple View of Writing*, 'composition' necessitates a knowledge of words and sentence structures in order to give form to ideas the writer seeks to express. From a sociocultural perspective, the ability to

write, and indeed the ability to make meaning in any form, is underpinned by considerable linguistic and wider cultural knowledge. However, despite the broad theoretical agreement that knowledge plays a role in the process of writing, it is rarely considered in empirical research on writing (Ferretti & Lewis, 2019; Olinghouse, Graham, & Gillespie, 2015), or indeed on revision specifically. This is particularly true of linguistic knowledge, which has been described as a "forgotten context" in writing research (Blommaert, 2005: 58), possibly due to a perceived link between the notion of linguistic knowledge and an outdated and prescriptive approach to the teaching of grammar in writing (Wilson & Myhill, 2012). However, given the centrality of knowledge to an understanding of writing centred on the concept of choice, it is important to consider research findings regarding the role of knowledge in writing.

Research into the specific role of knowledge in writing has broadly considered two forms of knowledge. First, a relatively small amount of research has sought to understand the relationship between writing knowledge and writing quality. Writing knowledge, sometimes known as "discourse knowledge" elsewhere, includes knowledge about various forms of writing such as genres, metaknowledge about the processes involved in writing and, crucially, linguistic knowledge such as syntax and morphology (Olinghouse et al., 2015). Some researchers also include knowledge of vocabulary as part of writing knowledge while others consider it separately. Second, researchers have examined the relationship between topic knowledge and writing quality. Topic knowledge refers to what the writer knows about the subject that is being written about. Though most studies into the relationship between topic knowledge and writing quality have involved non-fiction genres, it is plausible that it could also play a role in fiction writing. For example, historical fiction clearly relies on knowledge of the relevant historical era. More prosaically, it is plausible that a child writing a story set in a forest, for example, will make use of their knowledge of forests, what they are like and what can be found there etc.

Olinghouse and Graham (2009) examined whether writing knowledge predicted the writing quality of developing writers (in grades 2 and 4) once a number of other variables (including handwriting fluency, spelling, attitude to writing, planning skills and basic reading skills) had been controlled. This involved writing a story and answering a series of questions designed to offer an understanding of participants' writing knowledge. The researchers concluded that

writing knowledge made a significant contribution to writing quality, length and vocabulary diversity beyond the variables that were controlled. Importantly, the finding that writing knowledge predicts writing quality in developing writers has also been reported by other researchers. Wijekumar et al found such a relationship in their study involving 179 fifth grade students (Wijekumar et al., 2018), as did Kim (2020) in a study with 132 grade 4 students. Other researchers have examined the role of writing knowledge in the production of specific types of text. Ferretti and Lewis (2019) interviewed 96 fourth and sixth grade students to gain an insight into their knowledge of persuasion and persuasive writing before asking them to write a persuasive text. They found that knowledge of persuasion predicted the persuasiveness of the participating children's texts. In short, writing knowledge about genre was linked with higher quality composition.

It also appears that the relationship between writing knowledge and writing quality exists across a wider range of writers with regard to their age and experience of writing. A number of studies with younger children have identified this relationship in writers in kindergarten (Kim et al. 2011) and in first grade (Kim & Schatschneider, 2017). A particularly large study involving 527 first grade students also found that writing knowledge makes a unique contribution to writing quality when the effects of children's transcription abilities (e.g. handwriting and spelling) are controlled (Kim, Al Otaiba, Folsom, Greulich, & Puranik, 2014). Although studies examining the relationship between writing knowledge and writing quality among more experienced writers are few, there is also some evidence that the same relationship exists among adult writers (Perin, Keselman, & Monopoli, 2003). Torrance, Fidalgo and Garcia (2007) examined the relationship between writing knowledge and writing quality among children in sixth grade in Spain, and indeed do report identifying such a relationship. The fact that this study was conducted outside the anglophone world provides compelling additional evidence for the relationship between writing knowledge and writing quality. The researchers also report that teaching writing knowledge led to better outcomes in their study; that is to say, the relationship between writing knowledge and writing quality *may* be causal.

The possibility that the writing quality of developing writers may be constrained by their writing knowledge is also supported by research from outside the domain of writing research. In particular, studies in developmental linguistics have identified that children

continue to develop their knowledge of vocabulary (Dockrell, 2004; Nippold, 2004); idioms, metaphors and similes (Nippold, 1998) and pragmatic skills (Cekaite, 2012) well into the later years of primary school. Given that writing is language, it is understandable that it may be constrained by the lack of particular types of knowledge when children's language in general is still very much in development.

Turning to topic knowledge, Olinghouse, Graham and Gillespie (2015) compared the relative contributions of writing knowledge and topic knowledge in the writing of fifty students in fifth grade. The participating children were asked to write a story, a persuasive text and an informative text about outer space while their writing knowledge and topic knowledge were both assessed by a series of questions. The researchers found that *both* writing knowledge and topic knowledge contributed to overall text quality in all three genres, and that topic knowledge even predicted the inclusion of genre-specific elements in the informational text. Later work has suggested that topic knowledge predicts both compositional quality and length in developing writers (Graham et al., 2019), while others have suggested that topic knowledge is the single most robust predictor of writing performance (Wijekumar et al., 2018).

One particular form of knowledge that is essential to writing is vocabulary: it is only with a good knowledge of words and their meanings that one can express oneself effectively. Vocabulary knowledge straddles topic knowledge and writing knowledge: on the one hand, a high level of topic knowledge is likely to offer writers a wealth of technical or content-specific vocabulary while on the other vocabulary can also be genre-specific or associated with particular registers (Olinghouse & Wilson, 2013). Researchers examining the relationship between vocabulary knowledge and writing quality have developed a range of measures of vocabulary including lexical diversity (the range of words used) and lexical sophistication (the prevalence of words generally used infrequently). Olinghouse and Leaird (2009), in a study involving 92 second grade children and 101 fourth grade children identified a correlation between both of these vocabulary measures and writing quality. They also identified differences in both measures between the second and fourth grade children. Later research with older children found a similar link between vocabulary knowledge and writing quality. Olinghouse and Wilson (2013) asked 105 children in fifth grade to write a fictional narrative, a persuasive text and an informational text. They found

that lexical diversity was linked to quality in narrative writing, knowledge of register was linked to quality in persuasive writing and content-related vocabulary was linked to quality in the informational text. Gomez Vera et al (2016) conducted a similar study with Spanish-speaking children in fourth grade in Chile. This was a large-scale study involving 685 children writing three types of text: a narrative, a persuasive text and an informational text. The researchers found that lexical diversity was a significant determinant of quality in both the narrative and persuasive texts, while the same was true of lexical sophistication in narrative and informational texts.

Taking into account the evidence from the various studies into vocabulary knowledge and compositional quality, it appears likely that vocabulary knowledge, both lexical diversity and lexical sophistication, play a role in ensuring quality in writing across a range of genres. However, it should be considered that the level of knowledge required to use a word in writing may be more significant than it can appear. In order to make use of a word in writing, children must not only 'know the word', but also its spelling, its connections with particular genres or registers and any connotative meanings it may carry. Thus, though lexical diversity, that is to say a breadth of vocabulary knowledge, may be linked to quality in writing, a depth of vocabulary knowledge is also required in order to use vocabulary effectively (Dobbs & Kearns, 2016).

In summary, alongside the theoretical assumptions in both cognitive and sociocultural understandings of writing, there is clear empirical evidence that writers rely on extensive knowledge in order to write effectively. Writing knowledge (i.e. knowledge of grammar, register, genre and more), topic knowledge (i.e. knowledge about the subject being written about) and vocabulary knowledge have all been shown to be related to quality in the writing of developing writers. In a theoretical framework grounded in the notion of choice, there is a clear reason for this: the more options a writer knows (for example with regard to vocabulary or syntax) and the richer their knowledge with regard to these options, the more likely they are to make optimal, or indeed appropriate, choices. Learning to write thus requires the accrual of extensive knowledge over time and gaps in this knowledge among developing writers may lead them to make choices that are not optimal, or indeed adequate.

2.4   The teaching of writing in England

The teaching of writing in most primary schools in England is shaped by the *National Curriculum* (Department for Education, 2013a) and the ways in which children's attainment in writing is assessed, primarily for the purposes of school accountability, in their final year of primary school. The *National Curriculum* is broken down into 'Programmes of Study' for each year group (Department for Education, 2013b). In these statutory documents, writing is explicitly separated into transcription, which is defined as "spelling and handwriting" (Department for Education, 2013b: 5) and composition, defined as "articulating ideas and structuring them in speech and writing" (ibid.). This distinction is used throughout the programmes of study; for each year group, there is a list of aspects of transcription and composition that should be taught and learnt. As one might expect, given the potential constraining role of transcriptional fluency on composition, the balance between transcription and composition is in favour of the former in younger year groups and the latter in older year groups.

A third strand of the writing curriculum present in the programmes of study for all year groups, alongside transcription and composition is "vocabulary, grammar and punctuation". The extent of the grammar knowledge prescribed by the *National Curriculum* goes significantly beyond what was outlined in its previous iterations. It ranges from leaving spaces between words and joining clauses with the conjunction 'and' in year 1 to "using passive verbs to affect the presentation of information in a sentence" and "subjunctive forms" in years 5 and 6. This strand of the curriculum is controversial due to the perceived utility of grammar teaching: there exists extensive, though not yet definitive, research evidence that formal grammar teaching does not improve the quality of children's writing (Andrews et al., 2006; Wyse & Torgerson, 2017). However, others have argued that this position lacks nuance and that the approach taken to the teaching of grammar can affect its impact on the quality of children's writing. In particular, some research suggests that when grammar teaching is contextualised within writing lessons, it can have a more positive impact on the quality of children's writing (Myhill, Jones, Lines & Watson, 2012; Myhill, 2021). In the terms of the theoretical framework described above, this means that when grammar teaching not only teaches children about possible choices in writing but does so in a contextualised way, including teaching regarding the effects of particular choices and why

they might be made, it has more impact on the quality of children's writing than if grammar is taught discretely.

Though the extent of the grammar knowledge outlined in the *National Curriculum* is likely to have led to an increase in the amount of grammar teaching in England, it is not clear to what extent this grammar teaching is 'contextualised'. Indeed, though research has found that teachers in England espouse the principles of 'contextualised' grammar teaching, their students often emphasised discrete teaching as a common experience of English teaching, particularly in the final year of primary school (Cushing & Helks, 2021). This may be due to the presence of statutory appendices to the *National Curriculum* that list grammatical terms that children must know and the fact that this knowledge is tested in *End of Key Stage 2 Assessments* in the final year of primary school, a key means by which primary schools in England are held to account for children's learning. This happens both in the form of a specific *Grammar, Punctuation and Spelling* test in addition to an assessment regime for writing more generally that relies on teacher assessment. The latter is based on the 'Teacher Assessment Framework' (Department for Education, 2018), which includes a number of criteria that children must meet in order to be deemed to have achieved the 'expected standard'.

With regard to revision, the *National Curriculum* expects children to learn "to revise and evaluate their writing" (Department for Education, 2013b: 5). This begins in year 1, where children should be taught to "check that [their writing] makes sense" (ibid.: 14). In year 2, children are expected to "proof-read to check for errors in spelling, punctuation and grammar" and, more generally, to "make simple additions, revisions and corrections" (ibid.: 21). By the end of primary school, children are expected to "assess the effectiveness of their own and others' writing" and, more specifically, to "propos[e] changes to vocabulary, grammar and punctuation to enhance effects and clarify meaning" (ibid.: 37). These references to revision are notable for their vagueness (e.g. "assessing effectiveness" and "making simple revisions") and for the extent to which they are linked to the spelling, punctuation and grammar knowledge described above.

Though reference is made to revision in the programmes of study for all year groups, it is not clear how much teaching time is devoted to teaching children to revise. Indeed, Dockrell, Marshall and Wyse (2016) suggest that planning, revising and reviewing are among the least

frequent writing activities in English primary schools. It should be noted, however, that this research was conducted shortly after the introduction of *National Curriculum* in England in 2014 and may therefore be somewhat out of date. Nonetheless, there does not currently exist any research evidence that there has been any major change in the frequency or nature of revision teaching since the publication of this study.

2.5   A note on Standard English

If writing consists of a writer making choices about vocabulary, syntax or other features, and these choices can be more or less optimal, or more or less adequate, it begs the question of how such judgements can be made. This is particularly pressing as this research deals with revision, at the very heart of which is the notion of improving, or even 'correcting mistakes', which implies such judgements can be made with relative consistency. Furthermore, the very idea of teachers helping children to revise their own writing suggests at least some degree of objectivity. As such, for the purposes of this study it will be important to establish a clear perspective on the concept of 'mistakes' in writing and the related role of Standard English. This is particularly so given the context in which this research took place: the *National Curriculum* in English explicitly mandates that children are taught to use Standard English.

Some researchers, who mostly take a sociocultural approach to the understanding of writing, broadly reject the notion of 'mistakes' in writing, instead seeking to develop a framework which understands children's writing, or meaning-making, without viewing it as deficient. These perspectives are profoundly affected by the notion of social power with some going as far as to claim that children's interests have been neglected as a result of the dominance of adult interests (Kress, 1997). The usage of specific signs that traditional approaches to literacy may regard as erroneous is recast as creativity (Kress, 2003) and assessment in literacy is viewed as potentially biased because it is based on "metrics pre-determined by those in power" (Bezemer & Kress, 2016: 37).

In part, this view emerges from a wider understanding of how signs are imbued with meaning. For Kress, individuals do not *use* signs but make or create them; they are not drawing on an independently existent and stable set of signs but rather creating their own

43

signs, no matter how mundane the message communicated (Kress, 1982). Consequently, Kress argues, there exists a process by which each individual use of a sign leaves a trace on its meaning for that individual. He gives an example of a child who describes a hill as "heavy" to refer to the exertion needed to climb it and suggests that, as a result of this usage, "his heavy will be different from the heavy of all other users of the language" (Kress, 1997: 91). This assertion that every use of a sign leaves a residue of meaning on the sign itself lacks an empirical underpinning and appears to underemphasise the fact that words exist before a child learns to use them. However, it does provide the basis for the view that when children do not follow adult linguistic conventions, their use of language should not be considered an 'error' indicating a linguistic deficiency but rather a creative and novel use of the linguistic tools to which the child has access.

Such views are shared by other literacy researchers, notably those working within the field of New Literacy Studies, which is grounded in sociological principles and makes extensive use of ethnography as a methodology (Lillis & McKinney, 2013). For example, Street (1993) criticises what he calls the "autonomous" model of literacy which sees it as a monolithic entity, instead arguing that readers and writers are in context and therefore part of power struggles. Street also suggests that literacy as it is taught in schools marginalises children from certain backgrounds because of its focus on Standard English, arguing that "just 'giving' non-mainstream children access to the language and literacy of the ruling group does not itself ensure any change in the power structure" (Street, 2004: 327). Relatedly, he suggests that teachers and researchers "suspend judgement as to what constitutes literacy" due to their privileging of particular varieties of English (Street, 2005: 419).

At their heart, these political arguments are seeking to problematise the position of prestige varieties of English over other social and regional varieties. In part, this is likely to be a response to influential "deficit arguments" (Jones, 2013) like that of Basil Bernstein's codes (Bernstein, 1973). Seeking to explain the disparity in achievement between middle class children and their less advantaged peers, Bernstein suggested that the process of education makes use of an "elaborated code", which is notable for its syntactic complexity and explicitness of meaning. The social disparity in outcomes, Bernstein went on to argue, is due to the fact that middle class children learn this elaborated code outside school, whereas their less advantaged peers acquire a "restricted code" from the home. This code is notable

for the implicit nature of its "context-bound" meanings and is therefore less beneficial to the child during schooling. Bernstein's theory is a clear suggestion that the language of less advantaged children is in some sense impoverished and that social varieties of English differ not just in their surface form but in their expressive quality. Decades of sociolinguistic research has dispelled this myth and established that regional and social varieties of English are *different* from more prestigious varieties, but not expressively inferior or the result of laziness or sloppiness (Constantinou & Chambers, 2020; Edwards, 1993). However, this acknowledgement that social and regional varieties of English are not qualitatively inferior to prestige varieties does not undermine the importance of teaching conventional literacy practices, which generally align closely with prestige varieties of English.

In England at least, most writing in the education system is expected to be in the prestige variety, Standard English. This is "a set of grammatical and lexical forms typically used in speech and writing by educated native speakers" (Trudgill, 1984: 32). Notably, this definition does not include phonological considerations: Standard English is not an accent (though it is sometimes confused or conflated with 'received pronunciation'). For the purposes of this research project, Standard English shall be taken to mean what is outlined in Trudgill's definition but with an awareness that these prestige language forms are on occasion subject to disagreement and change over time. Importantly, this definition of Standard English makes clear that these forms are fundamentally conventional. They are not 'better' or 'correct' forms of English but simply, by convention, associated with and expected in certain social contexts.

The role of Standard English in schools in England is formalised in the National Curriculum: "Pupils should be taught to control their speaking and writing consciously and to use Standard English" (Education, 2013). Following Kress and Street's arguments, this would exemplify the privileging of the specific literacy practices associated with certain powerful groups in society. In a sense, this argument is correct: Standard English is the prestige variety precisely because of the powerful groups with which it has been and continues to be associated (Constantinou & Chambers, 2020). However, arguments that seek to achieve parity of esteem between Standard English and other varieties *in the context of literacy in school* are ill-founded. The fact that the ability to write in Standard English is associated with power and prestige is a reason to teach this variety to children whose spoken varieties differ

from it. Attempting to deconstruct the power structures supporting Standard English as a prestige variety by reducing the focus on its usage by certain groups of children is simply not in these children's best interests. Of course, that is not to say there is no place for non-standard varieties in dialogue, in poetry and possibly other contexts, but that this should be *additional to* a strong grasp of standard written English. In summary, although the challenges to power structures made by Street, Kress and others are important in highlighting the issue, a central aim of writing instruction (in Engand) should be the development of a firm grasp of standard written English precisely because its association with powerful groups means its mastery is beneficial to the child both in education and subsequent employment. It is partly for this reason that a social semiotic theoretical framework that foregrounds these issues of social power is less appropriate for this study. Instead, language and concepts such as 'standard' and 'non-standard' English can non-judgementally refer to varieties of English and can help to examine why certain varieties are more appropriate in certain contexts without implying that either is inherently superior.

However, this is not to suggest that the National Curriculum's reference to Standard English is entirely unproblematic. As Wyse (2017) points out, the National Curriculum's definition of Standard English is almost certainly not sufficiently clear, and the claims made about how widespread Standard English is, and about how consistently it is used by individual speakers, are untenable. Furthermore, the National Curriculum's characterisation of Standard English inaccurately suggests it to be monolithic and diachronically static when, in reality, the linguistic features that constitute Standard English are contested and shifting over time (Constantinou & Chambers, 2020). In addition, the National Curriculum references "the correct use of grammar" on a number of occasions, which suggests a degree of linguistic prescriptivism that most linguists would eschew.

Wyse (2017) offers a third way in this debate that seems polarised between traditionalists arguing from a point of linguistic prescriptivism and progressives like Street and Kress who seek to deconstruct power structures that give Standard English its prestige. He suggests that, instead of a direct reference to Standard English, the National Curriculum could instead mandate the teaching of how the context of an interaction informs which language forms are likely to be deemed appropriate. This position acknowledges not only that both standard and non-standard forms have value and expressive power but also, in different contexts,

both can be the more appropriate choice. The task for schools and teachers thus becomes ensuring that children have the widest possible range of linguistic choices available, naturally including Standard English options, as well as the knowledge to decide which would be the most appropriate on any given occasion. In practice, for schools whose children do not routinely use language choices associated with Standard English, which is likely to be the majority of schools in England, this may lead to an increased focus on teaching these structures. This is not because Standard English is superior to other varieties of English but because the syntactic and lexical choices it offers are the ones with which the children are least familiar and therefore require the most teaching. Importantly, this demonstrates how a school's focus on the linguistic choices offered by Standard English can be empowering for children and not symptomatic of a wider prescriptivist view of language that undervalues social and regional varieties of English.

From this perspective, the results of diachronic studies that show an increase in children's use of non-standard English forms in writing are somewhat worrying (Constantinou & Chambers, 2020; Massey, Elliott, & Johnson, 2005). Between them, these studies cover the period 1984-2014 and show a progressive increase in non-standard forms in children's writing over that period. The authors note that "sometimes this seems appropriate, but often it looks more like poor judgement or simply failure to appreciate the distinction" (Massey et al., 2005: 74). Alarmingly, these studies suggest that the overall increase in non-standard forms is not evenly spread: there has been a significant increase in the extent of non-standard English forms in the writing of lower attaining students and almost no increase in that of higher attaining students. This highlights not that Standard English is a more important or better variety of English but that children require more teaching in the syntactic and lexical options it offers.

It should be noted that this rejection of linguistic prescriptivism, along with its corollary that non-standard forms are simply 'wrong' and standard forms are 'correct English' should not be confused with teachers offering feedback on children's writing. If learning to write is learning to make the most appropriate linguistic choices for the context of the text, then it follows that children, who are novices in writing, will not always make appropriate choices. Though the judgement of what is an optimal choice, or even an adequate choice, may be somewhat subjective, a teacher is clearly more expert in making these decisions than

children in the vast majority of cases. As such, a teacher offering a child feedback, or even directly 'correcting' their writing, is not a tacit acceptance of linguistic prescriptivism but rather an acknowledgement of teacher's more developed expertise in matching linguistic choices to given contexts.

For the purposes of this research, Standard English is considered to provide a range of lexical and syntactic options that are the most appropriate choices for some contexts. This is not to endorse the notion that Standard English is inherently superior to other varieties; it is simply different to these varieties and appropriate in different contexts. As many children more routinely use non-standard varieties outside school, it is important that Standard English is taught to ensure that these children have access to a full range of linguistic options. Finally, it is accepted that, in general, teachers are likely to have a greater knowledge of the choices available to a writer and of the contexts in which different choices are likely to be more appropriate. As such, the arguments of Kress, Street and others are rejected: the teaching of writing, and indeed the teaching of revision specifically, must allow children to develop knowledge of Standard English and when to use it.

2.6   What is revision?

Among researchers taking a psychological perspective, revision is generally seen as one of the component processes that combine to form the complex cognitive process of writing. Indeed, some have argued that revision is itself a complex process made up of a number of sub-processes. Bereiter and Scardamalia (1987) offer a model of revision structured into three parts: compare (C), diagnose (D) and operate (O). In the first step, the writer compares the actual text that they have produced with a mental representation of the final written outcome. As such, a writer's goals for a given piece of writing play a key role in their ability to revise as they are essential for this initial part of the process. Where dissonance is detected, the diagnose function acts to identify the source of the problem and the operate function seeks to correct it, nudging the written text closer to the mental representation. This CDO process is of an iterative nature: the outcomes of the operate function feed back into the compare function.

This model of revision has much in common with the definition of revision offered by Fitzgerald (1987: 484) in her review of the field, which remains one of the most widely used definitions of revision, particularly in psychological research:

> *"Revision means making any changes at any point in the writing process. It involves identifying discrepancies between intended and instantiated text, deciding what could or should be changed in the text and how to make the desired changes, and… making the desired changes. Changes may or may not affect the meaning of the text, and they may be major or minor."*

In both the CDO model and Fitzgerald's definition, a helpful distinction is drawn between diagnosing that a particular part of a text could be improved and identifying how to go about its improvement. Importantly, there is significant empirical data that supports the existence in practice of this distinction: children may not be equally good at detecting areas for improvement and making the relevant changes (Beal, 1990; Beal, Bonitatibus, & Garrod, 1990; Bereiter & Scardamalia, 1987; Berninger et al., 1996; Limpo et al., 2014; Plumb, Butterfield, Hacker, & Dunlosky, 1994). Although findings in the literature are not entirely consistent, they generally point towards detection being the harder of these two elements for developing writers. This may be because revision relies on being able to separate what is written from what is intended; that is to say, a writer must focus on what they have actually written, rather than on what they meant (Beal, 1996), and it has been shown that developing writers find this especially difficult (Bereiter & Scardamalia, 1987).

Another helpful distinction made by both Bereiter and Scardamalia's CDO model of revision and Fitzgerald's definition is that between what is intended and what is written. This is because of its allusion to purpose: if a text is written with a specific purpose in mind, then effective revision should include an evaluation of whether this purpose has been met. However, the concept of a mental representation of the text, that which Fitzgerald refers to as the "intended text", and the idea that, when revising, writers compare the actual text to this intended text, is unconvincing because it fails to account for a range of common phenomena in revision. For example, the idea of an "intended text" would not allow for writers taking their text in unintended directions in response to emerging ideas. In addition, some important criticisms of "dissonance models" of revision (i.e. those that suggest revision relies on the comparison of the actual text and an internalised model of the completed text)

have come from within the field of psychology. Hayes (2004) argues that such models fail to explain delayed responses in revision (i.e. when a text appears acceptable at first but later requires changing), revision on the level of planning, how people revise the text of others or how revision occurs when there is nothing at fault but where improvements can nonetheless still be made.

In a later refinement to his original model (Flower & Hayes, 1981), Hayes argues against the fundamental theoretical position that revision is a cognitive process within writing. He does not refute that writing is a composite of cognitive processes, but rather that revision does not constitute such a process. Instead, he argues that it is a "specialized writing activity" (Hayes, 2012). After the detection of a problem in a text, revision involves the planning of a solution, the translation of that solution into language and the transcription of that language to insert the solution into the existing text. As such, revision is not a discrete writing process but rather the application of writing in the specific context of pre-existing text.

A second theoretical problem with Fitzgerald's definition of revision, and one that is shared by Hayes' description of revision concerns the reference to "any point in the writing process" and revisions made on the level of planning. This definition must include revisions made not only to plans but also to as yet unwritten language (often referred to as "pretext") in addition to actual text. Though this reflects the concurrency and embeddedness of different writing processes (Flower & Hayes, 1981), it presents the practical problem of creating a blurred boundary between composition and revision. If some revisions can take place before any words are on the page, revision becomes almost indistinguishable from composition. In alternative terms, the examination of different options before making a choice in writing is not revision but rather merely considered composition. Revision must involve the reconsideration of a choice that has already been made; it should therefore be limited to changes made to text that has already been composed.

Rijlaarsdam, Couzijn and Van Den Bergh (2004: 193) offer an alternative definition of revision excluding pretext and restricting the definition to "evaluative activities *with written text as input*", as well as avoiding the concept of "intended text":

> *"The (co)author or reviser reviews (part of) the already-written text, to reach a certain goal (communication goal, learning goal), at a certain text level, at a certain moment*

(i.e. draft, final copy), with a certain effect (i.e. improvement, neutral, weakening effect), at a certain level (text, plan, learning) and with a certain cognitive cost."

The reference here to "a certain text level" is advantageous as it acknowledges that a revision may be as simple as an orthographical change or the selection of a different word or as substantial as a major rewrite to reflect the needs of the audience or to include different content. However, this definition also understates the role of linguistic choice in revision and omits the fact that the central purpose of revision is to improve text, even if some revisions fail to do so in reality. As such, for the purposes of this research project, an original definition of revision shall be used:

> Revision means making changes to written text with the aim of improving it. The reviser considers the audience, purpose and goals of the text and evaluates linguistic and other choices made by the writer. Changes are based on a judgement that an alternative choice would be more appropriate or optimal than that of the existing text.

This definition aims first and foremost to reflect an understanding of writing predicated on the Hallidayan principle of choice and the importance of knowledge to the ability to make effective choices. Though the underlying theoretical understanding of writing differs significantly from Hayes', this definition does draw on his idea that revision is not fundamentally different to composition but rather is a specialised example of it. As writing generally, revision involves using a wide range of knowledge to make linguistic choices; writing and revision therefore rely on broadly the same resources. The point of difference between revision and composition is the presence of existing text and the evaluation of the choices made in it.

In addition, the definition above seeks to exclude pretext from revision with the reference to 'written text', but it is important to note that this does not equate with 'completed text', thus acknowledging the iterative nature of writing. This definition emphasises the fundamental purpose of revision, the improvement of text, while also explicitly foregrounding the evaluation of linguistic choices as the mechanism by which areas for possible revision are identified and the revisions themselves executed. Furthermore, though

this definition distinguishes between the reviser and the writer, this does not of course preclude the possibility that these two roles are undertaken by the same individual.

2.7   Types of revision

It is important to recognise at this stage that revisions vary very significantly in form. While revision includes the alteration of a single letter to reflect standard orthography, it is also includes extensive rewriting to alter the content of a text fundamentally. As such, it is helpful to consider how researchers have sought to classify different types of revisions. One particularly important distinction was drawn by Faigley and Witte (1981), who identified a difference between surface changes and meaning changes. Surface changes are generally minor and superficial changes that have only a very limited impact on the meaning of the text, including changes to spelling, tense, punctuation and format. In the context of children's writing, surface changes are commonly minor alterations, often viewed as 'corrections' by the child, that reflect a change from a non-standard form towards a standard form. Meaning changes, in contrast, are more fundamental and include adding or deleting material, manipulating syntax to change meaning, distributing meaning from one sentence into several or consolidating material from multiple sentences into one. Meaning changes are further broken down into macrostructure changes and microstructure changes. Microstructure changes affect the meaning of a text of a limited way and may include the insertion of an adjective, a change in word choice to reflect shades of meaning or the addition of adverbial phrases to aid cohesion. Macrostructure changes have a more significant impact on the text and may affect how the text is summarised. Examples might include rewriting the ending of a narrative or the extensive deletion of content deemed superfluous.

The value of this taxonomy was demonstrated in Faigley and Witte's empirical work, in which 3 inexperienced writers, 3 experienced writers and 3 expert writers all composed a text on the same topic. Importantly, the research showed that only 12% of the revisions made by inexperienced writers were meaning changes, compared to 24% of those made by experienced writers and 34% of those made by expert writers. One could extrapolate from these figures that children would make meaning changes less frequently during revision than

experienced adult writers and that they find these changes more difficult than surface changes to execute, and there now exists much empirical evidence that this is the case (Allal, 2004; Butterfield, Hacker, & Plumb, 1994; Graham, 1997; Limpo et al., 2014).

Faigley's and Witte's taxonomy of revisions is helpful not only because it offers a clear shorthand for describing how extensive a particular revision is, but also because of its possible explanatory power with regard to developing writers. If developing writers find meaning changes more difficult to execute than surface changes, then the distinction between them is helpful to explore when studying the revisions of developing writers. However, researchers have also made use of a number of other ways of classifying revisions. One approach, often referred to simply as 'types of revision' organises revisions by what is done to the text into four categories: addition, deletion, substitution and rearrangement (Sommers, 1980). Similarly to the surface/meaning distinction, this taxonomy of revisions may have utility precisely because developing writers do not use these types of revisions with equal frequency. Empirical evidence suggests that additions and substitutions are significantly more frequent that deletions or rearrangements (Allal, 2004; Dix, 2006). As this dissertation makes reference to a range of types of revision, this particular taxonomy shall be referred to as the 'operation of revision'.

Another approach to the classification or revisions refers to the level of language on which the revision is working, often related to the length of the revision itself (e.g. punctuation, word, phrase, sentence or multi-sentence). This taxonomy, sometimes referred to as the 'unit' of the revision (Crawford et al., 2008) or the 'object' of the revision (Allal, 2004) can offer an insight into the amount of revised text a revision includes. This may be helpful because many studies use the frequency of revisions as a key measure, but without additional information about the nature of revisions, the total frequency offers relatively little insight into the amount of revision that has been completed. For example, a text containing three revisions which are single word additions contains much less revision overall than a text that contains three revisions all of which are substitutions of multiple sentences. However, relatively few studies could be found for the purposes of this review that offered data on the length of revisions, and it was not possible to understand if developing writers are more or less likely to make revisions of particular lengths.

Another interesting but little used approach to the classification of revisions involves their relationship to convention (Allal, 2004; Rouiller, 2004). Revisions can be organised according to whether they are an attempt to ensure the text more closely reflects convention, including standard forms (a 'correction') or whether the revision is an attempt to make text that would already be deemed appropriate more optimal (an 'optional' revision). Though empirical work that makes use of this distinction is limited, there is some evidence that developing writers make fewer optional revisions than corrections. Allal (2004) studied the effects of a period of revision teaching in grades 2 and 6. Among second grade children, only 10% of revisions were optional; this rose slightly to 24% among sixth grade students but remains notably lower than the proportion of revisions that were corrections. Though the evidence is limited, it is plausible that optional revisions pose more of a challenge to developing writers than corrections, possibly because the identification of a possible site for an optional revision is more challenging than the identification of a 'mistake'.

Naturally, the taxonomies of revision outlined above are not mutually exclusive: the same revisions may be classified according to their length, the relationship with convention and whether they are a surface or meaning change. As such, taken together, these taxonomies can offer a helpful understanding of what the revisions of developing writers are like, and therefore how the teaching of revision affects them. However, even when taken together, taxonomies of revision offer only a relatively narrow view of the revisions writers are making and the choices that underpin them. For example, where a particular revision is classified as an addition, is the writer seeking to descriptive detail to their text or to provide context that clarifies meaning? Similarly, if a revision is classified as a substitution, is the writer seeking to make the text more formal, create tension or alter the emphasis in the sentence? For the purposes of this literature review, no studies could be found that attempted to provide this richness of description about the revisions made by writers, including both developing and accomplished writers. However, for developing writers in particular, this wider consideration of their revisions could be fruitful in offering an understanding of whether particular choices or areas of focus predominate and why this might be.

In summary, there exists in the literature a number of approaches to the classification of revisions. This includes the distinction between surface and meaning changes as well as taxonomies based on the length of revisions, the operation of revisions and revisions'

relationship with convention. All of these have offered insights into the nature of revisions by developing writers and would be likely to do so again in future studies. However, even taken together, these taxonomies provide only a narrow view of the nature of revisions; studies to date have not tended to offer richer descriptions of revisions that may offer insight into the nature of the choices made by developing writers when revising. It is of course possible that a study could make use of existing taxonomies of revision *and* provide a richer description of the revisions made by participating writers, and this may prove particularly fruitful.

2.8   Children's difficulties with revision

The study of revision in recent years has been motivated by two related findings that emerged relatively early in the modern study of writing. Firstly, that the revision habits of expert writers are remarkably different to the revision habits of novice writers and, secondly, that revision skills pose a particular difficulty for children when learning to write, especially when it comes to moving beyond surface changes. Qualitative work by Sommers (1980) found that student writers and expert writers had very different conceptions of revision. Interviews with student and expert writers found that the former considered revision to be a process of "cleaning up" the text by correcting spelling and punctuation errors and deleting repetitious material. For the experienced writers, in contrast, revision was a process by which they developed and shaped their ideas, often with consideration of the intended reader. This difference appears to be key, since effective revision skills have been identified as a key marker of an accomplished writer (Bereiter & Scardamalia, 1987), while nearly forty years of further research has since uncovered myriad ways in which revision by developing writers differs from that of expert writers. Novice writers revise both less frequently and less extensively than expert writers (Bereiter & Scardamalia, 1987) and, even among children, more skilled writers revise more extensively than their less skilled peers (Saddler & Graham, 2005). The focus of revision is also different: novice writers focus on word- and sentence-level changes during revision while experts focus on wider-lens, text-level issues (Bereiter & Scardamalia, 1987; Flower et al., 1986). Furthermore, while experts use both online and post-translation revision, children tend to engage in online revision only infrequently (Berninger & Swanson, 1994). Given the many differences in the revision of developing and

accomplished writers, including in the amount of revisions made, it is reasonable to infer that revision is a particularly challenging element of writing for developing writers to develop. As such, it would be instructive to consider why children find revision particularly difficult as, if it is possible to identify potential barriers to children's revision skills, it may be possible to finds way to overcome them.

Butterfield, Hacker and Albertson (1996) identified seven possible problems for developing writers when revising. They may fail to establish their aims for the text sufficiently clearly or fail to understand the point of view of the audience. Issues may also arise during the revision process itself: a developing writer may fail to detect where a revision may be necessary or, even if they notice that a section of text is not optimal, fail to diagnose the cause of the problem. It is also possible that a reviser may diagnose the problem accurately but not know how to resolve it, or lack the necessary problem-solving skills to do so. Finally, it is possible that a reviser may fail to make a revision despite having the prerequisite skills and knowledge, for example due to the cognitive load of the process.

One area of relative interdisciplinary consensus is the idea that it is often the identification of possible sites of revision, be they 'corrections' or optional revisions, that causes difficulty for developing writers rather than the subsequent identification of a remedy (Corden, 2002; Largy, Chanquoy, & Dedeyan, 2004; MacArthur et al., 2004; Plumb et al., 1994). Bereiter and Scardamalia (1987) report on a study in which evaluations of writing made by children in grades 4, 6 and 8 were compared to those of expert writers. Strikingly, the children's overall evaluations of the writing were very similar to those of the experts; the expert writers disagreed with the children in fourth grade in only 10% of cases, and this fell to 5% for the children in sixth grade and 0% for those in eighth grade. However, when children were asked to suggest which parts of the text may require revision and how to do so, the expert writers agreed with the children in fourth grade on only 50% of occasions, though this rose to 74% for those in eighth grade. As such, it appears that children are almost as able as expert writers to identify a generalised sense that a text is not satisfactory but are much less able to find the root cause of this dissatisfaction in the text. Bereiter and Scardamalia suggest that this could be because the children have "incomplete representations" both of the intended and the substantiated text. In other words, they have an insufficiently clear understanding of

the text that the writer is aiming to produce to understand how the written text can be revised to move it closer to what is intended.

A second interpretation of Bereiter and Scardamalia's findings is that children's difficulty in diagnosing sites of potential revision is due to the interference of their interpretation of a text in their ability to analyse and evaluate what is written. In other words, children may see their interpretation of a text as its objective meaning (Beal & Belgrad, 1990), and therefore overlook ambiguity, instances of insufficient or excessive detail, a lack of clarity or other possible reasons for revisions in the substantiated text. Beal (1990) reports on three studies in which fourth and sixth grade children were asked to identify errors in texts and to suggest possible improvements, and then to evaluate different possibilities of revisions prepared in advance. Not only did Beal find that the younger children identified fewer possible areas of revision, but also that younger children were just as able as older children to suggest an adequate improvement to the errors they did find, suggesting that diagnosis not remedy poses the greater difficulty for developing writers in revision. In addition, Beal found that children tended to overestimate the effectiveness of improvements made by revisions when they were asked to evaluate the prepared revisions. This reflects the possible interference of children's interpretation in their evaluation of the substantiated text: because the children were able to draw an interpretation from the text, the text was deemed satisfactory even when more experienced writers may not deem it so. Although this study reports on children's revision skills using a pre-prepared text, there is a clear impact for children's own writing. If children's interpretation of a text can interfere with their evaluation of the substantiated text, it is very plausible that, in their own writing, their intended text will cause similar interference. In other words, children may find the diagnosis of sites of possible revision particularly challenging because they cannot distinguish sufficiently sharply between what they *meant* and what they *wrote*.

In addition, it may be the case that developing writers struggle to take into account the fact that the context of the reader is different to the context of the writer (Bereiter & Scardamalia, 1987). To identify possible sites of revision, a writer must understand how the differences in context between the writer and the reader may lead the reader to identify a meaning other than that which was intended. As such, revision requires a writer not only to understand how their context and the text itself interact to create meaning, but also to

anticipate how the context of a potential reader may interact with the text to create meaning. In short, revision relies to at least some extent on an understanding of the needs of the text's audience and there is evidence that developing writers find this particularly challenging (Bazerman, 2013; Butterfield et al., 1996; Graham, 1997). Naturally, this predicts that instruction that teaches children to consider the needs of the audience may have a positive impact on their revision skills, and empirical research has demonstrated that this is indeed the case (Holliway & McCutchen, 2004; Lopez, Rijlaarsdam, Torrance, & Fidalgo, 2018; Rijlaarsdam et al., 2006).

It is important to note at this stage that, although there is robust evidence that children find revision to be a particularly challenging aspect of writing, not all types of revision appear to be equally difficult. Since Faigley and Witte created their taxonomy, evidence has come to light that inexperienced writers, including children, make significantly fewer meaning changes than their more experienced counterparts (Faigley & Witte, 1981). The evidence for this assertion is robust: this has been found in psychological quasi-experimental studies (Bereiter & Scardamalia, 1987; McCutchen, Francis, & Kerr, 1997), studies based on children revising the writing of others (Butterfield et al., 1994) and where they revise their own writing (Limpo et al., 2014), studies evaluating educational interventions (Graham, 1997) and qualitative studies utilising case study methodologies (Oliver, 2019; Richards, 2010; Saddler & Asaro, 2007).

There also exists evidence that children find online revision (that is to say, revision during the composition process) more challenging than post-composition revision. Berninger and Swanson (1994) studied the revision habits of children during the composition process and noted that they make online revisions only rarely, and that these are often limited to spelling corrections or changes made to individual words. In addition, Torkildsen, Morken, Helland and Helland (2016) used key logging software to analyse the writing habits of 42 7- and 8-year-olds in Norway and found that, though many children revised individual words while writing them, few made revisions that involved text beyond the individual word. Fascinatingly, Torkildsen et al go on to suggest that children's ability to make online revisions correlates with the overall quality of their writing.

One possible cause of the children's difficulty with online revision is the constraint imposed by their working memory and wider executive function. As described above, writing is an

extremely complex process in which individuals must coordinate planning, transcription, revision and other sub-processes, all of which place demands on their executive function and working memory. As writers become more experienced, some of these processes become more automatic and consequently require less of the writer's working memory. In practice, these automated processes tend to be those involved in transcription, meaning the writer has more working memory available for other writing sub-processes such as revision (McCutchen, 2000). Given the very nature of online revision is that it is embedded within composition, children may find it more difficult because transcription processes are not yet automated and, as such, they have less working memory available for online revision than more expert writers. McCutchen (1994) explored this possibility in a series of quasi-experimental studies involving children in grades 3, 4, 7 and 8. These studies involved testing children's working memory in general and in the context of writing. Interestingly, McCutchen found little difference in overall working memory capacity between the two age groups. However, she did find that the older children's memory appeared better when the children were writing, attributing this to the idea that sentence generation processes had become more efficient in the older children, allowing working memory to be re-deployed elsewhere. Importantly, McCutchen also found that more skilled writers performed better on memory tasks in both age groups.

McCutchen's research on the role of working memory in revision, and indeed in writing generally, reflects more general work on the role of working memory in learning. *Cognitive Load Theory* (Sweller, 1988, 2011) suggests that, because the capacity of working memory is limited, if it is overloaded, the individual may not be able to process information well, which may lead to poor learning and retention. An activity with a high cognitive load is thus one that places a high level of strain on working memory, which may result in lower quality learning. This theory is particularly helpful for its application to education; if teachers can lower the cognitive load of an activity, either by helping children automatise elements of it or by providing support, there may be a positive impact on learning. In these terms, revision is challenging to developing writers because of its high cognitive load. This predicts that if teachers can lessen the burden of revision on children's working memory and reduce the cognitive load, the children's revisions may be more effective. As detailed below in more detail, subsequent empirical research suggests that this is indeed the case and, importantly,

this evidence comes from both psychological research (McCutchen et al., 1997) and educational research based in the classroom (De La Paz et al., 1998; Graham, 1997).

Another factor that may contribute to the difficulties posed by revision to developing writers is their understanding of what revision is. MacArthur, Graham and Harris (2004) reviewed research on revision among struggling writers and concluded that, in addition to weak general language skills and difficulty in detecting possible sites of revision, a limited definition of revision can play a key role in constraining the revisions made by this group of writers. Other research has also found correlations between specific metacognitive views and understandings of revision and the quality of revisions made by these individuals (Berninger & Swanson, 1994). More recently, Oliver (2019) conducted case studies with a struggling writer and a more accomplished peer. While the lower attaining writer saw revision predominantly as the correction of errors and primarily made surface changes, the higher attaining writer conceived of revision as attempting to find 'a better way to say what you mean' and made a significantly lower proportion of surface changes. This reflects evidence from think-aloud studies in which developing writers spoke significantly more about surface changes than meaning changes when asked about revision (Richards, 2010). Indeed, so stark can be the role of one's conception of revision on the revisions one makes that an intervention lasting just eight minutes that aimed to alter undergraduates understanding of revision led them to make different types of revisions with a concomitant increase in revision quality (Wallace & Hayes, 1991). This led Hayes to include 'task definition' in his later model of the process of revision (Hayes, 2012).

Finally, in a consideration of why children find revision so challenging, it is worthy of note that the wider context of the writing may also play a role. Firstly, there is evidence that the revision skills of children and inexperienced writers appear better when the text to be revised is about a topic with which they are familiar (Butterfield et al., 1996; McCutchen et al., 1997). Within the framework described above, this may be due to the fact that an unfamiliar topic increases the cognitive load and, as such, revision is more difficult. More prosaically, it may also be the case that, if a writer is not familiar with a topic, they may simply not know that particular content could or should be revised. In addition, there is some evidence that *when* children revise a text may affect how well they revise it. Chanquoy (2001) asked 60 children (20 from each of grades 3 to 5) to write and revise a text in one of

three conditions. In condition 1, the children wrote and revised online. In condition 2, they wrote the text, revised it and then rewrote it and in condition 3, they wrote the text then revised and rewrote it on a different day. Among the children in grade 3, those in the third condition made the most meaning changes while in the other grades, children in condition 1 made the fewest meaning changes but there was little difference between the other two conditions. This study is too small to be conclusive. However, it does suggest that deferring revision to at least some extent may help children make more challenging revisions. This may be because the increased temporal distance between the acts of writing and revising decreases the interference of the intended text as described above.

So far it has been demonstrated that developing writers revise less frequently and less effectively than more experienced writers, at least partially because they make fewer meaning changes and particularly struggle with online revision. In addition, it appears that detecting potential sites of revision is especially difficult for inexperienced writers, perhaps due to the interference of the intended text or interpretation of the text on children's perception of what has actually been written. Furthermore, it has been shown that children's working memory and executive function may act to constrain their revision skills and that their understanding of the needs and context of a text's intended audience may also act as a barrier.

2.9   The teaching of revision

As detailed above, both the nature and extent of revisions made by developing writers differ substantially from those of accomplished writers, and there is evidence suggesting that the difficulties posed by revision have a number of different potential sources. It could thus be reasonably hypothesised that if teaching were to focus on reshaping developing writers' revision skills so that they are more similar to those of expert writers, there could be an improvement in the quality of their writing. This gives rise to two fundamental questions:

1. Is revision teachable?
2. Does the teaching of revision skills lead to an increase in the overall quality of children's writing?

With regard to the first of these questions, empirical research has provided extensive evidence that a number of approaches to the teaching of revision can affect the revisions of developing writers. This includes direct instruction of revision skills (Allal, 2018; De Smedt & Van Keer, 2017), peer-feedback (Boscolo & Ascorti, 2004; Cho & MacArthur, 2010), goal setting (Midgette et al., 2007) and the provision of executive support (Graham, 1997). The evidence for the possible impact of each of these approaches on the revisions of developing writers are considered in detail below.

Importantly, though there is also some evidence that teaching children to improve their revision skills can have a positive overall impact on the quality of their writing, findings related to writing quality are mixed. For example, Limpo (2014) did not find a correlation between children's revision skills and their overall writing quality. This study included 60 children in each of grades 4-9 who were asked to compose a narrative and revise a separate, given narrative which contained a full range of 'errors' and other sub-optimal choices such that any links between revision skills and narrative quality could be examined. Interestingly, this research found a positive correlation between revision skills and writing quality in grades 7-9 but no such correlation in grades 4-6. The author of this study suggests, however, that this may be because children in the younger grades have less well-developed revision skills and consequently that this should be a focus for future instruction.

Other studies, however, do report a clearer correlation between revision skills and writing quality even in younger children. Torkildsen, Morken, Helland and Helland (2016) conducted a study with 42 7- and 8-year-old Norwegian children in which the children were asked to arrange pictures into a story and then write a narrative. Key logging software was used to analyse the revision skills and habits of the children both as they wrote and after they had finished a full draft. Although, as predicted, the children did not revise their writing extensively, the researchers did find that stronger revision skills correlated with overall writing quality. They explain these results with reference to Limpo's earlier study: the children in the 2014 study had to revise a given text whereas the children in the 2016 study had to revise their own text. As such, it could be the case that the ability to revise *while also under the burden of text generation* that predicts writing quality. Sengupta (2000) conducted a study in Hong Kong in which participating children wrote texts before and after receiving teaching in revision. A holistic 0-9 system was used to evaluate the quality of the children's

writing, and it was found that children's writing on average did improve following the revision teaching. In addition, the results were compared with control groups who did not receive revision teaching and were found to be higher, suggesting that the improvement in the group of children who received revision instruction was not the result of extra teaching and writing opportunities in general.

There is also evidence regarding the possible impact of revision teaching on children's overall quality of writing in a number of meta-analyses. Graham and Perin (2007) conducted a meta-analysis of 123 experimental and quasi-experimental studies. Although Graham and Perin did not examine the impact of revision instruction per se, they did report an average effect size of 0.82 (the highest in the study) for strategy instruction, which includes teaching in revision alongside planning and drafting practices. Graham, Kiuhara, McKeown and Harris (2012) offered an update to this study with a meta-analysis examining the impact of interventions offered in elementary schools. As is the case with the original Graham and Perin study, this new analysis did not isolate revision teaching from 'strategy instruction' generally. However, it found an effect size of 1.02 (again, the highest of the eleven interventions studied) for strategy instruction with elementary school aged children. Andrews, Torgerson, Low and McGuinn (2009) undertook a systematic review examining the evidence for best practice in the teaching of non-fiction writing specifically. They concluded that a process approach in which students are encouraged to "plan, draft, edit and revise" their writing had a positive impact on the overall quality of the participants' writing. Taken together, these large meta-analyses hint at the possible impact of revision teaching as part of a wider programme of writing strategy instruction.

Three further meta-analyses examined the impact of revision teaching on the overall quality of children's writing separately from strategy instruction. The first of these (Rogers & Graham, 2008) looked exclusively at single subject design studies, finding 88 where it was possible to calculate an effect size. The researchers concluded that teaching an editing strategy had a "large to moderate" impact on children's writing. However, the majority of the studies which examined the teaching of an editing strategy focused on surface changes. Further evidence would be required to demonstrate that this holds true for meaning changes. Koster, Tribushinina, de Jong and van den Bergh (2015) conducted a meta-analysis that is particularly pertinent to the present study, even beyond the fact that it treated

revision teaching separately from strategy instruction. This is because the researchers only included studies with data gathered in contexts similar to that which shall be used for this study. All the studies involved focused on children in grades 4-6 in regular school environments, meaning, for example, that studies specifically examining the impacts of interventions on struggling writers were excluded. In addition, 25% of the studies included had not been included in the study by Graham and Perin (2007) or Graham et al (2012). This study found an average effect size of 0.58 for writing interventions based on revision teaching. It should be noted, however, that this revision instruction combined teaching aimed both at supporting children to make surface changes and to make meaning changes. However, a recent major meta-analysis (Graham, Kim, Cao, Lee, Tate, Collins, Cho, Moon, Chung & Olson, 2023) reviewed findings regarding the impact of a wide range of approaches to the teaching of writing on children's writing quality in grade 6-12 and found no statistically significant impact for revision teaching.

Taken together, the meta-analyses reviewed above reflect the generally mixed picture in research findings regarding the impact of revision teaching on the quality of children's writing. Benefits have been found in a range of contexts and by using a range of different research designs, but other research has reported limited or no gains to writing quality arising from revision teaching. As such, it is plausible that children can be taught to make revisions more often and more effectively but whether doing so would contribute to a generalised improvement in their writing is unclear. Significantly, few studies, and none of the meta-analyses, have offered suggestions regarding why revision teaching may fail to result in an improvement to the quality of children's writing. Nonetheless, if one assumes from this evidence that revision is teachable and *may* improve the overall quality of children's writing, the logical subsequent question is whether certain pedagogical techniques are more effective at supporting children in their development of revision skills than others. If it is possible to demarcate those practices that best support children in learning to revise, then it may be possible also to contribute not only to an improvement in their revision skills but to the quality of their writing more widely. What follows below is a review of evidence from pedagogical studies regarding the effects of a range of approaches to the teaching of revision.

2.9.1 Direct Instruction

Direct instruction of revision is characterised by its explicitness: it focuses on *explaining* to inexperienced writers what revision is, why it is important and how to approach it as well as *showing* them how it can be done by directly modelling the process before them. This often includes a 'think aloud' approach where the teacher revises a text (be it written in advance by the teacher, composed as a class or taken from a child's own writing) while verbalising their thought processes to make them explicit to the children watching. This may be followed up with a 'shared revision' process, whereby the teacher takes ideas for possible revisions from the class and discuss why they may or may not be effective. This approach aims to ensure that children have a very clear conceptualisation of revision in practice as well as a clear model for how to approach it. Direct instruction also addresses the cognitive load of revision: the student can focus on the revisions made by the teacher without having to attend to wider processes, including transcription, involved in the task (Kellogg, 2008). Notably, educational studies based on interviews with highly effective teachers suggest that modelling and demonstrating revision skills using think aloud techniques is a common approach taken by effective teachers (Gadd & Parr, 2017).

One of the earliest studies to examine the direct instruction of revision skills was by Fitzgerald and Markham (1987). This study compared direct instruction of revision skills with giving children time to engage with high quality literature as a possible means of improving the quality of their writing. In this case, the direct instruction included all those elements outlined above. This study found that, though students who received direct instruction in revision skills made more attempts to revise their writing, there was no clear improvement in the quality of writing between the two groups. As the studies reviewed below will demonstrate, this puts Fitzgerald and Markham's findings are at odds with some more recent studies which show a clear benefit for children's writing of direct instruction. However, they do point to a clear advantage offered by the explicitness of direct instruction: the clarity offered by this approach sets clear expectations for children and provides them with a clear focus for their efforts.

Subsequent research has looked more closely at how direct instruction can affect the revisions children make in their writing, with the important finding that it can lead children and inexperienced writers to make more meaning changes in their writing. Given the

particular difficulty posed by meaning changes as described above, this is especially significant, and likely a result of the clear focus given to children's revision efforts that direct instruction can provide. Olson (1990) directly compared a group of sixth grade students who received direct instruction in revision with a group that had time to revise in pairs, a group that received both these means of teaching and a control group. This study found that those groups that had received direct instruction made significantly more meaning changes that those groups that did not. Brakel (1990) conducted a very similar study, also with sixth grade children, who were split into similar groups. The findings were also aligned: the children who had received direct instruction in revision skills made more meaning changes than those who did not. However, Brakel's study added that these additional meaning changes made by children who had received direct instruction had no impact on the number of surface changes made. In other words, children who had received direct instruction in revision made as many surface changes as children in other groups despite also making more meaning changes. Importantly, this finding appears to hold in different contexts: Fidalgo, Torrance, Rijlaarsdam, van den Bergh, and Lourdes Álvarez (2015) report similar findings in Spain, while Butler and Britt (2011) found that direct instruction supports undergraduate students to make more global revisions in their writing. Kellogg (2008) provides a possible reason for this advantage offered by direction instruction: he suggests that modelling by the teacher reduces the burden on children's working memory as the teacher takes on all aspects of writing other than the one area on which children are asked to focus, i.e. revision. In other words, modelling revision can decrease the cognitive load of revision sufficiently for developing writers to understand its aims more thoroughly.

Bringing together the evidence offered by the multiple studies reviewed above, it appears likely that direct instruction of revision skills can support children in making more meaning changes in their writing. One might speculate that children making more meaning changes would lead to improvements in the overall quality of their writing given that a lack of meaning changes is one of the main differences in revision between inexperienced and expert writers. The studies reviewed above do not offer direct evidence of this. However, a number of more recent studies are able to provide this evidence.

De Smedt and Van Keer (2017) conducted a similar but larger scale and more up-to-date study to those by Olson and Brakel described above. Working with 206 fifth- and sixth-grade

children and 11 teachers in Dutch-speaking Belgium, De Smedt and Van Keer split participants into one of four groups. One group, dubbed the 'business as usual' group, had independent writing activities to ensure they gained the same overall amount of writing experience as the other groups. Of the remaining three groups, one received direct instruction (called 'explicit instruction' in this study), another received peer assistance during the writing process and the last received both. It should be noted that the direct instruction in this study was wider than just revision: it also incorporated directed instruction about text features and planning. However, its findings remain relevant to the present study for the reasons given below. This intervention lasted for 5 weeks, with 2 lessons per week focussed on the type of provision specific to each group. This makes De Smedt and Van Keer's work particularly relevant to the present study: direct instruction is embedded into and evaluated within a wider framework of provision to support children in learning to write rather than being an experimental extra separated from children's wider learning. As such, De Smedt and Van Keer's study mirrors the present study in its attempt to understand the impact of specific approaches on children's writing development in the reality of ordinary classrooms.

De Smedt and Van Keer measured changes in children's writing quality with a traditional pre-test and post-test design at the beginning and end of the 5-week intervention period. However, children's texts were retyped before they were presented to the evaluators and surface errors were removed: the judgement of text quality was thus based on content and meaning alone. The study's findings are clear: the students who had received direct instruction outperformed their peers who had not, revealing an enhanced degree of progress as a result of the direct instruction they had received. Though De Smedt and Van Keer took a wider lens on the development of children's writing than the present study, these findings are nonetheless highly relevant: if direct instruction can have a positive impact on the content and meanings of children's writing, it is reasonable to hypothesise that direct instruction could have a similar impact on their ability to make effective revisions.

De Smedt and Van Keer (2017) are not the only scholars to report findings that suggest direct instruction of revision may improve the overall quality of children's writing. De La Paz and Graham (2002) report on a study with seventh- and eighth-grade students in two schools in which half receiving "think aloud demonstrations" of planning and revision while the other half acted as a control group. They concluded that these demonstrations led the

children who received them to produce texts that were both longer and of higher quality. Allal (2018) reports on three case studies with teachers in Geneva who taught the same children for two years in years 5 and 6. In particular, Allal sought to analyse the differences in how the teachers approach whole-class discussion in relation to between-class differences in children's revisions in independent writing. She found that one of the three teachers explicitly explained and modelled revision as rewriting, not merely as proofreading and that the children in this teacher's class made double the number of meaning changes as children in the other classes and three times as many revisions to text organisation. Although one must be tentative about generalising from a study this small and attributing causation to direct instruction based on observations in a single class, taken together with other studies reviewed above it does add further evidence that direct instruction can be an effective means of improving of children's revision skills and thereby improving the overall quality of their writing.

Despite the convincing evidence in the studies reviewed above of the efficacy of direct instruction of revision, there also exists evidence that it may not be uniformly beneficial. Saddler and Asaro (2007) report on a study with 6 second grade students in which the teacher modelled the revision process and then gave the children prompts to revise. They found only a modest impact of this intervention: while all the children did make revisions, these were all restricted to surface changes. This suggests that, although direct instruction in revision skills may nudge younger children towards making revisions, it is less effective in supporting meaning changes. Although one must be cautious given the very small scale nature of this study, it is plausible that direct instruction of revision will be less effective in younger children. Much of the writing process is yet to be automated in younger children and consequently revision is likely to represent an even more significant cognitive load among younger writers than older developing writers. As such, it is possible that meaning changes simply overwhelm young children's working memory. Though the evidence here is thin, it is important nonetheless to acknowledge the possibility that the impact of direct instruction of revision will not be uniform across all children in all contexts.

Dix (2006) reports on a study involving interviews with three children in years 4-6 on each of three different school sites. These interviews took place before and after children wrote two different texts (one transactional and one narrative) and sought to understand children's

perspectives on revision. Notably, the children made a relatively high number of revisions overall: they all made additions to their texts, most (7 of the 9 participants) made deletions and they all made substitutions. Interestingly, the majority of children's revisions were made to the transactional text. Though the study does not explore the reason behind this fully, it is plausible that the transactional text offers children a clearer conception of audience than a narrative and, as such, some revisions are easier to execute. Importantly, and in sharp contrast to other studies reviewed, Dix reports that the teachers merely 'gave the opportunity' for children to revise, suggesting that direct instruction is not necessary to the development of revision. Naturally, the notion that direct instruction is not necessary for the development of revision does not exclude the possibility that it is beneficial and effective. Furthermore, although the children in this study may have simply been given time to revise on this occasion, the study does not explore potential revision teaching that may have occurred before the texts in this study were produced. This is not to suggest that the children *must* have received direct instruction in revision, and indeed other possible pedagogical approaches are explored below. However, given the weight of evidence from a range of disciplines about how hard children find revision and the ways that teachers can help children to develop their writing in this area, an organic emergence of revision in children of this age seems implausible. In short, if the mere provision of an opportunity to revise is sufficient or children to make effective revisions, this evinces previous effective pedagogical approaches to the teaching of revision.

Keen (2017: 381) offers a more theoretical criticism of direct instruction, given in the context of comparing it to peer feedback: "Modelling… relieve[s] the writer of the need to find their own solutions to the rhetorical challenges". Drawing on the evidence from the studies reviewed above, this criticism is unconvincing. Firstly, what Keen alludes to is in fact the value of modelling: by doing more of the thinking, the teacher can reduce the burden on children's working memories to allow them to focus on revision skills. Secondly, it is important to underline that direct instruction is a means, not an end. In other words, by temporarily "relieving the writer of the need to find their own solution", evidence from the studies reviewed above suggests it is possible to make them more independently able to find their own solutions at a later point.

It should also be noted that other approaches besides direct instruction to the modelling of revision have been researched, though the number of such studies is limited. For example, Philippakos (2012) conducted a study involving 145 fourth and fifth grade students in which participating children where split into three groups. One group reviewing persuasive texts as a reader, considering how persuasive elements of the text were; another group had access to the same text but merely read it instead of discussing and reviewing it while the final group read a different type of text. Interestingly, when participating children were asked to write their own persuasive text, the writing of the group that had reviewed the persuasive writing of others was of only marginally higher quality than the other groups. However, this difference became more pronounced after revision, suggesting the review and discussion of others' writing contributed to the children's ability to revise their own texts.

In summary, there is convincing evidence from a range of studies that direct instruction of revision can be effective in supporting children in the development of revision and in improving the overall quality of their writing as a result. As such, it is likely that the inclusion of direct instruction within a wider approach to the teaching of revision is likely to pay dividends as regards children's revisions.

2.9.2   Developing audience perspective

A number of studies point to a potential role in developing children's revision skills for a pedagogical approach that focuses on improving their understanding of how their writing is perceived and understood by a reader. This can involve children experiencing their own text as a reader, observing how readers respond to their text or analysing their own responses as a reader to other similar texts with the aim, by doing so, of facilitating the identification and subsequent remedy of potential sites of revisions. From a psychological perspective, allowing children to experience their text as a reader is a means of lessening the interference of the intended text on their interpretation of the substantiated text. In short, it may allow children to focus more on what they have *written*, not simply what they *meant*.

Though there are a number of studies pointing to the efficacy of developing children's understanding of the perspective of their audience in writing, it should be noted that they are somewhat disparate, reporting on research involving a number of different classroom

activities. Unlike direct instruction, developing audience perspective is not a well-defined approach to the teaching of revision skills, or indeed writing more generally, but rather a loose collection of activities based on a similar hypothesis. Nonetheless, the evidence reviewed below suggests that developing audience perspective may be an effective tool in a wider programme in the teaching of revision skills.

Holliway and McCutchen (2004) report on research with fifth and ninth grade students in which children were asked to write descriptive texts of patterns made using tangrams such that a reader could match their text to the correct pattern when given a range of such images. Participants were asked to write an initial text, then were given some form of revision training while readers attempted to match the texts and patterns, then asked to revise their texts. The revision training took one of three forms: a third of the children were only given feedback as to whether or not the reader identified the correct pattern. Another third were given the same feedback, but were also asked to rate texts written by others for their clarity, while the final third were given the same feedback but also asked to complete the same task that the readers were doing, i.e. to match tangram patterns to written descriptions. Interestingly, the researchers report that the final group not only made the most improvements in their descriptions but, crucially, that these gains were retained when they were asked to write a description about a new pattern. Naturally, the highly specific nature of the written outcome reported here, and the fact that developing audience perspective is a one-off delivery and not embedded into a wider programme of teaching revision, mean that one should be cautious in generalising from this research. Nonetheless, this study does suggest that developing audience perspective may support revision skills. As Holliway and McCutchen themselves put it, "The ability to 'decenter' from one's privileged knowledge as an author and reread from the perspective of the reader is a key element of revision, one that no doubt contributes to writers' increased difficulties editing their own texts compared to others' texts" (2004: 91).

Other studies have examined alternative approaches to developing audience perspective in children. For example, Davis and McGrail (2009) report on a small-scale study in which a teacher recorded themselves reading children's texts aloud so that children could hear their own writing while rereading. The researchers reported a positive impact on children's revision skills as well as improvements to the children's attitudes towards revision. More

recently, Al-Hroub, Shami, and Evans (2019) report on a study involving 31 fifth grade writers in Lebanon in which the children's audience perspective was developed by asking them to read their own writing aloud to a peer in order to monitor their responses to it. The researchers found that this approach supported children in organising their writing and elaborating on key points but suggested that average and above average writers gained more from this process than their below average counterparts. However, though both of these studies are useful in scoping alternative approaches to developing audience perspective in children, neither offers sufficient detail about the quantity or nature of the revisions made by children in order to offer conclusive evidence of the effectiveness of the approaches they explore.

Rijlaarsdam et al. (2006) report on a study that offers another possible means of allowing children to see how readers respond to their texts. In this study, 107 Dutch ninth grade students were asked to write a manual for other students to follow in order to complete a science experiment that they had also completed themselves. The participants were then split into three groups: the first group did not revise their writing after completing a draft, the second had time to revise their own text and the third were shown a video of an authentic reader reading and using their text before being asked to revise it. The researchers found that the children who acted as their own readers made only limited improvements in their final draft, even when they were prompted to do so by a researcher. In contrast, those participants who were able to see an authentic reader responding to their text made considerable improvements, including meaning changes, to their final draft. This suggests a very clear conception of audience perspective may prove beneficial to children's development of revision skills. However, in this study it is not clear whether these changes in children's revisions were retained over time or if they were transferable to other texts. In other words, one must be cautious of equating positive outcomes from one pedagogical activity with long term learning.

Lopez et al. (2018) report on a large study involving six mixed ability classes in Spain in which two broad approaches to revision teaching were compared to each other and to control groups. Two classes were assigned to each of two experimental conditions, receiving what Lopez et al. usefully term 'writer-focussed' or 'reader-focussed' teaching. The final two classes acted as control groups. The writer-focussed teaching explained and demonstrated

to children the behaviours of a writer when revising, in particularly working on between-draft revisions. As such, it bears significant similarities to the direct instruction discussed above. The reader-focussed teaching centred on children learning how readers respond to imperfect texts, thereby making them more sensitive to the needs of their audience. The classes in both of these experimental conditions were given four sessions of teaching over four consecutive weeks. In order to examine the impact of these interventions, the children wrote an argumentative text before and after the period of instruction, and another two months later to test retention, as well as a text of another genre to test for transfer. The researchers found that both experimental conditions offered benefits when compared to the control groups, both for the quality and quantity of children's revisions, but also for the overall quality of their writing. Importantly, these gains were retained when the children wrote the third text two months after the end of the intervention period, and the gains also transferred to other genres. In addition, the researchers report no significant differences between the two experimental conditions. This suggests that both reader-focussed and writer-focussed approaches to revision teaching can be effective, though it remains unclear whether an approach incorporating both reader- and writer-focussed elements would be any more or less productive. There is a notable gap in the literature regarding research that combines direct instruction and developing audience perspective. Based on the positive outcomes reported in studies examining one of these two approaches, it is logical to hypothesise that direct instruction of revision that includes teaching on how a reader might understand a text, and what revisions might be made in light of this knowledge, could have a positive impact on developing writers' revisions and, consequently, the quality of their writing generally.

In summary, the evidence from the studies reviewed above suggests that developing audience perspective in inexperienced writers could be an effective means of developing their revision skills. Lopez et al's (2018) distinction between reader- and writer-focussed instruction in revision is also helpful. Though the weight of evidence currently suggests that both of these approaches are effective in developing revision in inexperienced writers, it is unclear whether an approach that combines elements from both sides of this distinction may be any more or less so.

2.9.3   Peer-feedback

Peer-feedback involves allowing students to receive feedback, in this case on their writing, from one or multiple peers in the hope that this feedback will allow them to make effective revisions. Naturally, this approach bears a number of similarities with developing audience perspective as described above because it allows students to gain from exposure to an authentic reader. However, the key difference with peer-feedback is a clear meta-cognitive element: students do not merely see a reader engaging with their text but also take part in a discussion about the strengths and weaknesses of the text, as well as potential remedies. In the discussion below of the evidence concerning the efficacy of peer-feedback in developing revision skills, the fact that students may discuss potential remedies to problems in their writing should be borne in mind as a complicating factor. This is because the improvements in a text that come about as a result of peer-feedback do not necessary suggest that the original writer of the text has learnt to revise; they may simply reflect the revision skills of the student offering peer-feedback. As such, studies that examine retention of revision skills over time, and their transfer to new texts and genres, are particularly relevant.

Boscolo and Ascorti (2004) investigated the impact of peer-feedback on revision skills with a quasi-experimental study involving 122 students in grades 4, 6 and 8 in Italy. In each year group, participants were split into an experimental group and a control group. All participants were asked to write and then edit a text, before the experimental group were asked to revise their text with a peer while the control group were given feedback and corrections from the teacher. To test any potential transfer of the benefits of peer-feedback, participants when then asked to write and revise a new text and asked to revise a text by a third party. The researchers found not only that the students in the experimental group revised more when they were collaborating, but that they also revised more when writing the second text and identified more gaps in meaning in the text written by a third party, all of which suggests not only that peer-feedback can improve the quality of a text but also that it can contribute to improving the revisions made by developing writers. The researchers suggested that this collaborative work allowed children to focus more on how an audience may perceive a text and revise accordingly, also lending further weight to the evidence in favour of the effectiveness of developing audience perspective.

Further evidence for the effectiveness of peer-feedback in the development of revision skills is provided by Rouiller (2004). In this qualitative study, the researcher compared how children approach revision when working with a peer (the 'dyadic condition') with how they approached it when working independently. To do so, 5 pairs and 5 individual children from each of three different classes were asked to write a text and then revise it, either independently or collaboratively. At this stage of the research, the pairs made double the number of revisions to the individual students and they made more meaning changes and more optional meaning changes. Later, all the participants were asked to write another text and revise it independently in order to check for transfer from the first phase of the research. Interesting, although the quantity of revisions did not transfer from phase 1 to phase 2 for the children in the dyadic condition, the nature of revisions did: these children made more meaning changes than the children who revised independently in phase 1. This is consistent with Boscolo and Ascorti's (2004) suggestion that peer-feedback helps students to focus on their audience and revise accordingly and, crucially, that this understanding of audience is retained when they are no longer working collaboratively. A second important finding in Rouiller's work is that not all peer-feedback is equally useful. In this study, the pairs and individuals were observed during the revision stage of the research in order to analyse *why* peer-feedback might be beneficial. The researcher reports that more effective pairs tended to read the text aloud more frequently, and actively called on one another for advice. In contrast, the less effective pairs tended to work in tandem, dividing the work and revising simultaneously rather than truly collaborating. This is a critical qualification on the overall effectiveness of peer-feedback, hinting at a possible role for giving children training in how to offer feedback as well as the opportunity to do so.

It is important to note that the evidence suggests that peer-feedback has a possible role in the development of children's revision skills across a wide range of student groups. Stoddard and MacArthur (1993) conducted a small-scale study with six seventh and eighth grade students with learning disabilities. In this study, the participants were taught a peer-feedback procedure: they listened to a peer reading their text aloud and said what they liked best, then they read their peer's writing to themselves and asked themselves a series of questions to support effective feedback (e.g. Does it have a good beginning? Is it in a logical order? Where could more details be added? Is any part hard to understand?). The

researchers found not only that this process led the students to make more revisions to their writing, but also increased the proportion of these revisions that were classified as improvements from 47% to 83% and contributed to an improvement in the overall quality of the children's writing. Importantly, these gains were maintained one month and two months after the research project was completed. Not only does this study add further support to the argument that peer-feedback is effective in supporting children to develop their revision skills, especially in the case of children with learning disabilities, it also offers more direct evidence that teaching children how to offer effective feedback before asking them to do so may be particularly fruitful. Cramer and Mason (2014) report on another small-scale study involving eight children with emotional and behavioural difficulties and concluded that peer-feedback offered benefits for these children's revision skills at least in part due to a positive impact on the motivation to make revisions. However, though this study is relevant for its particular context, it does not offer any data on how well the children's learning transferred to new texts and, as such, provides only limited evidence in support of peer-feedback more generally.

Fitzgerald and Stamm (1990) suggested that even very young children may benefit from peer-feedback. Their study involved a group of 16 first grade children and asked them to offer feedback as a group, though mediated by a teacher, on a peer's writing. The researchers found that there was generally a positive impact on children's ability to revise with children revising more as a result of the intervention. However, they also found a clear ceiling effect: the children whose revision skills were the strongest before the intervention made the least progress as a result of it. This finding stands in contrast to other pedagogical studies of revision in which it is generally the highest attaining writers who benefit the most.

Based on the research reviewed above, the evidence in favour of peer-feedback in supporting children to learn to revise is convincing, though subject to the important qualification that it depends on the extent to which children are able to offer effective feedback. However, it does seem possible that teaching children how to approach peer-feedback may offer a means of overcoming this. Cho and MacArthur (2010) add to this qualification by suggesting a direct link between the type of peer-feedback received and subsequent revisions made. They suggest that when peer-feedback is "directive" (i.e. offering a clear remedy for the text identified for revision), revision is restricted to "simple

repair revisions", mostly consisting of surface changes. In contrast, "non-directive" peer feedback (which identifies a site of possible revisions and discusses why the current text may be unsatisfactory) results in more complex revisions and, importantly, the addition of new content. Though this study took place with undergraduates and therefore the application of its findings to primary education are limited, it does throw light on an important consideration: the nature of the feedback that takes place between peers is critical to the effectiveness of the venture.

2.9.4   Goal setting

Goal setting as an approach to supporting developing writers with revision is based on the wider principle that writing itself is goal-orientated (Bereiter & Scardamalia, 1987); writers seek to achieve certain effects or communicate certain information in particular ways, and these goals guide the choices they make. These writerly goals are particularly pertinent to revision: revision itself is the evaluation of how well written text meets these goals and, where necessary, making amendments to increase the level of success. Indeed, research involving speak-aloud protocols, in which writers are asked to narrate their thoughts as they write, has shown that expert writers consider the goals of their text very frequently when revising (McCutchen, 1994). With regard to supporting developing writers, goal setting means giving the writer a goal to guide the decisions they make when revising. This could be as simple as 'add more information', or be more text-specific such as 'what might someone who disagrees say and how can you rebut this?' or 'how can you show what the character is feeling?'.

In a relatively early study into goal setting and revision, Graham, MacArthur and Schwartz (1995) examined the effects of giving the very simple goal to 'add information' to fifth and sixth grade struggling writers while they were revising. The results from this group were compared with those of a similar group who were given a more general goal to 'make their writing better'. The researchers found that the participating children given the more specific goal made more meaning changes, particularly additions, than their peers. Importantly, they also reported a more significant increase in overall text quality among those children that were given the specific goal than those that were given the more general one. However, this

study did not investigate the extent to which these gains were retained over time or whether they transferred to a different genre.

In a larger-scale study into goal setting in revision, Midgette, Haria and MacArthur (2007) asked 181 fifth and eighth grade students to write a persuasive essay on whether children should be able to watch television whenever they want. After the initial draft was written, the participating children were split into three groups. One group was given a very general goal to revise their writing because revision is important, the second group was given a content goal (e.g. to add more reasons, to give examples or to add a conclusion) while the final group was given an audience goal (e.g. to consider what someone else might say about their opinion and how to rebut this). The researchers found that the content and audience goal groups wrote more persuasive essays than the group given the general goal. This suggests that giving developing writers a more specific goal may help them to make better revisions. Strikingly, more recent research has suggested that specific goals generated using automated writing evaluation may also support effective revisions (Jansen, Meyer, Fleckenstein, Horbach, Keller & Moller, 2024). However, similarly to the study by Graham et al (1995), Midgette et al's study does not offer data on whether this gain was maintained over time or whether it transferred to other types of writing.

In summary, there is a limited amount of evidence that goal setting can support developing writers with their revisions, and that more specific goals may offer more support than more general ones. However, this area remains under-researched. It is unclear whether the effects of goal setting are retained over time or if they can transfer from one text to another. More generally, the mechanism for the possible benefit of goal setting is unclear: does the type of goal setting described above support developing writers because the goal is applied to their own text, or does the act of goal setting support their wider understanding of revision as a goal-orientated process? Similarly, does this goal setting help developing writers to set their own goals in future? In summary, goal setting as a means of supporting developing writers to revise is promising but there remain significant gaps in the literature.

2.9.5 Procedural Facilitation

Procedural facilitation involves creating a clear procedure that mimics the revision behaviours of expert writers and thereby provides a scaffold to developing writers. It relies on the theoretical assumption that, by following a set procedure, the overall cognitive load of revision is reduced, which in turn may lead to more successful revisions among developing writers. This is based on observations that some developing writers can do individual elements of revision but cannot manage the whole process, with an assumption that this is due to a breakdown in executive function (Fitzgerald, 1987). Given the centrality of working memory to this argument, and the clear view of revision itself as a process, this approach to supporting the development of revision is especially heavily informed by the psychological tradition of writing research.

Graham (1997) asked 12 fifth and sixth grade students who had been identified as struggling writers to write and revise two texts based on pictures. In the first text, participating children were asked to revise the text but were not given any particular support to do so (the 'normal revision' condition). In the second text, they were taught a procedure based on Bereiter and Scardamalia's (1987) CDO procedure to act as executive support. This involved children working through their text sentence by sentence and attributing one of seven evaluative statements each one (e.g. 'This does not sound right.', 'This is not useful for my paper.') before selecting one of five possible solutions (e.g. 'Leave this part out.', 'Change the wording.') Participating children made more meaning changes that improved the quality of the text when using the CDO procedure than in the 'normal revision' condition, and 74% of them reported that the procedure made revising easier.

However, Graham reported more mixed results overall. For example, the CDO procedure led to an increase in the number of single word revisions that had a negative impact on the text, while surface changes still dominated, accounting for 60% of all revisions made. Furthermore, the CDO procedure had no impact on overall text quality. In addition, only 6% of all negative evaluations of sentences involved audience concerns, while only 25% of those revisions that were made due to audience concerns had a positive impact on the text, compared to 60% of all revisions. This led the researcher to conclude that executive control was not the only limiting factor on participating children's revisions: they did not generally consider the needs of their audience either at the point of writing or of revising.

De La Paz, Swanson and Graham (1998) expanded on Graham's research reviewed above by including more global concerns in the evaluative options involved in the procedure and by having two rounds of revision, one focussed on global issues and the other on local revisions. This study included 12 eighth grade students with learning disabilities and involved teaching participating children a similar CDO process to Graham's earlier study. In comparison to the 'normal revision' condition, the CDO process led children to revise more often, make more meaning changes and revise larger sections of text, with a larger impact on the overall quality of their writing. However, similarly to Graham in his earlier study, the researchers reported that executive control was not the only barrier to children's revision. In this study, children also struggled with individual elements of the CDO process (i.e. identifying an appropriate evaluative statement or possible solution).

Carvalho (2002) reports on a similar procedure to support revision, but on this occasion uses a quasi-experimental design. Two fifth grade and two ninth grade classes in Portugal were taught a revision process using two sets of cards. These cards mirrored the lists used in the studies reviewed above: the first set offered possible evaluative statements to support children in identifying what to revise while the second gave possible solutions to choose from. An important difference from previous studies was that the evaluative statements focussed on audience concerns (e.g. 'the reader might find this unclear'). This experiment lasted for a total of six weeks, with children having one 50 minute session per week to develop their understanding of the revision procedure. The effects of the intervention on children's revisions were measured with a pre- and post- test before and after the six-week period and the results were compared to a control group. Carvalho found that the experimental groups made significantly more progress than the control groups: they made more revisions and these had a more positive impact on the text.

Given the very different findings reported by Carvalho compared to Graham's (1997) study or De La Paz, Swanson and Graham's (1998) study, it is important to consider possible explanations for this variation. One possible explanation is the selection of participants: the two earlier studies both involved struggling writers exclusively and, though the classes included in Carvalho's study may also have included such writers, it is likely that there was a larger range in attainment. As such, it is possible that procedural facilitation has a less significant impact on lower attaining writers. Another plausible explanation for the variation

in findings is the nature of the procedural facilitation itself. Notably, Carvalho explicitly sets out to include the consideration of audience concerns as part of the procedural facilitation. It is therefore possible that the positive results reported by Carvalho stemmed from an increase in audience awareness over the period of the intervention rather than the procedural facilitation itself.

The evidence on procedural facilitation as an approach to supporting developing writers to revise is thus very mixed. There is some evidence that it may increase the number of revisions made be developing writers, but this could also be explained by the way procedural facilitation forces a slower pace of revision or signals an adult expectation that revisions are made. There is limited evidence that procedural facilitation may lead to revisions that are more likely to have a positive impact on the text, but researchers have also identified that executive control is often not the only barrier to revision for many children. In addition, where results of procedural facilitation have been most positive, this may be because they address other barriers, such as the consideration of the needs of the reader. Though one should be tentative given the limited number of studies with mixed results, the evidence seems to point to the possibility that, though procedural facilitation may make a given instance of revision easier, it does not necessarily move forward children's understanding of revision or their ability to execute it.

2.10 Concluding remarks on the literature

There is considerable evidence that revision poses particular difficulties to developing writers. It generally emerges later than other elements of writing, and the quantity and nature of revisions made by developing writers are a key difference between their writing and that of more accomplished writers. There is evidence that this is in part due to what developing writers consider revision to be: while they often see it as focussed on the correction of errors, more accomplished writers view it as a process of reshaping the text to better meet their aims. However, there is also considerable evidence that the difficulty stems from the particularly high cognitive load involved in revision. As such, working to make other elements of writing, such as spelling and punctuation, automatic may ease the burden when it comes to revision.

Despite the difficulties posed by revision, there is extensive evidence that a range of pedagogical approaches can have an impact on developing writers' revisions. In short, it appears that revision is to at least some extent teachable. One particularly promising approach is direct instruction: there is robust evidence that this approach can lead to an increase in the number of revisions children make and to an increased proportion of meaning changes. There is also more limited evidence that this can lead to improvements in the overall quality of children's writing. For the purposes of this literature review, no research could be found that examines the direct instruction of revision in the context of English classrooms specifically. It is also not clear what the effects may be of combining direct instruction with other approaches to the teaching of revision: for example, could direct instruction include teaching that increases audience awareness?

A second very promising approach to supporting revision in developing writers is the development of audience perspective. Researchers have taken a number of approaches to this, including the opportunity for writers to watch readers engage with their text, asking writers to read similar texts, promoting audience awareness through procedural facilitation and peer feedback. The evidence that this has a positive impact on developing writers' revisions is compelling, and a number of studies have also reported a positive impact on the overall quality of writing as a result. Given the range of approaches taken to the development of audience perspective, it seems that an increased understanding of the needs of a reader can be achieved in a variety of ways, but that this understanding supports revisions effectively.

The evidence for other approaches to the development of revision is more limited. There is some evidence that goal setting can support revision skills, but there are relatively few studies and they do not all focus on revision specifically. In addition, these studies examined how giving children goals for their writing can support their revision and writing quality: it is unclear how or whether this leads to children being able to set their own goals in future. Furthermore, for the purposes of this literature review, no studies could be found which combine goal setting with other approaches. For example, direct instruction could include discussion of wider goals and how specific revisions contribute to these: it is unclear what effect this could have on how children set goals for their own writing. There is also very mixed evidence regarding the possible impact of procedural facilitation of the revisions of

developing writers. Researchers have reported a range of positive and negative impacts, and often highlighted that procedural facilitation does not address children's barriers to revision. It may be the case that procedural facilitation makes a given instance of revision easier for the developing writer but contributes little to their long-term development of revision.

Writing has been theorised above as a series of primarily linguistic choices made in light of considerations such as audience and purpose. Revision, by extension, is the evaluation of choices already made and their replacement, where deemed necessary, with more optimal or appropriate choices. As has been discussed, these choices are underpinned by extensive knowledge: developing writers must acquire not only the knowledge of available linguistic options (e.g. vocabulary, various sentence structures etc) but also knowledge of when these options are appropriate. It is therefore striking that those approaches to the development of revision that build knowledge, whether by explaining it explicitly as in direct instruction or by providing experiences that develop it as in developing audience awareness, are supported by a more robust evidence base.

A common thread through the majority of research on revision, both among developing writers and more generally, is an interest in the types of revisions that writers make. This has led to a number of important typologies of revision, many of which have been productive and offered important insights into the nature of revision and how different approaches to teaching it affect the revisions children make. In particular, the distinction between surface changes and meaning changes is especially widely used. However, despite the fruitfulness of this and other typologies, they offer only a limited insight into the revisions that children actually make. For the purposes of this literature review, very little research could be found that examines the revisions children make more deeply. For example, if children make revisions to better meet the needs of the reader, do they do so through direct address using the second person? If they seek to make writing more persuasive, what language do they choose? Are there patterns in the revisions a given child or a group of children make across multiple texts? To answer such questions, a qualitative research design that allows for considerable depth is likely to be most effective. However, for much of the past forty years of research into revision, the field has been dominated by research informed by psychological traditions. There is, as such, a need for research into revision that offers alternative perspectives.

It is also notable that the majority of studies reviewed above concerning the teaching of revision report on relatively short interventions focussed on revision teaching. These studies do not, in general, provide detail on the context of this teaching, for example the participating children's prior knowledge and skills in writing or the participating school's wider curriculum for the teaching of writing. Consequently, relatively little is known about how children's revisions, including the impact they have on the quality of the text, may interact with wider teaching of writing beyond specific revision teaching. For example, many studies have reported that revision teaching has a more positive impact on the quality of writing of higher attaining writers than their lower attaining peers. However, this phenomenon has not been explored except with reference to the fluency of lower-order writing processes and the cognitive load of revision. As such, it is unclear whether higher attaining writers possess specific knowledge or skills that result in revision teaching having a greater impact on the quality of their writing. A qualitative design that explores the context of a period of revision teaching, including participating children's prior knowledge, may help to address this.

Research into revision has pointed to a number of possible approaches, most notably direct instruction and developing audience awareness, that may support developing writers to make more effective revisions. However, there has been little research into how these approaches may be combined. In particular, it is unclear whether the effects of direct instruction can be enhanced by including teaching that develops audience awareness or discussion of goals that may guide the revisions made. There is also a need for research into revision that offers a different perspective from the dominant psychological approach. In particular, qualitative work that examines children's revisions in considerable depth, including in relation to their wider context, would be especially helpful in adding to current knowledge.

3   <u>Methodology</u>

This chapter offers an account of the methods used to gather and analyse the data needed to address the research questions below. First, a rationale is offered for the use of a case study approach and the philosophical stance that underpins it in the case of this research. This is followed by a discussion of the practicalities of data collection, including the research site, participants, the revision teaching at the heart of this study and specific data collection methods. A description of the approach taken to the analysis of this data is also offered before an exploration of steps taken to ensure validity and ethical considerations that arose during the research.

3.1   Research Questions

The literature review identified two gaps in the existing research literature about revision. First, despite fairly robust evidence of the effects on developing writers' revisions of direction instruction and developing audience awareness separately, little is known about possible effects of combining them into a single approach. Second, research methodologies drawing primarily on psychological traditions have generally relied heavily on typologies of revision. There is, as such, a need for qualitative research that examines children's revisions in considerable depth to offer an insight into patterns in children's revisions and interactions between revisions and the children's wider context, including the wider provision in English they receive.

In light of these gaps, the present study aimed to use qualitative methods to contribute a deep analysis of children's revisions in order to answer the following research questions:

- Primary Question: Does 'enhanced direct instruction' of revision support children to make meaning change revisions in their writing?
- Subsidiary Question 1: In what ways is children's understanding of the role of revision in writing affected by this 'enhanced direct instruction' of revision?
- Subsidiary Question 2: What are the relationships between this 'enhanced direct instruction' of revision and the revisions made by children in their own writing?

- Subsidiary Question 3: What are the relationships between this 'enhanced direct instruction' of revision and the quality of children's writing?

In these questions, the term 'enhanced direct instruction' refers to an approach explained in detail below in which direct instruction incorporates elements of other approaches that research suggests may be effective, in particular developing audience awareness and goal setting. Given that one's conception of revision, as well as the identification of possible sites of revision and the ability to execute changes, are often cited as barriers to revision, subsidiary questions 1 and 2 sought to offer an understanding of how this enhanced direct instruction may support developing writers in overcoming these various barriers. Finally, given that the overall aim of all writing teaching should be the improvement of the quality of students' writing, subsidiary question 3 aimed to explore the overall impact of the revision teaching on participating children's writing.

3.2 Case Study

A case study approach was selected for this research because the particular strengths it offers are well-matched to the aims of this study. Baxter and Jack (2015) outline a range of circumstances in which case study might be an appropriate research design:

(i)   when the research seeks to address "how" or "why" questions

(ii)   when the behaviour of participants cannot easily be manipulated or controlled

(iii)   when the context of the study may be relevant to its findings

(iv)   when the boundary between what is being studied and its wider context are blurred

All four of these criteria held to at least some extent in the case of this study. First, this research sought to establish *how* the direct instruction of revision might affect children's revision skills. Second, though some elements of participant behaviour could be manipulated (e.g. by asking participating teachers to teach certain things in a certain way), the process of learning is known to be unpredictable and thus difficult to manipulate. Third, contextual conditions, including children's existing revision skills before the study, the school's English

curriculum and the teachers' attitudes and beliefs about revision, were likely to affect the impact of the direct instruction of revision. As such, it was important to select a research design that allowed for the inclusion of contextual information. Finally, given how enmeshed children's learning is in the wider context of the classroom, including but not limited to the context of their prior learning, the school's curriculum, the teacher's beliefs and attitudes and the child's learning outside school, it is fair to say that the boundaries between the phenomenon (i.e. children's revisions) and their context are unclear.

The importance of the inclusion of contextual information for this study should be emphasised. Any impact of the revision teaching may have been mediated by contextual factors, for example the school's wider curriculum or children's prior learning. As such, and given that this study sought to examine the teaching of revision in a naturalistic classroom environment, including contextual data in the analysis is essential. As Tsang (2014: 374) puts it, "By trying to understand empirical events in their rich context, case studies also throw light on the specific contingent conditions under which the postulated mechanisms operate." That is to say, the consideration of context not only situates the study, but also has the power to further illuminate the object of study. With regard to education, this means that case study offers a particularly helpful framework for understanding why or how a particular approach to teaching a particular area of knowledge might be effective (Corcoran, Walker, & Wals, 2004)

It should be noted that other possible approaches to this study were considered. In particular, action research was closely considered because it also has the advantage of allowing for the consideration of contextual factors and is widely used within education. In part, this is because the frequent involvement of teachers in action research leads to a perceived proximity between educational theory and practice in action research (Costello, 2003): action research is thus able to bridge the gap between research and the classroom. Given these possible advantages, a brief account of why action research was considered but ultimately not selected offers further insight into why case study was well-suited to this research.

One of the defining aspects of action research is that it does not seek just to understand a phenomenon in context but also to *improve* it: there is a clear commitment to positive change (Bradbury, Lewis, & Embury, 2019; McNiff, 2013). In educational action research, this

often means changing teaching practice to improve learning outcomes for children (Costello, 2003; Kemmis & McTaggart, 1992), often addressing issues of inequality (Duesbery & Twyman, 2020; Wright, 2020). Action research thus raises philosophical questions about what constitutes improvement and, ultimately, the aims and purposes of education. The desire for and commitment to making a positive change also informs methodological decisions and the evaluation of action research. For example, Bradbury (2015) argues that for action research to be deemed of good quality, it must be fundamentally participatory and inclusive, with all stakeholders being included as "full co-researchers". Bradbury also argues that a key measure of quality in action research is "actionability": the extent to which action research provides ideas for further action. However, the present study did not foreground change but rather understanding. That is to say, this study sought to understand the connection between revision teaching and children's revisions and, though it is hoped this will contribute in some way to improving children's education by adding to the collective understanding of how children learn to write, changing the context in which the research took place was not an immediate concern.

A second defining characteristic of action research is its cyclical nature (Baumfield, Hall, & Wall, 2008; Costello, 2003): action researchers use a cyclical process of making changes, examining and reflecting on their effects before making further changes with the aim, in education at least, of ultimately improving provision. This cyclical approach was not used in the present study, nor was it likely to have been particularly helpful in answering the questions at hand. As such, though action research shares some of the characteristics that made case study an appropriate choice for this study, two of its defining characteristics, a commitment to change and a cyclical nature, made action research a less optimal approach than case study.

Naturally, there are drawbacks to case study, particularly with regard to generalisability and, relatedly, validity (Simons, 2020; Tight, 2022). Many argue that the small scale of case studies, sometimes alongside other factors such as a lack of random sampling, means that generalisations cannot be drawn from case study research. The response to this from case study researchers ranges from simple disinterest to full contradiction with techniques proposed to assure validity and thereby facilitate generalisations, even if these are tentative.

This variation in response reflects different understandings both of what case study is and of the epistemological framework in which it is embedded.

3.3   Traditions in Case Study

Despite many attempts, especially over the past thirty years, consensus regarding the definition of case study remains limited (Merriam, 1998; Ridder, 2017; Yazan, 2015). Indeed, this lack of consensus extends to whether case study constitutes a method, a research design or a methodology (VanWynsberghe & Khan, 2007). However, here, following Tight (2017), case study shall be taken to refer to a research design, reflecting its flexibility and the fact that it is not dependent on the use of particular methods of data collection or analysis (Merriam, 1998; Simons, 2020; Stake, 1995; Thomas, 2021; Yin, 2018). The varying definitions of case study stem, at least in part, from the fact that case study is "transparadigmatic" (VanWynsberghe & Khan, 2007). That is to say, case study as a research design can be and is used in research rooted in a wide range of epistemological assumptions (Corcoran et al., 2004; Simons, 2020; Yazan, 2015; Yin, 2018).

3.3.1   Positivism

In research where a positivist approach to case study has been selected, the role of case study is a pre-cursor to other, often more quantitative research. Case study is thus a process to support the creation of hypotheses that can be tested in later research (Eisenhardt, 1989); its role is thus to develop theory rather than test and prove or disprove it (Eisenhardt & Graebner, 2007). This approach limits concerns about the validity and generalisability of case studies that are frequently raised as criticisms of case study (Simons, 2020; Tight, 2022). This is because case studies within this paradigm do not seek to generalise: this would be the role of other research that tests the theory that has been developed through case studies. Another approach to case study which falls broadly within a positivist framework is the notion of 'natural experiments' (Lee, 1989). In these studies, the researcher aims to identify naturally occurring instances (i.e. cases) that differ in a certain respect such that one case is analogous to an 'experimental condition' and the other to a 'control condition'. Such an approach may be used if it would be difficult or impossible, or indeed unethical, to

manipulate the conditions concerned. The fact that these 'natural experiments' are concerned with variables and controls, and much less concerned with context as described in the definitions above, underlines the positivist epistemology that underpins them. Neither of these positivist understandings of case study were appropriate to the current study: it was not a precursor to large scale quantitative work, indeed it is difficult to imagine what this might be in the context of revision, nor did the case constitute a natural experiment. Furthermore, and in common with many aspects of education in real life classrooms, the direct instruction of revision at the heart of this study could not be treated as a set of identifiable and measurable variables (Atkinson & Delamont, 2013).

3.3.2 Social Constructionism

Other case study research is associated with a social constructionist epistemological framework. These approaches often share the positivists' relative lack of interest in generalisability but for profoundly different reasons. For example, Stake (1995) argues that the primary interest in case study is the case itself rather than using the case as a means of illuminating a wider phenomenon. That is to say, the focus of this approach to case study is to capture the uniqueness of the case, not to generalise from the findings (Hammersley & Gomm, 2013). Other scholars reject the very notion of generalisation in qualitative case study research, for example arguing that it represents "entrapment in a reductionist fallacy" (Lincoln & Guba, 2009: 34) to believe the social world can be described sufficiently with general principles. Related to the rejection, or at least questioning, of the importance of generalisation, some case study researchers working within a social constructionist framework have refuted the idea that case study research should be evaluated with reference to the ideas of validity and reliability given they were generated within the positivist tradition (Merriam, 1998; Stake, 1995; Yazan, 2015).

Naturally, given its focus on the uniqueness of the case, the importance of understanding the case in its real life context is of paramount importance to researchers working with a social constructionist framework, in sharp distinction to the positivist approaches described above (Lincoln & Guba, 2009; Tight, 2022). This is because of an underlying belief that social interactions are not governed by universal, overarching principles and therefore cannot be

subject to predictive theories; instead, value can be found in knowledge embedded in real life contexts (Flyvbjerg, 2013).

Such social constructionist approaches to case study often privilege qualitative data collection (Merriam, 1998; Stake, 1995) and, in some cases, not only reject quantitative methods but also their inclusion within a mixed methods approach to case study (Yazan, 2015). This creates a clear link between case study and narrative (Flyvbjerg, 2013) as researchers use qualitative methods to gather large amounts of data about the case, its context and their interaction. Many case study researchers working within this paradigm draw on the ethnographic notion of 'thick description' (Geertz & Darnton, 1973). This refers to the researcher providing extensive description and interpretation of social interactions and behaviours which they have observed alongside considerable detail of the context in which it occurred (Ponterotto, 2006). This includes accurately describing social actions and their context, capturing the thoughts and emotions of participants and interpreting motivation and intention. The aim of 'thick description', however, is not merely to describe but rather to offer sufficient detail to allow readers to understand complex social and cultural meanings within a certain context.

The social constructionist framework would have offered some advantages for the present study. Primarily, it is impossible to divorce any period of teaching from its context: the teachers and their beliefs and experiences; the children and their needs, attainment and attitudes; the school's curriculum and wider societal attitudes all play a role in the impact of specific periods of teaching. As such, the social constructionist emphasis on the importance of context in understanding the case would be helpful in a study of the effects of a period of teaching. However, this framework has two major drawbacks. First, this study used mixed methods, including some quantitative data. Though this is common in case studies in general (Tight, 2017), the social constructionist paradigm privileges qualitative data so significantly as to reject mixed methods approaches, as described above. Second, and more importantly, though the case at the heart of this study was inherently interesting, this study aimed at some degree of generalisability. That is to say, case study was used as a means of understanding the phenomenon of teaching children to revise their writing using certain approaches to teaching, not exclusively as a way of understanding the case itself, in this instance the school where the revision teaching took place. As such, the aim of this study

was somewhat at odds with the aim of case study designs within the social constructionist framework. Furthermore, given the aim of generalisability, the issue of validity was of greater importance than social constructionist approaches would suggest. Consequently, the fact that the social constructionist paradigm does not offer a robust framework to validate case study research ruled it out as an approach for this study. As Gomm, Hammersley and Foster (2009: 102) put it:

> "In summary, then, while some case study research may be able to avoid 'the problem of generalization' because the case(s) studied have sufficient intrinsic relevance, this is not true of most of it... Furthermore, while naturalistic generalization and transferability point to one way in which case studies - and indeed other kinds of research - may be used, they do not provide a sound basis for the design, or justification, of case study research. Indeed, these notions seem to relax the requirements on researchers to proceed in principled ways, transferring this responsibility to readers. In our view, then, most case study research must be directed towards drawing general conclusions."

3.3.3   Realism

In light of the drawbacks of both the positivist and social constructionist paradigms described above, the guiding framework for this study was realism or, as it is sometimes called elsewhere, 'postpositivism'. Realism shares with positivism the idea that there exists an objective reality beyond our perception and experience, but also with social constructionism the idea that our knowledge of it is socially constructed and refracted through lenses of individual and cultural bias. These biases may make it difficult to reach the truth with any certainty, but a realist approach suggests we should nonetheless strive to come as close as possible (Spencer, Pryce, & Walsh, 2020). In the context of this study, this is reflected in the assumption that there exist approaches to the teaching of revision that are more likely to be effective in certain circumstances and educational research can attempt to identify what these might be.

At its heart, the realist view of case study has to do with the perceived link between this type of research, theory and, ultimately, generalisation. In a realist framework, theory-building is

considered a valuable aim of case study research and case studies can test theories, consider rival explanations and even suggest causal relationships, all in real world contexts (Welch, Piekkari, Plakoyiannaki, & Paavilainen-Mäntymäki, 2010). This can lead to what Yin (2013) calls 'analytic generalisation': "the extraction of a more abstract level of ideas from a set of case study findings – ideas that nevertheless can pertain to newer situations other than the case(s) in the original case study" (Yin, 2013: 325).

Broadly speaking, the realist paradigm offers two approaches to theory-building from case study research, which Ridder (2017) prosaically refers to as the "no theory first" approach and the "gaps and holes" approach. The first, which aligns with Yin's (2018) notion of the 'exploratory' case study, does not consider theory in advance but rather seeks to gather a richness of data from which within-case and cross-case patterns can be identified as the basis for building theory. This approach has much in common with the concept of 'grounded theory' (Glaser & Strauss, 1967). The second approach, which Yin (2018) would call an 'explanatory' case study, seeks to identify propositions from existing theory and use the richness of case study and its links to real life contexts to test these, consider rival explanations and establish causal relationships. The explanatory case study is thus embedded in theory from its conception to its writing up. However, it should be emphasised that in both exploratory and explanatory case studies, the aim remains to use the richness of the data to build theory that can be generalised beyond the case at hand. This focus on theory-building and the related opportunity for generalisation is what drives researchers within the realist paradigm to value issues such as validity, reliability and the consideration of alternative explanations so highly (Gibbert, Ruigrok, & Wicki, 2008; Riege, 2003; Yin, 2018, 2013). By assuring the validity of a case study, one can have more trust in the theory-building it contains, which, by extension, supports arguments for the generalisation of the theory beyond the case.

In summary, this research was underpinned by a theoretical framework drawn from the realist approach to case study. This was because of the value it places on (i) understanding how the context of the case interacts with the objects of study and (ii) establishing clear approaches to validity and reliability that support theory generation and, therefore, at least some degree of generalisation. As a result, the present study followed Yin's (2018) definition

of case study. This is a two-part definition of case study, the first part of which mirrors others' emphasis on the importance of the case and its connection with wider context:

> "A case study is an empirical method that investigates a contemporary phenomenon (the "case") in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident." (Yin, 2018: 15)

However, the second part of Yin's definition takes a different approach, reflecting Yin's view of the role of theory in case study as well as elements of methodology:

> "A case study copes with the technically distinctive situation in which there will be many more variables of interest than data points, and, as a result, benefits from the prior development of theoretical propositions to guide design, data collection, and analysis, and as another result, relies on multiple sources of evidence, with data needing to converge in a triangulating fashion." (Yin, 2018: 15)

Naturally, this theoretical framework informed a wide range of methodological decisions in all phases of this study.

3.4   Research Design Summary

The case at the heart of this case study was a 6-week period of enhanced direct instruction of revision in a single primary school in an inner-city area of England. This research used an embedded case study design involving sixteen children at the school and their teachers. Though findings related to individual children are explored in depth below, these are presented to illuminate wider findings with regard to the period of enhanced direct instruction of revision. Furthermore, these data are presented together with cohort-level data and participating children shared particularly salient aspects of context, most notably their teacher and prior teaching in school. As such, they are taken not to constitute multiple cases but rather contribute to the understanding of a single, wider case.

Data were collected before, during and after the period of teaching (as detailed in table 3.1 below) in order to understand the impact of the teaching on children's conception of revision and the revisions they made in their writing. The participants were sixteen 9- or 10-

year-old children (in year 5 in the English system) drawn from three separate classes within the school as well as the three teachers of these classes. As is common in case study research (Merriam, 1998; Stake, 1995; Yin, 2018), data were collected from a range of sources including interview data from children and teachers, data from observations in class and a number of examples of each participating child's writing.

Table 3.1: The Three Phases of Data Collection

Phase	Data Collected	Aim
1	These data were collected before revision teaching began: • Group interviews with participating children. There were 3 group interviews in total (one per class). • Interview with each participating teacher. • 16 pieces of writing (one per child)	This phase sought to understand the nature of children's revisions before the revision instruction, as well as their conception of what revision was. The three sources of data allowed for triangulation to provide a fuller insight into children's revisions before the period of teaching.
2	These data were collected during the period of revision teaching: • 6 pieces of writing per participating child (one per week during the period of revision teaching). Some children missed individual texts due to absence from school. • Notes from 10 observations of lessons in which revision was taught.	During this phase, children were taught to revise their writing using enhanced direct instruction. The analysis of the data collected at this stage aimed to offer an insight into the relationships between this teaching, the revisions in children's writing and their conception of what revision is.
3	These data were collected after the period of revision teaching: • 1 piece of writing by each participating child. Children were given time to revise but no additional revision teaching. • Individual interviews with each participating child.	The analysis of an additional text written by each child sought to offer an insight into children's revisions in a text when revision was not explicitly taught. The aim of the interviews in this phase was (i) to gain further data on children's conception of revision and (ii) to

	• Interviews with each participating teacher.	triangulate findings from phase 2 by asking children and their teachers about specific revisions in their texts.

3.5 Research Site & Participants

3.5.1 Research Site

The data for this study were collected from a single primary school in an inner-city area of England. The school was larger than average and served a particularly diverse community. This diversity included socioeconomic factors, languages spoken in the home and cultural background. A majority of the children attending the school spoke a language other than English in the home; this was the same language for roughly a third of the children though many other languages were represented in each class. With regard to socioeconomic factors, the level of deprivation was high: just under 40% of children received free school meals, significantly above the national average. However, it should be emphasised that this deprivation was not uniform: the socioeconomic background of children attending the school varied substantially.

This school was selected as the research site for two main reasons. Firstly, the diversity outlined above was a significant advantage for this study. The selection of a diverse range of cases has been known to be helpful in previous case study research, particularly those of an exploratory nature (Seawright & Gerring, 2008). For this study, the diversity of participants allowed for an exploration of the effects of the revision teaching in a wider range of circumstances than might have been the case in a more uniform school. This added to the validity of the study's findings: the significant variation in children's wider contexts meant that the similarities between them with regard to their revisions and their conception of revision were more likely to be due to experiences in school. As such, the diversity of participants added weight to possible generalisations, even though these remained tentative due to the low number of participants overall.

The second reason for the selection of this school as the research site was practical: the researcher in this study was employed as a senior leader in the school. This offered practical advantages such as the opportunity to plan the revision teaching with teachers to help reduce the workload burden of the research and to hold ongoing discussions with them to

ensure fidelity to the planned approach to teaching revision. Furthermore, established relationships with both the children and teacher participants allowed for rich discussions in interviews. Ethical considerations arising from the position of the researcher in the school are discussed below. It should also be noted that the data for this study were gathered during the COVID-19 pandemic. Though data were collected after the full re-opening of schools in England, it was during a period when schools had to limit social contact as far as possible. However, due to work requirements, the researcher already had regular contact with all the participants involved in the study. As such, this research site allowed for data to be collected without increasing the number of social contacts for participants or the researcher.

3.5.2 Participants

The participants involved in this study were sixteen 9- or 10-year-old children (year 5 in the English system) and their teachers. This age group was selected for two main reasons. Firstly, many children in year 5 have already mastered the fundamentals of writing (e.g. letter formation, handwriting, sentence punctuation etc). Given the potential cognitive load of these elements of writing for those who have not mastered them, and the additional cognitive load that revision appears to represent, it is reasonable for a study that seeks to explore children's revisions to focus on older children within the primary school context. In addition, the restrictions to social contact arising from the COVID-19 pandemic meant that, given the researcher already had contact with all these participants for work, no additional risk of transmission resulted from this selection of participants.

Participating teachers were selected simply on the basis that they were the class teachers of the three year 5 classes in the school. None of the participating teachers was a newly qualified teacher (NQT) though their teaching experience ranged from approximately 3 years to approximately 8 years. Though fidelity to the teaching approaches was probed through lesson observations as described below, it is possible that variation in teaching approaches between participating teachers, including outside of revision teaching, could have had an impact on outcomes among participating children.

Participating children were spread across three year 5 classes in the school. Sixteen children were selected in order to reduce the chance that particular interactions between their revisions and the revision teaching were idiosyncratic or coincidental (Eisenhardt & Graebner, 2007); this number of participating children was deemed sufficient to identify meaningful patterns in their revisions. However, this was not an attempt to create a representative sample of the school's population, or indeed another wider group. As Yin describes, the inclusion of multiple cases is akin to replication, not sampling (Yin, 2018): each participant brings a different context and therefore offers additional information on the revision teaching at the centre of this study.

It should be emphasised that participants were not randomly selected. Though this is in part due to COVID-19 related restrictions, there were also important empirical considerations that led to the use of purposive sampling. Most notably, in studies with a small number of participants, randomized sampling is likely to be more unrepresentative than purposive sampling (Seawright & Gerring, 2008). This is because the small number of participants selected is unlikely to contain the full range of characteristics of the wider population it seeks to represent. Furthermore, this case study sought to gather the richest possible data on the phenomenon under study. As such, it was important not to restrict data to typical cases (Flyvbjerg, 2006): some participants were selected precisely because they were atypical, for example with regard to their prior attainment. In summary, participants were selected for their diversity with the aim being "the achievement of maximum variance along relevant dimensions" (Seawright & Gerring, 2008: 300). For the purposes of this study, these relevant dimensions included prior attainment in writing, language spoken at home and the classes in which the children were taught. It should be noted that, although purposive selection of diverse cases increased the representativeness of the sample, there is a chance that is has distorted the distribution of cases with regard to specific dimensions. For example, it is possible that the proportion of children with lower prior attainment may be higher or lower in the school, or indeed more widely, than that in the group of participants.

Once the research site and the year group to be involved in the research had been identified, the process of selecting children to participate begun by dividing the entire year 5 cohort into prior three prior attainment groups: high, middle and low. This was done using teacher assessment data already held by the school showing whether each child's writing

represented a level of attainment higher than the age-related expectation, in line with this expectation or currently below this expectation. This assessment consisted of evaluating children's writing against the school's curriculum, which was based on England's *National Curriculum*, to determine whether it showed evidence that children had learnt what the curriculum specified they should have. This included accuracy of spelling and punctuation, sentence structure, cohesion and appropriateness for purpose and audience, among other considerations. Though the reliability of this teacher assessment was not specifically tested in this study, it was accurate enough to ensure that participating children reflected the full spectrum of attainment in the year group.

It should be noted that children's attainment in writing at the beginning of the study had been significantly affected by the disruption caused by school attendance restrictions in response to the COVID-19 pandemic. Indeed, some participating children had spent several months away from school and, despite efforts to develop remote teaching in this period, received both less teaching overall and teaching that was less effective or responsive than usual. Furthermore, the teachers involved in the study, and the school more widely, identified writing as the area in which the impact of these restrictions had been most significant. This had two important implications for this study: (i) the profile in attainment of children's writing was different to usual, with many children having attained less than might ordinarily be the case and, (ii) it is particularly important to dissociate prior attainment from ability. For example, some children who may go on to attain highly in writing were assessed as not yet at the age-related expectation due to a lack of familiarity with elements that they had not yet been taught because of their time away from school.

As a result of these COVID-related effects on attainment, there were only three children in the cohort that were working above age-related expectations. As such, all three were selected for participation. As a result of this selection, it is plausible not only that the high prior attainment group are higher attaining than average but also that they are all especially high attaining writers. Furthermore, it should be noted that all three children in the high prior attainment group spoke English in the home: perhaps related to the disruption of the pandemic, no children who spoke other languages at home were yet exceeding age-related expectations in their writing in English.

Among the other two prior attainment groups, six children were randomly selected to participate. This was not an attempt to mimic randomised sampling. Rather, the aim of this random element was to reduce the possibility of unconscious bias on the part of the researcher, who already knew the children, and teachers which might lead, for example, to the selection of children who are likely to 'say what they think the adults want to hear'. In addition, this random selection was reviewed in order to ensure that each prior attainment group included children who spoke English at home and children for whom English was an additional language as well as children from each of the three classes. Finally, one additional child was added to the low prior attainment group to ensure that the participants would reflect the breadth of this group. This was deemed necessary because, due to the effects of the pandemic disruption described above, the range of attainment in the low prior attainment group was wider than might ordinarily be the case. Table 3.2 shows the outcome of this process with participants organised by their class and prior attainment group.

Table 3.2: Participants by class and prior attainment group.

	Class 1	**Class 2**	**Class 3**
Teacher	Teacher 1	Teacher 2	Teacher 3
High Prior Attainment	Child 1	Child 2	Child 3
Middle Prior Attainment	Child 4 Child 5	Child 6	Child 7 Child 8 Child 9
Low Prior Attainment	Child 10 Child 11 Child 12	Child 13 Child 14	Child 15 Child 16

3.6   Revision Teaching

As part of this study, participating teachers adopted an approach to revision teaching designed by the researcher which drew on existing research about revision and was centred on direct instruction and goal setting support. This approach was designed to integrate into the school's curriculum; as such, no texts were written especially for the study. Rather, the

approaches to revision teaching were used each time children wrote a text that was already part of the school's planned English teaching. This not only reflects the wider principle of unobtrusiveness but also helps to ensure that the data collected reflected writing under normal classroom conditions. This section provides further detail on classroom activities that took place during each phase of this research, including phase 1 before the revision teaching and phase 3 after it, as well as on the nature of the revision teaching at the heart of this study itself.

3.6.1   Phase 1: Before revision teaching

In phase 1 of the research, children were asked to write a fictional narrative in which they retold a scene from *The Nowhere Emporium* by Ross MacKenzie from the perspective of a particular character. Children had been reading this novel as a class text: this meant that they had spent reading lessons reading and discussing the text, as well as sometimes answering written comprehension questions about it. The three classes involved in this study had spent a number of lessons preparing to write text 1, including reading and discussing the relevant section of the original text and learning about effective setting description. When children came to write text 1, they did so mostly independently, though they were able to make use of a range of resources that had been made available to them. This included preparatory work in their English book, as well as examples of vocabulary they might choose to use.

Phase 1 took place before the beginning of the revision teaching. As such, children did not receive any direct instruction of revision. However, they were given time to revise and asked by the teacher to check and edit their work. This ensured that any change in the volume or nature of revisions between text 1 and later texts was not the result of opportunity alone.

3.6.2   Phase 2: During revision teaching

Children wrote six texts during phase 2 of the research, and this was when they received revision teaching in the form of 'enhanced direct instruction of revision'. However, it should be noted that the revision teaching was designed to complement the existing curriculum rather than replace it. That is to say, although phase 2 of the research was the period when

children received revision teaching as described below, they also benefited from a range of other teaching in English.

In general, during phase 2, one text was written each week with intervening lessons use to prepare for writing the text and to review particular writing skills for the children to develop. Effective setting descriptions and characterisation, including through dialogue, were both highly represented areas of teaching during this period. It should be noted that writing one text a week represented a slightly faster than usual approach to writing for the school: separately from this study, the school had taken the decision that children would benefit from a period of more frequent than usual extended writing because of a belief that writing stamina had deteriorated while children were away from school due to the COVID-19 pandemic.

With regard to revision teaching specifically, enhanced direct instruction included the direct teaching of the importance of revision. To this end, the researcher planned and resourced part of a lesson that introduced children to the word 'edit', provided them with examples about what it is and explored why editing was important. It should be noted that the word 'edit' was used in all resources for and discussions with children as this was the term already used in the school. As such, it should be considered as synonymous with 'revision' for the purposes of this study. The resourcing of this lesson included a *PowerPoint* presentation that was used by all participating teachers and a lesson plan outlining key points to discuss (see appendix 1). This approach ensured that the research did not unnecessarily increase teachers' workload but also promoted consistency between the classes. This lesson was delivered at the very beginning of the period of revision teaching.

Subsequently, the enhanced direct instruction of revision took the form of teachers 'thinking aloud' to model the revision process. During phase 2, this took place at least weekly after children had finished their first draft of texts 2-7. This 'thinking aloud' would be based on the same text that the children had written themselves; in some cases, the teacher used their own version of the text to model revising, while in others the teacher would use one of the children's own texts. The children would watch as the teacher made revisions and explained, in real time, the rationale underpinning them. Critically, this involved frequent references to the needs of the reader, the effect that different changes might have on the text and the goal being served by a given revision. As such, this direct instruction aimed to incorporate

teaching that developed goal setting and audience awareness in light of research findings that this can be achieved in a wide variety of ways. On some occasions, teachers would use elements of 'shared writing' during this revision teaching, for example asking children for their own ideas on a replacement for a particular word or for their views on the effectiveness of a section of the text. However, such instances were relatively few as the focus of enhanced direct instruction was the modelling of the teacher's own revisions, and this was made clear to all participating teachers. It should be noted that this focus on direct modelling over shared writing is not a comment on the efficacy of either. There are likely to be benefits to both approaches: this research focused on direct instruction due to the findings of prior research outlined above.

The 'think aloud' sessions of enhanced direct instruction of revision focussed on meaning changes and were relatively short, lasting approximately 10 minutes before children were given time to revise their own writing immediately after. As such, these 'editing sessions' did not generally constitute a whole lesson. As the enhanced direct instruction of revision took place after children had finished each of texts 2-7, participating children had at least one such session a week for the duration of 6 weeks. However, participating teachers occasionally used the same strategy at other times during phase 2 and class 1 missed one week of this teaching due to teacher 1's absence from school. All teachers confirmed fidelity to this programme.

As described above, the 'think aloud' modelling of revision included consideration of the goals served by particular revisions. This was based on the relative consensus that effective writers are able to set goals for their own writing and revision, even if subconsciously (McCutchen, 1994; Rijlaarsdam et al., 2004) and the idea that supporting children to set goals may have benefits for their revision (Allal, 2004; Graham et al., 1995; Midgette et al., 2007). For example, a direct instruction session may begin by outlining the general goal of revision to make the ending of a narrative less abrupt or to use dialogue to improve characterisation. 'Thinking aloud' then made explicit how this goal could be achieved. To supplement this approach, children were also given general goals, like those above, to focus on when revising their texts. In some cases, this was a personal goal if there was a particular area that a child could benefit from focussing on. More often, however, these goals were shared with larger groups of children or even the whole class.

To support teachers in using this approach to revision teaching, the researcher met with teachers in advance to outline the approach in detail. This included clear examples of the types of revisions to model, the language that could be used to explain the underlying rationale to children and the goals to give children when they were revising their writing. Teachers were also given information sheets (see appendices 2 and 3) to refer to between sessions should this be helpful, while the researcher's position in the school meant that it was possible for participating teachers to ask specific questions about the approach as these arose. Fidelity to the approach was also probed during lesson observations, as described below.

3.6.3 Phase 3: After revision teaching

Phase 3 mirrored phase 1 as children were asked to revise a text (text 8, as described below) and given time to do so but they were not given specific revision teaching. However, other aspects of the teaching given to children as they prepared to write text 8 was similar to that of previous texts they had written for this research. Children read and discussed *The Island* by Armin Greder, which was the stimulus for text 8, before receiving a series of lessons that focussed on the type of language they could use in text 8 itself. As such, the teaching that prepared children to write text 8 was similar in quantity and nature to that which prepared them to write earlier texts included in this research. Furthermore, children were given approximately the same amount of time to revise text 8 as they were given in previous weeks during phase 2. As such, the absence of revision teaching was an important difference between text 8 and those that preceded it.

3.6.4 Texts

The nature of the approach to revision teaching meant that it could be applied to any texts that children wrote and, as such, this approach could be integrated into the school's existing English curriculum. As described above, during the period of data collection, the children wrote 8 texts: one in phase 1 before the revision teaching began, 6 in phase 2 during the period of revision teaching and 1 in phase 3 after the revision teaching had finished.

Table 3.3 below provides an outline of each text that the children wrote that was used as data for this study. It should be noted that data collection took place during a period when self-isolation was compulsory for individuals with COVID-19. As such, some participants were absent on the days when some texts were written: three children were absent when text 3 was written, 1 was absent when text 6 was written and 6 were absent when text 7 was written. For all other texts, all children were present the day the text was written.

Table 3.3: The 8 texts written by children as part of this study.

Phase	Text	Description
1	Text 1	Fictional narrative. Children retold a scene from *The Nowhere Emporium* by Ross MacKenzie from the perspective of a specific character. The scene involves a fountain in which imagination is stored in liquid form.
2	Text 2	Fictional narrative Children created a new scene inspired by *The Nowhere Emporium* by Ross MacKenzie. Characters went to a room in the emporium the setting of which was created by the children. Children could also create other characters in the setting and the plot.
	Text 3	Fictional Narrative Children retold *Cinnamon* by Neil Gaiman in which a character is unexpectedly taught to speak by a tiger.
	Text 4	Fictional Narrative Children retold *Varmints* by Helen Ward. The original text contains very little text; children had to adopt the perspective of a specific character for their retelling and could choose to create new scenes or a new ending.
	Text 5	Diary Entry Children wrote a diary entry as a character from the book *The Invisible* by Tom Percival. This book focuses on the experiences of a character who moves to a deprived urban area. There was a particular focus on showing the character's feelings.
	Text 6	Fictional narrative Children adopted the perspective of a character in *The Greenling* by Levi Pinfold. There was a particular focus on characterisation and capturing 'the voice of the character'.

	Text 7	Fictional narrative Inspired by the magic show in the book *Leon and the Place Between* by Angela McAllister, children wrote a narrative about a different type of show. Many children chose to write about jugglers. Children could choose whether or not to write from a particular character's perspective.
3	Text 8	Newspaper report Children wrote a newspaper report about the arrival of a new character in *The Island* by Armin Greder. This book contains no text so children's understanding of the narrative came exclusively from illustrations. There was a particular focus on presenting the perspective of certain characters in the original text.

3.7   Data Collection Methods

The use of multiple sources of data is a key element in much case study research due to the opportunities for triangulation that it affords (Yin, 2018). As such, this study gathered data from a number of sources using three particular methods: interviews (both with groups and individuals), observations and the collection of children's writing. Table 3.4 summarises how each research question was addressed using a combination of these methods. It should be noted that some data were used more extensively than others. In particular, the analysis of children's writing was an especially fruitful source of data in this study. In contrast, some other sources of data were use less extensively and were intended to provide additional data and act as a point of triangulation. This is also reflected in table 3.4 where some methods are said to provide 'additional data'.

Table 3.4: Research questions and the methods of data collection used to address them.

Research Question	Data Collected
Subsidiary Question 1: In what ways is children's understanding of the role of revision in writing affected by this	Phase 1: • Interviews with children provided data on children's understanding of the role of revision in writing before revision teaching.

'enhanced direct instruction' of revision?	• Interviews with teachers provided additional information on children's understanding of revision before revision teaching. Phase 3: • Interviews both with children and with teachers in phase 3 provided data on children's understanding of the role of revision in writing after revision teaching. Comparison with data from phase 1 allowed for inferences to be drawn regarding the impact of revision teaching on participating children's conception of revision.
Subsidiary Question 2: What are the relationships between this 'enhanced direct instruction' of revision and the revisions made by children in their own writing?	Phase 1: • Analysis of children's writing in phase 1 (text 1) provided an insight into children's revisions before revision teaching. Phase 2: • Analysis of children's writing provided data regarding the revisions children made, which were examined for patterns and relationships with the revision teaching. • Lesson observations provided some additional data on possible connections between revision teaching and children's revisions. Phase 3: • Analysis of children's writing in phase 3 (text 8) provided data on children's revisions after revision teaching. • Interviews with children in phase 3 3 allowed for additional data to be gathered on the underlying rationale for particular revisions.
Subsidiary Question 3: What are the relationships between this 'enhanced direct instruction' of revision and the quality of children's writing?	Phase 1 • Analysis of children's writing provided data on the impact of revisions before revision teaching. Phase 2: • Analysis of children's writing provided data on the impact of revisions in each text during the period of revision teaching. These data were also used to examine how the impact of children's revisions changed over time during this period. Phase 3:

	• Analysis of children's writing provided data on the impact of revisions after revision teaching.
Primary Question: Does 'enhanced direct instruction' of revision support children to make meaning change revisions in their writing?	This question will be addressed by bringing together the findings from the three subsidiary questions listed above. This will not involve any additional or specific data analysis.

3.7.1 Interviews

Interviews constituted an important means of data collection in this study, primarily due to the fact that they can be targeted to specific areas of concern and can offer insights into participants' perceptions (Yin, 2018), both of which were important for this study. In phase 1, group interviews were used with participating children and semi-structured interviews were used with each participating teacher individually. In phase 3, semi-structured individual interviews were used with all participants (both children and teachers). In total, there were 25 interviews: 3 group interviews with children and three interviews with teachers at phase 1 and 16 interviews with children and 3 with teachers at phase 3.

Group interviews were used with participating children in phase 1 because, as a result of the researcher's familiarity with the school and its curriculum, it was known that the children's knowledge and experience of revision was likely to be limited. As such, conducting the interviews in groups lessened any potential anxiety in the participating children related to being asked questions about something of which they were likely to have little experience. Furthermore, the group interview format meant that children could hear and add to other participants' responses, from which they could "gain strength" (Gibbs, 2021), adding to the richness of the data gathered. These interviews were semi-structured: an interview schedule was prepared in advance (see appendix 4) to ensure that all relevant points were covered. However, the semi-structured nature of the interview offered the flexibility to follow interesting lines of enquiry raised by the children. This was particularly important given that it was likely that children would not have extensive experience with revision.

During these group interviews, the researcher's familiarity to the children had a number of advantages. Firstly, the researcher was able quickly to put the children at ease by drawing on existing relationships. In addition, he was able to establish the ground rules for the group

interview using language with which the children were familiar. As a result, though it can be difficult for participants in group interviews to discuss ideas and opinions that differ from those of other participants (Watts & Ebbutt, 1987), this was not the case in this study. As such, the group interviews provided data not only on the children's collective perspectives on revision but also some individual ideas and insights.

It should be noted that throughout all data gathering activities, revision was referred to with and by participants as "editing". This was because (i) it is the more widely used term for the process in everyday life and (ii) it avoids potential confusion due to the alternative meaning of 'revision' in schools (i.e. reviewing previous learning). As such, in all data shared from interviews and elsewhere, 'editing' should be taken to be synonymous with 'revision'.

The interviews with participating teachers in phase 1 were semi-structured in nature: an interview schedule was prepared in advance (see appendix 4), but, as with the participating children, the flexible nature of a semi-structured interview allowed for unexpected lines of enquiry that arose during the interview to be explored. These interviews had a number of aims. Firstly, with regard to some data, they offered a point of triangulation with data from the interviews with children. For example, children's description of the revisions they made could be compared with a similar description from the teacher, who naturally had both broader and deeper expertise in writing and therefore provided a different perspective. Secondly, the interviews with teachers also provided a range of contextual data. As described above, an important motivation for the choice of a case study methodology for this research was the fact that it offered a clear framework for the consideration of contextual factors, which were likely to be relevant to the study's findings. As such, the contextual data gathered from teachers could allow for the generation of deeper insights. Importantly, in phase 1, interviews with teachers took place after the group interviews with children. This allowed for data and concepts from the group interviews with children to be put directly to the teachers. Consequently, teachers could provide further detail and rationale for teaching practices described by the children as well as, in some cases, helping to interpret children's comments by providing relevant background information, for example with regard to previous episodes of teaching and learning.

In phase 3 of the research, semi-structured interviews were used with all participants, both children and teachers. As in phase 1, an interview schedule was prepared in advance (see

appendix 5) to ensure that all relevant topics were covered. However, the semi-structured nature of the interviews allowed for the exploration of issues raised by participants, providing an in-depth understanding of their perspectives (Mears, 2021; Simons, 2020). During the interviews, a number of techniques were used to help participants develop their answers and to check the researcher's understanding of their responses, for example to avoid ambiguity. These included supplementary questions and the researcher providing summaries of particular answers to check that what had been understood reflected the participant's intention (Weiss, 1995).

The phase 3 interviews with teachers were broadly similar in nature and purpose to those in phase 1. However, the phase 3 interviews with children took a slightly different form from those with participating teachers. Most notably, in addition to general questions based on the interview schedule, participating children were also asked questions about specific revisions in specific texts. This is because these interviews aimed to "prompt participants to consider details which would otherwise be inaccessible [to the researcher]" (Flewitt, 2013: 138). Specifically, these interviews sought to gather data about the thinking which underpinned a given revision: in short, they sought to understand *why* a revision was made and the impact it was designed to have. Though this information could to some extent be inferred from the text in some cases, interview data offered not only additional data for triangulation but also less ambiguous data on what motivated specific revisions. In addition, in a number of cases being able to discuss *specific* revisions rather than the concept of revision in a more generalised and abstract way also provided additional helpful data on children's conception of revision that did not emerge when they were asked the more general questions. In most cases, children were asked to discuss specific revisions from two texts. Generally, these were texts 7 and 8 on the basis that they were the most recently written and therefore offered the best chance of children remembering the thinking behind specific revisions. However, where children were absent for one of these texts, the next most recently written text was used.

In addition, specific consideration was given to the relatively young age of participating children during interviews. For example, the researcher ensured that children were given thinking time for each question and possible ways of recasting questions were considered in advance to support children in understanding a question if necessary. Furthermore, it was

important to mitigate the possibility that the children would blur the role of the researcher with his role as a school leader and seek to offer the 'right answer' in interviews (Flewitt, 2013). To this end, both at the beginning of the research and at each interview, children were reminded that there are no right or wrong answers and that the aim of the research was to gather their thoughts and ideas, not to test their knowledge.

3.7.2   Children's Texts

Data from texts written by children were collected in all three phases of the study. This was designed to be unobtrusive: all texts were copied from children's existing English exercise books, scanned and transcribed in preparation for analysis. This had two advantages. Firstly, it meant that participating children did not have to write any additional texts specifically for this study and, secondly, it meant that all textual data gathered reflected work completed in an ordinary classroom environment.

A total of 118 texts were gathered from the 16 participating children. It should be noted that data collection took place during a period when self-isolation was compulsory for individuals with COVID-19. As such, some participants were absent on the days when some texts were written. A total of 10 possible texts were not produced as a result of children's absence from school.

Naturally, the aim of collecting data from texts written by children was to understand the nature of their revisions themselves, which may of course have varied from how they were reported by the children. All of the texts that were collected in all phases of the study were handwritten. Not only did this support the aim of being unobtrusive, given almost all writing produced by children in the classrooms was handwritten, it also had the advantage of providing a record of the writing and revision processes. For example, handwritten text allowed the researcher to have access both to the original and to revised text, as well as a small number of cases where revisions were made and then subsequently removed or revised further.

3.7.3 Lesson observations & fidelity to intended approach to teaching

A total of ten classroom observations were carried out in phase 2 of the study, during the period of revision teaching. These observations were not intended to be a principal source of data in this study. Rather, their purpose was to supplement the data gathered from children's writing and interviews. This was valuable for three main reasons. Firstly, the observations provided an important means of gathering contextual data (Yin, 2018), in this case regarding the classroom itself. Given that this study sought to interrogate the links between revision teaching and the revisions made by children, it was important to observe the teaching in progress so that patterns could be identified. In addition, in some cases, lesson observations allowed for a consideration of how the particular revisions modelled to children may have impacted on the particular revisions they made to the same text. Secondly, these observations allowed for verification of teaching fidelity to the planned approach: all ten observations reflected the teaching approach to revisions as detailed above, adding to the validity and reliability of this study. Thirdly, classroom observations offered a valuable means of triangulating data from other sources. For example, teachers' and children's explanations of classroom processes concerning revision could be triangulated by observing these processes in the classroom.

Observations generally lasted between 20 and 30 minutes and involved two main parts. Firstly, any direct instruction of revision was observed. These observations were not subject to a formal observation schedule, but, in each such observation, the researcher recorded two main categories of notes. First, the researcher noted the revisions that were modelled and discussed by teachers with the class and, where appropriate, any responses or contributions to class discussions made by participating children. On some occasions, this data was later used to support the analysis of revisions made by participating children to the text they revised immediately after the revision teaching. Second, the researcher made notes regarding the teacher's fidelity to the intended approach. This included whether or not the revision teaching was direct instruction; that is to say, the extent to which teachers modelled their own thinking as opposed to asking questions to encourage children to articulate theirs. All observed teaching was principally direct instruction, although a small number of instances of 'shared writing' (i.e. asking children to contribute their own ideas) were also noted. Consideration of teachers' fidelity to the intended approach also included

notes regarding the extent to which teachers focused on meaning changes and the extent to which they discussed the aims of the revisions they were making and the possible impact on the reader. All observations suggested that all three teachers demonstrated high fidelity to the intended approach in these respects. As such, though fidelity to the intended approach was not formally measured, the lesson observations nonetheless provide good evidence that the intended 'enhanced direct instruction' of revision teaching was followed closely by participating teachers.

Following the direct instruction of revision, when children were given time to make revisions to their own writing, this was also observed by the researcher and, on occasion, participating children were asked questions about the revisions they were making. This aimed to gather data on children's thinking whilst revising and capture any "critical events" (Wragg, 1999) that may illuminate the link between the direct instruction observed and children's own revisions. It should be noted that similar discussions about learning with senior members of staff in the school were routine when they visited classrooms and, as such, these would not have appeared out of the ordinary to the children. However, in these instances, participants were specifically asked if the researcher could note any comments made and use these for research purposes.

On a small number of occasions, participating teachers also shared their observations of the link between revision teaching and children's revisions either during the classroom observation or shortly afterward. Consent was sought from participants for the inclusion of these comments in the research data and, where this was given, these comments were recorded alongside the notes for the relevant classroom observation.

3.8   Data Analysis

3.8.1   Transcription

Once the raw data (i.e. recordings of interviews and copies of children's writing) had been collected, both had to be processed in order to prepare them for thematic analysis using coding software *Nvivo*. In the case of the interview recordings, this constituted the production of a transcript by the researcher for all interviews in the study before the original recordings were deleted. Notes made by the researcher in lesson observations were also

reproduced electronically to allow for analysis using *Nvivo*. However, in the case of children's writing, a more complex transcription process was necessary.

The transcription of children's writing allowed for the presentation of the text as the children had intended; that is to say, revisions could be placed in the text where children had indicated they should go but where they had not been able to put them themselves due to the limitations of handwritten text. This process is exemplified in figures 1 and 2. Figure 1 shows a child's original handwritten text, including the system of numbered asterisks to add new material into existing writing. This system was used extensively, though not exclusively, by participating children to show where they wished to add new material as it was the main approach suggested by the participating teachers. Figure 2 shows the same text after transcription: text in green shows the revisions made with text struck through where a child has removed text from the original and square brackets to demarcate the beginning and end of each revision. These conventions are followed throughout this dissertation.

It should be noted that the demarcation of the boundaries of a single revision, that is to say what 'counts' as a single long revision or a series of shorter revisions, is not subject to a unified understanding in the literature. For example, the final two sentences in the first paragraph of figures 1 and 2 ("People were pushing and shoving. Throwing things at each other.") could be considered together as single revision to the original text or taken to be the composite of two separate additions. This is significant as the possible effects of the revision teaching at the heart of this research on the amount of children's revisions was one area of interest. For this reason, two principles were developed to demarcate the boundaries of a single revision. These were consistently applied across all the children's writing, which allowed for the number of revisions made by different children and in different texts to be more comparable. These principles were:

i.   A single revision was deemed to be any series of continuous revised text uninterrupted by original material. As such, in the transcriptions, any series of green text uninterrupted by black original text was taken to be one revision.

ii.   The only exception to the first principle was when children explicitly recorded continuous text as separate revisions. For example, where children used the system of numbered asterisks for two separate revisions which happened to be sequential in the text, these were taken to be separate revisions. This is

because the child's use of separate asterisks for these revisions was taken to be strong evidence that these revisions were considered separately at the point of writing. This also allowed for the consideration of revisions within revisions, where children have returned to revised text to make further, additional changes.

Although the principles outlined above ensured that the understanding of what constitutes a single revision was consistent across all the participating children's writing, there is a possibility that this could mask the extent of some children's revisions. This is because a single revision of a paragraph or more would be counted in the same way as the substitution of a single word. To counteract this, the length of revisions was also considered as part of the analysis.

Figure 1: A child's original handwritten text

In a magical place, was a ruby-red tent/circus. Everyone, was playful very playful; the children playing pop corn popping p so people flossing with candy floss. The golden-yellow butter scotch flavor pop filled the air with flavor and amazing scents. Lots of bees had arrived, to the party tent. The line was humongus, and long until the next minute it the tent opened up. Everyone was dash in. People were pushing and shoving. Throwing things at each other.

Everyone was, glareing at the middle, of the stage. A glimps of light came from a² peculliar place under the sta Every one, was bewildered about it. It followed come on one the stage. The children were on heaven because of all the lights. They were delighted, they w so sucked in the show that the food was left untouched. As soon as, one guy came out into into the stage, the teenagers were speechless. Actually everyone in they thought, he needed help because he was juggling are. Boing blazing fore burning fire. It's like he's done it one hundred times, no fire got on the floor. They're surprised that nothing burnt because the material the tents made of burns easily. After that chaos, the show finished.

1 *It, was like a snap all eyes on you
2 *peculiar

3 * The Juggler hands were shaking not only because he was going to preform to hundreds of people, he was going to juggle FIRE.

Figure 2: The transcription of the same text shown in figure 1.

In a magical place, was a ruby-red tent/circus. Everyone[,] was playful, very playful, the children playing, popcorn popping, people flossing with candy floss. The golden-yellow[,] butterscotch flavour popcorn filled the air with flavor and [amazing] scents. Lots of bees had arrived[,] to the party tent. The line was humongous until the next minute [it the tents] opened up. Everyone was dashing in. [People were pushing and shoving. Throwing things at each other.]

Everyone was, glareing at the middle, of the stage. [It was like a snap all eyes on you.] A glimpse of light came from a peculiar place under the stage. Everyone was bewildered about it. [The juggler hands were shaking not only because he was going to perform to hundreds of people but because he was going to juggle FIRE.] It followed someone on the stage. [The pin dropped, everyones jaw dropped.] The children were on heaven, because of all the lights. They were delighted, they were so sucked in the show, that the food was left on the side untouched. As soon as, one guy came out onto the stage the [grumpy] teenagers were speechless. Actually everyone in they thought he needed help because he was juggling fire [batons]. Boling blazing, burning, fire. It's like he's done it [one five] hundred times, no fire got on the floor. [He was flawless.] They're surprised that nothing burnt because the material the tents made of burns easily. After that chaos, the show finished. [The crowd was flabbergasted when the show finished and a bit thrilled.]

3.8.2 Analysis of Textual Data

Once textual data had been transcribed, analysis began immediately. As such, there was an overlap between the stages of data collection and analysis. For example, textual data from phases 1 and 2 was analysed before phase 3 began. This was the case only for the textual data as interview and observation data was analysed after the completion of data collection. This was an important feature of the research design as the phase 3 interviews offered an opportunity to discuss emerging themes from the earlier phases with the participants. In addition, phase 3 interviews with participating children included extended discussions about specific revisions and, as such, it was essential for the researcher to have familiarity with the phase 2 data from children's writing.

The process of analysis of textual data consisted of three steps:

1. Analysis of the frequency of revisions
2. A priori coding
3. Thematic analysis with inductive coding

In step 1, the aim was simply to count the total number of revisions made by each participating child in each text. This aspect of the analysis is the reason why it was important to develop the principles of what 'counts' as a revision during the transcription stage.

In step 2, the software package *Nvivo* was used to code all revisions using a set of a priori codes and themes. These codes and themes were developed before analysis either (i) based on typologies from pre-existing theory in the field (e.g. surface vs meaning changes and the operation of revision) or (ii) to provide quantitative data about a particular aspect of revisions (e.g. length of revision and the impact of revision). In the case of the surface vs meaning changes and impact of revision themes, every revision was coded. In the case of the operation of revision and length of revision themes, every meaning change revision was coded. Surface changes were excluded from these themes due to a risk they would significantly distort the data. This is because they are almost always substitutions, as regards the operation of revision, and word-level, as regards the length of revision. In all cases, a priori codes were used when revisions could be categorised into one of a limited number of mutually exclusive pre-defined values. Table 3.5 details the codes and themes used during this step of the analysis.

Table 3.5: A priori codes and themes used for analysis of textual data

Themes & Codes	Definition & Notes
Theme 1: Surface vs meaning changes	This theme concerns the widely used distinction between surface and meaning changes first proposed by Faigley and Witte (1981). However, the definition of 'surface change' is somewhat narrower than Faigley and Witte's original.
Surface Change	A revision that does not substantially alter the meaning of the text. These revisions are often perceived as the correction of 'errors' (e.g. revisions to spelling, tense, punctuation, capitalisation etc).
Micro-meaning change	A revision that changes the meaning of a text, but where the impact of this change is limited to a specific part of the text. As such, a micro-meaning change would not alter the summary of the text.
Macro-meaning change	A revision that significantly changes the meaning of a text such that it would alter the summary of the text.
Operations of Revision	This theme concerns which of four specific actions were taken by a writer when revising a text. All meaning changes were

	coded with one of these codes. Surface changes were excluded from this part of the analysis.
Addition	New text is added to the original text. This new text may be placed within a section of the original text, before the original text or at the end of the original text.
Substitution	Original text is removed and replaced with new text. The new text is placed in the same location as the original text that was removed.
Deletion	Original text is removed without any new text being added. Surface changes may arise from a deletion (e.g. capitalisation) but the lack of new text distinguishes deletion from substitution.
Reordering	Original text is moved to a new location. A revision may constitute reordering and, for example, substitution, if the original text is moved *and* another operation of revision is used to the same text.
Length of revision	These theme concerns the length of revisions. Only meaning changes were coded for length.
Word	A revision which involves a single word. This includes revisions one word is substituted for another.
Phrase	A revision which involves a number of words organised into a phrase.
Clause	A revision which involves a number of words organised into a clause.
Sentence	A revision which involves an entire sentence. Revisions were only coded in this way if an entire sentence was added, deleted, substituted or reordered, not just a part of a sentence even if this was a main clause.
More than 1 sentence	A revision which involves more than a single sentence. This includes revisions of multiple sentences but also includes revisions of one full sentence and part of another.
Impact of revision	This theme concerns the impact of revisions on the quality of the text. It seeks to understand whether a given revision makes the original text better or not.
-1	A revision which has a negative impact: the revised text is, on balance, less effective than the original text.
0	A revision which has no impact: the revised text is different from the original text but no more or less effective.
1	A revision which has a positive impact: the revised text is, on balance, more effective than the original text.
2	A revision which has a very positive impact: the revised text is, on balance, significantly more effective than the original text.

Due to the subjective nature of analysing the impact of a particular revision, it should be noted that this theme was treated somewhat differently to the others at this stage in two ways. First, these codes were fundamentally comparative: they compared the original text with the revision rather than making a summative judgement on either. As such, it was possible for a revision to be coded as 1 or even 2 for impact because it was an improvement compared to the original text even if it was still relatively ineffective. Similarly, a -1 score represented a revision that is perceived to be less effective that the original, rather than poor writing per se. Revisions were thus considered holistically for their *overall* impact. In particular for longer revisions, it was possible that a single revision made some positive and some negative changes to the original text. This phenomenon was not captured in these codes. This comparative approach was taken because recent work on comparative judgement suggests that teachers generally make more consistent and accurate judgements when *comparing* writing and judging which of two given texts is stronger than when making criteria-based assessments of single texts (Pollitt, 2012; Wheadon, Pinot de Moira, & Christodoulou, 2020). In addition, this comparative approach allows for an examination of the impact of children's revision per se: attempting to judge the quality of a given revision rather than its impact would measure the child's writing skills, not their revision skills.

In addition, in order to evaluate the reliability of the researcher's own judgements with regard to the impact of revisions, four additional raters were asked to apply the same codes to the texts written by four children. Two of these raters were experienced primary school teachers while the other two were highly educated readers that did not work in the field. This process allowed for the judgements made against 205 individual revisions to be checked for reliability. Four of the five raters, including the researcher, agreed on the code for 63% of these revisions. However, a particular discrepancy in the understanding of the difference between impact codes 1 and 2 appeared to mask wider agreement. If one considers the codes 1 and 2 together (meaning the impact of a revision is considered positive, negative or neutral), four of the five raters agreed in 84% of these revisions. For this reason, though all revisions were originally coded for their impact on the text using one of the four codes outlined above, impact codes 1 and 2 were collapsed into a single category for the majority of the data analysis. As such, most revisions are considered to have a positive, neutral or

negative impact on the text. However, the distinction between impact codes 1 and 2 was retained in the presentation of the case of child 2 explored below. This was due to a particularly high level of agreement between the five raters, which was itself testament to the extent of the positive impact this child's revisions had on the quality of the text.

Finally, step 3 of the process of analysis of textual data involved thematic analysis using inductive coding. This aimed to provide a richer understanding of the nature of the choices made by participating children when revising. This stage was particularly helpful in providing a depth of understanding about the nature of children's revision and offered a very different perspective from the psychological studies that dominate the field of revision. Table 3.6 outlines the themes and codes that emerged during this process. In order to ensure a rigorous and systematic approach to the thematic analysis, the process broadly followed the six phases outlined by Braun and Clarke (2006):

1. Familiarisation with the data. This involved transcription and repeated reading of the data by the researcher.
2. Generating initial codes. This involved coding interesting features of the data systematically across the data set (Braun & Clarke, 2006: 87).
3. Searching for themes. Codes were collated into possible themes.
4. Reviewing themes. Themes were reviewed systematically against the data to ensure they accurately represented it.
5. Definition of themes. Themes were defined to reflect the data used to support them.
6. Production of report. Specific themes were identified for their relevance to the research questions and explored through the production of this report.

Table 3.6: Themes and codes from the thematic analysis of textual data

Themes & Codes	Definition
Theme 1: Adding Detail	This theme encompassed eight codes that covered a range of revisions where the central aim was to give the reader additional detail.
Add Action	A revision that added detail through the addition of an action by a character.
Add Adjective	A revision in which a single adjective was added.
Add Adverb	A revision in which a single adverb was added.

Add Colour	A revision in which additional descriptive detail about colour was added.
Add Descriptive Detail	A revision in which additional detail was added to describe either a character or a setting.
Provide Context	A revision that added contextual detail that supported the reader in understanding what was happening in the narrative.
Add Relative Clause	A revision in which a relative clause was added.
Theme 2: Addressing a Problem	This theme included a range of revisions that sought to address a perceived problem. This included adding missing words, removing material viewed as redundant and revisions to avoid unintended repetition or undesired ambiguity.
Avoid Ambiguity	A revision made in an attempt to remove perceived ambiguity in the original text.
Avoid Repetition	A revision made to remove undesired repetition (of a word or words).
Correction	A revision in which non-standard original text was replaced with standard English resulting in a change of meaning.
Missing Word Added	A revision to add a word that had been omitted from the original text in error.
Remove Redundant Material	A revision in which material deemed to be redundant or unnecessary was removed.
Theme 3: Character	This theme included revisions that sought to enhance characterisation, including through dialogue, and to give the reader an understanding of a character's feelings.
Character Feelings	A revision that developed character by adding or altering details about characters' feelings.
Characterisation	A revision that developed character by other means than providing details about their feelings or dialogue.
Dialogue	A revision in which the main focus was dialogue.
Theme 4: Effects on the Reader	This theme included a relatively broad range of ten codes which represent revisions where there was a specific attempt to have some effect on the reader. This includes revisions that sought to add humour, increase tension and change emphasis as well as more formal techniques such as rhetorical questions, repetition for effect and foreshadowing.
Address Audience	A revision that introduced or altered text that addressed the reader directly.
Emphasis	A revision that added or altered the emphasis of a sentence. This was both with regard to changing where emphasis falls and to the extent of this emphasis.

Foreshadowing	A revision which introduced new material specifically designed to foreshadow something later in the text.
Humour	A revision the aim of which was to add humour to the text.
Register	A revision that focused on making the text either more or less formal.
Repetition for Effect	A revision that introduced deliberate repetition to achieve a particular effect.
Rhetorical Question	A revision that introduced a rhetorical question.
Short Sentence for Effect	A revision that created a short sentence for effect, either through an addition or by altering the original text.
Show Not Tell	A revision that sought to apply the principle of 'show not tell', in which story and characterisation is achieved through sensory description rather than exposition.
Tension	A revision that sought to create or improve tension in the original text.
Theme 5: Figurative Language	This theme referred specifically to revisions where figurative language was introduced. It included just two codes for metaphors and similes.
Metaphor	A revision that contained a metaphor.
Simile	A revision that contained a simile.
Theme 6: Openings & Endings	This theme encompassed two codes, where participants sought to improve either the opening or the ending of their text.
Improve Ending	A revision made to the end of a text.
Improve Opening	A revision made to the beginning of a text. The revised material must come before any of the original text for this code to apply.
Theme 7: Word Choice	This theme included only a single code for revisions where a word was changed with specific attention to the shades of meaning it provided.

3.8.3   *Analysis of Interview and Observation Data*

Thematic analysis was also used for the interview and observation data. One of the advantages of this approach is its flexibility as regards sources of data (Nowell, Norris, White, & Moules, 2017): the coding process leading to the emergence of themes could be applied equally successfully to the data from children's writing, interview transcripts and observation notes. As such, it offered a powerful means of triangulating data from different sources to identify underlying patterns in the phenomenon at hand.

However, there were three differences between the analysis of interview and observation data and that of the textual data. First, this analysis took place after all data had been collected: there was no clear advantage to analysing this data during the data collection phase of the study. Second, no a priori codes were used: an inductive approach to coding was taken to all aspects of this data. Third, though some of the codes used for the textual data were applied to interview and observation data, particularly where this offered an opportunity for triangulation, additional codes specific to these data also emerged. This was primarily due to the fact that the interview data sought to offer insights into children's conceptions of revision and their understanding of the purpose of revision, which was not the case for the textual data. These additional themes and codes are outlined in table 3.7.

Table 3.7: Themes and codes specific to the thematic analysis of interview and observation data

Themes & Codes	Definition
Conception of revision	This theme concerned children's conception of revision; that is to say, what children understood revision to be.
Editing as surface changes	Evidence that the conceptualisation of revision was limited to surface changes.
Editing as meaning changes	Evidence that the conceptualisation of revision included meaning changes (either exclusively or in addition to surface changes)
Editing as text improvement	Evidence that revision was understood to be the improvement of a text (rather than, for example, a pedagogical process to improve writing)
Conflation editing/feedback	Evidence that revision was conflated with responding to feedback, usually from a teacher.
Rereading	Evidence that revision was understood to involve rereading the original text.
Purpose of revision	This theme concerned children's understanding of the purpose of revision, both in the own writing and more generally.
Editing for display	Evidence that the aim of revision was considered to be preparing work for display within the school.
Editing for reader	Evidence that the child understood how revision could include explicit consideration of a reader and their needs.
Editing to add more	Evidence that the aim of revision was considered to be adding more content. Here, writing more appeared to be a legitimate aim in itself.

Editing to learn	Evidence of the idea that revision was a pedagogical process used in schools as a means of supporting children to develop their writing skills more generally.
Editing to make sense	Reference to the role of revision being to ensure writing "makes sense"
Writer's Intent	Evidence of understanding that revision could be used to make the original text more closely reflect the writer's intent. This also included references that showed an understanding of a gap between what the writer intends and what the reader understands.
Editing reflects class focus	Reference to the role of revision being to reinforce wider focuses in the classroom (e.g. adding relative clauses when these had recently been taught).
Presentation concerns	This theme included concerns described by children about the impact of revision on the presentation of their work.

3.8.4   *Techniques for Identifying Patterns in the Data*

During the process of analysis outlined above, a central concern was the identification of patterns in the data as these would likely illuminate the central concern of this study (i.e. how the revision teaching affected children's revisions and their conception of revision). Two particular techniques were used to support this process, both of which have precedents in case study research (Yin, 2018). Firstly, as the texts were produced in successive weeks, including before and after the revision teaching, they could act as a proxy for time and, as such, a time-series analysis was used to identify patterns in the data. In particular, this process involved examining how codes and themes in the data interacted with when a text was written. This offered an insight not only into how children's revisions changed due to the period of revision teaching, but also how they changed during it, and whether these changes were retained after it.

A second technique, central to data analysis in case studies (Yin, 2018) was the examination of rival explanations for patterns in data. At almost every stage of the data analysis process, rival explanations were considered. This included not only alternative ways to explain patterns in the data based on theory, but also possible threats to validity, including the null hypothesis and the possible role of chance.

In summary, thematic analysis was used as the primary method for analysing data in this study. However, it was used in slightly different ways for data from different sources in order to maximise the extent to which it illuminated the phenomenon at hand. Established techniques from case study, including time-series analysis and the examination of rival explanations, were used to support the identification of patterns in the data.

3.9 Validity & Generalisation

Given the epistemological position built on realism that underpinned this study, and the aim of providing some degree of generalisation, however tentative, it was important to consider validity explicitly throughout this study. Consequently, a number of methodological decisions were made with a view to promoting the validity of the study.

3.9.1 Validity

Some case study scholars have developed frameworks for assessing the rigour and validity of case study research. However, due to the significant diversity within case study research, it has been argued that one should not take a 'tick box' approach to evaluating the validity, or indeed wider quality, of case study research; instead, one should bear in mind a number of more general considerations (Hammersley, 2007). Three particular such considerations have been listed by a number of case study researchers, including Gibbert, Ruigrok and Wicki (2008) and Yin (2018) alongside possible indicators of quality in case study research:

- **Internal Validity.** This refers to the extent to which a case study researcher provides plausible arguments to explain the data in the case study and avoids spurious rival arguments.
- **Construct Validity.** This refers to the operationalisation of key concepts in the case study: that is to say, the extent to which the data gathered truly reflect the phenomenon at hand. In the case of this study, this included to the extent to which the data gathered reflected changes to children's understanding of revision and the revisions they made.

- **External Validity.** This refers to how a case study researcher demonstrates whether and how findings from the case study can be generalised beyond the original case.

In the present study, a number of steps were taken in both data collection and analysis to ensure the validity of the research. First, with regard to external validity, there was a very clear rationale for the selection of the case, including the participating children. The deliberate selection of diverse cases from different classes, as well as the clear description of their wider context, supported external validity by making the findings more likely to be transferable to other contexts or generalisable more widely.

A number of steps were also taken to ensure internal and construct validity. For example, the texts produced by children were taken from their day-to-day English exercise books. This reduced the chance that the children's participation in the research per se would affect the content of the texts they produced as they formed a routine part of children's school experience. In addition, the potential impact of the observer's paradox (that is to say, the presence of an observer affecting participants' behaviours) during lesson observations was also lessened by the fact that the researcher worked regularly with all three teachers and their classes. As such, it would not appear unusual to the children, or indeed their teachers, for the researcher to be present and, where appropriate, asking them about their learning. The researcher's familiarity with the three teachers and their classes, and his relative accessibility to the teachers, also supported fidelity to the revision teaching approaches; the teachers could ask for clarification where necessary, or indeed support with planning where this was helpful. One possible risk of the researcher's familiarity with participants, particularly the children, was that they would seek to please someone they naturally perceived as a teacher, especially in interviews. This was mitigated by discussing the aims of the research with the children such that they understood that there were no right or wrong answers and that the researcher was not looking for any particular responses to particular questions.

A particularly important approach to ensuring validity in case study research is triangulation (Baxter & Jack, 2015; Grauer, 2012), of which there exist a number of types. Yin (2013) lists four possible means of triangulation: data source, methods, analyst and theory or perspective, and goes on to suggest that the first two of these are most likely to strengthen validity. In this study, triangulation took two main forms. Firstly, triangulation of data

sources was achieved by gathering data from children directly through interviews, from their teachers in interviews and from children's writing. This promoted both internal and construct validity. Internal validity was further strengthened by the order in which data were analysed: the analysis of textual data before the phase 3 interviews allowed some of the emerging themes to be discussed directly with participants, particularly the teachers. A second form of triangulation was the range of data collection methods used. This included interviews, the analysis of children's writing and lesson observations. Taken together, these two forms of triangulation provided a good basis for ensuring the validity of this research.

During the data analysis phase of this research, another important consideration for internal validity was the routine consideration of plausible rival explanations. As Yin (2013) describes, it is important for case study researchers to "vigorously search the data" for evidence of rival explanations. As such, this was a major component of the data analysis stage of this study. This involved considering alternative explanations for phenomena identified in the data and using the data itself alongside wider literature to make a judgement as to which was the most plausible. On many occasions, these rival explanations are presented alongside each other in the findings below, together with the reasons underpinning the judgement regarding which was the most likely.

In summary, a range of steps were taken in this study to ensure the validity of the research. Most notably, this included two forms of triangulation, the routine consideration of plausible rival explanations and the selection of participants for their diversity with regard to relevant criteria. By ensuring validity with these approaches, it is hoped that the theory built in this study may be generalised, albeit tentatively, beyond the original case.

3.9.2   *Generalisation in Case Study*

The extent to which it is possible to generalise from studies with small samples is contested, and the difficulty this creates is a commonly listed disadvantage of case study approaches to research (Simons, 2020; Tight, 2022). However, following Yin and the realist paradigm, the current study aimed to develop theory that might offer insights beyond the case at hand, necessitating a consideration of generalisation from case studies.

Given the generally small sample sizes involved in case study research, it is generally not possible to make statistical generalisations from case studies. In the case of the present study, the participants are not representative of the wider population of year 5 children in England due to the vast diversity in that population as a whole, for example with regard to geographic location, socio-economic status, home language, prior attainment, special educational needs, school context and more. As such, many case study researchers refer to 'theoretical' or 'analytical generalisation' (Yin, 2013). This form of generalisation sees the advantages of case study (for example, the ability to consider real life contexts) deployed in order to build theory which may then be applied to other cases. As such, it is part of the task of the case study researcher to identify the key factors that may help the reader to identify the characteristics of other cases to which this theory may apply.

It should be noted that not all case study researchers accept the notion of 'theoretical generalisation' or indeed that of theory itself. Thomas (2010) borrows the Aristotelian notion of 'phronesis' to replace theory in case studies. This concept replaces formal theory with practical or tacit knowledge alongside the judgement of the researcher and, Thomas argues, ones phronesis can enable one to gather insight into a case without direct recourse to theory. Bassey (1981) describes a similar concept with regard to the *reader* of a case study. In reference specifically to the field of education, he suggests that the merit of a case study should be evaluated by the extent to which it offers sufficient detail for another teacher to relate their own decision making to what is described in the case study. This understanding of generalisation as 'relatability' relies on the idea of phronesis: for a case study to be relatable, the reader must have the knowledge and skills to make it so. Though the idea of the 'tacit knowledge of the expert' has value, it may be more naturally suited to action research because of its potential power to drive change and improvement. For the purposes of this study, it is too implicit: 'tacit knowledge' is less likely to generate the clear and explicit understanding of revision teaching that this study aims to achieve.

Naturally, if the aim of a case study is to build theory that can be applied beyond the original case, it is important to consider how this theory can be built. Thornberg (2022) describes three types of inference:

- Deduction, in which theory is used to make inferences about a particular case, which can then be tested;

- Induction, in which a series of cases are observed and analysed to spot patterns and, ultimately make general statements. 'Grounded theory' is a notable example of inductive reasoning (Glaser & Strauss, 1967);

- Abduction (or "inference to the best explanation" (Evers & Wu, 2006)), which involves "selecting or creating a provisional hypothesis to explain a particular empirical case or a set of data better than any other candidate hypotheses and then pursuing this hypothesis through further investigation" (Thornberg, 2022: 247)

It is important to note, however, that the approaches to inferring from data outlined above are not mutually exclusive. Indeed, the richness of the data generated by a case study may allow for a combination of approaches even if one does predominate. Yin (2018) suggests a number of analytical strategies and techniques that can be used effectively in case study and which draw on differing forms of inference. In the present study, relevance beyond the original case was built on the basis primarily of inductive and abductive reasoning. Due to the fact that there is relatively little pre-existing theory concerning direct instruction and children's revisions, much of the analysis was 'data first' as patterns were identified in the data as a means of building theory. That said, it would not be true to suggest that no theory was considered prior to data collection or analysis: this study was thus not situated at the 'grounded theory' end of the deduction-induction continuum. Furthermore, as theory was built from the data, alternative explanations were considered routinely: finding the best possible theory for the data was a key concern. As such, abductive reasoning played a key part in the analytical process.

In summary, this study sought to reach a degree of theoretical generalisation. That is to say, mostly abductive and inductive reasoning was used to build theory from the data in the hope that this theory would be applicable beyond the individual case at hand.

3.10 Ethical Considerations

Ethical guidelines from the *British Education Research Association* (2018) were used to support significant consideration of potential ethical issues. This included voluntary and informed consent, data storage, confidentiality and possible issues arising from the researcher being employed as a senior leader in the school. There was also consideration of

necessary measures to mitigate the risk of any possible harms or inconveniences to participating children and teachers. As part of this process, UCL's ethics procedures were followed and ethical clearance was obtained.

In addition, as data were collected during the COVID-19 pandemic shortly after the end of a period of attendance restrictions to limit transmission, additional consideration was given to necessary measures to ensure that the data collection did not increase the risk of transmission to participants or more generally in the school. A risk assessment was completed to address these concerns; this was reviewed following UCL's procedures at the time and permission to collect data was granted.

3.10.1 Consent

In all cases, voluntary and informed consent was sought and gained from participating children and teachers. This process sought to ensure that both children and teachers "understand what is involved; they agree to any risks or inconveniences because they think the hoped-for benefits of the research are worth supporting and they make a decision free from pressure or persuasion" (Alderson, 2014: 96). Consent was initially gained from the headteacher of the school. This involved not only providing an information sheet that outlined the research, including its aims and methods, but also discussing the process with the headteacher. Discussion of the process the research would follow with the headteacher ensured that it would not be too burdensome for teachers or children and would not interfere with the school's wider aims, for example with regard to curriculum. Subsequently, consent was sought from participating teachers. This involved a short meeting to give the teachers information about the project and the chance to ask any questions they may have. During this meeting, the advantages of participating were explained to the teachers, most notably the possible professional development in revision teaching that participation could offer. In addition, the methods of the research were described so that teachers had a good understanding of the time commitment the research involved. It was also made clear to teachers that they were not obliged to take part and could withdraw at any time. In addition, information sheets were given to the teachers for their reference. Written consent was gained at this point but verbal consent was sought again at the beginning of each interview.

On the few occasions where teachers discussed revision teaching outside of the interviews, verbal consent was gained for the inclusion of this data in the study.

After consent was gained from the participating teachers and the school's headteacher, possible participating children were selected using the process outlined above. The children selected met with the researcher in order to learn more about the aims of the research and what participation would involve. They were taught about the meaning of informed consent and their right to withdraw from the research project at any time. An information sheet containing the details of the project was provided for the children to refer to. Though this was written in a simpler, more child-friendly form than those given to participating teachers, it was also discussed to ensure that children understood it well. Written consent was gained from children at this stage, but informed consent was also sought verbally at the beginning of each interview. As the children were still young, it was also important to gain consent from their parents or legal guardians (Alderson, 2014). As such, the researcher met with the parents or guardians of participating children to share information about the project and to offer the chance to ask questions about the project. Parents were also provided with an information sheet about the project and written consent was sought before any data was collected from their child.

3.10.2 Issues Arising due to COVID-19

As the data collection for this study took place during the COVID-19 pandemic shortly after a period of attendance restrictions to prevent transmission of the virus, consideration was also given to the potential impact of data collection on COVID-19 transmission. Importantly, the researcher was employed in the school where the data was collected. As such, the researcher already had contact with the children and teachers participating. Consequently, conducting the research in person did not pose a greater risk to the researcher or the participants than their regular attendance at school during this period. In addition, the school's protocols and procedures were followed in full in order to reduce the risk of transmission further. This included the use of PPE where required, ensuring adequate ventilation in rooms used for interviews and asymptomatic testing by the researcher.

3.10.3 Data Storage

In line with UCL procedures, the researcher undertook online data protection training and registered with the data protection office. Throughout the research, data was stored on an encrypted, password protected laptop. Children's writing was photocopied and scanned in the school so it could be stored electronically. The same device was also used to make recordings of all interviews. These recordings were permanently deleted after the completion of the transcription process.

No data from or about participating children or teachers was gathered other than that for which they had given their voluntary and informed consent. During lesson observations, no data was recorded or notes made about any children who were not participating in the research.

In order to ensure confidentiality, neither the name nor the precise location of the school are shared in this dissertation or elsewhere in relation to this research. As this study sought to understand how children's revisions were affected by the revision teaching, it was necessary to compare individual children's revisions and responses in interviews. As such, it was not possible to anonymise all data. For this reason, all participants have been pseudonymised as 'Teacher 1' or 'Child 1' etc.

3.10.4 Mitigating harms and inconveniences

For participating children, the potential harms arising from this research were limited, particularly due the use of pseudonyms and the fact that the subject of the research is unlikely to be sensitive. However, some risk does arise from the nature of focus groups and the possibility of public vulnerability (Sim & Waterfield, 2019). This was mitigated by organising the focus groups according to children's classes. This meant that children were grouped with others that they knew well from their usual classroom environment. In addition, the researcher emphasised that they were no right or wrong answers to reassure children that they could not give an 'incorrect' answer.

Potential inconveniences to the children were reduced by the research design itself. Most notably, all textual data collected from children was written as part of normal classroom practice. As such, children were not asked to do any extra or additional writing specifically

for the research. Consequently, the only activities completed by the children specifically for the study were the interviews at phases 1 and 3. These were scheduled carefully in coordination with the teachers and the children to ensure (i) possible disruption to children's learning was minimised and (ii) children were not withdrawn from part of the school day they did not want to miss.

As regards potential harms to participating teachers, these are also limited by the relatively non-sensitive nature of the subject of the study. However, one important consideration is that teachers may feel judged as a result of the data collection processes. This was mitigated through prior discussion with the teachers about the approaches to revision teaching; there was a clear understanding that the research was exploratory and the approaches to revision teaching were being examined, not the teachers' wider effectiveness. Furthermore, given the researcher's role in the school, it was also made clear to teachers that the data collection processes were entirely separate from the school's evaluation processes and that any data collected for the research would not be used for any such purposes.

The potential inconvenience for teachers derived primarily from the time commitment necessary to take part in the interviews but also to learn about and plan lessons using the approaches to revision teaching. This was mitigated by being clear to teachers about the time commitment involved in the research when written consent was gained so that participating teachers could take an informed view of the costs and benefits of participation. Furthermore, the time commitment was reduced by the fact that the approaches to revision teaching were designed to fit in with the school's existing curriculum. As such, teachers were not expected to make significant alterations to their taught curriculum.

3.10.5 Role of the Researcher

Given the researcher's role as a senior leader in the school where the data was collected, consideration was also given to possible tensions between this role and that of being the researcher. In the case of participating children, the primary concern was that it would be impossible for them to separate the researcher from his role as a teacher and leader in the school. This had implications for validity, as the children may have said what they thought the researcher 'wanted to hear' but also for ethics, as children may have felt an increased

level of pressure to participate in the research. In part, this was mitigated by gaining parents' or carers' consent, but this is also one reason why it was so important to ensure that participating children understood the concept of voluntary and informed consent. By spending time teaching them about these concepts, the children's consent was more likely to be voluntary.

With regard to participating teachers, the fact that the researcher held an organisational management role in the school presents a number of ethical issues due to the power imbalance between the teachers and the researcher (Smyth & Holian, 2008). This was mitigated by emphasising that participation in the research was not obligatory and that consent could be withdrawn at any time. In addition, providing clear opportunities to withdraw consent, for example by asking for verbal consent at each interview, ensured that consent was voluntary and informed. An ongoing awareness of this power imbalance on the part of the researcher also allowed for constant reflection, which in turn prevented unintended coercion resulting from the researcher's role in the school. In addition, the data collection processes were explicitly separated from the school's evaluation processes as described above.

3.10.6 Equity for non-participants

In this study, participating children were not taught separately from their non-participating peers. In part, this is because the study sought to gather data from ordinary classroom environments. However, this was also to ensure equity for non-participating children: the revision teaching at the heart of the study offered benefits to those who received it and it would not have been ethical to refuse these benefits to children who are either not selected for participation or who chose not to participate. As such, all children in the three classes received the revision teaching, but data was only gathered from participating children who had given their voluntary and informed consent.

4   <u>Findings</u>

One of the strengths of the approach to case study methodology in this research is the use of a range of data sources to triangulate findings. As such, data from the interviews with the children and their teachers, observations of lessons and the children's own writing have been integrated in this analysis to allow for a richer understanding of the relationships between the revision teaching and any changes in the nature of the revisions made by participating children. This chapter presents the findings from all three phases of the study: before, during and after revision teaching. First, a summary of the main findings of the study is offered to orientate the reader. This is followed by the presentation of cohort-level data. Here, the focus is the identification of patterns in the children's revisions, including as they relate to the period of revision teaching. Finally, three further case studies are offered of children with diverse profiles of revisions. These provide considerable depth of analysis of individual children's revisions and offer illumination of some of the phenomena identified in the cohort-level data from an alternative perspective.

4.1   Summary of Main Findings

This chapter outlines the data gathered in all three phases of the study and, taken together, this provides the evidence underpinning four main findings:

1. The revision teaching led most participating children to expand their conception of revision from one mostly restricted to surface changes to one including meaning changes and audience awareness. This change was relatively rapid.
2. The revision teaching led to a significant increase in the frequency of children's revisions and a change in the profile of the revisions they made. Children made more meaning changes and more revisions in which there was consideration of the reader.
3. There was no clear link between revision teaching and the likelihood that children's revisions would have a positive impact on the text.
4. The impact of revisions appeared to be related to children's wider writing knowledge.

The sections that follow outline the data which support these main findings. Sections 4.2 and 4.3 outline the data gathered concerning participating children's understanding of revision, which together led to main finding 1. Sections 4.4 – 4.7 and 4.9 explore patterns in the

children's revisions and how these are linked to the revision teaching at the heart of this study. These sections outline how the data gathered support main finding 2. The evidence for main finding 3 can be found in the data provided in section 4.8, while the evidence underpinning main finding 4 is drawn from across sections 4.8 and 4.9. As noted above, section 4.10 offers exemplification and illumination of particular phenomena arising from the cohort-level detail in case studies of individual children.

4.2 Children's conception of revision

In part 1 of this study, before revision instruction began, participating children were asked in interviews to describe the process of revision, which aimed to elicit answers that would offer an insight into their conception of revision. The following responses were representative of the cohort:

"You find something wrong in your book… When you check your work and fix it."
(Child 11, Phase 1 Interview)

"When I'm editing my work it makes me think of little mistakes that I have to correct."
(Child 1, Phase 1 Interview)

"You're also correcting your mistakes that you first did when you first did your writing. Spelling mistakes mostly, and punctuation, because I usually forget punctuation quite a lot so I like to go over my work and see if there's any punctuation that is missing." (Child 14, Phase 1 Interview)

"It's kind of when you reflect on your work so you read it back and you correct your mistakes." (Child 3, Phase 1 Interview)

The principal conception of revision among participating children before revision teaching was that it consisted of finding mistakes and correcting them. This primarily referred to surface changes: the identification and correction of 'errors' in orthography and

137

punctuation, for example. This view of children's conception of revision as correction was compounded by children's responses when asked to give examples about what they might edit, with capital letters, missing letters, handwriting, spelling, the placement of commas and other issues of punctuation mentioned frequently. Indeed, one higher attaining child was explicit that his editing was limited to these surface-level concerns:

> *"Just little grammatical… punctuation and spelling that's all I really do"* (Child 1, Phase 1 Interview).

This conception of revision was widespread among participating children: when asked what editing is and what they edit, 13 of the participating children referred to surface-level concerns, 12 of whom exclusively so. These children were spread across all three participating classes and all three prior attainment groups. Furthermore, there was triangulating evidence from the phase 1 interviews with teachers that correcting 'errors' was a major focus for children's revision before instruction began. For example, teacher 3 described what revision looked like in his classroom before the revision instruction began:

> *"So we ask them to do it as soon as they finish their writing… kind of reading through it. And that one's mostly not improving their work, but finding the errors… finding any capital letters, full stops, punctuation. And then sometimes when we edit the next day: I will have examples on the board of a sentence or two from different books we can talk through to figure out what they did wrong. So sometimes it might be run ons, for example, where it doesn't quite make sense, it's a paragraph and it's not punctuated, and it doesn't flow."* (Teacher 3, Phase 1 Interview)

A second major concern when revising, though it was mentioned significantly less frequently than correcting 'errors', was to 'make the writing make sense'. It was not clear precisely to what this referred, and indeed some children's references to 'making the writing make sense' are ambiguous:

> *"If you write a big paragraph that does not make sense you can actually change it so that it's better and it does make sense"* (Child 16, Phase 1 Interview).

It is plausible that to 'make the writing make sense' may involve meaning changes, for example to address plot holes or make a character's motivation clearer. However, where the data from children's interviews was less ambiguous, it did not support this assertion, with references to missed words and changing of non-standard syntax being more common. For example, child 2, a higher attaining writer, linked 'making the writing make sense' with adding missing material due to writing at speed:

> "*I just skip a bit when I'm writing it down because I have all the ideas in my head and sometimes when I write it down it completely doesn't make sense at all.*" (Child 2, Phase 1 Interview)

Importantly, this focus on surface changes and 'making sense' when revising was also reflected in the teacher interview data, though teacher 1 suggested the children's conception may have been affected by what she calls 'editing' in the classroom:

> "*My strong focus is correcting… Certainly initially, I wanted it to make sense… to make sense and clear out the obvious things. I think, I don't call it… when I say editing and that's, that's my ownership, absolutely, I'm thinking proofreading. So the improving, adding in, when you add in some more interesting language, I don't call that editing.*" (Teacher 1, Phase 1 Interview)

It should be noted that, although references to surface changes were significantly more common, some children did refer to various types of meaning changes. Across the phase 1 interviews, there were 51 references to surface changes but just 11 to meaning changes. Three children made references to lexical changes in which one word, often when it is perceived to be 'boring', is changed for another word perceived as 'more interesting' or simply 'better'. However, one higher attaining child did describe a notably different conception of editing incorporating an understanding that revision may include consideration of the reader and meaning changes in light of this:

"Editing to me is more of like going over your work and then looking at it again, kind from a different point of view to try and see if there's anything I can do to change it. I don't always think about mistakes, sometimes I think about if something doesn't make sense of if there's something I can do to improve it more." (Child 2, Phase 1 Interview)

In light of the above, one could characterise the participants' conception of revision before the beginning of revision teaching as primarily centred on surface changes, though not exclusively so. In addition, among the relatively few references to meaning changes in phase 1, there were multiple references to word choice and replacing individual words with what was perceived to be a 'better' word. Indeed, with the single exception of child 2, none of the participating children at phase 1 made reference to revision that alters or improves the content of what is included in the text.

However, in phase 3 interviews after the completion of the period of revision teaching, ten participating children made explicit references to revisions that would be considered meaning changes when discussing their understanding of revision. In addition, some children, as in the case of child 8 below, were clear that this constituted a change in their understanding of revision:

"I've changed my mind because before, I think I said, that you just have to proofread and look for capital letters, full stops and punctuation. But now, I think editing is about improving your work, looking at a piece of writing you wrote and if you want to add more information or make it better." (Child 8, Phase 3 Interview)

It should be noted, despite the shift towards the inclusion of meaning changes in participants' understanding of revision, that this was not to the exclusion of surface changes, which were also mentioned by a number of children in phase 3 interviews. These participants fell broadly into two groups. The first group, into which children 10, 13 and 16 fell, and in which there are no other members in the cohort, exclusively mentioned surface changes. In other words, there had been no significant change in their conception of revision since phase 1; it continued to be limited to the correction of 'mistakes' rather than changes

to the meaning of the text itself. It is notable that all three of these participants fell into the lower prior attainment group; this reflects findings from other studies that suggest children with lower prior attainment in writing are likely to understand revision principally as surface changes (Oliver, 2019) and to make more surface changes (Graham, 1997). However, these children all made meaning changes to their writing in the course of the study. As studies have found before, children's revisions can be different in scope and type to the way they present their understanding of revision verbally (Richards, 2010). The second group, exemplified by child 14 below, refer to surface changes in addition to meaning changes: their conception of revision explicitly includes both:

"*Editing basically means looking over your work. And not only to make corrections on your words, but also remember to use punctuation, capital letters, and also try to extend your sentences sometimes and make them longer.*" (Child 14, Phase 3 Interview)

Further evidence of this change in participating children's understanding of revision comes from interview data from their teachers. All three teachers reflected this change in children's understanding of revision in their interviews:

"*I think what they used to think editing was - partly because we kind of guided them that way - it was to proofread, basically. Double checking capital letters, changing adjectives, maybe putting adverbs… Punctuation, the most, I think, but it wasn't really what we were doing now which is kind of adding completely new sentences or rearranging things and improving it in that way.*" (Teacher 3, Phase 3 Interview)

"*They see it [editing] now, as they're quite happy to… or quite prepared to take out chunks of writing and rewrite it or scale it back, or change it completely. They're not frightened of actually making… their own piece look very different from the beginning.*" (Teacher 2, Phase 3 Interview)

"*It's changing my understanding of what I perceive editing to be. So previously, I thought it was… it was mostly about making sense, punctuation, some sort of*

adding... adding in an adverb or an adjective but a lot of making sense and punctuation. Whereas the work we did for the intervention, yeah, it was more about changing it... And what's mostly useful was that I hadn't understood it in that way, if the teacher hasn't then the children aren't going to so that was really useful for me." (Teacher 1, Phase 3 Interview)

Given the data both from participating children and from teachers, it appears that one effect of the revision teaching at the heart of this study is that it led to a significant change in participating children's conception of revision. In particular, data from phase 3 interviews shows that many more participants included meaning changes in their understanding of revision than was the case in phase 1. In addition, in the comments made by teachers 1 and 3, it is clear that the revision instruction specifically led to a change in emphasis from surface changes to meaning changes in their teaching of revision. Indeed, in teacher 1's case, this is due to a change in her own conception of revision, at least as regards children still learning to write.

Interestingly, there is evidence that this change in children's conception of revision was rapid, or at least that the change began soon after the start of the revision teaching. Firstly, this is the view of two of the three teachers, as exemplified by teacher 3 below:

"It was very quick, I thought. Because the very first day, when we kind of introduced it to them and then we went on to modelling the first time... So we kind of showed them how it could be done and even from the very first editing session, they were all able to... not as much, but they were able to go, okay, I can add something here and here." (Teacher 3, Phase 3 Interview)

In addition, data from lesson observations in the first week after revision instruction began, while the children were working on text 2, shows that children were aware of a possible reader even at this early stage:

"It [a specific revision] gives the reader more detail about where they are. They can imagine it better." (Child 15, Lesson Observation)

142

"*I'm mostly editing details so the reader has a clear idea of what's going on.*" (Child 3, Lesson Observation)

4.3 Children's understanding of the purpose of revision

It is possible that the focus on surface changes and word choice in children's conception of revision before the revision teaching was a result of what they perceived the purpose of revision to be. Only three participating children mentioned a reader at all when asked about the purpose of revision, and only one of these (child 2) suggested that a reader may have a different perspective to the writer and this may need to be considered when revising. Much more common was the notion that the purpose of editing is to practise particular writing skills and therefore improve them in the longer term:

"[You edit so that] *you learn from your own mistakes*" (Child 12, Phase 1 Interview)

"[We correct mistakes so that] *we don't make those mistakes when we're writing in the future*" (Child 11, Phase 1 Interview)

"[We correct mistakes because] *when you go into secondary, they're not going to expect you to make mistakes*" (Child 14, Phase 1 interview).

This suggests that some children's understanding of the purpose of revision did not include it as part of the writing process per se but rather saw it as a pedagogical process that developing writers must go through in order to reach proficiency later. That is to say, the purpose of revision was not seen as improving the text at hand but rather that quality of the pupil's writing in the long term. There is some evidence in the literature that revision and teaching that supports it can lead to more successful writing in children (Philippakos, 2012). However, the comments made by participating children are notable for how they see this as a *primary* reason for revision rather than improving the text for a reader. The view of revision as a pedagogical process, rather than one embedded within writing itself, was also

present in other instances where participants suggested a possible purpose to revise, though generally not the principal one, may be to prepare a text for display around the school. In the interview data shared below, it is notable that the children have identified putting writing on display as a purpose for editing without reference to a reader. Both children were asked to describe when they might engage in the revision process:

> "*If we're doing something to go on display… like we did something for display we had to write it out two or three times and edit it and then write it up.*" (Child 14, Phase 1 Interview)

> "*When we like, do a piece of writing for like display in the school…*" (Child 15, Phase 1 Interview)

In summary, the dominant but not exclusive understanding of the purpose of revision before the teaching began focused overwhelmingly on surface changes, particularly making 'corrections' to spelling, punctuation and grammar. Though a minority of participants discussed that a writer may revise with a reader in mind, more commonly participants appeared to view revision as something that one does at school, either to improve one's writing skills or prepare writing for display in school, rather than as an inherent part of the writing process.

This may stem from children's experiences of revision before the beginning of the revision teaching, which appeared to have been relatively teacher-led. The data from phase 1 interviews with children provided evidence from all three classes and prior attainment groups that children's revision was to at least some extent triggered by the actions of the teacher. In the data below, children from different classes describe particular examples of how the actions of the teacher have led to revisions in their writing:

> "*[The teacher] also puts sticky notes in our books so that we can see if we've made mistakes and she knows that she probably won't be able to tell us, she writes a sticky note to tell us.*" (Child 1, Phase 1 Interview)

"For example, the letter p I do like capitals a lot and [the teacher] tells me to do them small but I keep on doing capitals because it feels easier so before I give it to her I just go through it and check capital letters with each sentence." (Child 12, Phase 1 Interview)

"When the teacher sees that most of the people in our class are struggling or have lots of mistakes she just makes us go over and edit our work" (Child 14, Phase 1 Interview)

Triangulating evidence for this phenomenon was also found in the phase 1 interview data from teacher 1:

"There's editing that's me peering over their shoulders saying 'hmm'. So for some people that's just 'you need to look at your capital Ps and lower case Ps and for others it might be can you rearrange that sentence?" (Teacher 1, Phase 1 Interview)

Relatedly, there was some evidence from both children and teachers that revision at least sometimes reflected wider pedagogical focuses in writing lessons. For example, child 3 describes how revision was used on one occasion in her class to practise using brackets (an element of punctuation first taught in year 5 in the school's curriculum):

"We were doing a class… a class thing and [the teacher] told us to… to write a sentence and add brackets in the middle of it." (Child 3, Phase 1 Interview)

There is also evidence of this phenomenon in data from phase 1 interviews with teachers. For example, when asked about what children revise in lessons, teacher 1 describes how this will generally reflect ongoing pedagogical focuses:

"It [the focus of revision] will usually be our [more general] focus… what we're looking at. So fronted adverbials, embedded clauses or interesting adjectives, and I can… I can change that. But normally, it's a whole class thing and just a couple of people I'm expecting something slightly different." (Teacher 1, Phase 1 Interview)

145

Taken together, the references to revision as a response to feedback and the focus of revision reflecting wider class learning objectives create an experience of revision that is relatively teacher-led. It is also plausible, given the focus of revision either on new learning or elements of writing with which children struggle, that these experiences of revision underpin children's understanding of the purpose of revision. In both of these cases, the focus of the revision is more related to increasing children's proficiency in writing than to improving the quality of the text at hand.

However, data gathered in phase 3 of the research, after the conclusion of the revision teaching, showed a significant change in children's understanding of the purpose of revision. Table 4.2 provides a summary of the number of children who referred to meaning changes and considerations for a reader in each interview.

Table 4.1: The number of children who made reference to meaning changes and considerations for a reader in phase 1 and phase 3 interviews.

	Phase 1 – before revision instruction	Phase 3 – after revision instruction
Number of participating children who referred to meaning changes when discussing revision.	4	10
Number of participating children who referred to considerations for a reader when discussing revision.	3	10

As exemplified by children 3 and 7 below, some children were clear about their consideration of a reader when asked why they revise their writing:

"[The point of editing is] to make the reader feel… have a more enjoyable time reading it." (Child 7, Phase 3 Interview)

"We do it [editing] so first of all the writing could be clearer for the person reading it. And also, it could be more exciting." (Child 3, Phase 3 Interview)

A number of other participants, although they did not refer explicitly to the reader when discussing the purpose of revision, nonetheless revealed an understanding of the connection between revision and a reader when discussing specific revisions. This is exemplified by child 8 below when asked about a particular revision made to text 8:

"Because if you're reading it and it said everybody feared this man, they're going to… someone that's reading it is going to say why are you fearing this man for no reason? There's nothing to fear him for." (Child 8, Phase 3 Interview)

Taking children who referred to consideration of a reader when asked directly about the purpose of revision and those who referred to a reader when discussing a particular revision, there was evidence of an awareness of the role of the reader in revision in the phase 3 interview data from ten participating children. However, it should be noted that there was clear evidence from teacher phase 3 interviews that this understanding of revision as a process which involves consideration of a reader was not universal:

"I think that concept of writing for the reader hasn't been grasped by everybody. And I think that's, that's clearly quite abstract, I think… that idea that they are actually writing for someone else other than [the teacher who] told them to write a paragraph describing the castle." (Teacher 1, Phase 3 Interview)

It is important to note that consideration of the reader is not a feature unique to revision but rather is central to most successful writing activities. As such, though there is clear evidence that the revision teaching in this study led participating children to consider a reader, it is not clear to what extent the *revision* element of this teaching played a part. That is to say, it is plausible that discussions about the needs of a reader at the point of writing, rather than revising, may have led to a similar change in children's conceptions of revision.

In summary, in addition to a broadening of children's conception of revision to include meaning changes, the revision teaching appeared to lead to a change in children's understanding of the purpose of revision. Before the revision teaching began, many participating children saw revision as a pedagogical process; one revised in order to get better at writing. However, in phase 3 interviews, though the view of revision as a pedagogical process did persist to some extent, a clear majority of participating children considered the purpose of revision to include the improvement of the text with regard to the needs and expectations of the reader.

4.4   Frequency of Revisions

Table 4.3 below shows the number of revisions, including both surface and meaning changes, made by each participating child in each of the eight texts. As the eight texts were written sequentially, this table also shows how the number of revisions children made changed over time: text 1 was written before the beginning of the revision instruction, texts 2-7 were written during the period of revision teaching and text 8 was written after the period of revision teaching, though children were given allocated time to revise their writing.

Table 4.2: The number of revisions made by each participating child in each text, including the mean and median number of revisions for each text.

	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8	Total
Child 1	0	10	7	6	5	7	-	2	37
Child 2	0	3	-	4	1	2	7	4	21
Child 3	1	11	9	6	3	1	6	7	44
Child 4	0	11	-	11	2	7	-	1	32
Child 5	0	16	30	6	8	7	-	1	68
Child 6	1	8	14	10	1	3	9	15	61
Child 7	2	11	19	13	12	9	14	11	91
Child 8	0	3	19	7	5	10	6	1	51
Child 9	1	2	4	7	4	4	6	5	33
Child 10	3	12	5	7	7	10	-	1	45
Child 11	0	0	14	5	4	7	-	1	31
Child 12	0	5	9	6	8	4	-	1	33
Child 13	0	1	6	4	3	7	3	3	27
Child 14	4	2	-	1	0	-	2	2	11

Child 15	3	5	3	6	4	2	13	4	40
Child 16	1	6	5	13	1	1	0	6	33
Total	16	106	144	112	68	81	66	65	658
Mean	1.00	6.63	11.08	7.00	4.25	5.40	6.60	4.06	-
Median	0.50	5.50	9.00	6.00	4.00	7.00	6.00	2.50	-

These data highlight a number of interesting trends in the interaction between revision teaching and the number of revisions the children made to their writing. Firstly, text 1 is notable for the very low overall number of revisions: just 16 revisions were made by all participants combined (the next lowest total number of revisions in one text was 65 and the mean was 82.5). Furthermore, over half of the participating children made no revisions at all in text 1. This lack of revisions before the beginning of revision instruction reflects similar findings in many other studies involving a teaching intervention focussed on revision (Limpo et al., 2014; Lopez, Torrance, Rijlaarsdam, & Fidalgo, 2021; Stoddard & MacArthur, 1993). However, the number of revisions children made in text 2 is remarkable both for the size of the increase in the mean number of revisions between text 1 and text 2, which is the biggest increase between any two texts in the study, but also because of the uniformity of the increase. Fourteen out of the sixteen participants (87.5% of the cohort) made more revisions in text 2 than in text 1, and in many cases this increase was very large (for example, child 4 made 0 revisions in text 1 and 11 in text 2).

The sudden, significant and consistent nature of the change in the number of revisions between text 1 and text 2 suggests that a relatively small amount of revision teaching was sufficient to bring about a substantial change in most participating children's revision behaviour. This means the enhanced direct instruction of revision at the centre of this study is in line with other approaches to the teaching of revision, in which relatively rapid increases in the number of revisions have also been reported (De La Paz & Sherman, 2013; Lopez et al., 2021; Stoddard & MacArthur, 1993).

The sudden increase in the number of revisions could suggest that the majority of participating children were 'ready' to revise: prerequisite skills involved in writing were developed to a sufficient degree to prevent creating too great a cognitive load that may have

prevented children from attempting to revise their own text. It should of course be emphasised that the number of revisions made by participating children is a measure of how many revisions were *attempted*, not of their success and, therefore, not of the children's ability to revise per se. Indeed, the data related to the impact of children's revisions on the text suggests that a higher proportion (38%) of revisions in text 2 had no impact or a negative impact on the text than was the case for revisions on average across all texts (30%). Though the impact data cannot be seen as definitive given it may be mediated by factors other than children's revision skills (e.g. the specific text or type of text that children are writing), it is nonetheless important not to conflate an increase in the frequency of revisions with improved revision skill.

One possible explanation for the sudden increase in the number of revisions made by participating children could be that the children's conception of revision was altered relatively quickly; as described above, there is some evidence that these changes at least began relatively soon after the beginning of the revision teaching. It is possible that these relatively quick changes to children's understanding of what revision *is* led them to make an increased number of revisions when asked to do so. This becomes more plausible if one accepts the argument that the increase in the number of attempted revisions indicates that the children had the prerequisite skills required to do so. Such an interpretation of the data would also bring into question the nature of revision as a discrete and transferable skill. If a change in children's understanding of what revision *is* can so quickly affect the revisions they make, this would suggest that revision is a process involving the deployment of existing skills and knowledge rather than a distinct skill in itself.

An alternative explanation for the sudden increase in the number of revisions is that the participating children's approach to the revisions was performative. That is to say, rather than making revisions to text 2 because of an altered conception of what revision is, they were simply attempting to reflect what the teacher had explained and modelled in the revision teaching to 'please the teacher'. This would also explain why the revisions made to text 2 had a positive impact on the text less frequently than other later texts as described above. However, whichever of the two explanations offered here regarding *why* the increase in the number of revisions was so sudden and consistent one accepts, it remains likely that

revision teaching was the cause, or at least the trigger, for children to increase their number of attempts at revision. Setting aside considerations such as the impact of revisions on the text and the types of revisions children make, it is an important finding that the revision teaching was effective at least in inducing children to practice making revisions more frequently. Importantly, given that the children had an opportunity to revise in text 1, as indeed some of them did, it is likely that the revision teaching played a role in this increase in attempted revisions rather than it being a mere product of children having the opportunity to do so.

After text 2, there was a second significant increase in the number of revisions children attempted in text 3, with the mean number of revisions rising from 6.63 to 11.08. This is likely to be somewhat affected by a small number of participants making very large number of revisions (up to 30 in the case of child 5). As will be explored in the case study of child 7 later in this chapter, these may have been due to a performative approach to revision in which children focussed excessively on the amount of revisions they made as this was the focus of the teacher's explanation and modelling. However, if one takes the median rather than the mean number of revisions in texts 2 and 3, there remains a significant increase in the average number of revisions. This could be due to the participating children focussing more intensely on revision given the additional revision teaching they had received by the time of writing text 3, or it may be due to the revision teaching itself equipping children with a wider range of possibilities for the types of revisions they could make and the children making more revisions as a result.

Following a peak in the average number of revisions made by each child in text 3, there was a slight decline in text 4, which continued into text 5 before appearing to plateau with small fluctuations between approximately 4 and 6 revisions per child per text. It is important to note that, despite the decline in the average number of revisions from text 4 onwards, in every text from text 2 to text 8, the number of revisions made by the children was higher than in text 1 before the beginning of the revision teaching. Indeed, in no text from text 2 to text 8 was the average number of revisions per child less than four times that of text 1. As such, the evidence is robust that the revision teaching significantly increased the volume of

children's revisions for the duration of the study, including after the end of the revision instruction itself.

There are a number of possible explanations for the decline in the mean number of revisions per child per text from text 4 onwards. Firstly, the performative element of revision may subside: as revision becomes increasingly habitual, it is plausible that children will give it less intense focus. Secondly, the decrease in the *number* of revisions may mask a change in children's focus as regard the *type* of revision they make. Some evidence supporting this argument comes from the fact that children's revisions became longer over time. For example, in text 2 the children collectively made 18 revisions that were one sentence or longer in length, representing 21% of the meaning changes made in text 2. In contrast, in text 4, when the number of revisions decreased in the data offered above, there were 40 such revisions representing 45% of the meaning changes in text 4. The proportion of meaning changes that were one sentence or longer then remained above 40% in all subsequent texts. As such, it is possible that a decrease in the number of revisions masked a shift in focus towards longer revisions rather than a decrease in revised material. This evidence is compounded when one examines patterns in specific types of revision. Some children made a high number of revisions that consisted of the addition of a single adjective. In text 2, there were 23 such revisions; there were 29 in text 3, 16 in text 4 and just 4 in text 5. The number of revisions that consist of the addition of a single adjective then remained below 10 in all subsequent texts. This provides further evidence that the decrease in the number of revisions masked a shift in the type of revisions on which children focussed. Given the profile over time of revisions that consisted of the addition of a single adjective, it is plausible that there exist some types of revision that children take to quickly when they first begin to revise, but which they abandon, or at least reduce, over time as their revision skills become more sophisticated.

As is clear in table 4.3, the peak and subsequent decline in the mean number of revisions made per child per text is mirrored in the median until text 8, where the median suggests a steeper decline than the mean. This is due to a small number of children (notably children 6 and 7) making significantly more revisions than other children and thereby substantially affecting the mean. The cause of this decline in the number of revisions in text 8 is unclear. It

is plausible, given that revision teaching had stopped by the time text 8 was written, that the effects of the revision teaching decreased over time. A longitudinal study would be required to gather the relevant data to address this possibility and, as such, the present study simply does not have the evidence to do so definitively. An alternative explanation would be that text 8 is anomalous. This may be due to the specific type of writing that text 8 involved: the children were asked to write a newspaper report for text 8, albeit one based on a fictional narrative, whereas the other texts all involved less specific genres of narrative. As such, it is possible that the participating children found text 8 harder to revise because the text type required a set of linguistic resources as regards vocabulary and, in particular, register and tone, to which the children had had relatively little exposure. In short, participants may have found the text harder to revise because they found it harder to write. Further evidence for the exceptional nature of text 8 comes from the fact that it appears anomalous in other areas of the data (e.g. the impact of revisions and the type of revisions that children make), as explored later in the chapter.

Finally with regard to the number of revisions that children attempted in each text, table 4.4 below gives the average number of revisions made per child per text split into the three prior attainment groups. In this table, both the mean and median have been given due to the significant variation between them in text 8 described above. It is notable that it is only in the middle attaining group that there is a significant difference between the mean and median number of revisions in text 8 when the cohort is separated into these groups.

Table 4.3: The number of revisions made by each prior attainment group in each text and the average number of revisions per child in each attainment group per text.

		Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8
Higher attaining	Number	1	24	16*	16	9	10	13*	13
	Mean	0.33	8.00	8.00	5.33	3.00	3.33	6.50	4.33
	Median	0.00	10.00	8.00	6.00	3.00	2.00	6.50	4.00
Middle attaining	Number	4	51	86*	54	32	40	35*	34
	Mean	0.67	8.50	17.20	9.00	5.33	6.67	8.75	5.67
	Median	0.50	9.50	19.00	8.50	4.50	7.00	7.50	3.00
Lower attaining	Number	11	31	42*	42	26	31*	18*	18
	Mean	1.57	4.43	7.00	6.00	3.86	5.17	4.50	2.57
	Median	1.00	5.00	5.50	6.00	4.00	5.50	2.50	2.00

*One child was absent on the day these texts were written. As such, this child has not been included in calculations of the mean or median.

In these data, the group consisting of lower prior attaining writers displays three important differences compared to the middle and higher prior attainment groups. The initial increase in the average number of revisions between texts 1 and 2 was smaller, the peak in the average number of revisions in text 3 was lower and, by the end of the study, the average number of revisions in text 8 was also lower. It should be noted that this group did not have the lowest average number of revisions in all texts; indeed, in texts 4, 5 and 6 they made more revisions than the higher attaining group. This makes it more notable that they had the lowest average number of revisions in text 8 given that this was the text revised after the end of the revision teaching.

The reason for this difference in the average number of revisions made by groups of different prior attainment is unclear and, given the small number of participants, is possibly attributable to chance. However, it is possible that, as explored above, in general these children do not have a conception of revision that (i) acknowledges the potential gap between what a writer intends and what a reader understands or (ii) sees revision as a means to address this gap. In other words, it may be the case that lower attaining children's conception of revision and the relative lack of understanding of purpose and audience that underpins this could have held back these children's revisions. This would suggest that these children's revision skills were limited by their writing attainment more widely. Alternatively, it could be the case that revision represented a higher cognitive load for these children than for their peers with higher prior attainment. It is plausible that lower attaining writers, for whom spelling, punctuation and more have not yet become automatic, will face a higher cognitive load from the act of writing itself and, as such, revision will place a relatively heavier burden on their working memory than that of their peers, which results in them making fewer revisions. A third possible explanation is that the method of revision teaching at the centre of this study was simply less effective for lower attaining writers. It is plausible, for example, that one needs to reach a certain level of attainment in writing before one can benefit from the direct modelling of revision and the exemplification and discussion of why some choices may be more effective for the reader than others. Nonetheless, it is important

to note that although the revision instruction led to *fewer* revisions in the group with lower prior attainment, none of the texts from texts 2-8 had any less than double the average number of revisions in text 1, and many had significantly more.

In summary, there is good evidence that the revision instruction led to an increase in the number of revisions children attempted and that this increase was rapid, beginning in the first text after the revision instruction began. The evidence also shows that, after an early peak in the number of revisions, possibly reflecting the participating children's eagerness to reflect the focus given to revision by their teacher, the average number of revisions settled at a lower plateau. There were fluctuations in this plateau but in all texts the average number of revisions remained substantially higher than was the case in text 1. However, as this study is not of a longitudinal nature, any claim that this increase in the number of revisions was a long term change must be, at most, very tentative. Finally, it is important to note two complicating factors. Firstly, there is evidence that the revision instruction led to a smaller increase in the average number of revisions among children with lower prior attainment in writing, though the peaks and falls followed a similar pattern to the other groups. Secondly, it is possible that the *number* of revisions children made may be mediated by the *types* of revision they made in a variety of ways. As such, an analysis focussed solely on the number of revisions offers only limited insight into the impact of the revision teaching on participating children's revisions. This underlines the importance of an analysis of the *types* of revision participating children have made.

4.5 Types of Revision: Surface and Meaning Changes

Table 4.5 below shows the number of surface changes, micro-meaning changes and macro-meaning changes made by participating children in each text. Table 4.6 shows the proportion of the total number of revisions in each text that is made up of each type of revision, rounded to the nearest 1%.

Table 4.4: The number of surface, micro-meaning and macro-meaning changes made by participating children in each text.

	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8
Surface	8	18	26	25	10	26	14	12
Micro	6	81	117	81	55	55	51	51
Macro	2	7	1	6	3	0	1	2
Total Revisions	16	106	144	112	68	81	66	65

Table 4.5: The proportion of the total number of revisions made up of surface, micro-meaning and macro-meaning changes in each text.

	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8
Surface	50%	17%	18%	22%	15%	32%	21%	18%
Micro	38%	76%	81%	72%	81%	68%	77%	78%
Macro	13%	7%	1%	5%	4%	0%	2%	3%

Similarly to the overall number of revisions, there was a very sudden change between texts 1 and 2: meaning changes constituted a significantly higher proportion of revisions in text 2 than in text 1, while the proportion of revisions represented by surface changes decreased correspondingly. This adds to the evidence that revision teaching had a rapid effect on children's revision behaviours: if the increase in the overall number of revisions described above were a result of increased opportunity to revise, one would not expect to see a change in the types of revisions children made. Indeed, the increased proportion of meaning changes suggests the changes in children's revision were a response to the revision teaching, especially given the revision teaching's focus on meaning changes. After this initial increase between texts 1 and 2, meaning changes as a proportion of the total number of revisions remained remarkably stable in the later texts around 80% of total revisions, including in the text written after the end of the revision instruction.

It is also notable that, despite the significant change in meaning changes as a proportion of total revisions, there was little or no change in the number of macro-meaning changes. Macro-meaning changes were also not evenly spread across participants. Six children made no macro-meaning changes in any text and another six only made a single macro-meaning change across the whole collection of texts. As such, 75% of participants made only a single macro-meaning change or fewer across all eight texts. Conversely, just two participants, children 2 and 3, between them made 50% of all the macro-meaning changes in the study. In

summary, there was little change in macro-meaning changes as a proportion of total revisions and the majority of children made very few or none at all across all eight texts.

There are a number of possible reasons for this lack of change in the number of macro-meaning changes over the course of the study. Firstly, it is plausible that macro-meaning changes are simply more challenging than other types of revisions and, as such, are less frequent in developing writers. Macro-meaning changes are those that alter the meaning of a text so substantially that they would change even how the text is summarised. In the case of narratives like those written for this study, this would require fundamentally altering the story being told. This would likely represent a significantly more substantial cognitive load than revising meanings while retaining the overall narrative. This would also explain why the two children that did make macro-meaning changes more extensively, children 2 and 3, were both in the group with high prior attainment. A second possibility is that macro-meaning changes have additional prerequisites to other types of revision. For example, in order to make changes to the fundamental narrative of a text, one requires creativity to find alternative options. In their phase 3 interviews, both children 2 and 3 highlighted how much they value the creativity offered by writing. This could also explain why they made more macro-meaning changes than other participants, though it should be noted that they were not the only participants to mention their enjoyment of creativity in writing when interviewed. Finally, and perhaps most plausibly, it could be the case that the revision teaching itself simply had different effects on micro-meaning changes and macro-meaning changes. It is possible that when revision was modelled, there was a focus, possibly an exclusive one among meaning changes, on micro-meaning changes. There is some evidence for this in the fact that there is no example of a macro-meaning change being modelled in any of the lesson observation data. Naturally, however, absence of evidence does not equate with evidence of absence and, as such, this suggestion for the lack of change in the number of macro-meaning changes, though plausible, must only be made tentatively.

There are interesting differences between the prior attainment groups as regards the profile of revisions made in each text, as outlined in table 4.7 below. Firstly, in almost all texts, the higher attaining group made more macro-meaning changes. This could be because high prior attaining writers found it easier to make macro-meaning changes. However, as discussed

above, this group also contains both children 2 and 3, who made significantly more macro-meaning changes than other children.

Table 4.6: The mean number of each type of revision per child in each text for each prior attainment group.

	Prior Attainment Group	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8
Surface Changes	**High**	0.00	0.33	1.50	1.00	0.00	0.67	0.50	1.00
	Middle	0.50	0.67	2.40	1.17	0.50	1.50	1.50	1.17
	Low	0.71	1.86	1.83	2.14	1.00	2.50	1.75	0.29
Micro-Meaning Changes	**High**	0.00	6.67	6.50	3.33	2.33	2.67	5.50	3.00
	Middle	0.17	7.17	14.60	7.83	4.83	5.17	7.25	4.50
	Low	0.71	2.57	5.17	3.43	2.71	2.67	2.75	2.14
Macro-Meaning Changes	**High**	0.33	1.00	0.00	1.00	0.67	0.00	0.50	0.33
	Middle	0.00	0.67	0.20	0.00	0.00	0.00	0.00	0.00
	Low	0.14	0.00	0.00	0.43	0.14	0.00	0.00	0.14

These data also show that the group with lower prior attainment had a different profile of revisions compared to their peers. Firstly, in most texts they made more surface changes than the middle- or higher prior attainment groups. Possible reasons for this include (i) that this group made more 'errors' in orthography and punctuation etc in their initial draft, which meant they were more likely to have surface changes to make and (ii) that these children found surface changes easier to make than meaning changes and were therefore more likely to make them. Of course, these two possibilities are not mutually exclusive.

In addition, the lower prior attainment group also had a lower average number of micro-meaning changes per child per text than either of the other groups in the majority of texts, though there was still an increase in the number of micro-meaning changes from text 2 onwards. Importantly, this finding is in line with longstanding understandings of the nature of revision. For example, Faigley and Witte (1981), who first explored the difference between surface and meaning changes, reported a correlation between the proportion of revisions that were meaning changes and the relative expertise in writing of the reviser. Among their three groups (inexperienced writers, experienced writers and expert writers), the inexperienced writers made the fewest meaning changes and the expert writers made the

most. In light of these findings, it is perhaps unsurprising that, among participating children in this study, meaning changes appeared to correlate with prior attainment.

In summary, immediately after the beginning of the revision instruction, in text 2, the proportion of meaning changes rose significantly then remained generally stable at around 80% of all revisions, with one exception in text 6, which was driven by a decrease in meaning changes made by the lower prior attainment group. Given the change in the profile of revisions between text 1 and text 2, this is likely to be a result of the revision teaching. Correspondingly, there was a decrease in the proportion of surface changes between texts 1 and 2, which then remained relatively stable around 20% of all revisions, again with the single exception of text 6. There was no discernible impact on the number of macro-meaning changes from the revision instruction. These were notable both for their rarity across all texts but also for their very uneven spread between participants. All prior attainment groups showed an increase in the number and proportion of meaning changes between texts 2 and 3, which remained for the remainder of the texts in the study. However, in the lower prior attainment group, this increase was less rapid and the fluctuations in the number and proportion of meaning changes were much more significant from text to text.

4.6   Types of Revision: Operation of Revision

This section examines the action taken by a writer when making a revision: addition (of new text), substitution (of existing with new text), deletion (of existing text without replacement) or reordering (altering the order of existing text). In the majority of cases the operations of revision can be treated as discrete categories. However, there existed a minority of revisions (15 across the study) that overlap two operations of revision. For example, in the revision below, the final revision was coded both as an addition and as a deletion as the child had added the text when revising before deleting it:

> *[…They lived in a marble colourful palace so it meant Cinnamon was the princess, Raja was the king and Rani was the queen.]* *[~~there was a amazing massive palace in India [with scented]~~]* (Child 12, Text 3)

Table 4.8 below shows the number of revisions classified into each operation of revision in each text while table 4.9 shows the proportion of revisions in each text that were represented by each operation of revision. For the purposes of this data, surface changes have been removed. This is because they are disproportionately likely to be substitutions (e.g. of a non-standard spelling with a standard one) and in the majority of cases the writer cannot select an operation of revision to apply. For example, when making a change from non-standard orthography to a standard variety, substitution is the only available operation.

Table 4.7: The number of revisions involving each operation of revision used in each text.

	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8	Total
Addition	7	60	73	61	44	36	32	32	345
Deletion	0	5	14	1	3	1	6	4	34
Reordering	0	0	0	0	0	0	0	0	0
Substitution	1	25	38	29	12	18	14	18	155

Table 4.8: The proportion of revisions in each text involving each operation of revision.

	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8	Total
Addition	87.5%	66.7%	58.4%	67.0%	74.6%	65.5%	61.5%	59.3%	64.6%
Deletion	0%	5.6%	11.2%	1.1%	5.1%	1.8%	11.5%	7.4%	6.4%
Reordering	0%	0%	0%	0%	0%	0%	0%	0%	0%
Substitution	12.5%	27.8%	30.4%	31.9%	20.3%	32.7%	26.9%	33.3%	29.0%

These data show that there was relatively little change in the operations of revision used by children before the revision teaching (in text 1), during the revision teaching (in texts 2-7) and after the revision teaching (in text 8). The relatively stable proportion of each operation of revision suggests that the revision instruction had limited effects in this area.

Another point of interest in the data above is the almost complete lack of reordering revisions: across 658 revisions made by 16 children in 8 texts, there was just a single reordering revision, which was a surface change that had no real impact on the text:

The enormos circus had [~~strips of~~] crimson-red and lapiz blue [strips] (Child 15, Text 7)

There are two explanations for the lack of reordering revisions throughout the study. Firstly,

it is possible simply that the participants did not have the prerequisite skills to make reordering revisions. Secondly, the lack of reordering revisions, and indeed the profile of the operations of revision in general, could reflect the types of revisions that were made by teachers during the modelled revisions sessions. There is convincing evidence for this: there were no reordering or deletion revisions noted during lesson observations, and one teacher reflected that the modelled revision was not evenly spread across all four operations of revision:

> *"Maybe we modelled less of it [deletion]? I think when we modelled… we kind of rewrote parts of what was written before, it that makes sense. We didn't really model kind of taking bits out as much."* (Teacher 3, Phase 3 Interview)

Interestingly, there were no significant differences in the operations of revision used by the different attainment groups. Though different attainment groups had peaks in different texts and at different figures, the overall profile remained consistent: additions were by far the most common operation of revision followed by substitutions. While this finding is contrary to some early revision studies that suggested deletion was more common (Flower et al., 1986), this does reflect many more recent studies that found addition to be the most common operation of revision of one's own writing (Butterfield et al., 1994; Dix, 2006) or that children may find this operation of revision easier than others (Graham et al., 1995; Graves & Murray, 1980). Crawford, Lloyd and Knoth (2008) found addition to be the second most common operation of revision; however, in common with the present study, they found additions and substitutions between them to constitute the vast majority of revisions. The fact that there were so few significant differences between prior attainment groups adds further weight to the suggestion that the operations of revision used by children reflect those used by teachers in modelled revision sessions given that all children in the class would have seen the same revisions modelled.

4.7 Length of Revisions

Table 4.10 below shows the number of meaning changes in each text that were of the following lengths: word, phrase, clause, sentence, more than one sentence. Table 4.11

shows the percentage of meaning changes in each text that were of each length. It should be noted that the data concerning the length of revisions refers only to meaning changes. Given that surface changes by their nature are likely to be limited to a single word, for example when an orthographic change is made or when an apostrophe is added, their inclusion here would skew the data unhelpfully towards word length revisions.

Table 4.9: The number of meaning changes of different lengths in each text.

	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8
Word	2	40	54	26	8	13	14	11
Phrase	0	20	25	16	11	10	11	14
Clause	1	8	24	6	10	7	6	6
Sentence	3	9	7	21	13	13	14	13
More than 1 sentence	2	9	8	19	16	13	7	9

Table 4.10: The proportion of meaning changes in each text that were of each length.

	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8
Word	25.0%	46.5%	45.8%	29.5%	13.8%	23.2%	26.9%	20.8%
Phrase	0%	23.3%	21.2%	18.2%	19.0%	17.9%	21.2%	26.4%
Clause	12.5%	9.3%	20.3%	6.8%	17.2%	12.5%	11.5%	11.3%
Sentence	37.5%	10.5%	5.9%	23.9%	22.4%	23.2%	26.9%	24.5%
More than 1 sentence	25.0%	10.5%	6.8%	21.6%	27.6%	23.2%	13.5%	17.0%

One notable pattern in the data presented above is that the number of word length revisions increased dramatically between texts 1 and 2, and remained very high in text 3 before reducing in texts 4 and 5 then remaining relatively stable for the rest of the texts. This is possibly due to three participants who made a very large number of single word additions in texts 2 and 3 in particular. For example, child 5 alone made 12 single word additions in text 2 and 17 in text 3. It is notable that previous studies have reported that word-level revisions were also the most common, constituting a broadly similar proportion of total revisions: 31.24% (Bridwell, 1980) and, more recently, 40% (Crawford et al., 2008). However, neither of these studies examined multiple texts over time so it is not possible to triangulate the present study's finding that the proportion of word-level revision decreased over time with the literature.

Between text 3 and text 4, there appeared to be a rebalancing towards longer revisions: the number of word-, phrase- and clause-length revisions all decreased, while the number of revisions at sentence length and beyond increased, making up 46% of revisions. Then in all texts from text 4 onwards, the proportion of these longer revisions was at least 40% of all revisions. A likely reason for this shift is that revision modelled by teachers in the revision instruction sessions included revisions at sentence-level and above. There was robust evidence for this: sentence length revisions were noted during lesson observations, and two of the teachers referred to this focus in their phase 3 interviews. Interestingly, teacher 1 described how it was initially difficult to encourage children to completely change a sentence, which may offer some insight into why this change appeared to happen between texts 3 and 4, not between texts 1 and 2 as had been the case for many changes in children's revisions explored so far:

"To actually get a sentence out and rewrite it entirely… what they wanted to do is to sort of change a bit… When I say that sentence doesn't make sense, shall we look at what doesn't make sense… they want to keep the sentence and just add one thing in. And I always say, just ignore it, tell me what you want to say in your own words, start completely again… And they're very reluctant to leave that poorer sentence" (Teacher 1, Phase 3 Interview)

Teacher 3 also referred to modelled revisions at the length of the sentence, and, interestingly, made clear that this was new practice for the class:

"Before it [revision] wasn't really what we were doing now which is kind of adding complete new sentences or rearranging things and improving it in that way." (Teacher 3, Phase 3 Interview)

There was relatively little variation between prior attainment groups as regards the length of revisions. There was a significantly higher proportion of word-length revisions made by the middle prior attainment group in texts 2 to 3 but this is likely due to the fact that all three participants who made a very high number of single word additions (children 5, 7 and 8)

163

were in this group. There was also notable consistency in the proportion of longer revisions at the length of one sentence or above. Excluding text 1 due to the low number of revisions overall affecting the proportion of each length of revision so significantly, in all three prior attainment groups, there was an increase in the proportion of these longer revisions between text 3 and text 4 and, with some fluctuations, the proportion of these revisions remained higher than in texts 2 or 3 for the remainder of the study. As such, the evidence suggests that children with low prior attainment were just as likely to make revisions at the length of a sentence or more than their middle or higher prior attaining peers. It is important not to conflate this with revision skill as the fact that participants are attempting these revisions does not mean that they are successful in improving the quality of the text they have written. However, this does suggest that children of all levels of prior attainment are able to attempt longer revisions and, plausibly, that the modelling of these revisions in revision teaching sessions prompted the children to attempt them, given that all children were exposed to the same modelled revisions.

In summary, there was a shift during the period of revision teaching towards longer revisions (one sentence in length or more), which was sustained during the texts written after the period of revision teaching was complete. However, it is notable that this shift occurred somewhat later than other changes to children's revisions explored above, for example the number of revisions per text. Finally, with regard to the length of revisions there were relatively few differences between the three prior attainment groups.

4.8   Impact of Revisions

Though revision instruction may seek at first simply to increase the volume of children's revisions, this is ultimately futile if these revisions do not have a positive impact, or indeed if they have a negative impact, on the text. Table 4.12 below shows the proportion of all revisions in each text that had a negative impact or no impact on the text, as well as the average proportion of each level of impact across all texts. This is given for the cohort as a whole, as well as for each prior attainment group:

Table 4.11: The proportion of revisions in each text that had a negative impact or no impact on the text.

Prior Attainment Group	Impact	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8	Average
All	Negative or none	13%	38%	34%	21%	30%	22%	26%	42%	28%
	Negative only	0%	14%	8%	5%	9%	9%	9%	14%	8%
High	Negative or none	0%	21%	13%	8%	38%	0%	33%	22%	17%
	Negative only	0%	11%	0%	8%	0%	0%	17%	0%	4%
Middle	Negative or none	0%	40%	35%	28%	27%	30%	37%	38%	29%
	Negative only	0%	6%	2%	8%	3%	13%	14%	12%	7%
Low	Negative or none	18%	45%	38%	17%	32%	19%	11%	61%	30%
	Negative only	0%	29%	21%	2%	18%	6%	0%	28%	13%

As has been noted above with regard to quantitative data in text 1, the relatively low number of attempted revisions is likely to affect the proportion of revisions that have no impact or a negative impact on the text. This is for two reasons: first, the low number of revisions overall increases the likelihood of anomalous data; second, as this text was written before revision instruction began, it is likely that participating children would only make revisions where they are confident of it having a positive impact. As revision was not the focus of teaching, there would not have been any performative revisions nor children making attempts at revisions to practise their revision skills. As such, the data from text 1 cannot be used for reliable comparisons.

If one excludes text 1, the cohort level data shows a small initial decrease in revisions which had no impact or a negative impact on the text between texts 2 and 4 followed by relative stability between texts 4 and 7 then a rapid increase between texts 7 and 8. One could interpret the downward trend in the proportion of revisions that had no impact or a negative impact between texts 2 and 7 as evidence that the revision teaching at the heart of

this study, or the practice in making revisions that this led to, had the effect of improving the children's revision skills such that their revisions became increasingly likely to have a positive impact on the text. However, the evidence to support such a conclusion is insufficient in this study. Firstly, texts 2 and 3 both have a particularly high number of single word additions, as described above. These revisions are much more likely than average to have no impact on the text and, as such, the overall number of revisions in texts 2 and 3 that have no impact or a negative impact on the text may be inflated by these revisions. In other words, it is plausible that, rather than children's revisions improving, they merely make fewer single word additions. Of course, if this is the case, the children learning that these revisions have little impact and therefore making fewer of them is worthy of note in itself.

In addition, in order to conclude that the revision teaching led to children making fewer revisions which had no impact or a negative impact on the text, one would need to explain the significant increase in the proportion such revisions in text 8. One possible explanation of this is chronological: text 8 was the last text involved in the study, and the one written the longest period after the end of the revision teaching. As such, one could argue that the revision teaching did lead to a decrease in the proportion of revisions that have a negative impact or no impact on the text but that this change was temporary; once the revision instruction finished, the proportion of this type of revision returned to the level seen before the period of revision teaching. An alternative explanation for this is that text 8 was anomalous due to the nature of the text itself. As noted above, text 8 was a newspaper report, and therefore the only text that was not in the form of a regular narrative and with specific expectations as regards the tone of the language used. As such, it is plausible that there were more revisions that had a negative impact or no impact on the text in text 8 because the participating children were less familiar with the type of language required. This increased the likelihood of revisions introducing language that did not suit the text type. In short, the impact of children's revisions specifically was constrained by their writing knowledge generally.

It should also be noted that there were important differences between the prior attainment groups with regard to the impact of revisions. The high prior attainment group made the fewest revisions that had no impact or a negative impact on the text, as well as the fewest

number of revisions that specifically had a negative impact on the text. In contrast, the lower prior attainment group made the most such revisions: there was therefore a possible correlation between prior attainment in writing and the likelihood of a child's revision having a positive impact on the text. Furthermore, though the average proportion of revisions that had no impact or a negative impact on the text was only 1% lower among the middle prior attainment group when compared to the low prior attainment group, it should be remembered that the small number of participants who made a very large number of single word revisions (children 5, 7 and 8) were all in this group and thus likely to have pushed the average proportion of these revisions higher than it might otherwise have been. There was some evidence for this in the particularly large disparity between the proportion or revisions that had no impact on the text (22%) and those that had a negative impact (7%) in the middle prior attainment group.

A likely explanation for the correlation between prior attainment in writing in general and the likelihood of revisions having a positive impact on the text is that writing and revision draw on the same prerequisite knowledge. Effective writing requires extensive knowledge of available choices (such as vocabulary and syntactic options) as well as knowledge about when different options are likely to be most appropriate. As such, the stronger writing *in general* of the high prior attainment group was likely underpinned by more extensive writing knowledge than that of their middle and lower prior attaining peers. However, revision requires the same knowledge of possible choices and when they are more appropriate. As such, the same extensive writing knowledge that allowed higher attaining writers generally to produce texts of a higher quality than their peers also allowed them to make generally more effective revisions. Ones skill in writing generally is, as such, likely to be a significant constraint on the effectiveness of one's revisions.

The possibility that the impact of children's revisions was constrained by their writing knowledge can also be explored through an examination of revisions that did not have a positive impact on the text. In many cases, the lack of positive impact can be explained in terms of a lack of a particular element of writing knowledge. Table 4.13 explores a wide range of revisions that did not have a positive impact on the text and possible aspects of

writing knowledge that they suggested the child may still have needed to develop. Where an extract includes more than one revision, the one to be discussed has been underlined.

Table 4.12: Examples of revisions that did not have a positive impact on the text and writing knowledge they suggest children may still need to develop.

Revision	Inferences regarding writing knowledge
The only thing that makes me happy is watering my plant. I wish that I would of done something to provent that of happaning. The sky changed from a lapis-blue to a midnight black sky. [In the futcher I wish that it would be less polluted and less dark in the morning.] (Child 15, Text 4)	This revision suggests child 15's understanding of effective endings to narratives may have needed further development. The wistful tone of the original ending was lost in the directness of the added text.
I tried my best to stop it, I put a log, it just got eaten by the [huge] rubble. (Child 7, Text 4)	Child 7 showed an imperfect understanding of how the word 'rubble' is used in standard English, and in particular that it requires a periphrastic construction such as 'pile of' to apply the adjective 'huge'.
No one, no one felt safe[,] not even one percent safe. [Say bye bye to being mature!]. The police were so petrified they fainted. (Child 7, Text 8)	In this example, the intended meaning of the addition is unclear, suggesting on this occasion that child 7's knowledge of his audience and the inferences they could make was limited. In addition, the potentially humorous tone of the revision belied limited knowledge of the tone of language expected in newspaper reports.
But still he just broke into our Island. Without permission. [The policeman – He'd proble kill us all.] (Child 10, Text 8)	Here, child 10 appeared to lack knowledge of the format of quotations in a newspaper article and how to integrate them into the surrounding text.
His mouth [filled was full to the brim] with [the] silver liquid. (Child 3, Text 2)	In this example, child 3 appeared to lack knowledge of the standard meaning of 'brim' being an upper edge of a cup or container, resulting in its non-standard application to a mouth.
[they] had a [litel] girl [but she had a problem that had cannot speaking problems]. the child [unhealthy] girl coud not speek. (Child 11, Text 3)	Here, child 11 appeared to lack syntactic knowledge, resulting in the non-standard 'cannot speaking problems' rather than, for example, 'problems with speaking'.
It was a sort of [green] emerald gem... (Child 4, Text 2)	In this example, the addition of 'green' was redundant given the word 'emerald' was already in the text. This could represent a lack of understanding that the meaning of 'green' is already included in 'emerald' or a

	lack of knowledge about the negative impact redundant words can have on a text.
There were elephents [wearing a red coat not a coat but something like a coat beside they stood]. (Child 12, Text 3)	Here, child 12 repeated the word 'coat' multiple times in a revision that reads as if they were 'thinking aloud'. This may be because child 12 lacked knowledge about how this may affect the clarity of the text.

The examples in table 4.13 provide good evidence for the role of writing knowledge in revision in general: in all these examples, the child has demonstrated that they know what revision is and, indeed, can 'do revision' in the sense of making particular changes to their writing. However, the success of these revisions was constrained by a lack of writing knowledge. An understanding of what revision is and the process of revision thus supported children to make changes to the writing but, in itself, was not been sufficient to ensure the revisions' success. It should be noted that, in the examples given above, the remarks made about children's writing knowledge are inferences based on their writing as, in the majority of cases, these revisions were not explicitly discussed in the phase 3 interviews. It is therefore possible that alternative explanations exist for the lack of a positive impact they make on the text. For example, in the case of the apparently redundant addition of 'green' by child 4, it is possible that she simply misread the text when revising and did not see the word 'emerald' in the text: in short, it could be a clerical mistake rather than one arising from a lack of knowledge. However, given the wider evidence for the role of writing knowledge in revision in the data from text 8 and the variation between the prior attainment groups, it is plausible that a lack of writing knowledge played a role in many, if not most, of the revisions in table 4.13 as well as many others in the data.

In summary, there is insufficient evidence in this study to draw conclusions regarding the effects of the revision teaching on the impact of children's revisions on their writing. That is, of course, not to say that there was *no* impact, but rather that there is insufficient evidence in this study to draw reliable conclusions. However, it is significant that there was a correlation between participants' prior attainment in writing and the likelihood that their revisions would have a positive impact on the text. A likely explanation for this is that revision utilises much of the same knowledge and skills as writing itself and, as such, one's skill in writing is likely to be an important constraint on the effectiveness of a one's revisions.

Further evidence for this comes from the fact that the lack of positive impact in some revisions can be explained with regard to a specific lack in writing knowledge and the fact that text 8, which had the highest number of revisions that had a negative or no impact on the text, relied on particular writing knowledge not necessary for texts 1 to 7.

4.9 Qualitative Analysis of Meaning Changes

The qualitative analysis of children's meaning change revisions identified 30 codes, from which 7 themes later emerged. Table 4.14 below shows the frequency of revisions coded under each of these themes in each text of the study, while the codes are exemplified with specific revisions in appendix 6.

Table 4.13: The number of meaning change revisions coded under each theme during qualitative analysis.

	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8	Total
Theme 1: Adding Detail	5	56	76	63	32	21	32	28	313
Add Action	1	9	6	12	8	5	5	5	51
Add Adjective	1	23	29	16	4	6	7	5	91
Add Adverb	0	4	6	0	2	2	0	1	15
Add Colour	0	4	9	2	2	1	2	1	21
Add Descriptive Detail	5	43	49	54	16	11	24	20	222
Provide Context	1	3	9	2	3	1	3	4	26
Add Relative Clause	0	1	3	1	9	1	1	0	16
Theme 2: Addressing a Problem	0	7	19	9	3	10	5	6	59
Avoid Ambiguity	0	3	3	2	1	3	1	3	16
Avoid Repetition	0	0	2	0	0	2	0	0	4
Correction	0	0	1	2	0	2	0	0	5
Missing Word Added	0	3	6	4	1	3	1	0	18
Remove Redundant Material	0	1	7	2	1	0	3	3	17
Theme 3: Character	2	14	8	18	28	24	11	12	117
Character Feelings	2	11	8	18	27	19	11	8	104
Characterisation	0	2	1	0	0	10	0	3	16
Dialogue	0	3	0	0	1	1	0	7	12
Theme 4: Effects on the Reader	2	16	9	20	24	21	14	15	121

Address Audience	0	2	0	1	5	0	1	1	10
Emphasis	0	4	3	5	9	7	2	3	33
Foreshadowing	1	1	3	5	0	0	1	0	11
Humour	0	1	0	0	0	1	0	4	6
Register	0	3	2	4	3	5	0	4	21
Repetition for Effect	0	1	0	2	0	3	1	3	10
Rhetorical Question	0	0	0	3	11	10	0	1	25
Short Sentence for Effect	0	1	0	0	0	2	1	1	5
Show Not Tell	1	4	1	1	3	4	8	2	24
Tension	0	2	0	3	0	0	2	0	7
Theme 5: Figurative Language	1	2	4	7	3	1	5	6	29
Metaphor	0	0	0	4	1	1	2	2	10
Simile	1	2	4	4	2	0	3	4	20
Theme 6: Openings & Endings	4	8	4	6	5	5	6	7	45
Improve Ending	3	8	4	5	5	4	5	5	39
Improve Opening	1	0	0	1	0	0	1	2	5
Theme 7: Word Choice	1	9	13	10	2	5	4	5	49

4.9.1 Adding Detail

As table 4.14 shows, by far the most common theme was adding detail. This may be unsurprising given the dominance of addition as an operation of revision, but it is important not to conflate revisions in the 'adding detail' theme with addition as an operation for review. For example, on some occasions, detail was added with a substitution, while in others the operation of addition was used for purposes other than adding detail. There are two broad reasons why revisions that add detail occurred so frequently. Firstly, it could be the case that these revisions are simply easier to make and are therefore likely to dominate among developing writers, many of whom had not focused on revision in their writing previously. Alternatively, the frequency of this type of revision may have been a reflection of the revisions made by teachers when modelling. Data from lesson observations showed that teachers did make and discuss this type of revision, while description is commonly a major concern in writing in classrooms.

Interestingly, as shown in table 4.15, revisions in the 'adding detail' theme were not equally common across the prior attainment groups: the high prior attainment group made fewer of this type of revision that either of the other groups.

Table 4.14: The number and proportion of revisions in the 'Adding Detail' theme by each prior attainment group.

	High Prior Attainment Group	Middle Prior Attainment Group	Low Prior Attainment Group
Total Revisions	89	285	145
Revisions in 'Adding Detail' Theme	46	181	87
Percentage of total revisions in 'adding detail' theme	51.7%	63.5%	60%

It is also notable that revisions in this theme were slightly less likely than average to have a positive impact on the text: 66% of these revisions were rated as having a positive impact on the text compared to an average across all revisions of 72%. This could be a function of the fact that the higher attaining group made fewer of these revisions. This group was likely to make fewer revisions that had a negative or no impact on the text so their less frequent use of revisions in the 'adding detail' theme may have resulted in a lower proportion having a positive impact on the text. Of course, the inverse may also be true: it may be the case the higher attaining writers did not make this type of revision because they had identified, perhaps tacitly, that other revisions were more likely to have a positive impact on the quality of their writing.

A notable group of revisions within this theme consisted of the addition of a single word. This included the group of 91 revisions in the code 'add adjective', which consisted of the addition of a single adjective, as exemplified by the two revisions below:

There was no worry about any [armed] intruders breaking in because there were [trained] guards and elephants. (Child 5, Text 3)

Some of these revisions were also coded 'add colour'. These revisions consisted of the addition of text to describe the colour of an object and were recorded separately from other adjectives due to their relatively high frequency. It should be noted that not all revisions coded 'add colour' were also coded 'add adjective' because some consisted of the addition or a short adjectival phrase rather than a single adjective, as in the revision below:

Later we then arrived at the [greyish black] tower block. (Child 3, Text 5)

Another related code, though fewer in number with 15 instances, is 'add adverb', which consisted of the addition of a single adverb. There were thus 106 revisions which consisted of the addition of a single word to add detail. These revisions were notable for their particularly high frequency shortly after the beginning of the revision teaching (in texts 2, 3 and 4) and the very low likelihood that they would have a positive impact on the text. Just 54% of revisions in the 'add adjective' code had a positive impact on the text, and this fell to 47% among revisions in the 'add adverb' code. One plausible explanation for these data is that these single word additions were performative: teaching had just begun to focus on revision so children sought to make revisions where they could and single word additions provided a relatively easy way to do so. Over time, as participating children were provided with more examples of revision, and perhaps as they realised the relative ineffectiveness of these revisions, the frequency of single word additions decreased.

Despite the prevalence of single word additions, it should be noted that even if all 106 of these revisions were removed from the adding detail theme, it would still have been the theme with by far the highest total frequency across all texts. As such, it was not the case that the dominance of the theme was entirely due to these simple, single-word revisions. Indeed, by far the largest single code within this theme was 'add descriptive detail'. These revisions provided additional descriptive material, primarily about settings, but also less frequently about characters' appearance. These revisions did not alter or add to the actions taken by a character nor did they alter the flow of the narrative itself:

The girl had soft cinnamon-brown [skin which had caramel-brown] hena. (Child 15, Text 3)

[There were dark green vines rappin them selfs, around one dome There were light green mixed with a dark green undergroth on the brightly coloured palace there were vines growing on the domes and near the windowes]. (Child 10, Text 3)

A somewhat smaller group of revisions, coded 'add action', added detail regarding the actions of characters in the narrative:

Mr Silver unlocked [the a narrow tall] door and went up to some abstract art. [Colours and shapes seemed to hypnotise Daniel. All of a sudden he felt tired and collapsed. He caught himself.] (Child 3, Text 2)

I sore an old lady she was planting flowers in the pots. [I asked the old lady do you need help so said no if you where me woud you ask her if she needs help?] (Child 11, Text 5)

During the phase 3 interviews, participating children offered an insight into why revisions that add actions or descriptive details may be so common. Firstly, a number of participants, including when discussing specific revisions, made reference to adding detail as an end in itself. That is to say, there was no apparent consideration of the effect that the additional information may have on the text, but rather a belief that the addition of detail in itself would improve the text, as exemplified by children 10 and 16 below:

"I even thought I added like new words like by maybe using "alien" or "hideous" would help because it describes it" (Child 10 on revision in text 6, Phase 3 Interview)

"I wanted to… It kind of start starts sound boring and it wasn't like that much like sentences and words. That's why I did I tried to add more." (Child 16 on revision in text 8, Phase 3 Interview)

It could be argued that the apparent belief shown in the interview data above that the addition of detail *in itself* is a productive aim for a given revision is further evidence that at

least some of the revisions in this study were performative. This is because such a belief prioritises the *process* of adding detail over the content that is added. However, it should be noted that the interview data also contained many examples where children offered a clear rationale for adding descriptive detail that referenced the reader or purpose of the text:

> *"When you think of like the South Beach, it could just be anything… where it tells you it's like a tropical beach, it gives the reader this idea it's like a really good beach. It tells you it was really good before."* (Child 3 on revision in text 8, Phase 3 Interview)

Furthermore, one code that fell within the 'adding detail' theme, and which had 26 occurrences across all texts, was 'provides context'. In these cases, the detail that was added to the text by the revision was important for the reader to easily follow the narrative of the text. This was because the detail added in the revision provided the context in which later parts of the text could be understood:

> *[~~They final found the silver liquid~~ In the room was a small piller that had a bottel that has a mistireus liquid. Daniel thought it looked sketchy. It was the silver liquid Mr Silver had been look for] but there was a problem; the door that they came in was blocked.* (Child 15, Text 2)

Though there was no triangulating evidence in the interview data, the revisions coded 'provides context' were unlikely to be performative. As child 15's example demonstrates, these revisions require a clear understanding of the reader and their perspective.

In summary, the 'adding detail' theme was by far the most frequent in the study. In part, this is due to at least some participating children making performative revisions. Some children appeared to value adding detail for its own sake, sometimes without consideration of the impact of the new content; others made a large number of single word revisions, many of which had a negative or no impact on the quality of the text. However, it is important to emphasise that not all revisions in this theme were performative: some children offered compelling rationales for such additions in their phase 3 interviews. Furthermore, the

revisions coded 'add context' implied an understanding of the needs of the reader and, as such, were unlikely to be performative in nature.

4.9.2   Effects on the Reader

Significant further evidence that participating children considered the reader while revising comes from those revisions coded under the 'effects on the reader' theme, which was the second most frequently occurring theme. This theme covered a particularly diverse range of revisions where there was a clear attempt to have some effect on the reader (e.g. adding humour, creating tension or foreshadowing later events in the text). Among the simpler revisions in this theme were those in the 'emphasis' code, which sought to adjust the emphasis of the text, particularly through the use of intensifying language:

> *The day came I'm in the world's most boring place in the world. [Worst part is] I have to share rooms and my puppy has to sleep on the floor.* (Child 7, text 5)

Other revisions introduced more widely recognised rhetorical devices, such as rhetorical questions, addressing the reader or repetition for effect:

> *[I shall be despondent every day. Why did it have to be me?]* (Child 1, text 5)

> *[after car, the roads were busy, really busy. There was a strong cent of petroll fumes, and it smell't terrible]* (Child 10, Text 3)

> *[A poorly-crafted flimsy raft lay beside him. No money, no food no clothes and most definately no good. He had no possessions of his own and ruined the quite orderly life lead by the townsfolk Day by day, week by week the quiet orderly life the townsfolk had led was turned upside down and slowly it fell to pieces at the feet and hands of the foreigner.]* (Child 2, Text 8)

A small number of revisions introduced short sentences for effect:

Two minets after three am on 7th July 1606AD[,] a savage man arrived on the South east beach on a beaten up raft[. He came] without a warning. (Child 6, Text 8)

Another code that fell into the 'effects on the reader' theme was tension. In this small group of revisions, the aim appeared to be to add or increase tension felt by the reader:

[~~UNTIL one day the others came~~… until one day I saw the snow white birds flapping their wings out of the window. I knew something dangerous was coming.] (Child 8, Text 3)

Also within this theme was a group of revisions that focused on register, in some cases to make the language more formal, while in others to make it less so. These showed a sophisticated understanding of both the text being written and the reader's expectations for the language it would contain:

[~~Although it may be exciting my current apartment is extremely dull.~~ Sure, it may sound exciting, but I don't know anyone and I have a lot of stairs] (Child 3, Text 5)

There were [~~mega people~~ over a million kids] licking the candy. (Child 9, Text 2)

Though one can infer from these revisions that the writer had considered the reader's perspective, it is important to note that this consideration was made more explicit in some children's interview data. There was a number of occasions where children, particularly those in the higher prior attainment group, discussed specific revisions and the thinking about the reader that underpinned them when they were interviewed. In the example below, child 3's interview data showed a clear consideration for the reader in the revision that introduced an element of foreshadowing:

She started walking on the rope. Her eyes were fixed on the middle of the rope. [She pictured it ending terribly but shook that ghastly thought away. In her heart she was proud to have come this far.] (Child 3, Text 7)

"That editing is because it gives a clue to the reader because it says she shook ghastly thoughts away. And then later on, it says that it was her last… her first performance since she broke her wrist. So that's kind of saying that she's still thinking about that and she's still really worried that she'll do it again." (Child 3, Phase 3 Interview)

In light of the evidence from the revisions themselves and children's interview data, it appears unlikely that the 'effects on the reader' theme contained performative revisions to the same extent as the 'adding detail' theme. Instead, what is notable about this theme is its relative frequency and its significant diversity. Given that the revision teaching at the heart of this study included a particular emphasis on making revisions in light of audience considerations, the frequency of this type of revision could be a reflection of the revision teaching. Given that revisions in the 'effects on the reader' theme are the second highest in frequency, it is notable that the peak in their frequency does not co-occur with that of the revisions in the 'adding detail' theme. While the number of 'adding detail' revisions peaked in text 3, the number of 'effects on the reader' revisions peaked in text 5. It is plausible that this is because 'effects on the reader' revisions are more challenging than 'adding detail' revisions for novice writers, possibly due to the increased cognitive load of explicitly considering a reader over simply 'writing more'. Alternatively, it may the case that the revision teaching itself taught children about the considerations of a reader and, over time, this meant they made more such revisions. That is to say, it is plausible that one of the effects of the revision teaching was an increase in the number of revisions by participating children that sought to have a particular effect on the reader.

However, the diversity of revisions within this theme creates a paradox. It is very unlikely that teachers' modelling of revision would have included all the types of effects on the reader covered in this theme, even across multiple revision sessions. There is no evidence in the lesson observations or interviews with teachers that elements such as foreshadowing and humour were modelled as part of the revision process, nor were these part of the school's English curriculum in year 5. Indeed, data from lesson observations suggested that teachers tended to focus on a relatively small number of revisions but discussed them in considerable depth. As such, the frequency of the revisions that sought to have an effect on the reader was likely a reflection of the revision teaching, but the specific effects they sought

to achieve cannot have been, or at least they cannot all have been. It is plausible that this paradox is due to children's revisions relying on their existing writing knowledge beyond revision specifically. It is logical, for example, that if a child seeks to create tension in their revision, that they must have more general writing knowledge about tension, how to create it and why to do so. As such, when teachers demonstrated to children how revision should take the text's audience into account, children could create similar effects on the reader to those that had been modelled or bring their wider writing knowledge to bear on their revisions. That is to say, having learnt about the principle of revision involving consideration of the reader from the revision teaching, children could then make a wider range of revisions as their writing knowledge allowed. As such, it is plausible that it was modelling the consideration of the reader that supported children during revision teaching rather than modelling the execution of the revision itself. This raises an important question of whether modelling consideration of the reader when teaching writing in general, not specifically revision, could have similar effects.

In light of the importance of the diversity of the revisions in this theme going beyond what was modelled, it is important to note that there was also evidence that children's revisions reflected what was modelled in the revision teaching and in English teaching more generally. For example, the preparatory work for text 5 included children learning about rhetorical questions; it is notable not only that there were 25 revisions that consisted of the additional of a rhetorical question but also that 21 of these occurred in texts 5 and 6. Other examples of children's revisions reflecting teaching were seen in other themes. For example, 21 revisions added detail to describe an object's colour, often using compound adjectives such as 'jet-black', and 16 revisions added detail with a relative clause. These elements were taught as part of the school's writing curriculum (i.e. not as part of the revision teaching specifically) either immediately before or during the period of revision teaching. These revisions may be a residue of this earlier teaching, providing evidence for the wider point that to some extent children's revisions reflected the focus of teaching.

There is also a notable difference in the frequency of 'effect on the reader' revisions made by different prior attainment groups. In the high prior attainment group, 31.5% of revisions were 'effects on the reader' revisions. However, this fell to 23.2% in the middle prior

attainment group and 18.6% in the low prior attainment group. This reflects other studies in which it was found that struggling writers more rarely consider the reader when revising (Graham, 1997). The possible role of writing knowledge in revision as described above can provide an explanation for these data. If a writer brings their wider writing knowledge to bear on revisions that seek to have a particular effect on the reader, it is logical that higher attaining children will make more of these revisions than their lower attaining peers because they have more writing knowledge. That is to say, higher attaining writers are likely to have knowledge of a broader range of options, both of the possible effects their writing could have on a reader and the linguistic choices to create it.

One interesting phenomenon, though it occurs on relatively few occasions, is when a child's explanation of the thinking underpinning a revision differed from what an adult reader might infer. For example, in child 7's revision below, the addition of the sentence 'he was flawless' appears to be the introduction of a short sentence for effect:

> It's like he's done it [~~one~~ five] hundred times, no fire got on the floor. [He was flawless.] (Child 7, Text 7)

However, in his interview, child 7 suggested that this revision aimed to introduce a pun:

> "It shows that… it gives you a pun and also it could show that nothing really touched the floor except for himself." (Child 7, Phase 3 Interview)

He went on to explain specifically that the pun was built around the homophonic relationship between 'floor' and 'flaw', which many readers would be unlikely to notice. It could be argued that this suggests one cannot draw inferences about a child writer's intentions based on the written text. However, the infrequency of this phenomenon in the data suggests that, though one should be cautious and avoid certainty, it is often possible to infer why children make a certain revision. Another interpretation of this data would suggest that the revision itself was simply a poorly executed pun. That is to say, child 7 considered the reader, decided a pun would enhance the text but then did not write an effective pun when the revision was executed. This interpretation would provide evidence for the

180

argument child 7's revision was constrained by his writing knowledge; even though he identified a possible revision and a solution, his writing knowledge more widely meant that he did not execute the revision effectively. Alternatively, one could argue that child 7 made the revision for another reason, perhaps simply because it 'sounded better' but did not have the meta-language available to explain why he made this revision so the pun explanation emerged post-hoc. Though it is plausible that children's lack of meta-language regarding writing and rhetoric is likely to have constrained their explanations about their own revisions, the specificity of child 7's explanation, referring to a pun rather than making recourse to a vaguer explanation like 'adding detail' or 'improving the sentence' makes the post-hoc explanation argument less plausible. It is more likely that child 7 attempted a pun, that this was ineffective and that the introduction of an effective short sentence for effect was serendipitous.

In summary, the 'effects on the reader' theme was notable for its frequency and diversity. The fact that these revisions became so common suggests that one effect of the revision teaching was an increase in the number of revisions that sought to have a particular effect on the reader. However, these revisions were made more frequently by higher attaining writers, and they often went beyond the scope of the revisions that had been modelled. As such, it is likely that, once children understood the principle of considering the audience when revising, they brought their wider writing knowledge to bear when making individual revisions.

4.9.3 Character

Perhaps the most significant example of children's revisions reflecting teaching was in the 'character' theme. Though this theme included a number of types of revision, including the addition of dialogue, it is dominated by revisions that focus on characters' feelings. Indeed, of the 117 revisions in the 'character' theme, 104 add or refine descriptions or references to characters' feelings, as exemplified below:

> *[The moody teenager sighed as he sat down in one of the chairs but when the show started joy filled his heart.]* (Child 15 Text 7)

[I was deprest because I thoght we was going to choke because of the bad smell mold and it was one of the most frightend day.] (Child 11, Text 4)

"Mr Silver how will we breath?" he enquiered[, a little fritend]. (child 1, Text 2)

The frequency of revisions that focus on characters' feelings suggests that this was a particular concern for participating children, or that they viewed this as something important to ensure was included in their writing. As such, it is notable that lesson observations recorded modelled revision that focussed on how characters feel, and this is also supported by interview data:

"We start thinking… put yourself in the character's shoes, and how would they feel? So okay, Mr. Greenling? How would he've felt towards the baby? There is… we know he is more attached to the baby. What might he be thinking of… I have to sort of talk them through it… getting the character's voice if you like, then they can go off and then imagine what they can write." (Teacher 2, Phase 3 Interview)

It thus seems likely that children's revisions can reflect the focus of teaching, both in revision teaching and in English teaching more widely, but that children can also, at least some of the time, use principles such as 'consider the reader' to make types of revisions that have not been modelled to them. It is important to note that there was no evidence in this study that revision is any different in this respect to writing more generally. Though children's revisions did appear to reflect the focus of teaching on some occasions, it is plausible that all children's writing reflects the focus of teaching. That is to say, this may not be a particular feature of children's revision but of their writing more generally.

4.9.4   Word Choice

Though the 'word choice' theme was relatively infrequent among children's revisions (49 total occurrences), it was disproportionately common in the interview data, being mentioned specifically by 7 of the participating children. Among these 49 revisions, a minority appeared to involve a 'correction' due to a non-standard use of the original word:

Not one chair had been [blank empty] (Child 9, Text 7)

More commonly in the data, word choice revisions were used because the revised word is deemed more suitable for the context than the original, even though the original word is not necessarily used in a non-standard way:

Me and the animals were [sad heartbroken] (Child 5, Text 4)

Though these revisions appear to be simple substitutions, this masks the fact that they can demand a significant amount of prerequisite knowledge. For example, in the texts below the word 'crowds' is substituted for 'hoard' [sic]:

Outside [the a magnificent crimson-red and pearl-white circus] tent [the crowds could see a teal-blue ice cream truck blaring hazy music was a hoard of people pushing and shoving one another all determined to be the first to see this jaw dropping spectacular…] (Child 2, Text 7)

Though the substitution of 'crowds' for 'hoard' [sic] is embedded within a much wider revision, child 2's description of this change reveals the extent of the knowledge required to make it:

"This might just be me, but a crowd, for some reason makes me think of… like a calmer group than a horde because a horde makes me think of like, a large group all shouting and like uproar, whereas a crowd makes me just think of a large group of people, but it doesn't make me think of chaos or anything like that." (Child 2, Phase 3 Interview)

In order to make the change from 'crowds' to 'hoard' [sic], it was necessary for child 2 to have a detailed understanding of the meaning of each word, including the connotative association between a horde and violence, in addition to a clear understanding of her intended meaning in order to make a judgement as to which word is more suitable. In addition, it was necessary to make this judgement even with the cognitive load of rereading

her own text and identifying the possible site of a revision. This identifies two possible reasons why word choice revisions were relatively uncommon. Firstly, it may be the case that participating children did not have the breadth or depth of semantic knowledge required to make such changes regularly. That is to say, they may not have been aware of a more suitable word to make a change to or be clear enough on the shades of meaning that distinguish between two words to make a judgement on which was most suitable. Secondly, where children did have this knowledge, it is possible that they were not able to make use of it given the significant cognitive load of revision. As such, it is interesting that 'word choice' revisions were subject to variation between prior attainment groups. Participating children in the higher prior attainment group made proportionally more of these revisions than their peers (11.2% of all revisions compared to 9.5% and 8.3% for the middle- and lower prior attainment groups, respectively).

4.10 Case Studies

In the cohort-level data presented above, a number of patterns in children's revisions have emerged including a sharp increase in the volume of revisions after the beginning of the revision instruction, a trend towards longer revisions over time and the possible constraining role that children's writing knowledge played in their revisions. In the case studies that follow, these trends are illuminated by examining specific children's revisions in detail. These children were selected as collectively they represented all the prior attainment groups, but also on a number of occasions they were notable for being exceptions to some of the patterns that have been identified.

4.10.1 Case Study 1: Child 2

Child 2, in class 2, was in the high prior attainment group. This implies a much stronger than average command of written English as regards breadth of vocabulary, range and accuracy of grammatical structures and, importantly, precision in choosing language based on its appropriateness for purpose. Her first language was English and English was the language of her home. In addition, child 2 enjoyed writing. For her, the process of writing, especially in extended writing which she referred to as 'big writes', provided opportunities for expressing her creativity in a way she found satisfying:

"I think I definitely like writing. I especially like it when we're… doing big writes because with big writes you're not exactly just copying the story that you're reading, you're creating your own version of it and that's what I like." (Child 2, Phase 1 Interview)

Before the revision teaching for this study began, revision was not a routine part of child 2's writing process. Indeed, she was among the 8 participants (50% of the cohort) who did not make any revisions in text 1. Her conception of revision was also focussed on how the process of revision could help someone *learn to write* in the long-term by supporting the identification of 'mistakes', rather than on its role in improving a given piece of text for the reader:

"I think that editing is important because then you can realise the mistakes that you've made or you can realise maybe there's something you are doing wrong and then you can try and learn from that so you don't do it again because if you just left that off then maybe you'd just keep making the same mistakes and you wouldn't actually learn how to not make those mistakes." (Child 2, Phase 1 Interview)

However, child 2 had a clear understanding that, though revision may include surface changes to correct 'mistakes' for example in spelling and punctuation, it extended beyond this to making improvements to text already in standard English:

"I don't always think about mistakes, sometimes I think about if something doesn't make sense of if there's something I can do to improve it more" (Child 2, Phase 1 Interview)

When asked to describe what she meant by 'improve it', child 2 demonstrated that her understanding of revision already included meaning changes:

"Well, say sometimes if I use a word like 'good' or 'happy' and then I know that I can find an adjective that will… I don't know how to describe it… like a better adjective?

185

Those words can make it better… improving it like that and also if… well when looking at it like improving it like… because sometimes I'm like… I write a sentence and then I'm just like "And then this person dies" and I don't actually explain it." (Child 2, Phase 1 Interview)

This was underpinned by a wider understanding that the reader and the writer of a text have different 'points of view' and, as such, what the writer *intends* and what the reader *understands* do not necessarily coincide and revision can include attempts to bridge this gap, an understanding of revision that would become even more sophisticated over the course of the revision teaching:

"Editing to me is more of like going over your work and then looking at it again, kind from a different point of view to try and see if there's anything I can do to change it."
(Child 2, Phase 1 Interview)

After the revision teaching began, child 2 very quickly began to make meaning changes. In text 2, she used both addition and substitution to improve the quality of a setting description. This also involved reorganising material from one sentence into two.

"There was long shamrock green grass stretching as far as the eye could see [~~sprinkled with flowers of all colours and~~. Like sprinkles on a cake flowers of all colours were scattered on top of the grass, then] at intervals hummungous[,] towering blossom trees [cast shade on the ground below]." (Child 2, Text 2)

In common with these revisions, a large proportion of child 2's revisions (55%) focused on adding descriptive detail, either about a setting or a character. This was a somewhat higher proportion than the average across the cohort (42.8%). This focus on description and its effectiveness also emerged in child 2's phase 3 interview when she was discussing what she looked for in her writing when reading it with a view to making revisions:

"I think some of the pieces that I've wrote… some of the stuff that I've put in, I haven't really liked the way that I've described it, or something like that. And I've wanted to change that." (Child 2, Phase 3 Interview)

Child 2 was also notable for the degree of success she enjoyed in her revisions compared to other participants. 85.7% of her revisions were rated as having a positive impact on the text and 42.9% as having a very positive impact; across all participants the figures were 70% and 6%, respectively. In addition, none of child 2's revisions in any text were rated as having a negative impact: across all revisions by all participants, 9% were rated as having a negative impact. Strikingly, when the reliability of the impact judgements was tested, none of the five raters gave any of child 2's revisions a negative impact score.

In text 4, one notable revision not only further exemplified child 2's focus on the description of setting in her revision but also how the use of an extended addition could emphasise one element of the narrative (in this case, the character's feelings of despair) to create an atmosphere in the text for the reader:

> *"Eventually, I [~~got~~ became] used to my dismal new surroundings [~~and I kept up my hobby of growing plants. One day a streak of light appears~~. Waking up and staring out of my dusty, grimy window at buildings black as soot and as dreary as a rainy summer day became routine to me. The only thing that reminded me of my free, blissful, peaceful old rural life were my plants that I cherished but my heart still remained hollow. One day as I truged along the cold, lonley, empty streets of my once flourishing land I saw a ball of bright pearl-white light.]"* (Child 2, Text 4)

As exemplified here, child 2's revisions tended to be significantly longer than those of the other participants. Across the whole cohort, 15.99% of meaning change revisions were longer than one sentence, rising to 23.3% among children in the higher attainment group. However, 40% of child 2's revisions were longer than one sentence. It is plausible that the combination of child 2's enjoyment of and skill in writing lead to more willingness to revise at length.

The use of revision to create a desired atmosphere in text could also be seen in child 2's revision to the ending of text 4:

"I could not resist the urge to follow it. It led me to [~~the top of my flat where I found a greenhouse alive with plants~~ a dead, lifeless silver birch tree.] [~~I had dreams of how to make it my heaven. 2 years later I'm still spending all my time there just like in the old days.~~ I ran my finger down the bark and the tree came back to life.]" (Child 2, Text 4)

The substitution of "a greenhouse alive with plants" with "a dead, lifeless silver birch tree", despite the redundancy of the second adjective in "dead, lifeless", prolongs the atmosphere of despair and creates a powerful feeling of hope in the final sentence. This revision also demonstrates the sophistication of child 2's revisions: she had a clear understanding of the effects she wanted her writing to have on the reader and took steps when revising to make this more likely. The fact that she was able to do so is a clear illustration of how revision relies on more general underlying writing knowledge.

In other cases, child 2 was able to articulate some of this process. For example, the opening of text 7 included the following revisions:

"Outside [~~the~~ a magnificent crimson-red and pearl-white circus] tent [~~the crowds could see a teal-blue ice cream truck blaring hazy music~~ was a hoard of people pushing and shoving one another all determined to be the first to see this jaw dropping spectacular…]" (Child 2, Text 7)

In reference to the addition of "a magnificent crimson-red and pearl-white circus" to the first sentence, child 2 explained that "When the reader reads it, I want them to have a good picture in their head so I should add more detail" (Child 2, Lesson Observation). She later added that the description of the tent may also support the reader's understanding of the text: "I feel like also describing it also helps you, it also… helps you kind of figure out where this story might be" (Child 2, Phase 3 Interview).

Child 2's revisions above, especially when taken together with her explanations of the thinking that underpinned them, demonstrate a significant shift in her conception of revision away from it being primarily a way for novice writers to improve over time as described above. When interviewed in phase 3 of the research, it was clear that child 2 had an awareness of the evaluative element of revision, and that requires a different 'mindset' from that of the writer:

> *"I think the point of editing is to be able to like, get your work down, write it and then leave it and then come back to it with a different like mindset."* (Child 2, Phase 3 Interview)

In addition, child 2 was aware that there can be a gap between the intended meanings of a writer and what a reader understands, and that revision can play a role in closing this gap. She explained that she often asked a partner to read her work precisely because it will help her to identify the causes of this gap:

> *"So usually I get like my partner to read it as well. So like, I can hear when they're reading, where they like, kind of like fumble their voice can like start to stop. And they hesitate when they're reading my work so that I know that even though I might be able to tell what it is, other people can't, so I need to change it."* (Child 2, Phase 3 Interview)

Interestingly, child 2 was herself aware that this constituted a change in her conception of revision and suggested that the revision teaching had helped her to move forward in her thinking:

> *"I think that I wasn't like at the start, not like close minded, but I had like few ideas of how editing was. But now because we've done like more of it and had more focus on it, I think I've like, now I know like loads of other ways I can change my writing, like taking stuff out putting it back in. But also… like looking at it from with fresh eyes. And also getting other people's perspective on your writing. I don't think I used to do*

that before. I think it's just like, now like, I would adapt it to different ways to improve my work." (Child 2, Phase 3 Interview)

Child 2's understanding of revision as increasing the extent to which a reader's understanding of her text matched her own intended meanings as a writer was also reflected in the revisions that she chose to make. Child 2's revisions were significantly more likely to be meaning changes than surface changes, and across all texts, she made a higher proportion of meaning changes than the average of all participants. Even more strikingly, the proportion of child 2's revisions that were macro-meaning changes across all texts was more than eight times the average across all participants. Table 4.16 shows the types of revisions made by child 2 and the average across all participants, in both cases expressed as a percentage of all the revisions made:

Table 4.15: A comparison of types of revision made by child 2 with those of all participants.

	All Participants	**Child 2**
Surface Changes	21.1%	4.8%
Total Meaning Changes	78.8%	95.3%
Micro-meaning Changes	75.5%	66.7%
Macro-meaning Changes	3.3%	28.6%

The profile of child 2's revisions was consistent with her descriptions of what revision was: she used revision to attempt to make her intended meanings more clearly or more effectively in her writing. The fact that child 2 made significantly fewer surface changes than other participants could be explained by the fact that she was in the high prior attainment group and therefore made fewer 'errors' in areas such as spelling, punctuation and tense that would necessitate surface changes during revision. However, the significantly higher proportion of macro-meaning changes cannot be explained in this way; the other two children in the higher attaining group made proportionally fewer macro-meaning changes (11.4% and 0%). This suggests her understanding of what revision was led her to make meaning changes when revising her writing.

Qualitative analysis of the revisions in child 2's writing offered a more fine-grained understanding of the profile of her revisions. Firstly, though the proportion of child 2's

revisions that fit into the theme 'Adding Detail' (55%) is similar to the cohort average (60.5%), it is notable that child 2 avoided altogether revisions that involve the addition of a single adjective or adverb, which made up 20.4% of revisions across the sample. In contrast, in those themes associated with more significant meaning changes, child 2 made proportionally more revisions that the cohort average. While 23.3% of all revisions in the sample were coded into the theme 'Effects on the Reader', 40% of child 2's revisions were coded in this way. Similarly, 5.6% of all revisions fell under the theme 'Figurative Language', but 30% of child 2's revisions did so. Naturally, child 2 was able to make these revisions because she understood how language could be used to have effects on the reader and had the depth and range of knowledge of vocabulary and grammatical structures in order to do so. That is to say, child 2's extensive writing knowledge informed both the nature of her revisions and their impact on the overall quality of the text at hand.

In summary, the profile of child 2's revisions was atypical for a number of reasons: she made fewer revisions than other participants in this study but they were generally longer, much more likely to be meaning changes, including macro-meaning changes, and more likely to have particular aims, falling into the themes of 'Effects on the Reader' and 'Figurative Language' particularly frequently. In addition, child 2's revisions were notable for the very high frequency with which they had a positive impact on the text. This atypical profile of revisions was underpinned by a multi-faceted and interconnected range of factors. Firstly, it is clear that child 2 had abundant linguistic resources: she had a broad vocabulary and a good understanding of grammatical constructions, which meant she had a wide range of options to choose from when revising a text. At its simplest, this can be seen in the revision described above in which 'crowd' was replaced with 'hoard' [sic]; clearly, to be able to make this revision, one must not only be familiar with both words but also the shades of meaning that distinguish them. As such, it appears that child 2's strong revision skills rested upon foundations built of strong writing knowledge in general.

Furthermore, child 2 enjoyed writing, which may have meant that she was more willing to make significant changes to her writing as the process was not one that she considered burdensome. Indeed, in her phase 3 interview child 2 indicated that she enjoyed the process of revision specifically, not just writing more generally:

"I think I've actually enjoyed editing as well. I think I've enjoyed it, because I like having my work as good as it can be." (Child 2, Phase 3 Interview)

To summarise the case of child 2, the revision teaching at the heart of this study reshaped her conception of revision, in particular to include an understanding of how revision can help to close the gap between the meanings a writer intends and those a reader understands. It showed her a wide range of possible types of revisions and, with repeated practice, allowed her to use these to good effect. During the revision teaching, child 2 came to edit more often, with a wider range of aims and with greater success than before the period of teaching. At least in part, this was due to her extensive writing knowledge before the revision teaching that she could bring to bear on each individual revision she made.

4.10.2 Case Study 2: Child 7

Child 7, in class 3, was in the middle prior attainment group: his writing had been judged by his teacher to be at the 'expected standard' and English was the main language of his home. However, unlike child 2, child 7 did not especially enjoy writing and made no mention of writing as an outlet for creativity:

"I like writing because sometimes you can just copy a passage onto something but I don't like writing because my hand gets stiff sometimes." (Child 7, Phase 1 Interview)

As regards child 7's conception of revision before the revision teaching, in his phase 1 interview child 7 offered the following definition of editing:

"I think editing is when you improve your work from the stage you started it at. You take things out that don't make sense and things that don't need to be in the sentence." (Child 7, Phase 1 Interview)

However, despite this relatively broad initial definition, which appeared to include meaning changes, other evidence indicated that child 7's conception of revision was more dominated by the notion of correcting errors than this definition appeared to suggest. Firstly, the two

revisions in child 7's text 1 could both be defined as correcting errors: an orthographic change and a change from a singular to plural pronoun.

In addition, when asked what his revisions generally focus on, child 7's response focused heavily of surface-level concerns:

"Punctuation and spelling. Sometimes I miss out commas and I need to work on my spelling a bit more." (Child 7, Phase 1 Interview)

This was also noted by child 7's teacher:

"I think he is better at kind of the first stage of editing. So as soon as he's finished his work and I say 'Oh, can you check to make sure you've got all the punctuation in the right place?' he's quite good at doing it there and then… And the next day, I think he finds it hard to improve his writing, though… he can't see where he needs to add more to it. He will always add more to the end of the story, but I'm not sure he can add more to the paragraph he's already written…" (Teacher 3, Phase 1 Interview)

However, similarly to child 2, the increase in the overall amount of revisions after the beginning of the revision teaching, as well as the diversity in the type of revisions made, was rapid. Indeed, child 7 was remarkable for the sheer volume of his revisions: 13.8% of all the revisions in this study were made by child 7, and he made an average of 11.38 revisions per text: more than double the average across the whole cohort of 5.58 revisions per text. In text 2, the first text after the beginning of the revision teaching, child 7 made 11 revisions, of which 7 were micro-meaning changes, 2 were macro-meaning changes and 2 were surface changes. Furthermore, child 7 not only maintained the volume of revisions in later texts, but indeed went on to make more revisions in subsequent writing. Table 4.17 below shows the number of revisions child 7 made in each text, as well as the average number of revisions made in each text by all participating children. It is remarkable that child 7 made a higher than average number of revisions in every text, and on many occasions made more than double the average number of revisions.

Table 4.16: The number of revisions made by child 7 in each text compared to the cohort average.

	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	Text 7	Text 8	Mean Revisions per Text
Child 7	2	11	19	13	12	9	14	11	11.38
Average	1.00	6.63	11.08	7.00	4.25	5.40	6.60	4.06	5.58

However, child 7's revisions were not just notable for their sheer volume; the profile of his revisions was also somewhat different to the other cases explored so far. Some of the trends in child 7's revisions are exemplified in the extract below, taken from his text 2.

> *After getting ready to go to the door, Daniel and Mr Silver opened the [molded] door. The whole room began to flood [with salty water], as quick as a flash, Mr Silver made the [lopsided] door go BANG! It felt as if nothing was safe from the water, only then Daniel put a log in front of the door to block the door. Mr Silver [asked questioned] "How did that work?" After all that chaos they finally started their [long] adventure. They started to realise that they both wasted so much oxygen, one of their tanks was [emty empty]. They started to swim [up] to shore and they saw an island and swam to it. [Plot twist: this island is boring, ain't even the type of island you dream of.]* (Child 7, Text 2)

Firstly, as is exemplified in the many single word revisions in the paragraph above, child 7's revisions tended to be somewhat shorter in length than those of child 2. In part, this is due to a very large number of single word additions: over 37% of child 7's revisions involved individual words, which compares to 32.3% for the cohort or just 10% for child 2. Of child 7's single word revisions, the vast majority (64%) were made up of an addition of a single adjective, as is the case in the addition of 'molded', 'lopsided' and 'long' in the extract above. However, as the examples below demonstrate, these revisions sometimes appeared superfluous since the meaning of the adjective could be inferred from the meaning of the noun it modified:

… they finally started their [long] adventure (Child 7, text 2)

A tsunami of [heavy] rubble… (Child 7, text 4)

In other cases, though the addition of the adjective did alter the meaning of the text, the revision did not have a positive impact on the quality of the writing because there was no clear relevance of the new meaning to the reader:

… the golden, marble, beutiful [spotless] palace (Child 7, text 4)

… many [black] stairs. (Child 7, text 5)

… It's a fresh [lovely] new day… (Child 7, text 6)

Although this group of word-level revisions that did not have a positive impact on the text was dominated by additions of adjectives, it should be noted that there was some evidence of this also occurring with other word classes in child 7's writing, albeit much less frequently:

…he was juggling fire [batons]. (Child 7, text 7)

There were also similar examples where the operation of revision was substitution rather than addition. In these cases, child 7 replaced a word with a very close synonym that did not discernibly alter the meaning of the text:

… Mr Silver [~~asked~~ questioned] "How did that work?" (Child 7, text 2)

In a [very] small, small [boiling hot] [~~island~~ country]… (Child 7, text 3)

… a young [stunning] princess [~~called~~ named] Cinnamon (Child 7, text 3)

These word-level revisions appeared to be much less likely to have a positive impact on the

quality of the text than child 7's longer revisions: while 29.7% of his total revisions did not have a positive impact on the text (i.e. they had no impact or a negative impact), this was true of 46.4% of his word-level revisions. However, it should be noted that this was because a very high proportion of child 7's word-level revisions had no impact on the text (39.3%); a lower proportion of his word-level revisions (7.1%) had a negative impact than the proportion of his total revisions that did so (11%). In summary, in child 7's case, word-level revisions were less likely to have any impact on the quality of the text, either positive or negative, than longer types of revisions.

The reason behind the lack of impact of child 7's word-level revisions was unclear. It could be argued that, given their brevity, word-level revisions are by nature less likely to have the same level of impact, whether positive or negative, as longer revisions. However, there are also a number of alternative explanations. Firstly, there was some evidence for the primacy of addition in child 7's conception of revision. Though his descriptions of what revision was did include references to other operations of revision, addition of new material dominates:

> *"You've wrote first and it's basic. You proofread to check for missing capital letters and grammar mistakes. Then you think 'Is there anything you can add? Is there a sentence that doesn't help much or can you add any more words or detail?'"* (Child 7, Observation Notes)

Relatedly, at the end of the study Teacher 3 suggested that child 7 in particular would benefit from a refocussing of the operations of his revisions in favour of deletions:

> *"I think sometimes you can read it at the end and he's kind of lost his way... So if anyone could do with taking sentences out it would be him."* (Teacher 3, Phase 3 Interview)

It could therefore be the case that child 7's conception of revision included a particular emphasis on the addition of new material. Were this to be the case, it is a logical corollary of being asked and given time to revise his writing that a large proportion of his revisions would be additions.

Another possible explanation for the large volume of single word additions, as well as their lack of positive impact, is that child 7 had a performative view of revision: he may have sought to revise extensively precisely because revision was a pedagogical focus for the teacher, whom he sought to please. There was relatively little direct evidence for this possibility in the interview data, though child 7 did appear to use 'amount of green pen' (which children used when revising) as a proxy not only for the quantity of revision, but also for its quality. When child 7 was asked to describe how he felt his revision skills had evolved over the course of the revision teaching, his answers focussed on the amount of green pen on the page:

> "[In text 1] There's not much green pen on it except for the spellings and we don't see many commas…" (Child 7, Phase 3 Interview)

> "I think it's [my revision] changed a lot because I use the green pen more, and also spend more time editing as soon as I finished my work." (Child 7, Phase 3 Interview)

It should be noted that there is some counter-evidence against the idea that child 7's revision was performative in nature, mainly consisting of interview evidence that suggested a wider understanding of the role of revision in writing:

> "[The point of editing is] to make the reader feel… have a more enjoyable time reading it." (Child 7, Phase 3 Interview)

In addition, a larger than average proportion of child 7's revisions were coded under the 'Effects on the Reader' theme. Not only did he believe revision *could* make writing more enjoyable for a reader, he made revisions in his own writing in order to do so. However, given that the reader for most of his writing was his teacher, this understanding of revision as being for the reader did not in itself preclude the possibility of performative revision. Furthermore, it is plausible that some revisions may have been made with an effect on the reader in mind while others were made simply to increase the amount of revision because that was the focus on the lesson. In short, there was fairly reliable evidence that some of

child 7's revisions were not performative in nature, but this is not to say that none were.

Perhaps linked to the volume of his revisions, child 7's revisions were also notable for the diversity of their aims. Despite the very high number of additions involving single adjectives, the proportion of child 7's revisions coded under the theme 'Adding Detail' (58.7%) was in fact slightly lower than the average across the cohort (60.5%). In part, this is because child 7 made a larger than average number and proportion of revisions coded under the theme 'Effects on the Reader' (30.7% against an average across the cohort of 23.3%). Even within this theme, child 7's revisions were notable for their diversity. For example, he made revisions that introduced direct address to the reader into his writing. Interestingly, these also often had an element of humour:

> *They started to swim [up] to shore and they saw an island and swam to it. [Plot twist: this island is boring, ain't even the type of island you dream of.]* (Child 7, Text 2)

> *No one, no one felt safe[,] not even one percent safe. [Say bye bye to being mature!]. The police were so petrified they fainted.* (Child 7, Text 8)

He also made revisions that sought to add or change emphasis:

> *My puppy will not have anywhere to run around [at all]* (Child 7, Text 5)

> *[Worst part is] I have to share rooms and my puppy has to sleep on the floor.* (Child 7, Text 2)

Some of child 7's revisions introduced rhetorical questions:

> *[I thought to myself THINGS CAN GO WRONG. If things can't go wrong with everyone else, why did it happen to me.]* (Child 7, Text 4)

> *I'll miss everything I've done. [Will the place I'll be have a beutiful blossom tree.]* (Child 7, Text 5)

[How could he bring this nasty, alien random old creature into my house?] (Child 7, Text 6)

In addition, some revisions introduced an element of foreshadowing to the text:

[~~Many people came to try make her talk but all failed. They got very, very made if they didn't make her talk. If you made her talk you would get parrot, room in palace, stunted mango tree.~~ If you did the prizes are a painting, parrot, a room in the palace and a stunted mango tree. Very nice prizes, but no one got them. When a person tries to make her talk she refuses and they leave irritated. <u>However… that was going to change forever.</u>] (Child 7, Text 2, emphasis added)

As quick as a flash, I grabbed a stick from the lush green tree and climbed it. [Things didn't turn out how I wanted it to.] (Child 7, Text 2)

Evidence was given above that showed that child 7 was aware that revisions could change the effect of writing on the reader, which suggested revisions like those given above were made with conscious thought about the reader. Additional evidence for this came from the way child 7 described why he made certain revisions in his Phase 3 Interview. In text 7, he revised the end of his first paragraph with the following addition:

Everyone was dashing in. [People were pushing and shoving. Throwing things at each other.] (Child 7, Text 7)

In his phase 3 interview, child 7 was asked about why he made this revision. His response provided clear evidence not only that he was thinking about the reader but also that he had an awareness of the inferences a reader was likely to make:

"Because it can show everyone really wanted to get a space in the circus." (Child 7, Phase 3 Interview)

Interestingly, despite child 7's clear consideration of the reader in these revisions, a broadly similar proportion of his revisions coded under the theme 'Effects on the Reader' had a positive impact on the text as the average across all his revisions. While 70.3% of all of child 7's revisions had a positive impact on the text, 69.6% of his revisions coded under 'Effects on the Reader' did so. One possible explanation for this is that the knowledge that revision can alter the effect of a text on the reader, even when combined with a clear desire to alter the effect of the text on the reader, was not in itself sufficient to execute a revision to achieve this aim. In other words, his revision was constrained by writing knowledge. It is logical that, in order to make revisions that make a text more humorous, one must already be skilled in producing humorous writing, even if the revision process makes the writing more so. That is to say, an awareness of a gap between what is intended by a writer and what is understood by a reader is a necessary precondition to, but not sufficient for, being able to craft a revision that bridges the gap.

As with the other participants discussed above, there was a clear change in child 7's conception of revision through the course of the revision teaching. Before the start of the revision teaching, the evidence outlined above suggests that child 7's conception of revision was based principally, though not entirely, on the notion of correcting errors, particularly with regard to surface features and ensuring written text "makes sense". However, evidence from discussions with child 7 during lesson observations in the third week of the revision teaching showed that this had expanded to include a consideration of how well the text meets the writer's aims:

> "*[When editing you can] Think 'Is there anything you can add? Is there a sentence that doesn't help much or can you add any more words or detail?*" [Child 7, Lesson Observation]

By the end of the revision teaching, there was clear evidence that child 7's conception of revision had expanded significantly beyond its original position of correcting errors. Firstly, he drew a clear distinction between editing and proofreading:

"Proofreading is when you would read your work and find any errors if there's if a comma or full stop or capital letter has to go here. Editing is when you are to have a piece of text that you just wrote and then you would edit it… you would add sentences, take out things that you don't need, and add better words." (Child 7, Phase 3 Interview)

He also had a clear sense that the aim of revision was to alter or improve the effects of the text on the reader, even though this appeared to be limited to enjoyment with less consideration of other possible effects on the reader (e.g. persuasion, clarity of information etc):

"[The point of editing is] to make the reader feel have a more enjoyable time reading it" (Child 7, Phase 3 Interview)

In summary, as was the case for child 2, the quantity and variety of child 7's revisions increased significantly and rapidly after the beginning of the revision teaching. Child 7 was notable for the particularly high number of revisions made to his writing. However, despite this high number of revisions, the impact did not always appear to be as positive as child 2's revisions, for which there are a number of possible explanations. For example, there was some evidence for a performative element to child 7's revisions. That is to say, it is possible that some of child 7's revisions were made because of the focus of teaching on revision, rather than to improve the quality of the text. This could be seen in the volume of single word additions and substitutions involving very close synonyms (e.g. the substitution of 'called' for 'named') as well as comments made by child 7 about the 'amount of green pen' that appeared to link to a perceived improvement in revision skills.

However, there was also substantial evidence that not all of child 7's revisions were performative in nature. In common with other participants discussed above, there was a substantial change in child 7's conception of revision during the course of the revision teaching. Not only did his understanding of the possible operations of revision expand, but he also had a clear sense of the possible gap between what a writer intends and what a reader understands, as well as the possible role of revision in closing that gap. Indeed, child

7 made a wide range of revisions that interview data confirmed had the aim of altering the effect of the text on the reader. However, that is not to say that these revisions always had a positive impact on the text: it may be the case that a metacognitive understanding of the role revision can play in closing gaps between a writer's intention and a reader's understanding is not sufficient to execute the revision effectively.

4.10.3 Case Study 3: Child 10

Child 10 was in class 1 and, although his spoken English was very fluent, it was not his first language nor the primary language of his home. His attainment in writing put him in the lower prior attainment group for the purposes of this study. This means that, in a number of respects, his skills in writing were less well-developed than would be expected for his year group but not so significantly as to prevent him from accessing the curriculum on offer. Child 10's teacher reported that both reading and writing were a significant effort for him:

> "*It takes him a lot to do it [reading]… He doesn't really find reading… he is really struggling to sort of stay focused on it. And he struggles to write as well. I think he struggles to find content and spellings… even when it's written up.*" (Teacher 1, Phase 1 Interview)

However, child 10's current attainment had not had the negative impact on his motivation to write that could have been the case. Indeed, as was the case with other participants described above, child 10 enjoyed writing, and in particular enjoyed it when writing offered the chance to be creative:

> "*I like it when we make up our own stories so let's say we put something in the story we're writing… we can change it so it's something else.*" (Child 10, Phase 1 Interview)

Before the beginning of the revision teaching at the centre of this study, child 10's conception of revision was mostly limited to the correction of 'errors' and, relatedly, to surface level concerns. Interestingly, however, he did not just see this as a means of improving the text at hand but also as a means of developing ones writing skills generally,

similarly to child 2 above. That is to say, for child 10, revision was about learning to write as well as improving a specific text:

> *"To me, editing is like learning from the mistakes which you've made and it's like correcting yourself."* (Child 10, Phase 1 Interview)

> *"If I think I'm finished, or if I finish a line sometimes I check it to see if I've done it wrong and if I've spelt something wrong I just write it over until I don't forget it."* (Child 10, Phase 1 Interview)

However, it should be noted that, although surface level 'corrections' dominated child 10's conception of editing at this stage, he also offered an example of a meaning change:

> *"Short punchy sentences… you might try and add them in somewhere where it's a little boring but try and match to the thing that you're focused on in your work."* (Child 10, Phase 1 Interview)

Interestingly, during his phase 1 interview, child 10 outlined a factor that may inhibit his willingness to revise his writing: presentation. He explained that he disliked making revisions where he felt this may have a negative impact on the presentation of his writing. Even though this was unique to child 10 among the participants of this study, it is a helpful reminder that factors outside of the process of revision itself may act to motivate or to dissuade children from revising their writing:

> *"I normally don't like editing when I have to write a word above the word and crossing the word under out. It's annoying for me because normally it doesn't make my work look as neat as it should."* (Child 10, Phase 1 Interview)

This concern with presentation persisted throughout the period of revision instruction and was also discussed by child 10 in his phase 3 interview:

"I have space at the bottom so I should do it at the bottom because like if I squished in somewhere, like around here, it makes like my handwriting look a little bad." (Child 10, Phase 3 Interview)

Despite the clear focus on surface level 'corrections' in revision, child 10's text 1, which was written before the beginning of the revision instruction, contained a number of types of revision including revisions to tense and a significant addition of more than one sentence at the end of text:

[There was treasure – gold lion in the conner laying in the Shadow as if it was ready to pouncy. An mysterious sound filled the room. Swords heapped in the cornner thickaning the air with dust.] (Child 10, Text 1)

It is notable that child 10 could make such significant additions to his own writing and yet still maintain a conception of revision that did not appear to include the addition of extra detail. This may be because the revision above was made following very direct feedback from teacher 1 to add more detail to the setting description. As such, it could be the case that child 10 did not view as revision those revisions made following direct feedback from the teacher.

In common with other participating children described above, the beginning of the revision teaching resulted in a significant and very rapid change in child 10's revisions. There was a very sudden increase in the quantity of his revisions: in text 2, child 10 made 12 revisions, 9 of which were focussed in the second and final paragraph:

[~~But~~ In fact] that[s] not why Mr Silver [~~and~~] Daniel came here, axeuelly why did they come [they never told us] here, to go to the bigest ship in the world [in fact] more or less not a ship the [~~one and only~~] Titanic, they had to dive down to the Titanic and that[s] the [~~rescion~~ recion], why Daniel and Silver came. So bacically they had to go like about 1000 feet under the ocean, it looks like they have a really long way to go so that's what they did, but how can they get that deep [~~under water~~]. (Child 10, Text 2)

However, child 10's revisions in text 2 differed from those made by other participants explored above in one significant respect: they, in general, had a much less positive impact on the text. For example, the conjunction 'and' was deleted in the first sentence above despite being necessary. In addition, the clause 'they never told us' resulted in the non-standard syntactical position of the adverb 'here' which follows it. Furthermore, the deletion of 'one and only' removed an emphasis on what made the ship in this extract special that had been effective. Indeed, 50% of child 10's revisions in text 2 had a negative impact on the text and 66.6% had a negative impact or no impact on the quality of the text. In text 2, 14% of revisions across all participants had a negative impact on the writing in text 2 while 38% had a negative impact or no impact.

It is difficult to pinpoint with certainty the reasons underlying the lack of positive impact from child 10's revisions in text 2. Indeed, from text 3 the proportion of his revisions that had a negative impact on the text or no impact on the text moved closer to the cohort average. Across all texts, 21% of child 10's revisions had a negative impact on the text and 37% had a negative impact or no impact on the text: these remained higher than, but were significantly closer to, the cohort averages than was the case in text 2. It is possible that the specific text that child 10 was writing in text 2 posed particular difficulties. However, this seems unlikely given the majority of the texts in this study were fiction and based on fiction books read to the children. An alternative explanation is that child 10's revision was constrained by his general writing knowledge, as described above in the case of child 7. This is plausible, but it does not explain the multiple examples of revisions that deleted effective material and thereby had a negative impact on the text: if child 10's writing knowledge was strong enough to write this material, removing the same material cannot be attributed to a lack of this knowledge. Furthermore, though other children in the low prior attainment group did have a higher than average proportion of revisions in text 2 that had a negative impact on the text (16%), the proportion of revisions that had a negative or no impact on the text (32%) was lower than the cohort average. In both cases, these figures were significantly lower than those for child 10, meaning that other children with a comparable level of attainment in writing made revisions that were more likely to have a positive impact on the text than child 10. As such, though his attainment in writing may have been a contributing

factor to the lack of positive impact of his revisions in text 2, it cannot have been the only factor.

Another possible explanation for the lack of positive impact of child 10's revisions in text 2 is that at least some of the revisions may have been performative, as described in the case of some of child 7's revisions above. That is to say, as the focus of teaching was revision, it is possible that child 10 sought to demonstrate that he was making revisions to his writing as he knew this was what his teacher was looking for, not because they had a particular impact on the effectiveness of his writing. Child 10's teacher alluded to his diligence as a learner and, with the phrase 'jumping through hoops', suggested that there may be a performative element to his revisions:

> *"He's very introspective. He really thinks about the lessons and thinks about the subjects and is interested in the knowledge… that's why I thought there was a disparity between… between reading and writing and all this kind of general engagement and learning... I would definitely say jumping through hoops for him."*
> (Teacher 1, Phase 3 Interview)

This could explain the deletion of effective material in text 2 described above: if a writer is finding material to be deleted, rather than finding something ineffective and deleting it, it is plausible that the impact is less likely to be positive. It is also plausible that lower attaining writers are more likely to have a negative impact on the text by taking this approach than higher attaining writers given they may be less likely to accurately evaluate the impact of the deletion.

For one to accept that child 10's revisions in text 2 are performative, it is important to consider why this might be so, for which a consideration of other lower attaining writers' revisions may be helpful. Although child 10 made a higher proportion of revisions in text 2 that had a negative or no impact on the text, it should be noted that another lower attaining writer, child 11, made no revisions at all to text 2, while another, child 13, only made a single revision to text 2. It is plausible that these lower attaining writers simply needed more exposure to the revision teaching that was at the heart of this study than their higher

attaining peers to begin making revisions which had a positive impact. As such, when asked to revise text 2, child 10 took one approach (performative revisions demonstrating a clear attempt to revise) while children 11 and 13 took a different approach (making very few or no revisions at all). It should be noted that, once child 11 began making revisions to his writing, the profile of his revisions with regard to their impact was very similar to child 10's: in his first text with revisions (text 3), child 11 made a significantly higher proportion of revisions which had a negative impact or no impact on the text (50%) than was the case in later texts.

Another significant difference between child 10 and the two participants' cases described so far is that there appeared to be relatively little change to his conception of revision between his interviews at phase 1 and phase 3. The correction of 'errors' and the role of editing in helping one learn to write and thereby avoid future 'errors' were both foregrounded:

> *It's like doing your work but after like you've made a mistake and you think like, how can I make them say like, not happen again. And you try and correct the mistake.*
> (Child 10, Phase 3 Interview)

Similarly, when discussing the process of revision itself, child 10 focused on the activities of the writer; he did not describe how a writer may consider the reader of the text, or the possible gap between the writer's intentions and the reader's understanding:

> *"You could do editing by yourself with like your green pen by looking through, rereading like once or twice, three, possibly even three times to see if you missed out like a word, if you needed an adjective there or to improve sentences."* (Child 10, Phase 3 Interview)

It should be noted that the above does show a clear understanding that revision can include more than correcting 'errors', including the addition of adjectives or improving sentences. As such, there was clear evidence that child 10 had an awareness of meaning changes as a part of revision. However, in his own writing, though child 10 did make meaning changes, the profile of his revisions was notable for the high proportion of surface changes: he was the participant with the highest overall number of surface changes across all texts, and one of

only two participants whose proportion of surface changes was over 50% of all revisions. The average proportion of surface changes across the cohort was 21% of revisions. Of the 23 surface changes that child 10 made across all texts, nine were revisions to orthography, eight were revisions to punctuation, three were revisions to tense, one was a revision of a letter from lower to upper case and one was a revision to a preposition.

There were two likely contributing factors to the high proportion of surface changes in child 10's revisions. Firstly, it is plausible that lower attaining writers are more likely to make surface changes because they are likely to have more deviations from standard forms as regards orthography, punctuation, tense etc than their higher attaining peers. That is to say, there may have been more 'errors' to correct in child 10's writing than that of his peers. However, though this may explain why child 10 had more surface changes than other middle and higher attaining writers, it does not explain why he had a significantly higher proportion of surface changes than other lower attaining writers: the proportion of surface changes among the rest of the lower attaining writers in the cohort across all texts was 29.7%. It is possible that the high proportion of surface changes among child 10's revisions was a result of his conception of revision. If a writer understands revision principally to be the correction of errors, this may explain why there is a high proportion of surface changes among their revisions.

Interestingly, this impact of child 10's conception of revision on the types of revisions he made may also have extended into his meaning changes. One relatively small theme among the codes used in the qualitative analysis was 'Addressing a Problem'. These revisions, though they did constitute meaning changes, involved diagnosing a particular problem in a text and taking action to fix it. This included revising to avoid ambiguity, avoid repetition, add missing words or remove redundant language. Among child 10's revisions, these made up 13.6% of his meaning changes, slightly higher than the average across the cohort of 11.4%. In child 10's case, these 'Addressing a Problem' meaning changes included adding missed words:

I can't [beleve believe] that my Husband [showed me] this vegetable (Child 10, Text 6)

There was also one example of child 10 removing redundant language:

> *So bacically they had to go like about 1000 feet under the ocean, it looks like they have a really long way to go so that's what they did, but how can they get that deep [under water]. (Child 10, Text 2)*

It should be emphasised that, despite these trends in child 10's revisions, the revision teaching did alter the profile of his revisions in important ways. Firstly, as noted above, the revision teaching appeared to lead to a significant increase in the frequency of child 10's revisions. Secondly, despite the high proportion of surface changes compared to other children, child 10 did still make meaning changes to his writing and did enjoy some success. For example, the following revisions were made to text 4:

> *Then the machines came[,] hevay metal cables [surrounding the area] all around the place, there were car after car [after car, the roads were busy, really busy. There was a strong cent of petroll fumes, and it smell't terrible] on the busy road the filf on the cards filled the air joining the air pollution making it a bad inviroment to live in[.](Child 10, Text 4)*

The meaning changes above suggest that child 10 must have had some understanding of the effect that revisions can have on the reader. The additional setting description helps to emphasise the unpleasantness of the environment and the repetition for emphasis in "busy, really busy" has a clear impact on the reader, even if the deletion of "after car" erodes the impact of repetition for effect elsewhere.

Similarly, in text 6, child 10 made the following revisions to develop setting description:

> *Its going to do sothing its shouldn't do it, it just dosn't belong here. [That baby can not stay its going to distory my house and it looks more hidous then an alien its not a real thing.] I[t] looks hidious im not comfterble aroude it, its like an alien. (Child 10, Text 6)*

When child 10 discussed this revision himself, he was clear that the revision sought to further develop 'description' but did not offer any insight regarding why he believed this would positively impact the text overall, or benefit the reader of the text:

"I thought like my new one would sound like a little better than like the normal one because I mostly added like other things that I thought like… and I even thought I added like new words like by maybe using "alien" or "hideous" would help because it describes it" (Child 10, Phase 3 Interview)

Elsewhere, child 10 made a relatively sophisticated revision that sought to reflect a character's emotions and the weather in the scene, and indeed he was explicit in his interview that this was what he was attempting to do. It is notable, however, that he did not offer details about what impact he expected this to have on the text or the reader:

somthing like that and the sky is so misrable and dark and it reflects my emotions. *[Today was the most deppreing day ever.]* (Child 10, Text 6)

"I thought it makes a connection and it makes sense like that... And the sky is so miserable and dark. It reflects my emotions since I used "dark" I feel like depressing would be the word to use for… just to give it a little more detail again." (Child 10, Phase 3 Interview)

To summarise, though there were trends in child 10's revisions towards performativity and revisions that correct 'errors', it remained the case that he made some meaning changes and that these suggested some awareness of possible impacts on the reader, even though he did not discuss this explicitly in his interviews.

4.11 Summary of Findings

As shown in both the cohort-level data and the case studies of individual children, one notable effect of the revision teaching was a significant change in children's conception of revision. While the view of revision as the correction of errors dominated before the teaching, the inclusion of meaning changes and audience awareness was much more

common after the revision teaching. There was also some evidence from lesson observations and the revisions children made that these changes may have been relatively rapid. It also appears that the revision teaching led to a significant increase in the frequency of children's revisions. This finding was remarkably consistent across the cohort: all participating children made more revisions during and after the revision teaching than before it. In addition, for the majority of children, the revision teaching led to an increase in the proportion of meaning changes in their revisions.

The qualitative analysis of children's revisions revealed that adding detail was by far the most common aim in children's revisions. However, the revision teaching also appeared to lead to an increase in the proportion of revisions that sought to create or alter a particular effect on the reader. It thus seems reasonable to infer that the revision teaching did help children to understand the importance of audience awareness in revision to at least some extent. Revisions that related to a particular effect on the reader were notable for their diversity; many went significantly beyond what was modelled by teachers in the revision teaching. As such, it appears that children brought their wider writing knowledge to bear on individual revisions once they had understood the principle of considering the needs, expectations and perspectives of the reader. However, elsewhere there was also evidence that children's revisions reflected teaching, both revision teaching and provision in English more widely. Furthermore, in the cases of at least some children, performativity appears to have played a role: children made revisions because this was the focus of the lesson rather than because they believed the changes would have a positive impact on the quality of the text.

Finally, the data was inconclusive regarding the relationship between the revision teaching and the likelihood of children's revisions having a positive impact on the text. Overall, there did not appear to be an increase in the proportion of children's revisions that had a positive impact on the text over the course of the period of revision teaching. Instead, the impact of children's revisions appears to be closely related to their prior attainment in writing: higher attaining writers more frequently made revisions that had a positive impact on the quality of the text.

5   <u>Discussion & Conclusions</u>

The research reported in this dissertation analysed the effects of a period of revision teaching on (i) children's conception of revision and (ii) the revisions they made. The research also addressed the impact of children's revisions on the quality of their writing more generally. This chapter begins by summarising the main empirical findings of the study, including how these provide answers to the research questions. It goes on to consider in depth the role of knowledge in revision: an element of theory that is underdeveloped in the field. It is argued that revision would be better understood as the application of *knowledge* than as a discrete and transferable skill or process and the implications of this are considered in light of the dominance of cognitive models in writing research generally, and in revision research in particular. Finally, the implications and limitations of this study are considered, and suggestions are offered with regard to possible future research.

5.1   Main Empirical Findings

There were four main findings that, taken together, offer an insight into the effects of the revision teaching at the heart of this study:

1. The revision teaching led most participating children to expand their conception of revision from one mostly restricted to surface changes to one including meaning changes and audience awareness. This change was relatively rapid.
2. The revision teaching led to a significant increase in the frequency of children's revisions and a change in the profile of the revisions they made. Children made more meaning changes and more revisions in which there was consideration of the reader.
3. There was no clear link between revision teaching and the likelihood that children's revisions would have a positive impact on the text.
4. The impact of revisions appeared to be related to children's wider writing knowledge.

Subsidiary Question 1: In what ways is children's understanding of the role of revision in writing affected by this 'enhanced direct instruction' of revision?

The revision teaching at the heart of this study reshaped children's conception of revision from a process primarily focussed on the identification and correction of perceived errors to one that involved meaning changes and, frequently, the active consideration of a reader and their needs. This was accompanied by a related change in children's understanding of the purpose of revision. Before the revision teaching, a predominant view of the purpose of revision among participating children was related to improving one's writing skills. That is to say, before the revision teaching, many children saw the value of revision as the correction of errors that would contribute to the avoidance of repeating these perceived errors in the future. In order words, revision was seen as a teaching process that helped children to become better writers, rather than a process that could improve the quality of a given text. In contrast, after the revision teaching, a clear majority of participating children understood the purpose of revision to involve improving the quality of the text in light of an awareness of the needs of the reader and the purpose of the text. It is notable that these changes to children's conception of revision were in some cases very rapid. For example, there was some evidence from the lesson observation data that participating children's conception of revision had changed very early in the period of revision teaching. This is likely to be due to the explicit nature of the direct instruction of revision: children were taught, with examples, that revision includes meaning changes at the very beginning of the period of revision teaching.

The qualitative data in this study, particularly that from interviews, provided compelling evidence for the changes in children's conception of revision; indeed, many were able to articulate how their understanding of revision had changed over time. As relatively few studies of revision teaching include interview data, a change in children's understanding of revision can often only be inferred from changes in the revisions participating children make. It is widely acknowledged that that many developing writers have a limited understanding of revision (Bereiter & Scardamalia, 1987; Sommers, 1980), and studies in revision teaching have often reported an increase in the proportion of participating children's revisions that are meaning changes following revision teaching (Allal, 2018; Graham, 1997; Graham et al., 1995; Midgette et al., 2007). Though the change in the types of revisions made by participating children in these studies may be explained at least in part by a change in their conception of revision, few recent studies have been able to demonstrate this so explicitly.

In this respect, this study adds to the wider knowledge that revision teaching can effectively build children's knowledge about the process of revision itself (Fitzgerald & Markham, 1987).

The clear effects of the revision teaching on children's conception of revision were also significant because previous research has suggested that a limited understanding of revision may inhibit effective revisions, particularly among lower attaining writers (MacArthur et al., 2004; Oliver, 2019). In addition, there is some evidence that a limited understanding of revision may have a negative impact on writing quality (Berninger & Swanson, 1994). It is, as such, important not to underestimate the potential value of an approach to teaching revision that appears very effective in broadening children's conception of revision beyond the identification and correction of errors.

Subsidiary Question 2: What are the relationships between this 'enhanced direct instruction' of revision and the revisions made by children in their own writing?

Importantly, it was not just how children understood revision that was altered by the revision teaching; there were also changes to children's revisions themselves. Notably, all participating children made more revisions to their writing after the revision teaching began. Though the frequency of revisions decreased over time, it stabilised at a higher average number of revisions than was the case before the teaching began. It would thus be reasonable to conclude that an important effect of the revision teaching was that it encouraged children to make more revisions, which may be helpful in the long term simply as a means of ensuring that revision is practised. This finding adds to extensive evidence from previous studies that revision teaching leads children to make more revisions (Brakel, 1990; Fitzgerald & Markham, 1987; Graham et al., 1995).

Furthermore, the profile of participating children's revisions changed after the beginning of the revision instruction: in general, children made fewer surface changes and more meaning changes during and after the revision teaching. This is notable because this mirrors the profile of revisions made by teachers during the enhanced direct instruction of revision. This reflects a near consensus in the literature that revision teaching can support children to make more meaning changes (Allal, 2018; Graham, 1997; Graham et al., 1995; Midgette et al., 2007). However, there are two important additional elements to this finding. Firstly,

though there was a general trend towards meaning changes during the period of revision teaching, this did not affect all participating children equally. The profile of children's revisions appeared to be linked to prior attainment: the high prior attainment group made more meaning changes and fewer surface changes than the others while the low prior attainment group made fewer meaning changes and more surface changes. Secondly, the movement towards meaning changes was rapid; even in the first text after the beginning of the revision teaching, the proportion of meaning changes increased substantially. Other research has reported that changes in the types of revisions made following revision teaching can be rapid: Wallace and Hayes (1991) found that an intervention lasting a mere eight minutes resulted in an increase in meaning changes. However, Wallace and Hayes' study was conducted with American undergraduates; the present study not only provides additional evidence of the phenomenon but also suggests that it holds among much younger learners in a different national context. As many studies of revision teaching use a pre- and post- test design rather than collecting qualitative data throughout a period of teaching, most studies do not offer details regarding the pace at which changes occur.

Subsidiary Question 3: What are the relationships between this 'enhanced direct instruction' of revision and the quality of children's writing?

With regard to the impact of revisions on the quality of the wider text, the evidence from this study was inconclusive as to whether the revision teaching had a positive impact on the quality of participating children's writing. This is finding is significant, particularly in light of the rapid nature of the changes both to children's conception of revision and to the types of the revisions they made and given that these changes were widespread across participating children, albeit on occasions to differing extents. One might expect that a change towards an increasing proportion of meaning changes together with the regular practice of revision offered during the period of revision teaching would lead over time to children making revisions that are more likely to have a positive impact on the text. However, this was not the case: the likelihood of revisions having a positive impact on the text appeared to relate more strongly to children's prior attainment in writing rather than the amount of revision teaching they had received. This is notable given that the impact of revisions was considered comparatively; a positive impact was recorded if a revision constituted an improvement on

the original text even if it was still relatively ineffective writing. It should of course be emphasised that the findings from this study with regard to the impact of children's revisions were inconclusive: the absence of evidence for a relationship between the amount of revision teaching and the proportion of children's revisions that have a positive impact on the text does not rule out the possibility of such a relationship. This is particularly the case given the relatively small number of participating children in this study and the fact that they all came from the same school. Further research, possibly in the form of an experimental trial, may provide more definitive evidence regarding possible impacts of the revision teaching on the quality of children's writing.

Primary Question: Does 'enhanced direct instruction' of revision support children to make meaning change revisions in their writing?

Based on the findings of this research as outlined above with regard to the subsidiary research questions, the short answer to this primary question is 'yes'. Before the 'enhanced direct instruction' of revision at the centre of this research took place, the revisions of participating children were mostly limited in scope to surface changes. Furthermore, interview data suggested that children's understanding of revision was similarly limited. However, the data gathered during and after the revision teaching shows not only how children's understanding of revision developed to include meaning changes, but also that they made a significantly higher proportion of meaning changes when revising their own writing. As such, the evidence suggests a clear impact of the revision teaching at the heart of this study.

However, given the central aim of all writing teaching is ultimately to improve the quality of children's writing, it is notable that this study did not find a consistently positive impact of this teaching on the quality of participating children's writing. The extent to which children's revisions had a positive impact on the text did not appear to be linked to the amount of revision teaching they had had; rather, this appeared to correlate with children's prior attainment in writing. Given that changes to children's conceptions of revisions and the types of revisions they made appeared to take place across the spectrum of prior attainment, it is important to consider possible explanations for the inconsistency in the

impact of children's revisions on their writing. A consideration of this phenomenon is made all the more pressing when this finding is placed in the context of the wider literature, for this research is not anomalous. Some previous studies have reported that revision teaching has altered the revisions developing writers make but not their impact (Fitzgerald & Markham, 1987; Graham, 1997; Limpo et al., 2014; Olson, 1990) while others have reported positive effects of revision teaching on overall text quality, including with children of a similar age (Brakel, 1990; Lopez et al., 2018; Midgette et al., 2007). The findings of this study both independently and when considered alongside the wider literature suggest that the relationship between revision teaching and the impact of revisions is complex. It is therefore important to consider possible explanations why revision teaching leads to revisions that have a positive impact on the overall quality of the text on some occasions and not on others.

One possibility is that children in this study simply did not have enough revision teaching to increase the proportion of their revisions that had a positive impact on the text. It is plausible that lower attaining writers may require more revision teaching, especially given the challenges it poses, to increase the positive impact of their revisions on the text. This would explain why the proportion of revisions that had a positive impact on the text appeared related to prior attainment in writing. However, this possibility is unlikely given the rapidity of changes in children's conception of revision and the types of revisions they made and the fact that these changes occurred across the spectrum of prior attainment. Furthermore, some of the studies listed above that reported a positive impact of revision teaching on the overall quality of writing were based on a similar or shorter period of revision teaching. As such, the possibility that the amount of revision teaching constrained the potential for revisions that had a positive impact on the text would be difficult to reconcile with the wider literature.

Another possibility is that the revision teaching was sufficient to alter children's conception of revision and the types of revisions they made but that it was somehow insufficient to affect the proportion of some children's revisions that had a positive impact on the text. That is to say, there could be some additional prerequisite to enhance the likelihood of revisions having a positive impact that is not required to alter children's conception of revision or help them to make meaning changes. The disparity in the impact of revisions

across the spectrum of prior attainment could be explained by the possibility that higher attaining writers already possess this prerequisite, meaning the changes that the revision teaching did bring about resulted in a positive impact on the text. In contrast, lower attaining writers did not possess this prerequisite so, even though revision teaching led to changes in their revisions, the potential impact on the quality of their text was constrained. Given the differences in revisions by children with different levels of prior attainment, it is plausible that this additional prerequisite is writing knowledge.

5.2   The role of writing knowledge in revision

Since the 1980s, psychological research in writing has sought to identify and explore constituent processes within the complexity of writing, and revision is commonly considered to constitute one such process. Consequently, in much later research and, as a result, in education more widely, revision has often been viewed as a discrete and transferable skill or process. That is to say, it has been considered a skill that a writer can acquire, practise to improve and then deploy in any future writing task. The logical argument is that by observing expert writers and using models to break down what they do into constituent skills and processes, these can then be separately taught to inexperienced writers in order to support their development towards writing competence. This is predicated on the assumption that identifiable processes in accomplished writers are reflected in an individual's development of writing; that is to say, constituent processes used by accomplished writers were separately acquired or developed. Thus, the argument goes that because revision is a constituent process in writing, it must have been specifically acquired or developed by the writer. The evidence from this study suggests that this argument is mistaken.

Revision relies on the same extensive knowledge as writing generally, including vocabulary and grammar as well as sociolinguistic knowledge such as genres, readers' expectations and an understanding of when different linguistic choices are likely to be appropriate. For example, for children to make revisions to improve lexical choices, it is necessary for them to have a broad vocabulary stock to choose from, as well as an understanding of each word's connotations and semantic associations. Similarly, for children to make revisions to create tension in a story, they require knowledge of the language structures that can be used to do

so, while the same is also true of humour, persuasion and other effects on the reader. In non-fiction, for children to make revisions to present information more clearly, they require knowledge about what the reader can be assumed to know already and what may be new information. As these examples demonstrate, revision is not a transferable skill: the writing knowledge on which one particular revision relies may differ substantially from that required to make another revision. This means that the ability to effectively revise a particular narrative does not necessarily mean that a writer is able to effectively revise a persuasive text, or indeed another narrative with a different subject. Nor should revision be considered a discrete skill: given that revision relies on the same extensive knowledge as writing generally, the distinction between revision and writing is blurred. Indeed, revision could be conceptualised as a specific type of writing which involves reading and evaluating existing text (Hayes, 2012). In short, revision should not be considered to be a discrete and transferable skill which can be learnt in isolation and applied to any text. Rather, revision should be considered to be the application of writing knowledge in the specific context of existing text.

5.2.1   *Writing knowledge and the impact of revisions*

One notable finding of this research was that the data were inconclusive with regard to a potential link between revision teaching and the impact of participating children's revisions. That is to say, the participating children's revisions did not get better over time as they received an increasing amount of revision teaching. Importantly, this was despite the children making significantly more revisions in total and making different types of revisions, in particular more meaning changes and revisions that sought to have an effect on the reader. It therefore cannot be claimed that the revision teaching had no impact on children's revisions, only that there was no apparent link with the quality of children's writing. This is significant in light of the mixed findings from previous studies with regard to the impact of revision teaching on the quality of children's writing, and Graham et al's (2023) meta-analysis finding that revision teaching had no statistically significant impact on writing quality. However, previous research has not attempted to explain why revision teaching may have a limited or no impact on the quality of children's writing. Based on evidence from this research, this phenomenon can be explained with reference to writing knowledge. The

revision teaching at the heart of this study was effective in changing children's conception of revision and inducing them to revise, which explains the increase in the total number of revisions and the broader range of revisions made. However, the revision teaching did not significantly build children's writing knowledge; as a result, children's revisions at the end of the revision teaching were reliant on broadly the same writing knowledge base as those at the beginning and consequently the impact on the quality of the text was broadly similar.

It was also notable that there were discrepancies in the impact of children' revisions on the quality of their writing between the three prior attainment groups: children with higher prior attainment made more revisions that had a positive impact on the text than their lower attaining peers. This is significant because high prior attainment in writing is unsurprisingly associated with more extensive writing knowledge (Graham et al., 2019). On this basis, children who were likely to have more extensive writing knowledge were also more likely to make revisions that had a positive impact on the quality of their writing. This finding that the effect of revision teaching on the impact of children's revisions is mediated by prior attainment is supported more widely in the literature. For example, findings from studies involving struggling writers have been very mixed: Graham (1997); De La Paz, Swanson and Graham (1998) and MacArthur, Graham and Harris (2004) all reported findings that lower attaining writers struggled to make effective revisions even with revision teaching. Furthermore, larger scale studies which include children of differing levels of prior attainment have also reported discrepancies in the impact of revision teaching on children with different prior attainment in writing (Allal, 2004).

The qualitative analysis of children's revisions in the present study offered an insight into the mechanism underpinning the variation between children with different prior attainment. It was found that children's revisions often involved features of writing that had not been modelled in the revision teaching, including foreshadowing and humour, for example. As such, it was clear that children were bringing their wider writing knowledge to bear on individual revisions. Given that children with high prior attainment in writing have more extensive writing knowledge, this meant that they had significantly more resources at their disposal for each revision they made. Consequently, the revisions they made used complex techniques like foreshadowing well and were generally more effective. Interview data, such as child 2 discussing the substitution of 'crowds' with 'hoard' [sic], also demonstrated

explicitly the depth of higher attaining children's writing knowledge that they could deploy when revising. In contrast, the qualitative analysis was also able to identify particular elements of writing knowledge that were lacking in a range of revisions that failed to have a positive impact on the text. As such, it was possible to identify both how revisions that had a positive impact relied on writing knowledge and how those that did not showed a lack of writing knowledge.

In summary, there is evidence from this study and the literature more widely that revision teaching does not affect compositional quality uniformly across all children and the revisions of lower attaining writers are generally less likely to have a positive impact on the text. This can be explained by the role of writing knowledge in revision. When higher attaining writers are taught to revise, they can bring the full extent of their writing knowledge to bear on any revision they make. In contrast, when lower attaining writers are taught to revise, they may understand the purpose of revision and the *act* of revision, including the process of adding, removing, substituting or reordering text, but their relative lack of writing knowledge prevents these revisions from having a positive impact on the text. This would predict that children with lower prior attainment in writing are more likely to make performative revisions.

5.2.2 Non-transference between genres

The profile of revisions in text 8 differed significantly from all other texts written since the beginning of the revision teaching. Firstly, text 8 had the lowest median number of revisions per child of any text since the beginning of the revision teaching. In addition, text 8 included a notably high proportion of revisions that had a negative or no impact on the quality of the text and indeed this was the highest of any text in the study. This was also true specifically of the proportion of revisions that had a negative impact on the text, which was the joint highest of any text in this study, alongside text 2.

The most likely explanation for the difference in revisions in text 8 is that the text itself was a different genre: while texts 1-7 were straightforward fictional narratives, text 8, though still a narrative, was in the form of a newspaper report. As such, the transference of children's ability to revise between genres was limited. One possible reason for this is that participating

children had more knowledge of the genre of fictional narratives than of newspaper reports. As such, when asked to revise text 8, many children were relying on a smaller writing knowledge base than was the case for other texts and made less effective revisions as a result.

An alternative explanation for the difference in revisions in text 8 is that it was written after the end of the revision teaching. That is to say, it is possible that the effects of the revision teaching were temporary and, once the teaching of revision ended, children began to forget what they had learnt. Though this is possible, the increase in the proportion of revisions that had a negative or no impact on the quality of the text was both sudden and marked: it does not seem plausible that this can be fully explained by the one week gap between when text 8 was written and when text 7 was written, in which a much lower proportion of revisions had a negative or no impact on the text.

Interestingly, some other studies have also reported that children's ability to revise did not transfer between genres, but these studies often involved struggling writers (Troia & Graham, 2002). It is therefore significant that the proportion of revisions that had a negative or no impact on the text in text 8 among the lower prior attainment group was even more marked than the average. It is plausible that writers with low prior attainment find it especially difficult to revise text when writing in a less known genre due to their more limited writing knowledge.

It should be noted, however, that other studies have found that the benefits of revision teaching can transfer between genres. For example, Lopez et al. (2018) found that revision teaching focussed on fictional narratives led to benefits that did transfer to persuasive writing at a later date. However, this does not necessarily support the notion that revision is a discrete skill that can be practised in one genre and then applied to another. An alternative explanation is that, though elements of revision teaching may transfer between genres (e.g. children's conception of revision and their understanding of its purpose), these are necessary but not sufficient to ensure that these revisions have a positive impact on the text: for this, knowledge of the genre remains essential. In the context of Lopez et al.'s study, participants may have had a high level of knowledge about persuasive writing, whether this is a coincidental feature of the cohort or, more likely, because of wider provision beyond revision teaching. Lopez et al. (2018) do not provide details of the teaching participants

received outside of the revision teaching, and indeed this is common in the field. As such, it is unclear whether the benefits of revision teaching have transferred per se or whether this transference has been more limited in scope (i.e. based on children's conception of revision) but supported by writing knowledge developed elsewhere.

This highlights a common drawback in revision research: as the predominant understanding of revision sees it as a transferable skill or process, research generally reports details only of revision teaching itself without a description of the wider provision in writing children may also receive, or indeed have received previously. However, if one accepts the role of writing knowledge in revision, then it is not just revision teaching that may affect children's revisions but any teaching that builds their writing knowledge. Children's revisions are thus inextricable from the writing teaching they receive in general.

5.2.3   *Revisions reflect wider teaching*

The theory that children's revisions are affected by wider teaching in writing beyond specific revision teaching is born out in the evidence from this study. This is because there were a number of examples of children's revisions reflecting elements of wider teaching. For example, there were a significant number of revisions that added or refined descriptions of characters' feelings. This reflects evidence from lesson observations that included modelling how to show characters' feelings in writing and evidence from interviews with teachers that suggested this was a focus for teaching on at least some occasions.

There are also specific examples of writing knowledge taught separately from the revision teaching being reflected in children's revisions. For example, an unexpectedly large number of revisions involved adding detail specifically about an object's colour, generally using compound adjectives such as 'jet-black', 'caramel-brown', 'greyish black' and 'honey-coloured'. It is also significant that such revisions were made by nine participating children, especially in light of the fact that these and other compound adjectives had been taught shortly before the revision teaching began. Similarly, 25 revisions in this study involved the addition of a rhetorical question, 21 one of which occurred in texts 5 and 6. This is significant because the children were taught to use rhetorical questions to develop the atmosphere in a

narrative shortly before text 5 was written as part of their normal English teaching, not during revision teaching specifically.

It thus appears to be the case that children's revisions can be affected by when they are taught other, unrelated aspects of writing. This supports the argument that children's revisions are constrained by their writing knowledge: if teaching builds a child's writing knowledge generally, they are able to make use of this when they are revising. This has an important implication: in order to develop children's competence in revision, it is necessary to build their writing knowledge and this does not necessarily have to take the form of specific revision teaching. As has been noted, there was no evidence in this study that the phenomenon of reflecting writing teaching is unique to revision; indeed, it is a probable feature of children's writing generally that it reflects elements of what has been explicitly taught. If one accepts the role of writing knowledge in both writing generally and revision specifically, and the related proposition that building writing knowledge can affect both writing and revision, then the traditional distinction between writing and revision appears overstated.

5.3   Learning to Revise

If revision is understood as a particular type of writing which draws on the same wide range of writing knowledge as writing composition generally, then the question arises as to how to account for changes in children's revision that emerged as a result of the revision teaching. In the present study, the data showed a number of sudden and significant changes to children's revisions after the onset of revision teaching. Revision teaching led children to make significantly more revisions in total, to increase the proportion of revisions made up of meaning changes and to increase the number of revisions that sought to have a particular effect on the reader. If revision relies on writing knowledge and does not constitute a particular skill that can be improved through practice, these findings require an explanation.

The most plausible explanation is that there exists knowledge that is required for revision in addition to the writing knowledge that supports writing generally. In particular, it is plausible that a narrow conception of revision may inhibit the revisions children make: if one

224

understands revision only to include the identification and correction of errors, it is likely that this will dominate what one does when revising. Indeed, a number of studies have reported that such a narrow conception of revision inhibited children from making meaning changes in their writing (Berninger & Swanson, 1994; MacArthur et al., 2004). This could explain why the rapid change in the conceptions of revision among participating children in this study co-occurred with a sudden change in the proportion of their revisions that were meaning changes.

Another possible explanation is that revision teaching in itself builds children's writing knowledge. In the case of the present study, a teacher modelling the revision of a text, discussing alternative options and the various effects this might have on the text and the reader, may have built children's knowledge of vocabulary and grammar, as well as how a reader might respond to certain language. Though this explanation is plausible, it does not account for the findings with regard to the *impact* of children's revisions. If the impacts of revision teaching were the result of building general writing knowledge, then one would expect the likelihood of children's revisions having a positive impact on the text to increase based on the amount of revision teaching they had received.

As such, the best explanation for the data is that, though revision relies on the same writing knowledge as writing generally, there are also specific additional knowledge prerequisites for revision in particular. Notably, this includes of a writer's conception of revision: what they understand revision to include and their knowledge of the types of actions writers take when revising a text.

However, though this additional writing knowledge may be necessary for children to revise effectively, it is not sufficient for them to do so. An accurate conception of revision will allow children to *attempt* revisions but these remain dependent on the child's more general writing knowledge in order to be successful. An accurate conception of revision without an extensive writing knowledge base may lead to the performative revisions similar to those identified in this study. In the case of the present study, the revision teaching adjusted participating children's conception of revision: they built their knowledge about what revision is and some of the actions that writers take while revising and, as such, they attempted a range of revisions. However, the inconsistency with regard to the impact of revisions derives from children's wider writing knowledge. Higher attaining writers, once

equipped with an accurate conception of revision, could bring all their wider writing knowledge to bear on each revision, resulting in a higher rate of revisions that had a positive impact on the text. In contrast, lower attaining writers, also equipped with a more accurate conception of revision, could attempt revisions but their likelihood of having a positive impact on the text was constrained by their wider writing knowledge.

As such, it appears that at least two forms of knowledge support children in making effective revisions:

1. Meta-knowledge about revision: an accurate conception of revision that includes meaning changes and a broad understanding of the actions writers take when revising.
2. More general writing knowledge: a wealth of knowledge which supports not only revision but also writing more widely.

The need for an accurate conception of revision explains in part why revision generally emerges later than other types of writing in developing writers. However, the distinguishing factor of revision (the presence of pre-existing text and the need to evaluate it) could also lead to a greater cognitive load than writing generally. Revision places a particularly heavy burden on children's working memory (Berninger et al., 1996; Hacker, 1994; McCutchen, 1994; Piolat, Roussey, Olive, & Amada, 2004) and knowledge that reduces this burden, such as a higher level of topic knowledge about the subject being written about, has been shown to lead to more effective revisions (Butterfield et al., 1996). As such, the later emergence of revision in the process of acquiring writing competence is not due to revision being a dramatically different process to composition, but rather that the presence of existing text places particular burdens on a writer's working memory.

In summary, in order to learn to revise, children must acquire the same extensive knowledge they require to write generally. Importantly, the writing knowledge needed to make effective revisions varies from text to text and, as such, the acquisition of this knowledge is as endless as the process of learning to write itself. However, effective revision has two additional prerequisites besides extensive writing knowledge. First, developing writers require accurate meta-knowledge about revision, including a clear conception of revision, a good understanding of its purpose and knowledge of what writers may do when revising.

Fortunately, the evidence from this research suggests that this can be learnt relatively quickly. Second, as revision represents a significantly higher cognitive load than writing generally, it is important that other aspects of writing, particularly transcription, are automatic to free up the necessary working memory to allow for effective revision.

This view of revision as the application of writing knowledge is very different to the widely held view of revision as a discrete and transferable skill that has emerged primarily from the psychological tradition of writing research. However, it also questions the assumption that cognitive models built by observing accomplished writers reflect the process by which individuals learn to write: it is plausible that how developing writers *learn* to write does not reflect what accomplished writers *do* when they write. It should be noted that some seminal cognitive research into writing does suggest that the cognitive processes in developing writers may be different to those of accomplished writers. Indeed, the *Simple View of Writing* arose in part because of dissatisfaction regarding how the earlier Hayes and Flower's (1986) model accounted for developing writers (Berninger et al., 1996). Furthermore, Bereiter and Scardamalia (1987) make the distinction between "knowledge telling" among developing writers and "knowledge transforming" among more accomplished writers. However, whether intended or not by the original authors, the assumption that the process of learning to write reflects the constituent processes involved in accomplished writing has persisted.

One must therefore question the role of cognitive models in the teaching and learning of writing. A significant difficulty in the application of cognitive models to the teaching of writing is that they focus on *what* accomplished writers do rather than *how* they do it or, critically, how they came to be able to do it. In this case, revision is not 'acquired' by practising revision, but rather by building a broad writing knowledge base. Attempting to teach the process of revision without acknowledging the essential role of writing knowledge is akin to teaching the process of cooking involving chopping and mixing without equipping the learner with knowledge about which ingredients to use. The learner may ostensibly present as if they are cooking but the results are unlikely to be successful.

However, though one should be tentative regarding the application of cognitive models to the teaching and learning of writing, that is not to say that such models are of no value. These models have improved the field's understanding of what writing is and how it happens, helped to identify why writing is so challenging and where in particular these challenges might lay and allowed for the examination of different aspects of the writing process. What is at question here is not the value of cognitive models of writing per se but rather the ways in which they have been applied to how developing writers *learn* to write.

5.4   Conclusion: revision as the application of knowledge

This study found that although revision teaching increased the frequency of children's revisions and changed the type of revisions they made, it did not appear to increase the proportion of their revisions that had a positive impact on the quality of their text. Instead, the effectiveness of participating children's revisions was found to be linked to their writing knowledge. Importantly, this is the same writing knowledge that supports writing more generally. For example, knowledge of how to use language to create tension is as important when writing a narrative including tension as when revising it to create more tension. Similarly, a rich knowledge of vocabulary, including connotations and associations, is just as important when deciding which word is the most apposite at the point of writing as at the point of revision. In short, writing and revision draw on the same underlying resources to be effective.

This is not to say that revision and writing generally are identical. There is good evidence from this research that revision has additional prerequisite knowledge beyond that required to support writing in general. Most notably, effective revision in developing writers requires a clear and accurate conception of what revision is and the purposes for doing it. Furthermore, it is plausible that revision involves a higher cognitive load than writing generally because of (i) the need to read and evaluate the existing text and (ii) to integrate revisions into the existing text, both while also using the same writing knowledge required to write in order to compose the revisions themselves. As such, revision draws on the same knowledge as writing generally in addition to a small number of additional resources. However, in this study the changes arising from the children's altered conceptions of revision were relatively rapid, while the impact of revisions was mediated by children's prior

attainment in writing. As such, it appears that the prerequisites for effective revision do not play an equal role in the revisions of developing writers. Though a clear and accurate conception of revision supports children to make revisions, and can alter the types of revisions they make, this can be acquired relatively quickly and appears to play something of an 'unlocking' role. Once children understand what revision is and the processes it can include, it is their wider writing knowledge that plays the most important role in determining the success of their revisions.

In light of the role of writing knowledge described above, the contribution to knowledge from the present research consists of a refinement to the theoretical understanding of revision. Based on cognitive models of writing, revision is widely understood as a constituent skill or process within writing. As a result, in the context of developing writers, revision is often viewed as a transferable skill that can be taught, practised and then transferred to any given text. Though it is plausible that children's learning with regard to their conception of revision may well be transferable, this view of revision as a distinct skill overstates its transferability and underemphasises the role of writing knowledge in revision. As such, revision should be considered as the application of writing knowledge in the particular context of pre-existing text. In addition, the view of revision as a discrete skill or process, even one that is a constituent part within writing, overemphasises the differences between revision and writing generally. If one accepts that revision consists of the application of writing knowledge, with additional prerequisites due to its context including pre-existing text, the distinction between revision and writing generally is less sharp. Both revision and writing generally consist of the application of writing knowledge; the former differs from the latter only in its context and the presence of pre-existing text, as well as the extra demands this places on the writer. In short, revision is writing in a particular context or, to misquote Hemingway, the only kind or rewriting is writing.

5.5   Implications of this research

A central finding of this research is that, for developing writers to make revisions that have a positive impact on the text, they require extensive writing knowledge in addition to revision metaknowledge such as an accurate conception of revision and a clear understanding of its

purpose. Revision teaching can support children to develop this revision metaknowledge, and indeed appears to be able to do so relatively quickly. However, its role in developing wider writing knowledge is likely to be more limited. That is to say, children need to understand what makes writing effective given the context of a particular text if they are to make use of opportunities and encouragement to revise to improve their writing, and revision teaching alone is unlikely to be sufficient to achieve this.

Perhaps the most significant implications of this are pedagogical: the findings can contribute to understanding of the teaching of revision. First, in light of the role that writing knowledge plays in effective revisions, teachers could consider children's readiness to learn to revise before embarking on revision teaching. This could involve a consideration of children's transcription skills; if these are not yet sufficiently fluent, the high cognitive load of revision is likely to pose a particular challenge and children's revisions are less likely to be successful. In addition, given the context of limited time in school, teaching revision to children who do not yet have the underlying writing knowledge to be successful has an opportunity cost. For children without the prerequisite writing knowledge, time spent on revision teaching and practising revision is unlikely to improve the quality of their writing; this time may be better spent building their writing knowledge or increasing the fluency of their transcription.

It may therefore be beneficial for teachers and schools to consider how revision is integrated into their wider curriculum; in particular, revision could come into the curriculum at a stage after transcription has become fluent and children have already accrued a substantial amount of writing knowledge. In the context of England, though this may vary from school to school, this point is likely to be in key stage 2 (ages 7-11): in the present study, children in year 5 displayed somewhat mixed results but, as noted above, this may to some extent have been a result of the disruption caused by the COVID-19 pandemic. It seems unlikely that many children in key stage 1 (ages 5-7) will have either the fluency of transcription or the writing knowledge necessary to make effective revisions. As such, time that could be spent on revision may be better spent on other writing activities that promote and develop these. Some teachers and schools may choose to introduce children to the concept of revision through simple examples such as substitutions to select a more optimal word. This may support children to make better revisions in future when they can bring more writing knowledge to bear on a given revision. However, it may be beneficial for teachers and

schools to bear in mind the likely minimal impact on the quality of children's writing when considering the possible value of doing so.

Once children are ready to learn to revise, it is important that teaching addresses children's conception of revision and their understanding of its purpose given that both of these may inhibit effective revisions. Fortunately, teachers can be reassured that this can be a relatively quick process: direct instruction appears effective in supporting children to modify their conception of revision where necessary, and to do so relatively rapidly. In addition, though other effective pedagogical approaches to revision may emerge, direct instruction appears effective both in increasing the frequency of children's revisions and changing the types of revisions they seek to make. In short, once children are ready to revise, direct instruction appears to be a helpful approach to support children as they begin to explore how revision can improve their writing. However, it is essential that teachers do not consider the teaching or learning of revision to be complete at the end of a period of revision teaching. Revision teaching can open the door to children's revisions and the quality of their writing may begin to benefit, but one cannot 'complete' the process of learning to revise in primary school any more than one can 'finish' learning to write there.

One of the most important implications of this research for the teaching of revisions is the understanding that there are no shortcuts in its development; direct teaching of revision may alter children's conception of revision, and this has value, but it appears unlikely that such an approach will increase the likelihood of developing writers' revisions having a positive impact on the text. Rather, increasing the effectiveness of children's revisions relies on the steady accrual of writing knowledge over time. For example, in order for children to make revisions involving improving lexical choices, it is important for them to have a broad vocabulary stock to choose from. As such, the development of vocabulary, as well as other factors such as genres and the linguistic forms associated with them, sentence structures and more, should be regarded as playing a central role in developing children's revision. This means the process of developing the ability to revise effectively will be slow as the knowledge children require to write, and therefore to revise effectively, is vast, and varies considerably between texts according to their content, audience, aims and purposes. This has an important curricular implication: in order for writing knowledge to be developed effectively and systematically, schools and teachers need to identify what this knowledge is

231

and the order in which it should be taught before, during and after any specific revision teaching. In addition, individual teachers may find it helpful to consider the specific writing knowledge required to write and revise a given text effectively and whether children in their class hold it securely. In this way, gaps in children's writing knowledge that may inhibit effective revisions can be addressed. To take an example from the current study, it appeared from text 8 that many participating children did not have sufficient knowledge of the genre of newspaper reports, including the language structures that are associated with it, in order to make effective revisions to this text. If lessons had been designed to address these gaps in knowledge between children's first draft of the text and when they made revisions, it is possible that more children's revisions would have been more effective.

It has been argued above that revision teaching plays a relatively small role in the development of children's ability to revise. Though revision teaching can help to ensure a clear and accurate conception of revision, and this is essential to effective revisions, much wider writing knowledge must be accrued for revisions to be effective. However, it is plausible that revision teaching can contribute to the development of children's writing knowledge. In the present study, there is evidence for this in the fact that children's revisions reflected what had been taught, though further research specifically into the potential role of revision teaching in building writing knowledge would also be helpful. This could play both a short- and a long-term role. In the short term, revision teaching could be used to build children's writing knowledge in order to revise a specific text. For example, if a teacher notices, in texts intended to be persuasive, that children's writing is not persuasive, revision teaching might be effective in providing children with a knowledge of persuasive devices which they can use when revising these texts. More generally, it is plausible that revision teaching could contribute to children's accrual of writing knowledge in the long term. In the example above, the children involved may be able to apply this knowledge of persuasive devices to other persuasive texts. This does not mean revision is a transferable skill; rather, revision *teaching* may offer a possible means of building writing knowledge that can be used more widely than in the specific text at hand. The possibility that revision teaching could support children in building their writing knowledge is made more plausible by the fact that some research has found that revision teaching can have a positive impact on children's writing: that is to say, on their writing generally, not just their revisions. For

example, De La Paz and Sherman (2013) found that goal setting activities during revision teaching supported children's writing outside of revision specifically.

More widely, key policy documents could be reviewed and updated, in particular to reflect the role of writing knowledge in revision. With regard to the National Curriculum in England, children in year 2 (ages 6-7) are expected to "make simple additions, revisions and corrections to their own writing by... evaluating their writing with the teacher and other pupils" (Department for Education, 2013). In light of the arguments made above regarding the possible opportunity cost of teaching children to revise when underlying writing knowledge may not yet be secure, it may be helpful to review whether this is the appropriate age to begin revision teaching. Furthermore, additional guidance in the National Curriculum would be helpful alongside references to revision, including where synonyms such as "evaluate and edit" are used. This could reflect the important but limited potential role of revision teaching and the importance of developing the specific writing knowledge required for a particular text before children are expected to revise it.

In summary, the findings of this study have implications for how revision could be taught more effectively. Teachers could consider children's readiness to learn to revise ahead of embarking of revision teaching, while they could also be aware of the strengths and limitations of revision teaching. Revision teaching can be effective in specific ways, especially with regard to children's conception of revision and the types of revisions they attempt, but it can only play a relatively limited role in supporting children to make *effective* revisions. However, revision teaching may be a useful tool for the development of writing knowledge which, as it accrues over years of writing teaching, will support children to make effective revisions. There are also wider implications, for example with regard to the National Curriculum and related guidance, that could support best practice in the teaching of revision in schools.

5.6   Original Contribution to Knowledge

The original contribution to knowledge of this research concerns the particular role of writing knowledge in revision specifically, as well as an adjusted understanding of the role of revision teaching in supporting children to develop the ability to revise:

- Revision is not a transferable skill but rather relies on extensive knowledge to have a positive impact on the quality of the text. This knowledge includes:
  - Metaknowledge about revision, including an accurate conception of revision and an understanding of its purpose.
  - Wider writing and sociocultural knowledge. The precise set of such knowledge required to make a given revision effective varies from one instance of revision to another. As such, the ability to make effective revisions to a particular text does not necessarily imply the ability to make effective revisions to a different text.
- Revision teaching is effective in supporting children to develop their metaknowledge about revision and may offer some benefits for their wider writing knowledge. However, it is not in itself sufficient to ensure that children have the writing knowledge they need for their revisions to have a positive impact on the text.

The predominant conception of revision in the field is that it is a transferable skill: the implication of this is that revision can be directly taught, learnt or 'acquired' and refined through practice to yield superior results. Though some accounts suggest a role for knowledge in this process, the view that revision is a transferable skill remains dominant. In contrast, it was argued here that revision relies on a considerable non-transferable component: each instance of revision relies on and is the result of the application of a unique set of writing knowledge, including of available linguistic options as well as of the reasons why some choices may be more apt than others. As such, the likelihood of a revision having a positive impact on the text is related to the writer's stock of writing knowledge and increasing the likelihood of a revision having a positive impact on the text relies on building the writer's writing knowledge over time.

This led to an original theoretical position on how children develop the ability to revise: they require both metaknowledge about revision (including an accurate conception of revision) and wider writing knowledge that can then be brought to bear on each revision subsequently. This has implications for how revision is taught. Revision teaching appears to be effective in supporting children to develop their metaknowledge about revision fairly rapidly: this leads to an increase in the frequency of revisions and a change in the types of revisions made. Importantly, this revision meta-knowledge is transferable: once children

234

have a clear understanding of the purpose of revision and a conception of revision that includes a full range of revision types, in particular including meaning changes, this is likely to support them to make revisions to many different texts. However, this revision metaknowledge, though necessary to support developing writers to attempt revisions, is not sufficient to ensure that their revisions have a positive impact on the text. In order for a revision to have a positive impact on the text, the writer must draw on extensive writing knowledge, such as knowledge of available linguistic options as well as an understanding of which might be the most appropriate given the particular context of the text at hand, for example its audience and purpose. The wider writing knowledge needed to make revisions that have a positive impact on the quality of the text is so extensive that revision teaching alone is not sufficient to support its development. Instead, it relies on the long-term accrual of writing and wider sociocultural knowledge through English teaching and engagement with the written word more generally. In short, the transferable metaknowledge about revision that can be provided through revision teaching is necessary but not sufficient to support developing writers to make revisions that have a positive impact on the text at hand.

In this respect, the prerequisites for effective revision mirror those of effective writing: indeed, it was argued above that the distinction between revision and composition has been overstated. In addition, this suggests that, at primary school level at least, revision teaching is likely to have more impact on the quality of writing of children with higher prior attainment in writing as they can bring more extensive writing knowledge to bear on any given instance of revision.

The original contribution to knowledge of this research directly addresses a gap identified in the existing literature. In particular, it was identified that the dominance of psychological studies in the field of revision teaching led to important insights regarding the cognitive processes of individual writers but these studies only rarely considered the wider context of the revision teaching. By considering children's prior attainment in writing alongside the school's wider English curriculum and examining children's writing knowledge through interviews, this research has been able to identify writing knowledge as a particularly pertinent contextual factor that can support or constrain the effects of revision teaching on writing quality.

In addition, no other studies could be found at the time of writing of this research that used qualitative analysis of children's revisions in the way that the present research did. This approach yielded a number of insights into children's revisions, in particular with regard to links between children's revisions and the teaching they had received both in revision and in English more widely. Related to the issue of writing knowledge above, links between children's revisions and wider English teaching (i.e. beyond revision teaching) had not previously been explored. As such, though this element of the current research formed part of a wider argument concerning the role of writing knowledge in revision, it is important to note this original contribution as it could provide an avenue for fruitful future research.

5.7   Limitations of this research

Though the data gathered for this research was sufficiently robust to provide good evidence to underpin the conclusions drawn above, it is important to acknowledge that there are a number of methodological limitations. Perhaps most significantly, this research was small-scale: the number of participants, both children and teachers, was limited. Though steps were taken to ensure that certain groups of children were represented among the group of participants, most notably those with different levels of prior attainment in writing, it simply cannot be assumed that participants were representative of the wider year 5 cohort in the school, or indeed of year 5 children more generally. Similarly, with only three participating teachers, it was not possible to identify how differences between teachers may have affected the outcomes of the revision teaching. Though none of the teachers were newly qualified and all were skilled and effective, small variations in approaches to teaching may contribute to differences in outcomes. This was mitigated to some extent by using lesson observations to ensure that all three teachers taught revision as intended, but the possible effects of differing teaching approaches could not be eliminated entirely. For example, it is possible that the three teachers took different approaches to the teaching of writing outside of revision teaching sessions.

Another aspect of the small-scale nature of this research was that all participants were drawn from a single primary school. On the one hand, this offered a depth of insight into this particular case: a sound knowledge of the school's curriculum, for example, allowed for an

exploration of how writing knowledge developed more widely than during revision teaching affected children's revisions. This depth of understanding would have been more difficult to achieve had participants been drawn from multiple settings. However, on the other hand, it is possible that the findings of this study were affected by unique factors of this particular context. As a result of the limited number of participants and the fact that they all came from the same school, though steps were taken to ensure the validity of this research, one must be tentative in generalising findings to other contexts or to wider groups of children and teachers.

The small-scale nature of this research is also visible in a number of other aspects of the methodology, all of which should also be borne in mind when considering the findings and implications of this research. Firstly, the texts written by children at the heart of this research are all narratives and were all inspired by a high-quality, published fiction texts. Though there is no clear theoretical reason why other genres of writing, for example informative or persuasive writing, would differ with regard to key conclusions, such as the role of writing knowledge in revision, nonetheless it is important to note that this was not explored directly in this research.

A second significant limitation of this study concerns the position of the researcher in the school's senior leadership team. Given this role, and the existing relationships the researcher therefore had both with participating children and teachers, it is plausible that some data may be affected by participants seeking to please the researcher. However, the likelihood of this occurring is not constant across all sources of data. It is relatively unlikely that this phenomenon affected the data collected from children's writing, as this was produced in the classroom under conditions with which participating children were very familiar. This does not, of course, preclude the possibility of performative revisions in which participating children sought to please their *teacher*, as discussed at length in the findings above. However, given that the vast majority of texts involved in this study were written in normal classroom conditions without the presence of the researcher, the likely impact of children seeking to please the researcher is limited. However, the chance of this phenomenon affecting interview data, both with children and with teachers, is more significant. As described above, the role of the researcher also provided advantages to this research and mitigations were also put in place to reduce the likelihood of this phenomenon affecting the

data gathered. However, it is nonetheless important to bear in mind that the data in this study may have been affected by the participants seeking to please the researcher.

A further limitation of this research is related to the fact that the data collection was carried out during the COVID-19 pandemic, which had two particular implications. Firstly, though the period of restricted school attendance during lockdown had ended and all children were welcomed back into schools before the data collection began, restrictions resulting from compulsory self-isolation were still in place. As a result, the level of absence from school during this period was higher than usual and, consequently, a minority of children did not produce all 8 texts. It is not believed that this had a substantial impact on the data gathered, in part because all participating children were present for both texts 1 and 8. The second, less easily demarcated limitation arising from the COVID-19 pandemic is that relatively little is known about how the extended periods away from school affected children's learning in English or in writing in particular. As such, though it is not known that the absences from school before the period of data collection *did* affect the data gathered, this possibility cannot yet be entirely ruled out. This also provides another reason to be tentative with regard to generalisation beyond participating children: children in other schools or other circumstances more generally may have been affected differently by the pandemic, as could those children who follow in subsequent year 5 cohorts.

5.8   Recommendations for future research

This research has provided an insight into the impact of enhanced direct instruction as an approach to the teaching of revision in year 5 in a primary school in England. In addition, in light of the findings, a refinement to the theoretical understanding of revision has been proposed which emphasises the role of writing knowledge and that waters down the perceived distinction between revision and writing generally. Considering these conclusions, the limitations of this study and the wider literature concerning the teaching of revision, there are several areas of potential future research that could serve as natural extensions to this study.

Firstly, additional research could address some of the limitations of this study. As this research was small-scale, similar research in other schools, particularly those with a contrasting profile of pupils, could provide additional data that would support the conclusions made here or contribute towards their refinement. Such research would also have the advantage of examining the impact of the direct instruction of revision at a time when any potential impacts of the COVID-19 pandemic are likely to be less significant. In addition, the approach taken in this research to the analysis of textual data, that is to say the use of thematic analysis with inductive coding, yielded fruitful data for analysis of the actual revisions made by children. During the review of the literature for this research, no other studies were found that took this approach, instead relying heavily on more formal taxonomies of revision. As such, and given the data generated for the present research, it is plausible that the use of this methodology to analyse children's revisions in other contexts may offer further insights into the children's revisions and how they learn to make them.

Furthermore, it was noted above that all the texts written by children as part of this study were narratives. As such, it could also be helpful to conduct similar research involving other genres of writing, such as informational or persuasive texts. This could serve two purposes: first, it could shed further light on the claim that revision depends on writing knowledge and is not a transferable skill and, second, it could examine any potential interactions between the direct instruction of revision skills and the purpose or genre of the text at hand.

In addition to potential studies that resemble the present research quite closely, and which could address its limitations, two other avenues of future research might also prove fruitful. Firstly, though revision is the application of knowledge and not a transferable skill, it is plausible that the teaching of revision can in itself contribute to building children's writing knowledge. The findings from this research provide limited evidence for this but, as this was not the aim of the research, it is certainly not robust enough to be definitive. As such, further research into the potential role of revision teaching in building children's writing knowledge could be helpful. Finally, a significant gap in the wider literature concerning revision are studies that offer longitudinal data. Such studies could offer an insight into how revision teaching affects children's revisions, and indeed their writing knowledge and writing more generally, over time and what factors may affect children's retention of writing knowledge. Furthermore, longitudinal work could also track children's developing writing knowledge and

thereby identify at a more granular level the relationship between writing knowledge and revision, or indeed other aspects of the writing process.

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Appendices

Appendix 1: PowerPoint resources prepared by the researcher for introduction lesson to revision.

What is editing?

• Checking your work for mistakes when you have finished (in spelling, punctuation, grammar etc) is part of editing, but it should only be a small part. We call this type of editing "proofreading".

Editing ⟶ [blue ellipse] [orange circle] ⟵ Proofreading
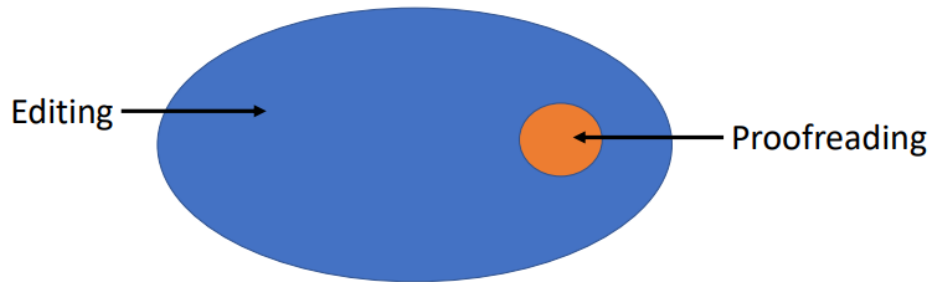
What is editing?

Editing includes **ANY** changes you make to your writing after you have written it:

• Adding extra words (or even whole sentences and paragraphs!) to give the reader more detail or to make your meaning clearer.
• Taking out words (or even whole sentences and paragraphs) if they do not work how you wanted them to work.
• Changing words of phrases for others that are clearer or more effective for the reader.
• Re-ordering words and sentences that you have already written.

Famous Writers & Editing

Successful writers edit A LOT – often so much that their final draft is completely different to what they started with:

- JK Rowling edited the first chapter of *Harry Potter and the Philosophers Stone* more than 15 times. She changed it so much that the final product was almost nothing like the first draft!
- Louis Sachar (author of *There's a Boy in the Girls' Bathroom*) says he writes about 5 drafts of all his books. What's more, he spends more than double the amount of time on editing than he does on writing the original.

An example of editing

A year 5 child (not in this school) wrote this short paragraph about the House of Wisdom:

The House of Wisdom is a place full of books and learners. There were books about astronomy, mathematics, medicine and more. Many of these books were translated into Arabic from Greek and other languages.

This paragraph doesn't contain many mistakes, but editing made it a lot better…

An example of editing

When she first read it over, she realised that the tense was wrong in the first sentence, and that she had left out some important information about the House of Wisdom that might be useful to the reader. She edited the paragraph and it became:

The House of Wisdom was a place full of books and learners in Ancient Baghdad. There were books about astronomy, mathematics, medicine and more, all of which were officially owned by the Caliph. Many of these books were translated into Arabic from Greek and other languages. This was called the "Translation Movement".

This editing has already made the paragraph much better…

An example of editing

When she read her paragraph the next day, she realised that it might be useful to include another sentence at the beginning to introduce the information. She also replaced the word 'learners' with 'scholars' as it sounded more historical. The paragraph became:

The city of Baghdad during the Islamic Golden Age was famous as a place of learning, mainly because of The House of Wisdom. This was a place full of books and ~~learners~~ scholars in Ancient Baghdad. There were books about astronomy, mathematics, medicine and more, all of which were officially owned by the Caliph. Many of these books were translated into Arabic from Greek and other languages. This was called the "Translation Movement".

This paragraph is far better than the one she first wrote.

An example of editing

Before editing:

The House of Wisdom is a place full of books. There were books about astronomy, mathematics, medicine and more. Many of these books were translated into Arabic from Greek and other languages.

After editing:

The city of Baghdad during the Islamic Golden Age was famous as a place of learning, mainly because of The House of Wisdom. This was a place full of books in Ancient Baghdad. There were books about astronomy, mathematics, medicine and more, all of which were officially owned by the Caliph. Many of these books were translated into Arabic from Greek and other languages. This was called the "Translation Movement".

Something important to notice: most of the editing was not just proofreading. This writer thought about her to make her writing better for the reader and added extra words and sentences to improve it A LOT.

264

Appendix 2: Information sheet for teachers regarding direct instruction of revision.

Direct Instruction of Revision

This approach will be familiar from the 'think aloud' section of the DR lesson and shared writing, but is applied to revision in two specific ways:

1. **Directly teaching the importance of revision.**
   Children are directly taught why editing their writing is important. Ideally, this will happen in the same lesson as point 2 below, and will include the following points:
   - A definition of editing: any changes you make to your writing after you have written it. This includes checking for mistakes in spelling and punctuation and missing words but also includes changes you make to improve the writing for the reader (e.g. adding words or sentences to add detail, changing words to make the writing clearer for the reader, changing words to improve their effect). The focus here is ensuring children understand editing is not just about proofreading for mistakes.
   - A discussion of why editing is important. The best writers edit a lot – professional writers will write several drafts before publication – and most of their edit is to the *content*, not just spotting mistakes. The first time we write a text, we are thinking a lot about ideas: we need to edit our writing to make sure we put our ideas in a clear way for the reader. Sometimes we have extra ideas for details that would help the reader when we are editing.

   This should be revisited fairly regularly in later revision sessions (e.g. by asking 'why is editing so important?', 'what does editing mean?' etc)

2. **'Think aloud' demonstrations of revision**
   This can take place using shared writing or a text written by a child in the class. It does not necessarily need to be based on an extended or independent piece of writing. Ideally, the 'think aloud' demonstration will be relatively short (about 10 minutes) before children are given some time to revise their own writing immediately after – it does not need to be a whole 'editing lesson'. The 'think aloud' demonstration should be focused on editing *content*, not just checking for mistakes and, over time, will include:
   - Making additions to add detail, clarify a point, improve the effect on the reader etc.
   - Removing text that does not have the intended effect.
   - Actively thinking about what a reader might think and how changing the text might make this clearer.
   - Refining vocabulary choices to improve the impact on the reader.

Appendix 3: Information sheet for teachers regarding goal setting in revision.

Goal Setting in Revision

'Goal setting' refers to identifying a particular aim to be achieved as a means of guiding the revisions that children make. Research suggests that, in order to be effective, these goals should focus on either:

The audience of the text

Audience goals give children an understanding of how an audience experiences their writing and an idea of how to improve. Examples include:

- "The reader doesn't get a clear image in their mind of the castle. Let's add more detail to help."
- "The part about the walls is a little dull for the reader because it's so long. Can you find a way to shorten it?"
- "The ending is very abrupt for the reader and seems to come out of nowhere. Add more detail to avoid the abruptness."
- "It's dull for the reader to have so much dialogue in one block. Break it up with action too."
- "The reader would not be persuaded by your writing. Are there any more arguments?"
- "The reader might be curious about what the character looks like. Let's add in some description."

The content of the text

A content goal may require children to add a single substantial section of text or, more challengingly, to integrate additions across the text. Examples include:

- "Try to show how the character is feeling at different points in the text."
- "It isn't clear why the character wants to open that door. How can we show why they want to?"
- "Could you include dialogue between the two characters at this point?"
- "Your arguments for keeping school uniform are good, but you haven't explained why the arguments against it are incorrect."

It is important to model goal setting during direct instruction so that the children can see your thinking underlying revisions that you make. They may also be helpful as ways to prompt individual children to focus their revisions on a particular aspect of their text.

Some children may initially find it difficult to edit their writing based on a goal given to them. Initially, using think aloud modelling to demonstrate how a text could be edited to achieve a specific goal may support them.

Generally, children should only be given one goal. However, sometimes two might be appropriate if one of them is relative short or simple.

Appendix 4: Phase 1 interview schedule.

Phase 1 Interview Schedule: Children

Aim: To explore children's current understanding of revision and revision practices (i.e. before the revision instruction takes place).

Introduction: Before beginning the interview:
- Thank children for participation and attendance.
- Remind children of the research aim: to understand better how children learn to edit their work and what teachers can do to help them.
- Remind children of their right to withdraw (including leaving the interview early if desired).
- Request permission to record the interview. (The recording will be stored securely using the school's technology and deleted once the transcript has been made.)

Warm-up questions: Use the following questions to 'break the ice' and give children time to begin thinking about writing:
1. What do you like/dislike about writing?
2. Tell me about what writing activities you have been doing in class so far this year.

Revision Questions

Focus: what do the children understand revision to be?   What is editing[1]?   Why is it important to edit your work?
Focus: how does revision work in the children's own classroom?   Describe what editing is like in your classroom. (Possible prompts: When do you do it? How often do you do it? How long do you do it for? How does your teacher help you?)
Focus: what are the children's current revision practices?   How do you know when you need to edit your writing?   What do you focus on when you are editing your writing?
Focus: revision in the children's writing   Show me some examples of where you have edited your writing.   How did you know that you needed to edit this part of your writing?   Did anything/anyone help you to edit this part of your writing?   Why do you think this edit makes your writing better?

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[1] While this research project generally uses the term 'revision', and largely did so with teachers, the school uses the term 'editing' with children. As such, this term will be used in interviews with the children and should be considered synonymous with revision.

Phase 1 Interview Schedule: Teachers

<u>Aim:</u> To explore children's current understanding of revision and revision practices (i.e. before the revision instruction takes place).

<u>Introduction:</u> Before beginning the interview:
- Thank teachers for participation and attendance.
- Remind teachers of the research aim: to understand better how children learn to revise (edit) their work and what teachers can do to help them.
- Remind teachers of their right to withdraw (including leaving the interview early if desired).
- Request permission to record the interview. (The recording will be stored securely on school technology and deleted once the transcript has been made.)

Focus: current revision practice in the classroom Describe what happens in your classroom to support children's editing skills. Do you think there are currently any barriers to the children editing their writing?
Focus: the writing of participating children Describe, in general terms, the participating children's proficiency in writing. Describe these children's revision skills in particular.
Focus: what are the children's current revision practices? What types of revisions do these children make in their writing? What do the children tend to focus on where they are revising their writing? What aspects of revision do you think the children need to focus on in order to make progress?

[Additional questions may be planned following the interviews with children in order to triangulate specific findings.]

Appendix 5: Phase 3 interview schedules for children and teachers.

Phase 3 Interview Schedule: Children

Aim: To explore how children's understanding of revision and revision practices have evolved over the period of the revision instruction.

Introduction: Before beginning the interview:
- Thank child for participation and attendance.
- Remind children of the research aim: to understand better how children learn to edit their work and what teachers can do to help them.
- Remind children of their right to withdraw (including leaving the interview early if desired).
- Request permission to record the interview. (The recording will be stored securely using the school's technology and deleted once the transcript has been made.)

Revision Questions

Focus: how has children's understanding of revision changed? What is editing? Why is it important to edit your writing? Has your idea of what editing is changed since our first interview?
Focus: how has revision in the classroom changed since the first interview? Describe how editing works in your classroom now. (Possible prompts: When do you do it? How often do you do it? How long do you do it for? How does your teacher help you?)
Focus: what are the children's current revision practices? How do you know when you need to edit your writing? What do you focus on when you are editing your writing?

Focus: revision in the children's writing
   • How did you know that you needed to edit this part of your writing?
   • Did anything/anyone help you decide what to edit?
   • How is the edited version of the writing better than the original? How do you know?

Phase 3 Interview Schedule: Teachers

Aim: To explore how children's understanding of revision and revision practices have evolved over the period of the revision instruction.

Introduction: Before beginning the interview:
- Thank teacher for participation and attendance.
- Remind teacher of the research aim: to understand better how children learn to edit their work and what teachers can do to help them.
- Remind teacher of their right to withdraw (including leaving the interview early if desired).
- Request permission to record the interview. (The recording will be stored securely using the school's technology and deleted once the transcript has been made.)

Revision Questions

Focus: how has children's understanding of revision changed? Has children's understanding of what revision is changed over the past few weeks? How? Can you pinpoint any particular cause? Do you think this change in understanding of what revision is has affected how the children edit their writing? Do you think there is any variation in understanding of revision across the class? Can you suggest any possible causes of this variation?
Focus: how have the children's revision skills changed? Overall, how has the editing of participating children in the class changed over the past few weeks? (Possible prompts: volume, types of revision, independence, extent to which independently instigated.) Is there any variation in how the children's revision skills have changed? Have you noticed any patterns in this? Do you think these changes in revision skills have had an impact on the quality of children's writing overall?
Focus: what were the impacts of different approaches to teaching revision What impacts did you notice from the direct instruction of revision? What impacts did you notice from goal setting?
Focus: revision in the children's writing How has _____'s revision changed over the past few weeks? Did you notice when these changes occurred? Do you think there was anything that particularly helped them? Do you think they have any remaining barriers to their revision skills? Do you think the changes to their revision skills have improved their writing overall?

Appendix 6: Exemplifications of revisions in each code used for qualitative analysis

Themes & Codes	Example (Where multiple revisions are included in the extract, the relevant one is underlined.)
Theme 1: Adding Detail	This theme encompasses eight codes that cover a range of revisions where the central aim is to give the reader additional detail.
Add Action	I'll always lay [or sit] down there. [I've stayed in this field for so long I'am sure] nothing could go wrong. [It was like a dream. Before night I'll look at the gleaming stars untill I fall asleep.] (Child 7, Text 4)
Add Adjective	lava started to fil up the [small] room (Child 15, Text 2)
Add Adverb	The emerald-green light of the night [powerfully] shone upon them as they walked through the beautiful forest (Child 4, Text 2)
Add Colour	Later we then arrived at the [greyish black] tower block. (Child 3, Text 5)
Add Descriptive Detail	She was blinde amd cant talk. [Cinnamon had ~~a cloud-white jazmine with a fragile gold nose-ring.~~ Cinnemon had a milky-white pearl eyes with a cloud – white jazmin with golden fragments, yellow panted nose-ring.] (Child 10, Text 5)
Provide Context	All of a sudden, Daniel shouted and told Mr Silver to come [to the religious, holy, elaborate room which Daniel was in]. [~~Mr Silver looked joyful when he came. The fountain with silver liquid was still there!~~ As soon as Mr Silver entered the room, his body turned on, his eyes widened and he felt he was dreaming]. (Child 8, Text 2)
Add Relative Clause	All the rubel would crash down which made it very fogey [which made it very hard to breev and see]. (Child 15, Text 4)
Theme 2: Addressing a Problem	This theme includes a range of revisions that seek to address a perceived problem. This includes adding missing words, removing material viewed as redundant and revisions to avoid unintended repetition or undesired ambiguity.
Avoid Ambiguity	[~~They~~ Rani and Rajah] didnt know [~~to trust the tiger~~ if the tiger was trustworthy enough] (Child 8, Text 3)
Avoid Repetition	People [srounded the baby and] started to [~~gather up into are house and start saying roud things about~~ scream at] the baby [~~they said~~ and say] we can not go to work I said stop shouting at [~~the baby~~ him]. (Child 11, Text 6)
Correction	The next day the house kitchen was filled with random stuff. Why is this so [~~furious~~ infuriating] (Child 7, Text 6)
Missing Word Added	Every one was hiding behind [the] wal's (Child 11, Text 3)

Remove Redundant Material	[~~She~~ Cinnimon felt uneasy as she] whimpered at the [~~feel of~~] pain. (Child 3, Text 3)
Theme 3: Character	This theme includes revisions that seek to enhance characterisation, including through dialogue, and to give the reader an understanding of a character's feelings.
Character Feelings	I was trudging slowly because I was [very] upset how we have to leave our beautiful house. [Oh how me and my family was dejected – and more depressed.] (Child 5, Text 5)
Characterisation	[All of the etenshun went from me to that ugly green looking thing.] [I never wanted a child so I have no responsibility of taking care of this goblin looking baby.] (Child 15, Text 6)
Dialogue	["Igh if you don't trow that Zombe looking thing then I will throw it myself" I said. "Why" he said because IT'S MY HHHHOOOOUUUSSSSEEEEEEE I mean House.] (Child 16, Text 6)
Theme 4: Effects on the Reader	This theme includes a relatively broad range of ten codes which represent revisions where there is a specific attempt to have some effect on the reader. This includes revisions that seek to add humour, increase tension and change emphasis as well as more formal techniques such as rhetorical questions, repetition for effect and foreshadowing.
Address Audience	They started to swim [up] to shore and they saw an island and swam to it. [Plot twist: this island is boring, ain't even the type of island you dream of.] (Child 7, Text 2)
Emphasis	[Worst part is] I have to share rooms and my puppy has to sleep on the floor. (Child 7, Text 5)
Foreshadowing	She started walking on the rope. Her eyes were fixed on the middle of the rope. [She pictured it ending terribly but shook that ghastly thought away. In her heart she was proud to have come this far.] Once she reached the middle she backflipped off, landing on her feet. The crowd went wild as she blew out the flame and bowed. Most of the kids wanted to be like her. When the juggler left she had an enormous smile on her face. Her alabaster mask had almost gone as the sweat washed it away. This was her first performance since she broke her wrist. Luckily she had remembered the moves. (Child 3, Text 7)
Humour	No one, no one felt safe[,] not even one percent safe. [Say bye bye to being mature!]. (Child 7, Text 8)
Register	There were [~~mega people~~ over a million kids] licking the candy. (Child 9, Text 2)
Repetition for Effect	The next day when I walked inside the kitchen all I saw was [~~plants.~~ Green, Green and Green.] (Child 9, Text 6)

Rhetorical Question	[Oh why is life not fair I remember that I used to get sun on my face and rest but now I can't because now the sun is gonn.] (Child 12, Text 4)
Short Sentence for Effect	[Colours and shapes seemed to hypnotise Daniel. All of a sudden he felt tired and collapsed. He caught himself.] (Child 3, Text 2)
Show Not Tell	[~~Mr Silver looked joyful when he came. The fountain with silver liquid was still there!~~ As soon as Mr Silver entered the room, his body turned on, his eyes widened and he felt he was dreaming] (Child 8, Text 2)
Tension	[~~UNTIL one day the others came~~… until one day I saw the snow white birds flapping their wings out of the window. I knew something dangerous was coming.] (Child 8, Text 4)
Theme 5: Figurative Language	This theme refers specifically to revisions where figurative language is introduced. It includes just two codes for metaphors and similes.
Metaphor	Inside the [circus] tent the audience could smell the [~~smell~~ aroma] of them bubblegum icecream [fought with the bitter aroma of coffee and beer] [~~as it~~] seep[~~sing~~] into the circus tent. (Child 6, Text 7)
Simile	There was long shamrock green grass stretching as far as the eye could see [~~was sprinkled with flowers of all colours.~~ Like sprinkles on a cake flowers of all colours were scattered on top of the grass, then ~~and~~] at intervals hummungous[,] towering blossom trees [cast shade on the ground below]. (Child 2, Text 2)
Theme 6: Openings & Endings	This theme encompasses two codes, where participants have sought to improve either the opening or the ending of their text.
Improve Ending	[In the futcher I wish that it would be less polluted and less dark in the morning.] (Child 15, Text 4)
Improve Opening	[~~I liked staying in the [setting] rural because I got to plant seeds in my farm, and look at what bees are doing. The favorite thing I liked to do was growing my flowers, and every thing that I done I positively trembled with excitement.~~ Six years ago before the others arrived, I used to enjoy spending my time in the open marshland. I would collect seeds from the sunflowers and listen to robins singing. I felt stress free and happy.] (Child 13, Text 4)
Theme 7: Word Choice	This theme includes only a single code for revisions where a word is changed or added with specific attention to the shades of meaning if provides.
	[~~sad~~ heartbroken] (Child 5, Text 4)