MENTAL TIME TRAVEL IN SCHOOLS

CHILDREN'S COUNTERFACTUAL THINKING: THE EDUCATIONAL IMPLICATIONS

JOANNA HILL

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This work has not been submitted in substance for any other degree or award at this or any other university or place of learning, nor is being submitted concurrently in candidature for any degree or other award.

Signed ……Joanna Hill ……(candidate) Date July 13, 2015……

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This thesis is being submitted in partial fulfilment of the requirements for the degree of Doctorate in Educational Psychology

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SUMMARY

The current research study explores the use of counterfactual thinking by children in school settings. Counterfactual thinking is entertaining imaginative thoughts about what might have been - the 'what if' or 'if only' thoughts. Research has shown regularities in the way that people think counterfactually and has suggested that the focus of these thoughts is influenced by the order of events prior to an event (temporal and causal order) and there are strong links with self-evaluative emotions (e.g., regret and blame) and social judgements (e.g., blame). The first section will entail a comprehensive and in-depth review of the existing literature with regards to this area and its links to educational practice. The empirical study, found in the second section, is primarily aimed at addressing the order effects within counterfactual thinking using quantitative and qualitative methods. Consequently, 121 children were asked to answer questions about two scenarios. In addition, this research adopted a mixed-design approach and a series of interviews were carried out with 13 pupils, randomly selected from the children who took part in the quantitative stage of the study. These pupils were asked specific questions about their responses to the scenarios. Two focus groups comprising of teachers of some of the pupils who took part in the study were also set up to elicit views, more generally, on children's thinking about school-based events. The temporal order effect was observed in the sentence completion task and for blame questions but not for questions about regret and blame. The causal order effect was observed in the choice of first event to focus on but not for the question of blame. Thematic analysis of the qualitative data indicated that children thought of order to explain their choices but also created stories to explain their ideas. A few children described their choices in terms of automatic thoughts; locus of control was also a theme from the interviews. Analysis of teachers' views suggested that they felt negatively about children's thinking in terms of events in school and made links between pupils' thought patterns and their emotional experiences. In addition, the teachers believed that children should take more responsibility for their actions. Interpretations of the findings are discussed with regard to children's thinking, emotions and behaviour. Implications for educators and educational psychologists are considered.

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TABLE OF TERMS

Name of term	Explanation	For example
Counterfactual thinking	When people think about how things could have turned out differently	"If only I had revised for the test...."
Counterfactual reasoning	Used interchangeably with counterfactual thinking	
Conditionals	An action that takes place only if a specific condition is met (usually expressed in the indicative mood)	"If she took her shoes off, then the floor stayed clean."
Counterfactual conditionals	Conditionals that are applied counterfactually (usually expressed in the subjunctive mood)	"If she had taken her shoes off, then the floor would have stayed clean."
Temporal order	A series of independent events leading to an outcome	Two people toss a coin and if they both toss the same (heads or tails), they win or if they are different, they both lose.
Causal order	A series of causes leading to an outcome	A man misses a sale because of a series of mishaps on the way.
Self-conscious emotions	Emotions that involve an awareness of self	Guilt, regret, embarrassment and pride
Social judgments	How one perceives people and thinks about social things	Blame
Heuristics	Heuristic is the Greek word for discover and refers to mental shortcuts people use to find a solution to a problems based on experience.	An educated guess, intuitive judgement and 'rule of thumb'
Norm-violating	Going against what is considered normal by society	Stealing (depending on the cultural context)

PART ONE: INTRODUCTION AND LITERATURE REVIEW

1.1 i) General introduction

Events and occurrences in human life can often lead to counterfactual thoughts – imaginative thoughts about what might have been - the 'what if' or 'if only'. These events can range from the mundane, 'If only I had left earlier to catch the train', 'what if I had stayed to finish my work and got caught in the traffic jam', to life-changing situations, 'if only my child had not stepped into the road in front of an oncoming car' or 'what if I had not gone out that particular night and met my future husband/wife'. It involves the mental comparison of an actual situation with an alternative one and undoing the real occurrence (Segura, Fernandez-Berrocal, & Byrne, 2002); and has been referred to as 'mental time travel' (Byrne, 2013). Indeed anecdotal experience is backed up by research, which shows that counterfactual thinking is pervasive in adult mental life (Kahneman & Tversky, 1982).

Most of the work on counterfactual thinking has been carried out by cognitive psychologists and developmental psychologists, who have tried to ascertain the processes involved, link this to other cognitive phenomenon and identify when these thoughts start. Research suggests that this type of thinking is connected to a range of cognitive processes as well as emotions and social judgements. It has also been shown that counterfactual thinking is developmental and develops gradually from infancy (Rafetseder, Schwitalla & Perner, 2013).

Understanding the importance of cognitive processes is considered to be an essential part of creating positive experiences and learning opportunities in the school environment (Chodkiewicz & Boyle, 2014). Recently, there has been a move towards practical applications of cognitive research by educational practitioners and one example is attribution theory (Casserly, 2013). One of the roles of the educational psychologist (EP) is to apply psychology to educational settings (Boyle & Lauchlan, 2009); EPs are perceived as playing a unique role in bridging the theory-practice gap by educating and supporting teachers on psychological theory and evidence, which provide an insight into children's

development and functioning. Thus, research on counterfactual thinking within educational settings would be of importance to EPs.

This literature review aims to explore theory and research from the counterfactual thinking literature and how these can be possibly linked to educational psychology and life within schools. Due to the limited research conducted within this specific area, the current review aims to cover all areas that pertain to these themes and make the links to the practical application of educational psychology. No areas will be excluded; however the review will look in depth at counterfactual thinking in relation to temporal and causal order effects. This area has been chosen because there have been robust findings in the adult population on how people think in this way. In addition, there has been one piece of research on children, which suggests that they follow the adult patterns of counterfactual thinking in relation to these events from the age of eight (Meehan & Byrne, 2005). These sorts of events are also strongly associated with guilt, regret and blame, emotions that arguably play a significant part in school life and can be detrimental to both pupils and staff. In addition, wellbeing is seen as an important part of EP work (Beaver, 2011).

Thus this review will firstly give an overview of the theory of counterfactual thinking and then look specifically at how this type of thinking works, critically evaluating what research suggests about the different forms of counterfactual thinking and the regularities of this process, specifically addressing order effects. It will evaluate counterfactual thinking in children and then focus on the emotions and social judgements connected to this type of thinking firstly on a general level and then by addressing children's emotions and counterfactual thinking. The implications for the educational system and EP practice are discussed. Counterfactual thinking and counterfactual reasoning are used interchangeably in the literature; though reasoning is often used in work that addresses causal judgements. In this paper, the term counterfactual thinking will be used as a general term that covers all forms of thinking about occurrences that have not happened.

1.1 ii) Searches

The literature search followed guidelines suggested by Randolph (2009). It began with an electronic search of academic databases primarily using the following: PSYC INFO, PSYC ARTICLES and ERIC. The key words and phrases used were: counterfactual thinking, temporal order, causal order, children and guilt, regret plus blame. When these searches were conducted, careful and accurate records were kept of the date of each search, the number of records resulting from these searches and very brief descriptions of the search result. Then the reference section of the most pertinent articles were accessed to determine which of these were relevant, then these articles were found and read. The reference sections of these articles were read and the procedure was repeated until 'a point of saturation' was reached. Google book searches and government policies were also accessed using the same procedure. The search was completed in 2015.

1.2 LITERATURE REVIEW

1.2 i) A critical review of the literature regarding counterfactual thinking

Counterfactual thinking covers a wide remit and arguably should not be regarded as a cohesive process as it can range from analysing historical events, such as working out how the rise of the West occurred in modern times (Tetlock & Lebow, 2001), to focusing on the inner workings of individual minds (Byrne, 2002). However, it is generally agreed that these are thoughts where people imagine what might have been ('If only...' 'what if'); all counterfactual thoughts have false antecedents and false consequences (Byrne, 2002). It has been described as creating an imagined world as close as possible to the actual world (Lewis, 2001). In addition, it is acknowledged that there is a consensus in people's counterfactual thinking, which suggests it is a highly structured process (Pearl, 2001).

Counterfactual thinking has attracted some research in other branches of psychology that has broadened understanding but this has been a limited area of research so findings have to be viewed with caution. It is still not clear what part of

the brain this process is related to but research has shown that the ability to generate counterfactual thoughts can be lost following impairments to the frontal cortex (Knight & Grabowecky, 1995). More recent studies suggest that counterfactual thinking is part of a brain network associated with episodic memory, which has a more general function in imagining oneself in another time, place or perspective (Van Hoeck, Ma, Ampe, Baetens, Vandekerckhove, & Van Overwalle, 2012). However, it also appears to differ significantly from memory in that it uses this brain network more extensively, and additionally activates the bilateral inferior parietal lobe and posterior medial frontal cortex (Van Hoeck et al, 2012). Kulakaova, Aichhorn, Schurz, Kronbichler, & Perner (2013) also point out that although it is assumed that counterfactual thought differs from processing factual or hypothetical information on a neural level, there has been little imaging data to demonstrate these differences. However, one study showed activation in the right occipital cortex (cuneus) and right basal ganglia (caudate nucleus) during counterfactual sentence processing but not for factual or hypothetical processing (Kulakaova et al, 2013). It has been suggested that many conditions that are considered neurological, such as Autism Spectrum Disorder, Parkinson's Disease and Schizophrenia are linked with deficits in counterfactual thinking (Byrne, 2005). Clearly more research needs to be done in neuropsychology to understand the relationship between the brain and counterfactual thinking but neurological evidence so far suggests that it is a complex and unique cognitive skill.

It would also be useful to ascertain if counterfactuals are particular to cultural or linguistic settings. In fact, linguists have identified that the subjunctive mood (grammatical form used in most languages to convey various states of unreality such as emotion, judgement and opinion) is not needed to convey counterfactuals (Dudman, 1988). This shows that, arguably, this process is not a language-related cultural phenomenon but is something that spans cultures as well as history. It appears to be something that is specific to human nature. However, there have been no comparative studies of different cultures to make any more definitive claims.

Most of the research so far has been carried out within the domain of cognitive psychology, with the first pioneering experiments being carried out by Kahneman & Tversky (1982), who showed that people mentally simulate alternatives to reality in a consistently regular way. Since then, a plethora of studies have established that counterfactual thinking appears to play an important role in a range of psychological phenomena, being aligned with many human functions (Miller & Gunasegaram, 1990). There are, arguably, two elements to this cognitive research: the process of human counterfactual thought and the function of those thoughts and often these two issues are interlinked. This research will be addressed in the next section.

1.2 i.a) Cognitive psychology: process and function

A distinction has been made between 'upward' and 'downward' counterfactuals. Markman, Klein, & Suhr (2009) describe upwards (best demonstrated by the expression, 'if only...') as being the mental simulation of a better world whereas the downward counterfactual ('at least...') simulates a worse world. For example, an upward counterfactual thought on getting 50 per cent in an exam would be, 'if only I had slept the night before I would have got 60 per cent' whereas a downward counterfactual thought could be, 'at least I didn't fail the exam'. Researchers speculate that these dimensions have both positive and negative effects. The upward counterfactual can have a negative effect on mood and self-esteem but can also prepare people for the future, whereas the downward counterfactual provides comfort but does not necessarily lead to changed behaviour and improvement in performance (Roese & Olson, 1993). Several researchers have argued that upward counterfactuals are more prevalent than downward counterfactuals (Kahneman & Miller, 1986; Wells & Gavanski, 1989). However, Markman et al. (2009) criticised this research for not looking at emotions and using tragic scenarios instead of more mundane events. This is an interesting point but it would also be useful to address the question of why upward counterfactuals would be more prevalent.

Researchers also sometimes distinguish between additive and subtractive counterfactuals. So if one thinks about failing an exam, an additive counterfactual would be thinking 'I should have studied the night before'; whereas a subtractive thought could be about not going out the night before. These dimensions also have positive and negative functions, according to research. For example, Markman et al (2009) showed that additive counterfactuals are more likely than subtractive counterfactuals to enhance creativity but subtractives are more likely to enhance performance on analytic tasks. It is thought that to uncover substractive counterfactuals, individuals must be able to apply rules that predict the results of witholding acting, whereas additives enhance the imagination by adding to a situation.

Counterfactual thinking has been linked with judgements of causality (Kahneman & Miller, 1986), deductive reasoning (Johnson-Laird & Byrne, 1991), planning (Roese, 1994) and creativity (Kray, Galinsky, and Wong (2006). It has also been shown that counterfactual thinking is linked to learning and performance (Petrocelli, Seta and Seta, 2013). There is also a particularly strong evidence base for the link between counterfactual thinking and affective processes, such as perceptions of happiness (Johnson, 1986), feelings of regret (Kahneman & Tversky, 1982) and expressions of sympathy (McFarland & Miller, 1990). There is further evidence to show that counterfactual thoughts strengthen people's moral compass by amplifying emotional responses to bad outcomes, like inducing emotions such as guilt, plus social judgements such as blame (Atkinson, Bell & Feeney, 2009). In particular, research has shown that anticipating the negative feelings of going against what a culture believes is correct serves as an important motivation to act in accordance with moral norms (Hoffman, 2000). This will be discussed in more detail later in the review.

As suggested earlier, the function of counterfactual thinking has been the subject of much debate. It has been argued that it is regulated by belief and is activated automatically by the belief that there is a problem, and terminated by the belief that a satisfactory response is found or cannot be found. Sherman & McConnell (1995) have suggested that counterfactuals are generally harmful but Roese

(1997) has put forward a functionalist model to explain consequences of counterfactual thinking that are beneficial, arguing that counterfactual thinking helps people to learn and prepare for the future (Roese, 1997). Gerlach, Dornblaser & Schachter (2014) argued that counterfactual simulations have 'adaptive' functions but demonstrated that this type of thinking can distort memory for actual events. Participants were more likely to make false alarms to counterfactual lures than novel scenarios, but older adults were more prone to these memory errors than younger adults. In a study on learning, in the condition where counterfactuals were made obvious, participants displayed significantly poorer performance compared to their counterparts for whom counterfactuals were relatively less salient (Petrocelli, Seta and Seta, 2013). This study was experimental so arguably did not have so much real-life evidence but the link to learning would be worth exploring in future research in educational psychology.

Research has also indicated that people evaluate the outcome of counterfactual situations as more extreme than outcomes of factual situations (Teigen, Kanten, & Terum, 2011). Yet when research focused on evaluating the emotions involved there was an opposite effect: Factual events were evaluated as more emotionally impressive than comparable counterfactual outcomes, for both negative and positive outcomes (Terum & Svartdal, 2013). The authors argued that these apparently contradictory results fitted within a framework of construal level theory (i.e. the relationship between psychological distance and thinking) and suggested that both findings are compatible with an abstract, high-level account of counterfactual thinking. Markman et al. (2009) have also argued that counterfactual thinking has much in common with Social Comparison Theory, which assumes that social comparison enables self-evaluation (Festinger, 1954) and people tend to compare themselves with similar others. There is also evidence of links with more dysfunctional thinking and behaviour, in particular, upward counterfactual thinking has been linked to extreme worry and psychological damage (Kocovski, Endler, Rector, & Flett, 2005).

There is a useful distinction that could be made between counterfactual thinking that is automatic and arguably more subject to distortions, and using

counterfactual thinking consciously, which is more focused on making educated judgements. This is in line with the work on heuristics carried out by Daniel Kahneman and his colleagues over the past few decades. Heuristic is the Greek word for discover and refers to mental shortcuts people use to find a solution to a problem based on experience. Examples of this method include an educated guess, intuitive judgement and rule of thumb. They found that in general, people base their decisions on specific examples or small samples so consequently, judgements can be frequently wrong as they are based on information that comes easily to mind, rather than actual probability. Kahneman (2011) extended this to the concept of having two systems 'fast and slow' in his groundbreaking book on the subject and although his work on counterfactual thinking is not referenced, he makes clear the arguments on heuristic intuitive processes versus conscious judgements. Markman et al. (2009) have also suggested that counterfactual research should include consideration of how these thoughts affect behaviour, particularly the costs and benefits of this cognition. Indeed, there have been examples in the clinical field of counterfactual thinking being used consciously; as an intervention to make better future decisions (eg. Baek & Shen, 2010), which will be discussed later on, though no interventions involving counterfactual thinking have been used in educational psychology. Thus, these findings clearly suggest that counterfactual thinking has significant implications for how human beings feel, think and behave as well as possible therapeutic benefits, issues that are of particular relevance to the practice of educational psychologists (Beaver, 2011).

In summary, counterfactual thinking has been shown to be a significant psychological process that has both advantages and disadvantages. As mentioned earlier, this type of thinking is characterised by the consistencies and regularities that human beings share. The next section will look in more detail into these automatic regularities.

1.2 ii) A critical review of the literature regarding regularities in people's use of counterfactual thinking

Research has illuminated the ways that counterfactuals are generated and there is a consensus that people show a remarkable degree of regularity (Byrne, 2002),

which has proved of great interest to cognitive psychologists. For example, people are more likely to think counterfactually when there is a negative outcome (Roese, 1997). They also focus on undoing actions rather than failures to act (Kahneman & Tversky, 1982); exceptions rather than routines (Kahneman & Tversky, 1982); controllable rather than uncontrollable events (McCloy & Byrne, 2000); and the action effect (the tendency to attribute most regret to a character whose actions brought about a bad outcome; Atkinson et al, 2009).

1.2 ii.a) Order effects

A number of studies (see Appendix 1) have shown that counterfactual thinking is also subject to 'order effects' – the focus of these thoughts is influenced by the order of information prior to the event. Order effects also appear to have a particularly strong link to emotions associated with counterfactual thinking, namely guilt and regret but also to the social ascription of blame (Meehan & Byrne, 2005).

Wells, Taylor, & Turtle (1987) found that people tended to focus on the first event in a causal sequence in what has been termed the 'causal order effect'. They used a basic scenario centred on 'William' and his attempts to get to a store across town in order to take advantage of a sale on a limited number of stereo systems but his progress was impeded by four minor misfortunes: a speeding ticket, a flat tyre, a traffic jam, and a group of senior people crossing the street. William arrived at the store 35 minutes after the sale started only to find that the last stereo system has just been sold a few minutes before (Wells et al, 1987). Each event in this causal sequence affects subsequent events yet the removal of any of the events is sufficient to change the outcome. The researchers found that there was a causal order effect, in that people focused on the first event, but there was no effect for the events themselves.

Yet, for events that are independent of each other, the reverse is the case. People tend to focus on the last event in what is called the 'temporal order effect' (Miller & Gunasegaram, 1990). In this study, two individuals called Jones and Cooper were

asked to toss a coin and if the two coins came up the same (both heads or both tails), each individual would win £1,000. However if the two coins did not come up the same, neither individual would win anything. Jones goes first and tosses a head; Cooper goes next and tosses a tail and thus the outcome is that neither individual won anything. Thus, the participants focused on Cooper's actions rather than Jones's. (Miller & Gunasegaram, 1990).

Work on temporal order effects of counterfactual thinking has shown that attributions of guilt and blame follow the same pattern in that people automatically attribute guilt, regret and blame to the last event in a series of independent occurrences (Meehan & Byrne, 2005). Although Wells et al (1987) speculate that their causal order study has implications for emotions and blame, there have been no further studies specifically linking emotions to causal order. Indeed, most of the studies on order effects have concentrated on temporal order but it is not clear why causal order has been undeveloped. It could be speculated that counterfactual thinking is more directly linked with causal reasoning so order effects have been ignored but this could be an area of future research. These studies can be criticised for being experimental and not indicative of real life in that the methodology used is a scenario that involves fictional events and fictional characters. However, these studies have been replicated many times (Byrne, 2000).

There has been debate about how these order effects are processed in the human brain (see Appendix 1). There is a suggestion that people generate counterfactuals by making alterations to their mental models of the factual situation (Segura et al, 2002; Meehan & Byrne, 2005). Byrne (2002), for example, argues that people are constructing mental models and part of this is the issue of cognitive economy. Their theory is based on six principles with the main principle being that we are biased towards thoughts centred on winning and so we are unlikely not to change the first scenario, which is 'immutable'. Thus in temporal order events, people only think of one alternative to the factual situation and the first one that comes to mind is to focus on the last event. But in causal events this immutability is cancelled because a causal situation involves keeping in mind the factual situation in which

both the cause and outcome occurs (Segura et al, 2002). In other words, causes are mentally represented with a readily available counterfactual alternative. Indeed causal reasoning research has shown that prior causes in a sequence of events are considered more important than more immediate causes (Vinokur & Ajzen, 1982) and more of the burden of proof in legal arguments falls on the utterer of the first statement (Bailenson & Rips, 1996).

The order effects have proved robust even when conditions are manipulated. Segura et al. (2002) looked at the temporal order and causal order separately but incorporated it in the same paper. They found that temporal order effect occurs for sequences with four events as well as for sequences with two events. They concluded that this was proof that the temporal order arises because people pre-suppose the first event - it is immutable and rules out the argument that it occurs because of working memory issues that people are more likely to remember the last thing that happened. The second experiment showed that the causal order effect occurs for sequences with two events as well as four events. It was concluded that the causal relationship between the events cancels the immutability of the first event. They suggested that in temporal order, people go through certain representations. See Table One for an explanation of Segura et al. (2002) model for temporal order thinking if the scenario of Jones tossing heads and Cooper tossing tails.

Table 1: Segura et al. (2002) temporal order model

Type of thinking Factual/Counterfactual	What happened (1)	What happened (2)	Outcome
Factual	Jones-head	Cooper - tails	Lose
1) Counterfactual	Jones - head	Cooper - head	Win
2) Counterfactual	Jones-tails	Cooper- tails	Win
3) Counterfacual	Jones-tails	Cooper- heads	Lose

Segura et al. (2002) argued that the temporal order effect indicates that people flesh-out their counterfactual models for just one of the options. In this case it is option one, which means the focus is on Cooper's failure in the factual event. Meehan & Byrne (2005) also argued that although working memory limitation did not explain the temporal order effect, it may have affected the number of possibilities in people's minds.

But further research has shown that these effects can be flexible and subject to change. Atkinson et al. (2009) showed that temporal order was more robust than other variables in counterfactual thinking by introducing a time pressure – this showed a reduction in the action/inaction effect (that participants focus on action rather than inaction) but not in the temporal order effect (that participants focus on the last thing that happened). However, Atkinson et al. (2009) observed that the temporal order effect in attributing negative emotions can be reduced when asking participants to evaluate the actions of the people involved ("who ought to feel worse").

Although the counterfactual thinking findings have been fairly robust, work carried out by Girotto, Ferante, Pighin, & Gonzalez (2007) has called for these experiments to be carried out differently. In their study they found that the role that participants play could affect counterfactual thinking. They point out that most counterfactual experiments involve “readers” – participants who are imagining the scenario about other people. When the researchers introduced “actors” – people who were actually involved in the scenario – then the result was different. They found that unlike readers, actors alter normal events, do not construct inaction counterfactuals and alter uncontrollable events. Although the order effects were not analysed in this experiment, it could be hypothesised that if counterfactual thinking was reduced in these areas then it could be applied to order-type tasks.

If accepted that these order effects are one of the quirks of human thinking, this could prove to be enlightening for psychologists in demonstrating the ways in which descriptions of events can bias people towards different perceptions of events and emotions associated with it. This could be particularly important in a courtroom situation, for example, where the way the evidence is presented may bias judgements. But it could also be arguably important for day-to-day functioning for both adults and children. For example, these order effects could be important in areas such as playground disputes, bullying, motivation and learning.

Despite the potential practical implications of counterfactual thinking, very little research in this area (including order effects) has been applied outside academia. There has been some practical work done in clinical settings (Baek & Shen, 2010) but none in educational settings, so there is clearly a gap in the literature. There is also no mention of counterfactual thinking in all the main journals pertaining to educational psychology. However there has been a large body of work carried out by developmental psychologists on children's counterfactual thinking which could be tentatively linked to practical applications in school. Thus this review will now look specifically at findings from counterfactual research carried out on children.

1.2 iii) A critical review of the literature regarding children's use of counterfactual thinking

Most of the work on counterfactual thinking in children has been done by developmental psychologists who have tried to ascertain when these thoughts start and their link to moral development (see Appendix 2). The ability to imagine fictional worlds can already be observed in very young children when they create imaginary companions (Oregon, 1999) or engage in pretend play (Kavanaugh, Eizenman, & Harris, 1997). However, counterfactual thinking appears to develop gradually during childhood (Rafetseder et al, 2013). Previously, there was evidence to suggest that children as young as two could entertain 'close' (i.e. 'almost' scenarios like a horse almost falling off the table) counterfactual thoughts (Harris, 1997). However, Beck & Guthrie (2011) showed that these results were false positives and argued that counterfactual understanding was not evidenced

until at least five years old. It has also been shown that pre-school children rarely produce spontaneous counterfactual assertions but can generate them on request, but by the age of six, they demonstrate automatic counterfactual thoughts (Kuczaj & Daly, 1979). Yet this was contradicted in a more recent study which showed that even a majority of 11-year-old children do not engage in counterfactual thinking when asked counterfactual questions (Rafetseder et al, 2013). This study showed that the performance of the 9- to 11-year-olds was comparable to that of the 6-year-olds, whereas the 12- to 14-year-olds approximated adult performance. So there appears to be disagreement over the precise ages that these thoughts develop but there seems to be a consensus that this development is gradual.

The debate over the role of counterfactual thinking in children's development dates back to Hume's time (1739), who argued that causal reasoning involved inferring a causal relationship between two events. Harris et al (1996) went further and argued that children use counterfactual thinking in interpreting the cause of an event. More recently German (1999) argued that counterfactuals were not necessary to causal reasoning in children and could only be evidenced for negative events. As cited earlier, Rafetseder et al. (2013) have suggested that the ability to apply counterfactual thinking (which they referred to as 'reasoning') is not 'fully' developed in children before 12 years of age. The scenario in this study focused on Simon and his little sister Julia and some sweets. When their mother bought the sweets, she placed it either in the box on the top shelf or in the box on the bottom shelf. If the children found the sweets, they would take it into their rooms. Simon was tall enough to reach the top shelf but his leg was in a plaster so he could not reach the bottom self. Each participant was presented with a scenario (e.g., the candy is on the top shelf today) asked an indicative future question, such as, 'what will happen to the candy if the boy goes looking for it' (answer - the boy's room) and a subjective (counterfactual) question, 'what if the little girl came looking for the candy instead of the boy, where would the candy be?' (answer - on the shelf). The performance of the 9 to 11 year-olds was significantly different to the performance of the 12-14 year-olds. Only 39 per cent of the younger age group answered the question correctly, yet all the 12 to 14 year-olds answered correctly.

Further experiments indicated that children were using other reasoning strategies (which they called 'basic conditional reasoning') in simpler scenarios.

This research indicates that there are apparent contradictions in children's thinking. Children are developing causal reasoning and counterfactual thinking at different stages and sometimes these processes are linked. It is interesting that the research conducted by German (1999) indicates that counterfactual thinking in children is more linked to the causes of negative events rather than positive ones. This arguably has implications for how children deal with negative events, such as playground bullying and disputes.

1.2 iii.a) Children's counterfactual thinking and order effects

It has also been shown that the counterfactual regularities also follow a developmental pattern. Meehan & Byrne (2005) demonstrated that six year-olds and eight year-olds followed adult patterns in temporal order scenarios. Both age groups chose the last event that happened in a scenario. Eight-year-olds also followed the adult pattern of ascribing guilt, regret and blame to the last thing that happened. But the six year-olds only followed the adult pattern for regret. The researchers concluded that counterfactual thinking and counterfactual thinking about emotions and social ascriptions follows a different developmental pattern.

However, this study is the only one that has assessed order effects and has a relatively small sample of 60. It could be argued that the scenarios were not adapted sufficiently for such young children and there were no follow-up questions. Arguably, it is important that these order effects in children are explored in more detail as it has implications for children's personal development and the way that they behave in society and within school. Nevertheless, although this is just one study, the robust link between order effects and guilt, regret and blame is significant and has been found in the adult population on numerous occasions.

The next section will look in more detail at the literature on emotions of guilt and regret and the social ascription of blame in adults and children and their link to counterfactual thinking.

1.2 iv) A critical review of the literature regarding self-conscious emotions and social judgements and their links to counterfactual thinking

According to previous research (Ekman, 1992), there are only a limited number of basic emotions and these emotions are characterized by their early appearance in life and by having prototypical and universal facial expressions. In contrast, emotions such as envy, guilt, regret, pride and embarrassment are considered self-conscious emotions, which show weaker evidence of universality, with antecedents and consequences often differing across cultures (Tracy & Robins, 2004). Thus, this argument indicates that constructions of these emotions are variable.

However, it has been argued that the major difference between basic and self conscious emotions may be that the latter require more complex processing of information, particularly social information, than basic emotions (Lewis, 2000). Tracy & Robins (2004) argue that despite the increase in interest in emotions, there has been very little research done on self-conscious emotions generally. They suggest that this is because of theoretical issues in that basic emotions span humankind and the animal kingdom and self-conscious emotions are embedded in the linguistic labels; for example, shame is associated with sadness and so on. They are also more difficult to elicit in laboratory conditions and are different to basic emotions because they require 'self-awareness' and 'self-representation'. They speculate that there are social goals to these self-conscious emotions reflecting their more complex nature in comparison to basic emotions such as joy and sadness. They argue that more work should be carried out on these emotions as they underlie so much psychological phenomenon and they suggest a model. "When is comes to motivating complex human behaviour, self-conscious emotions are the most basic," (Tracy & Robins, 2004, p105.).

Tracy & Robins (2004) also argue that self-conscious emotions are intrinsically linked to identity goals about how a person sees themselves, which can be maladaptive. They use the example of an abused woman who stays in a relationship even though it is counter to survival instincts because of her identity beliefs about being a wife and mother. They do not link their research to counterfactual thinking though make it clear that these are cognitive-dependent emotions. As counterfactual thinking is a cognitive process, it can be assumed that these emotions could be linked to counterfactual thinking and in fact, other researcher have made direct links, which will be explored below.

In terms of counterfactual thinking, guilt and regret have been widely researched though it would be interesting to address other self-evaluative emotions in future research such as the connection between counterfactual thinking and pride. For the rest of this section, this paper will evaluate research on guilt and regret as well as blame. Guilt is regarded as a negative emotion associated with having acted or not acted in a manner that impacts on internal standards or codes of conduct (Ferguson & Stegge, 1995; Ferguson, Stegge, Miller & Olsen, 1999). In contrast, regret has been defined as a sense of sorrow, disappointment, or distress over something done or not done (Landman, 1987). Thus, both guilt and regret are seen as involving cognitive operations of negatively comparing states of affairs, which happened to ones that could have been (regret) or should have been (guilt). This demonstrates how counterfactual thinking could be seen as an integral part of feeling regret or guilt because there is an element of reflecting on events and situations that have not happened. In fact, they are often referred to as counterfactual emotions. Despite these similarities, research shows that guilt and regret may be different both in triggering conditions and in consequences. In particular, guilt is associated with a sense of being responsible for and/or empathising with the harm or pain others experience as a result of one's actions, particularly those others with whom one has a significant social bond (Baumeister, 1998). Moreover, guilt is associated with a motivation to repair the damage to the other person involved in order to restore the relationship (Ferguson & Stegge, 1995). Social relationships appear to play no special role in regret and, although people may think about undoing regretted actions (Sherman & McConnell, 1995),

regret is uniquely associated with no other reparative actions other than making sure that the regretted actions do not occur again (Amsel, Robbins, Tumarkin, Janit, Foulkes, & Smalley, 2003). This research shows overall that although regret can be distinguished from guilt, the two emotional reactions remain strongly associated with each other, though in a social environment like school, these differences could be more significant.

Blame is linked to emotion but is generally seen as a social/moral judgement. It has been described as having four cognitive properties: It is both cognitive and social; it regulates social behavior; it fundamentally relies on social cognition; and, as a social act, it requires justification or 'warrant'. These four properties allow people to distinguish blame from several other phenomena, such as anger, event evaluation, and wrongness judgements. (Malle, Gugliemo & Monroe, 2014). Malle et al (2014) also argue that in contrast to 'wrongness', blame judgements are warranted by citing information specific to the person committing the action in what is called 'norm violation'. One example is 'blaming' causes for the occurrence (e.g., "her parents were to blame for her obesity because they'd started over-feeding her at birth"; Morrison, 2010, p. 14), which arguably links in with counterfactual research on causation and causal order. Malle et al. (2014) suggest a Path Model of Blame could be used to address blame issues; within this structure, blame emerges if the social perceiver detects that an event or outcome violated a norm; and determines that an agent caused the event. They argue that if no agent (person or group) is causally linked to the norm violation, the social perceiver may feel angry, sad, or worried, but blame does not arise because there is not a target for it. According to the model, if agent causality is established then the perceiver judges whether the agent brought about the event intentionally. Events are time-extended processes (e.g., a car skidding on ice; a person firing a gun at someone), whereas outcomes are the results of events (e.g., a damaged car; a dead person). Once this judgement is made, Malle et al. (2014) argue that two very different information-processing paths lead to blame. If the person is judged to have acted intentionally, the perceiver considers the agent's reasons for acting. Blame is then graded depending on the justification these reasons provide—minimal blame if the agent was justified in acting this way; maximal blame if the agent was not justified.

If the agent is judged to have brought about the event unintentionally, the perceiver considers whether the agent should have prevented the event and considers whether the agent could have prevented the event. This research indicates, arguably, that counterfactual emotions such as guilt ('should have') and 'regret' (could have') are inherently linked to blame. As outlined earlier there has been a lot of research suggesting strong links between counterfactual thinking and guilt, regret and blame with debate on the nature of the link and the pros and cons for human behaviour (Atkinson et al, 2009), though complex social issues are also significant, again relevant to school environments. In addition, children's use of these emotions and judgements appear to be developmental, an issue that will be addressed in the next section.

1.2 iv.a) Children and self-conscious emotions and blame (see Appendix 2)

Developmental work on self-evaluative emotions indicates that they begin to fully emerge from the age of seven (Guttentag & Ferrell, 2004) but there is evidence that preschool children are emotionally influenced by the world of expectations. So they feel sad when their expectations are not realised, can explain why they feel sad, and even seek to control their expression of their disappointment (Cole, Zahn-Waxler, & Smith, 1994; Levine, 1995). Observations suggest that 2-year-olds experience guilt in the sense of seeking reparation for breaking another's toy (Barrett, Zahn-Waxler, & Cole, 1993), although an understanding of guilt as measured by verbal accounts may not be acquired until 8 years (Ferguson & Stegge, 1995). So this would suggest that language is necessary to describe the emotion of guilt and regret.

Research on blame has also indicated that it is a gradual process and many studies have demonstrated the crucial role of causality in assigning blame, which is evident from age 5 on (Shultz, Wright, & Schleifer, 1986). As it takes time to learn the many shades of justifying and aggravating reasons, research has suggested that children master the justification component of blame only gradually between the ages of 5 and 9 (Fincham, 1982), later than other constituents of blame.

However, although researchers have linked self-conscious emotions to psychological functioning in adults and children (Tracy & Robins, 2004), few studies have assessed the effects these emotions play on cognitive processing in general. Furthermore, while a distinction between basic and self-conscious emotions has been made either directly (e.g., Lewis, 2000) or indirectly (e.g., Tracy & Robins, 2004), past studies have not assessed whether this distinction is relevant in terms of children's understanding of emotion. One study (Tracy & Robins, 2004) suggested that this distinction may be relevant as younger children recalled less well, and struggled to explain, the self-conscious evaluative emotion of pride, and were less likely to use psychological explanations when asked to explain its occurrence in the stories. Six-year-olds also had trouble recalling envy. Indeed, younger children more readily substituted basic emotion labels when recalling and explaining self-conscious emotions than older children. This again points to the developmental significance of self-conscious emotions and how these emotions require a deeper understanding.

This study also suggested that valence of emotion appeared to play a significant role in memory as negative emotions (e.g., embarrassment, guilt) were better recalled than positive emotions (happy and pride), regardless of the type of emotion. Such results are consistent with narrative studies that have shown that child-parent discourse about negative emotions included a larger emotion vocabulary, more open-ended questions, and more talk about other people than positive emotions (Lagattuta & Wellman, 2002).

1.2 iv.b) Children's counterfactual thinking and emotions and social judgements

There has been some research on the role of counterfactual thinking and the emotions of guilt, regret and blame in children but it is not straightforward and has courted some controversy, particularly in relation to the emotion of regret. Research has shown that children's understanding of regret develops late compared to their ability to imagine counterfactual worlds (Beck & Crilly, 2009). As cited earlier, Guttentag & Ferrell, 2004 found that five year olds did not understand regret but seven year-olds did. Beck & Crilly (2009) replicated these

findings and suggested that children need to think counterfactually to experience regret. Yet as cited earlier, Rafetseder et al (2013) argued that although children can think counterfactually on simple tasks, they argue that this is based on a simple reasoning strategy rather than fully developed counterfactual reasoning as evidenced in the adult population. Therefore, if Beck and Crilly (2009)'s argument is accepted, that would suggest that children do not properly experience regret until they are 12 years old. One of the key problems is that these two studies are very different in terms of the scenarios involved and cannot be compared. Overall, the evidence suggests that regret is inherently linked to counterfactual thinking but it might be on a different developmental path and there is argument over the issue of 'full' development of both processes. Other emotions like guilt and social ascriptions have not been tested on this level.

1.2 iv.c) Meehan & Byrne (2005)

The only piece of work that has been carried out on counterfactual scenarios involving order effects (Meehan & Byrne, 2005 cited earlier) also showed a developmental discord between counterfactual thoughts and guilt and blame.
In particular, there is evidence that ascribing guilt and blame with the order effects does not happen until at least the age of eight suggesting that between the ages of six and eight, there is a developmental lull. The authors suggest that this indicates that children's creation of counterfactual alternatives has not been fully developed before eight. It could be argued that this study did not test 'full' counterfactual thinking as was done in the Rafetseder et al, 2013 study. Indeed, their creation of counterfactual alternatives was measured via a sentence completion task: "They could have won the prize if only one of them had picked a different coloured card, so if ..... (the children need to fill in the blanks) and then are asked, "Can you guess how he finished his wish" (Meehan & Byrne, 2005, p.1469). It could be argued that the children can only answer by writing a name so arguably it is more an imaginative task rather than counterfactual reasoning. It would be useful to distinguish between counterfactual thinking and reasoning. Nevertheless, this study (which with 62 participants had a larger sample size than Rafetseder et al (2013)'s sample size of 34) did show robust order effects in both six and eight

year-olds with a strong link for the latter to regret, guilt and blame, all of which has been evidenced in the adult population.

There is little account of the implications of this developmental phenomenon on education and no research done beyond the age of eight. Amsel et al (2003) argued that attempts to regulate pre-school children by inducing regret using counterfactual thinking is ineffective. They give the example of a football coach exclaiming to his four-year-old defender "If only you had played your position, they wouldn't have scored'. But nothing more substantial has been suggested to guide teachers and parents. The next section will look at how these findings can be linked to the education system.

1.2 v) Counterfactual thinking: Educational implications

There has been no research done on counterfactual thinking involving education. The Meehan & Byrne (2005) study was carried out in a school environment but did not involve school-based scenarios and there were no follow-ups done. Gummerum, Cribbett, Nicolau & Uren (2013) showed that children that were encouraged to think counterfactually were more likely to attribute negative feelings to someone who had acted selfishly, which has educational implications, but this was also not carried out in the school environment. To date, there have also been no qualitative studies, which could provide some valuable information about children's thinking.

However there has been work done on children's emotions, as described in the last section, coupled with an increase in the promotion of emotional wellbeing in education. The UK Government has invested in the development of the Social and Emotional Aspects of Learning (SEAL) initiative (Burton, 2008). Staff in schools are also required to address the well–being of children and young people, as shown by the outcome measures of Every Child Matters (DfES, 2003).

Nevertheless, there is widespread evidence that the UK is still performing poorly in terms of the well–being of its children and young people compared to other

countries (Claxton, 2008, Mortimore, 2013). At the same time, although professionals, like educational and child psychologists are increasingly focusing on emotional literacy, they are arguably still holding professional views that are inherently opposed to ideas of well being (Neven, 2008). Some children are perceived as able to maintain a healthy emotional wellbeing while others are more prone to mental health problems (Rowling & Kasunic, 2006). Yet research has shown that risk factors do not affect all young people in the same way, suggesting that certain factors enable some children to be more 'resilient' (Ungar, 2005).

This mixed picture of wellbeing in the UK at least suggests that cognitive processes, such as counterfactual thinking, might have an impact on how children feel about themselves and others and so cognitive-based emotions such as regret and guilt are relevant. It could be argued that the thinking of adults, like psychologists and teachers is also relevant to this overall picture.

Indeed research has shown that worry, for instance, which is intrinsically linked to self-conscious emotions (Schoenleber, Chow & Berenburn, 2014), is a significant factor in the wellbeing of children. Nearly 80% of primary school children aged 8 to12 reported worrying sometimes, and these worries were generally concerning school, illness, dying and social problems (Henker, Whalen, & O'Neil, 1995). Muris, Meesters, Merckelbach, Sermon, and Zwakhalen (1998) investigated the severity of worries in 193 children and discovered that 68.9% worried now and then, and 6.2% of this sample met the criteria for Generalised Anxiety Disorder (GAD). Despite the knowledge that severe childhood anxiety is detrimental to functioning and may produce long-term negative consequences, comparatively few studies have investigated worry in children (Muris, 2007).

The research conducted by Grist & Field (2012) would also suggest that more should be done in schools to understand this level of thinking. They have argued that counterfactual thinking is part of a series of cognitive structure that is developmental and permits worry, anticipation and elaboration in young children. Understanding these cognitive structures is essential to intervening when these worries are dysfunctional. It could also be argued that interventions on emotional

literacy are concentrating too much on basic emotions such as anger (e.g., The Emotional Literacy Support Assistant Programme includes anger as one of its modules, Burton, 2008) and not addressing emotions such as regret and guilt.

This literature review has also highlighted the developmental significance of both counterfactual thinking, self-conscious emotions and blame. There is a lot of disagreement about when and how these concepts develop but there is a general agreement that it is developmental and adult thinking of these concepts differs from children's. Hattie (2012) has highlighted the significance of Piagetian concepts to effective learning pointing to research that shows that fewer than 50 per cent of year 11/12 pupils (aged 15 to 17) are formal operational thinkers, whereas Piaget's theory of learning anticipated that this type of thinking (being able to think in abstract or hypothetical terms, form hypotheses and reason through analogy and metaphor) starts at 11 and is achieved by adulthood (Piaget, 1970). Shayer (2013) developed a programme of cognitive acceleration based on children attaining a higher thinking level so this initiative could arguably be extended to include counterfactual thinking and related emotions and social judgements.

Some successful work has been done on restorative justice-type techniques, indicating that there are ways of dealing with this thinking, emotions and judgements. Denial of event and justifications are the two ways that people try to mitigate situations but strategic event denials without good evidence rarely succeed (Dersley & Wootton, 2000). Yet, research has also shown that reconciliation, such as admission, remorse, apology, and restitution have the power to successfully repair relationships, often through forgiveness (McCullough, Kurzban, & Tabak, 2013). This has implications for educationalists and perhaps indicates that more awareness is needed on the complexity of these processes.

This research also has implications for the education sector as a whole. It is not only important to have an understanding of how young people's minds work and the connections between emotions, judgements and counterfactual thinking but these biases might also dictate how they respond to the many aspects of school life.

In particular, playground issues – when there is less supervision and children are allowed free time – are of on-going concern in schools. Ross & Ryan (1994) estimated that one fifth of a child's time in school is spent in the playground and describes this as a period of extreme stress for some children. The Elton Committee of Enquiry into Discipline in Schools identified lunchtime as 'the biggest single behaviour-related problem that staff face' (DFES, 1989,p.122). Counterfactual thinking can also be linked to psychological theory that is seen as significant to education such as locus of control (Gummeram et al, 2013), which is frequently linked to resilience and self-esteem (Saadat, Ghasemzadeh, Karami, & Soleimani, 2012.

In addition, counterfactual thinking in general has also been linked to other developmental phenomenon like 'theory of mind' (Byrne, 2013), that has particular relevance to children who struggle with social communication problems such as autism. It has been suggested that 'disorders' of counterfactual thinking might govern difficulties in learning from mistakes and communicating appropriately with other people (Byrne, 2013).

1.2 v.a) EP practice

One of the roles of the EP is to bridge the gap between theory and practice (Chodkiewicz, 2014) but Boyle & Lauchlan (2009) go further and argue that EPs are uniquely placed to bring about change in schools by translating psychological evidence into practice. Cognitive psychology is a key area of psychology to influence EP practice, particularly as many years of research in cognitive psychology has produced evidence that the way people think influences how they learn and behave (Anderson, 2010). Chodkiewicz & Boyle (2014) recently argued that cognitive psychology (using the example of attribution training) should be incorporated more into professional practice. Within this, as the literature review suggests, counterfactual thinking is likely to be a significant cognitive process that has learning, socio-emotional and behavioural implications so it could arguably be used to inform educational practice.

Counterfactual thinking research could be used to inform practice in education; both through raising awareness through EL programmes or more directly. In particular, the issues of 'faulty thinking' as illustrated by the order effects and the other work carried out by Kahneman (2011) could be part of the psychological knowledge and skills that an EP can bring to practice and possibly incorporate into Cognitive Behavioural Therapy.

Creating awareness of psychological phenomenon has been used in other areas of psychology. In a recent study, researchers found that participants who read about naive realism - the instinctive feeling that people perceive the world as it is - were less certain about their personality judgements and more open to alternative interpretation (Jarrett, 2015). It could thus be argued that exposing counterfactual thinking order effects in an experiential way might help children and educators with their thinking skills.

Counterfactual thinking could also possibly be used as the basis of an intervention as it already has been used successfully in other settings (albeit not widely used). For example, one experiment (Baek & Shen, 2010) examined the interaction effects of message framing and counterfactual thinking on attitudes toward binge drinking and behavioral intentions. Data from the study showed that a gain-framed message resulted in lower binge drinking intentions than did a loss-framed message after subjects engaged in additive counterfactual thinking. However, according to the Theory of Reasoned Action (Ajzen & Fishbein), intentions to change often do not translate into actual changes so the success of this intervention might be limited. Another experiment (Chan, 2014) used counterfactual thinking in computer training. The counterfactual group showed marginally greater improvement in task performance (measured by task completion time and accuracy) than the control group. However, the researchers also found that positive anticipated emotions were associated with improvement in task performance but for the counterfactual group only. It was concluded that there were implications for incorporating counterfactual thinking into information technology skills training to enhance learning outcomes for novice learners.

Counterfactual thinking has largely been tested using scenarios or vignettes so it is worth at this point looking at the advantages and disadvantages of this type of research, based on the literature.

1.2. v.b) Criticism of scenarios

Researchers have tended to use scenarios to test counterfactual thinking. This research dates back to the 1980s. Kahneman & Tversky's (1982) study is one of the earliest examples. They presented two groups of participants with different versions of a story concerning Mr Jones. In one version, Mr Jones leaves work earlier than he usually does and proceeds home via his regular route. In the other version, Mr Jones leaves work at his usual time but takes a different route home. In both versions, Mr Jones is halfway home when he is hit by a truck running a red light killing him instantly. This style has been used in most experiments; for example, Wells et al. (1987) constructed a scenario involving William getting across town. Participants are usually asked a series of questions and these are coded. There is also some variation in choice of analysis and statistical test. In the Wells et al. (1987) experiment, the researchers calculated the percentage of participants for whom the event was mentioned first among the four events. Then a chi-square analysis indicated no main effect for events but a main effect for the order variable. Meehan & Byrne (2005) also used percentages and chi-square to test significance but Segura et al. (2002) used percentages and a hypothesis test for two proportions.

The fact that this style has been replicated many times indicates that it is a robust methodology though it could be argued that participant numbers are usually less than 100. However, the Segura et al. (2002) experiment had 372 participants and also found both temporal and causal order effects. The tests to establish significance are generally non-parametric which are considered less powerful in terms of robustness. Markman et al. (2009) have also criticised the 'scenario paradigms' as they call it for being hypothetical for focusing on dramatic events which might give the impression that we only think this way when events are life-changing and dramatic whereas Markman et al. (2009) research shows that

counterfactual thinking is pervasive in mundane every day life. Work carried out by Girotto et al. (2007) has also called for these experiments to be carried out differently. They argue that most counterfactual experiments involve “readers” – participants who are imagining the scenario about other people. When the researchers introduced “actors” – people who were actually involved in the scenario then the result was different. It could also be argued that these cognitive experiments are inappropriate for children, as they do not make 'human sense'. Donaldson (2006) used this argument against Piaget's experiments on children's thinking and successfully showed that children could achieve certain tasks if they made sense of them. Thus it could be argued that Meehan & Byrne's (2005) experiment on children was too abstract, though the researchers used various techniques to check the children's understanding, such as using puppets and using child-friendly concepts like stickers. It would be useful, nevertheless, to seek to replicate this experiment using scenarios that might make more sense to the experiences of the children involved. School is a significant part of a child's experience of the world, so this would be a suitable environment to use.

1.3 CONCLUSION

1.3 i) Current research

The aim of this research is to explore the use of counterfactual thinking within the context of the school environment. Although current research in cognitive psychology has provided evidence regarding the way people think counterfactually, this has focused primarily on adults and has used neutral environments. It has also never been applied to educational interactions. This research has also used experimental techniques and not used qualitative methods to explore this type of thinking. Thus, this research will build on the work done using scenarios and seek to replicate findings from the order effects literature in the child population yet focus on school-based events and an older age group. It will also aim to provide some qualitative information about how children perceive these events and how they regard guilt, regret and blame. It will also seek to gain a perspective from teachers working with these children.

1.3 ii) Research aim

The current study will use quantitative and qualitative methods to address the following hypotheses and research questions.

1.3 ii.a) Hypotheses

1) Children will focus on the last thing that happened in a series of independent events leading to a typical school-based event.

2) Children will assign guilt to the last thing that happened in a series of independent events leading to a typical school-based event.

3) Children will assign regret to the last thing that happened in a series of independent events leading to a typical school-based event.

4) Children will assign blame to the last thing that happened in a series of independent events leading to a typical school-based event.

5) Children will focus on the first thing that happened in a series of linked events or causes of a school-based dispute.

6) Children will assign blame to the first thing that happened in a series of linked events or causes of a school-based dispute.

Pupil's use of counterfactual thinking will also be explored qualitatively by addressing the following two research questions.

1.3. ii.b) Research questions

1) How do children perceive the responses they gave to the counterfactual scenarios involved in this study?

2) What are teachers' views of how children think about events?

1.3 iii) Theoretic approach

In terms of perceptions of reality and ontology, this research is embedded in the tradition of social constructionism in that there is an acceptance that the results of the study reflect the participants' perceptions of events and the researchers involvement. Yet counterfactual thinking research has been traditionally rooted in the experimental tradition with its ontological and epistemological assumptions that a reality exists. Therefore, there could arguably be a boundary between the social constructionist ontological and epistemological approach and the experimental tradition of research into counterfactual thinking, particularly as part of the research seeks to emulate some of these experiments and accepts the theoretical underpinnings of the background research. There have been many concerns about the differences between quantitative and qualitative research (Robson, 2011) but some researchers have argued that either type could be carried out from a range of philosophical stances (Maxwell & Mittapalli, 2002) and both can be concerned with making generalisations (Brannen, 2005). Thus, a mixed methodology approach was adopted under the theoretical umbrella of the critical realist constructionist stance (Nightingale & Clomby, 2002) in an attempt to marry these two traditions. A deductive or top down approach was adopted to the research followed by an inference of the implications of these findings for the theory that prompted it.

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1.5. APPENDICES

i) Appendix 1: Order effects – Analysis of literature

Name of study	What type of order effects? and methodology	What did it find?	Possible explanation given
Meehan & Byrne (2005)	Temporal order effects (including regret, guilt and blame) tested in children aged 6 and 8. A total of 62 participants were given scenarios and asked questions. Some aspects were modified for children, e.g. enacted with the use of props. Sentence completion task and participants were asked questions about guilt, regret and blame	Children aged 8 echo the adult response to temporal order effects but this is the not the case for six year-olds (in terms of guilt and blame).	Children are able to mentally represent both the facts and the counterfactual possibility (like adults). However, emotion and social judgements follow a developmental pattern. Six year-olds may be limited in how their mental representation of the counterfactual alternative influences their representation of the facts, perhaps due to working memory constraints.
Wells et al. (1987)	Causal order effects in adult population. 58 participants	20.2 per cent of all responses were focused on the first event	Events that people choose to undo in order to alter an outcome are the

	presented with scenario involving a causal sequence. They were asked to list six ways in which the outcome of the story could be different.	(causal order) A four (event) x four (order) chi-square analysis on the frequencies indicated no effect for events but a significant effect for order.	same events that make the outcome easy to explain.
Segura et al. (2002)	Temporal and causal order effects tested in adult population (372 participants). Presented participants with written scenarios and given the task to imagine how the task could have turned out differently.	Temporal order (focused on last event) effects for sequences of four events (33%) as well as two events (63% versus 25%). Causal order (focused on first event) found for two events as well as four events.	People generate counterfactuals by making alterations to their mental model of the factual situation. The earlier event in temporal order event is immutable because it provide an anchor for the model's foundation. Causes are mentally represented by an easily available counterfactual alternative, the immutability of the first event is cancelled.

Miller & Gunasegaram (1990)	Temporal order effect in adult population. Presented participants with the Jones and Cooper scenario (88 participants) and asked: Who would you predict would experience more guilt - Jones or Cooper and will Jones blame Copper more or will Cooper blame James more? Also asked to respond to the probe - Which of the alternatives comes to mind: (a) Jones tossing a tail (b) Cooper tossing a head	Temporal order effect for guilt and blame. 86 per cent said Cooper would experience more guilt and 92 per cent said Cooper would be blamed. 89 per cent modified the second option	Second event is more mutable than the first
Atkinson et al (2009)	Temporal order (and action order) effects in adults (64 participants) but introduced two variables - time pressure and	The action effect is reduced under speeded responding and persists when people are asked to evaluate but	Psychological differences between the evaluation of chance outcomes (temporal order scenarios) and outcomes that are

	asked the participants to evaluate They were presented with scenarios and told they were required to make a judgment between two characters	the temporal order is immune to time pressure but disappears when people are asked to evaluate the protagonists.	arrived at by decision
Byrne et al (2002)	Temporal order effect tested in scenarios where the game is stopped after the first player's selection because of a technical hitch and so the game is restarted. 75 participants They were presented with the scenario and then asked to complete a sentence and asked questions about guilt and blame	Temporal order effect is eliminated (44 per cent versus 42 per cent)	Temporal order effect occurs because the first event is immutable and the availability of a counterfactual alternative can negate this immutability

1.5 ii) Appendix 2: Developmental stages of counterfactual thinking/self-evaluative emotions and blame according to the literature

Ages in years and school stage in the UK	What happens? Thinking and emotions	Reference	Who disagrees?
1	Emergence of basic emotions Ability to imagine fictional worlds when they create imaginary companions or engage in pretend play	Ekman (1992) Oregon (1999)	
2	Experience guilt in the sense of seeking reparation for breaking another's toy Children can entertain 'close' counterfactuals (i.e 'almost' scenarios like a horse almost	Barrett et al. (1993) Harris (1997)	Other researchers suggest guilt (and other self-conscious emotions develop later) Beck & Guthrie (2011) argued these results were false positives.

	falling off a table)		
3 Pre-school	Can generate counterfactual thoughts on request	Kuczaj & Daly (1979)	
4 Pre-school/ Reception	See above	See above	
5 Reception/ Year 1	Causality role in assigning blame Counterfactual thinking is evidenced	Shultz et al (1986) Beck & Guthrie (2011)	
6 Year 1/ 2	Understanding of regret and guilt begin to emerge Children demonstrate automatic counterfactual thoughts Temporal order effect in counterfactual	Amsel et al (2003) Kuczaj & Daly (1979) Meehan & Byrne (2005) used scenarios and	 Rafetseder et al. (2013) argued that children might be using basic reasoning strategies rather than counterfactual thinking See above

	thinking apparent but only for sentence completion task and assigning regret	asked participants to complete a sentence and then asked which character would feel most regret, guilt and who would be blamed.	
7 year 2/3	Children have to think counterfactually before they experience regret. 'Counterfactual emotions' of regret and guilt begin to emerge Counterfactual emotions are linked to counterfactual thinking	Beck & Crilly (2009) Guttentag & Ferrell (2004) Guttentag & Ferrell (2004)	
8	Understanding of guilt measured by verbal accounts Temporal order effect apparent for	Ferguson & Stegge (1995) Meehan & Byrne (2005)	Rafetseder et al (2013) argues

	sentence completion task as well as assigning regret, guilt and blame		that many counterfactual experiments are testing basic conditional reasoning (but the researchers did not look at temporal order)
9	Justification part of blame mastered Children are not fully capable of counterfactual thinking - they use basic conditional reasoning Children show temporal order on sentence completion task (if only...) and assigning blame but not for regret or guilt	Fincham (1982) Rafetseder et al. (2013) Children given a scenario where they were asked a 'what if?' question	Rafetseder et al (2013) used different scenarios involving more mental activity whereas the other studies had simpler designs

	Children show causal order but not for assigning blame		
10	See above		
11	See above		
12 Year 7/8	Children can engage in full counterfactual thinking from this age	Rafetseder et al. (2013) Children were given a scenario, which involved working out what would happen to an object if it was put on a certain shelf. The participants were asked 'what if?'	
13	See above	See above	
14	See above	See above	
Adulthood	Temporal order effect for sentence completion, guilt and blame Causal order effect in adults	Miller & Gunasegaram (1990) Segura et al. (2002) Wells et al. (1986)	

PART 2: EMPIRICAL STUDY

2.1 ABSTRACT

Counterfactual thinking refers to imaginative thoughts about what might have been - the 'if only' or ' what if' thoughts. Research has shown regularities in the way that people think counterfactually and has suggested that the focus of these thoughts is influenced by the order of events prior to an event. So people tend to focus on the last thing that happened if there is a temporal order sequence but the first event if there is a causal order sequence. This has also been demonstrated when people are asked to assign self-conscious emotions and social ascriptions. Yet very little research has been carried out involving the child population. The current study tests the hypothesis that children aged 9 to 11 will demonstrate the temporal order and causal order effects in school-based scenarios extending previous research by focusing on an older age group and using school-based scenarios instead of more abstract stories. It also differs from previous research in that this study tests the causal order effect in children for the first time. This study also tests the hypothesis that children will apply these effects when asked questions about guilt, regret (considered self-conscious emotions) and blame (considered a social ascription) in line with previous research in the adult literature. Consequently, 121 children were asked to answer questions about two scenarios. In addition, this research adopted a mixed-design approach and a series of interviews were carried out with 13 pupils, randomly selected from the children who took part in the quantitative stage of the study. These pupils were asked specific questions about their responses to the scenarios. Two focus groups comprising of teachers of some of the pupils who took part in the study were also set up to elicit views on children's thinking about school-based events.

The temporal order effect was observed in the sentence completion task and blame questions but not for questions about regret and guilt. The causal order effect was observed in the choice of first event to focus on but not for the question

of blame. Thematic analysis of the qualitative data indicated that children thought of order to explain their choices but also created their own individual stories or narratives about the events to explain their ideas. A few children described their choices in terms of automatic thoughts and locus of control was also a theme from the interviews. Analysis of teachers' views suggested that they felt negatively about how children thought about events in school and linked this to their emotions and social judgements. In addition, they believed that children should take more responsibility for their actions. Interpretations of the findings are discussed with regard to children's thinking, emotions and behaviour. Implications for educators and educational psychologists are considered.

2.2 INTRODUCTION

Counterfactual thoughts involve the mental comparison of an actual situation with an alternative one and undoing the real event or experience (Segura, Fernandez-Berrocal & Byrne, 2002) and are often signposted by the phrases 'if only' or 'what if'; a phenomenon that has been called 'mental time travel' (Byrne, 2013). Research has shown that counterfactual thinking is pervasive in adult mental life impacting on many aspects of everyday life (Kahneman & Tversky, 1982). There is also a particularly strong evidence base for the link between counterfactual thinking and affective processes, particularly 'counterfactual emotions' such as regret and guilt as well as social judgements like blame (Atkinson, Bell & Feeney, 2009).

Research has shown that people demonstrate regularities in the way they think counterfactually. People are more likely to undo actions rather than failures to act; focus on exceptions rather than the ordinary (Kahneman & Tversky, 1982); controllable rather than uncontrollable events (McCloy & Byrne, 2000) and tend to think counterfactually when there is a negative outcome (Roese, 1997).

Studies have also uncovered evidence of 'order effects'; that is, the focus of counterfactual thoughts is influenced by the order of information prior to an event. Wells, Taylor & Turtle (1987) have found that people tend to focus on the first

event in a causal sequence in what has been termed the 'causal order effect'. Their study used a scenario involving a man called William and how he failed to get to a sale because of four minor misfortunes. Participants focused on the first event in that sequence regardless of the nature of the event itself. Yet, for events that are independent of each other, the reverse is the case. People tend to focus on the last event in what is called the 'temporal order effect' (Miller & Gunasegaram, 1990).

This has proved enlightening for psychologists in demonstrating the ways in which people are biased towards different perceptions of events. There has been debate about how this works and there is a suggestion that people generate counterfactuals by making alterations to their mental models of the factual situation (Segura et al, 2002). Thus, in temporal order events, they only think of one alternative to the factual situation and the first one that comes to mind is to focus on the last event. The first event is considered immutable but in causal events this immutability is cancelled because a causal situation involves keeping in mind the factual situation in which both the cause and outcome occurs. Further research has shown that these effects can be flexible and subject to change. Atkinson et al. (2009) showed that temporal order could be reduced when asking participants to evaluate the actions of the people involved ('who ought to feel worse'.). Girotto, Ferante, Pighin & Gonzalez (2007) found that the role that participants play could affect counterfactual thinking. They point out that most counterfactual experiments involve 'readers' – participants who are imagining the scenario about other people. When the researchers introduced 'actors' – people who were actually involved in the scenario then the result was different. Although the order effects were not analysed in this experiment, it could be hypothesised that if counterfactual thinking was reduced in these areas then it could be applied to order-type tasks.

Most of the work on counterfactual thinking in children has been done by developmental psychologists who have tried to ascertain when these thoughts start and their link to moral development. It has been shown that pre-school children rarely produce spontaneous counterfactual assertions but can generate them on request, but by the age of six, they demonstrate automatic counterfactual

thoughts (Kuczaj & Daly, 1979). Yet this was contradicted in a more recent study which showed that even a majority of 11-year-old children did not engage in counterfactual thinking (Rafetseder, Schwitalla, & Perner, 2013). Evidence also indicates that from the age of seven, the emotions of guilt and regret, which are often referred to as 'counterfactual emotions' also begin to emerge (Guttentag & Ferrell, 2004). Some researchers have suggested that children have to think counterfactually before they can experience regret (Beck & Crilly, 2009) yet this argument is at odds with the findings of the Rafetseder et al. (2013) study quoted above.

There is only one study on order effects in children (Meehan & Byrne, 2005), which shows that the temporal order effect and assigning regret is apparent as young as six but assigning blame and guilt in this way can only be found from the age of eight. The experiments were similar to the adult experiments though some modifications were made to check children's understanding. The researchers concluded that this disassociation at the age of six might show that children's creation of counterfactual thoughts have not fully developed, but by the age of eight adult ways of thinking are evident. This would add more evidence to the arguments outlined above that children adopt adult ways of thinking counterfactually by the age of seven or eight.

The lack of research on order effects in the child population shows a gap in the literature that needs to be addressed but this is also coupled with the ongoing debate over children's development of counterfactual thinking and the links to emotion. In addition, researchers have questioned some of the approaches to researching children's cognitive development. Rafetseder et al. (2013) have argued that children taking part in the experiments could be using other reasoning strategies rather than counterfactual thinking. Although Margaret Donaldson has not referenced counterfactuals in her work, she has suggested that cognitive tasks need to make 'human sense' to children (Donaldson, 2006, p25). This also fits in with Girotto et al. (2007) general argument that counterfactual research is too abstract.

To date, research on counterfactual thinking has been largely the domain of cognitive psychologists and has not featured in educational psychological research at all. Arguably order effects and counterfactual emotions have implications for children's personal, social and educational development. It has implications for the education sector as it could enhance understanding of how young people's minds work and the connections between emotions, judgements and counterfactual thinking. These order effects might also dictate how children might respond to the many aspects of school life that are caused or preceded by other events that range from academic and sporting achievement (doing well in an exam or winning a match) to playground fights. In particular, playground issues are of on-going concern in schools. Ross and Ryan (1994) estimated that one fifth of a child's time in school is spent in the playground and describes this as a period of extreme stress for some children. The Elton Committee of Enquiry into Discipline in Schools identified lunchtime as "the biggest single behaviour-related problem that staff face" (DFES, 1989, p.122).

The emotions of regret and guilt and the social ascription of blame play a significant part in children's well-being (Tracy & Robins, 2006; Malle, Gugliemo & Monroe, 2014), which has implications for school life. Counterfactual thinking can also be linked to psychological theory that is seen as significant to education such as locus of control (Gummeram et al, 2013), which is frequently linked to resilience and self-esteem (Saadat, Ghasemzadeh, Karami, & Soleimani, 2012).

The current study used school-based events in the scenarios to test whether or not children follow the biases of order effects and attribute guilt, regret and blame accordingly. The causal order effect and attribution of blame was tested for the first time among the child population. The blame question was used as this was more relevant to the scenarios than asking questions about guilt and regret, though these emotions could be tested in any follow-up studies.

There has been no qualitative research done on counterfactual thinking in children, so the current study employed this approach to enhance understanding of this area. It aimed to explore in more depth the perceptions of events leading to

school-based events via interviews with pupils. The views of some of the pupils' teachers was sought to provide a triangulation of data, (Altrichter, Feldman, Posch, & Somekh, 2008) with the aim of providing a more detailed and robust account of the situation in schools.

Educational psychologists are involved in consultation work with schools on how to support children with their behaviour and learning (Beaver, 2011). Children's thought processes and how they interpret events in school is of fundamental importance. In addition, work on emotional literacy is a key part of EP work and this is within an environment of widespread evidence that the UK is still performing poorly in terms of the well–being of its children and young people compared to other countries (Claxton, 2008, Mortimore, 2013). Counterfactual thinking has also successfully been used as a basis for intervention in other fields (Baek & Shen, 2010; Chan, 2014), which arguably could be replicated in educational psychology. Indeed, there is a growing call for more cognitive knowledge to be incorporated into practical applications within education (Chodkiewicz & Boyle, 2014).

2.2 i) Conclusion and current research

Current research within various professional domains has evidenced the importance of counterfactual thinking in children. However, this knowledge has not been transferred to educational psychological practice. The aim of this current research is to explore how children think counterfactually in particular relation to the complex emotions of guilt and regret and the social judgement of blame within the context of school life, whilst investigating the benefits and implications of this knowledge. The unique features of the research are outlined in Box A below.

Box A: Uniqueness of current research

- It has used school-based scenarios rather than previous research that has used abstract scenarios.
- It has looked at children over the age of 9 for the first time in temporal order research including ascribing guilt, regret and blame.
- It has looked at causal order for the first time in children including ascribing blame
- It has used qualitative research for the first time to provide more explanation of the

data

- It has used a mixed method design, incorporating three phases (one quantitative and two qualitative) to address the research questions and hypotheses.
- This design incorporates a triangulation approach to address the views of pupils and teachers.

2.2 ii) Research aim and questions

Based on the rationale discussed above and a review of the current literature, the research aim was to explore pupils' use of counterfactual thinking in school-based scenarios. This was addressed via six hypotheses in phase one (quantitative) and one research questions each for phase two and three (both qualitative). In particular, the qualitative data from phase two was aimed at building on the quantitative data from phase one and data from phase two was used to explain the results from phase one. Phase three provided a triangulation of data that aimed to provide further insight into the findings from phase one and two.

The general research question asked: Do children demonstrate order effects in their counterfactual thinking of school-based scenarios?

The quantitative phase tested six hypotheses.
1 – 4. Children will focus on, as well as assign guilt, regret and blame, to the last thing that happened in a series of independent events leading to a typical school-based event.

5 – 6. Children will focus on, plus assign blame to the first thing that happened in a series of linked events or causes of a school-based event.

Pupil's use of counterfactual thinking was also explored qualitatively by addressing the following research question.
1) How do children explain their counterfactual thinking of school-based scenarios?

Teacher views of children's thinking is addressed via the following research question.

1) What are teachers' perceptions of how children think about school-based events?

2.3 METHODOLOGY

2.3 i) Participants

The participants were 121 pupils from three mainstream primary schools (school 1, 2 and 3), who were aged between 9 and 11. These pupils were tested within their class groups, consisting of approximately 25 boys and girls. They were randomly chosen and all children in the class took part, regardless of gender, ability or social economic background. Thus, participants were selected according to age and mainstream education alone, which was in line with Meehan & Byrne (2005). Three schools participated in the research and they were all located within the same local authority, which includes some areas of deprivation. The children came from five classes – two year five classes (one from school 1, one from school 2), two year six classes (one from school 1 and one from school 2 and one mixed year 5/6 class (school 3). In addition, 13 of those 121 were randomly allocated to take part in individual interviews (approximately four from each school). Five teachers from two of the schools took part in two group interviews. This consisted of three from School 1 and two from School 2. These teachers were selected by the school to take part in the interviews based on having at least five years experience in teaching.

2.3 ii) Materials

Two scenarios were constructed. See Appendix 2 and 3 for more details. The Temporal Order Scenario, which tested hypothesis 1 to 4, involved two children, Thomas and James, who were picking coloured tokens out of a box. The Causal Order Scenario (see Appendix 3), which tested hypothesis 5 to 6, involved a girl called Sophie and her attempts to get to a music lesson in a classroom on the other side of school but whose progress was impeded by four minor misfortunes.

2.3 iii) Design

This study was constructed and executed using a mixed-method design to reflect the variety of research aims and questions; accepting the argument that both quantitative and qualitative approaches can be carried out from a range of philosophical stances (Maxwell & Mittapalli, 2010, Robson, 2011) and both can be concerned with making generalisations (Brannen, 2005). The philosophical underpinnings followed a critical realist constructionist stance (Nightingale & Clomby, 2002).This accepts that a reality exists but considers that it can only be known imperfectly because of limitations of the researcher and the different constructions made by participants.

2.3 iii. a) Design (1): Quantitative

Hypotheses 1 to 6, which focus on how children order events in their counterfactual thinking, was tested via quantitative methods. This was a within-participants experimental design and sought to replicate three studies with the following main alterations.

1) Meehan & Byrne (2005) temporal order study: this involved 6 and 8 years-olds, whereas the current study involved 9 to 11 year-olds. The Meehan & Byrne 2005 study used an abstract scenario whereas this study used a school-based scenario.
2) Wells et al. (1989) and Segura et al. (2002) causal order studies: these involved adults, whereas the current study involved children. Both studies also asked just about order whereas this study asked about order and also asked participants to assign blame.

These previous studies have been subject to tests of reliability and validity so can be considered robust. In addition, the scenarios were piloted and this procedure highlighted that children could understand the descriptions and questions asked.

For the first scenario, half the participants were presented with James acting first with Thomas second (TS) and the rest were presented with the second condition - Thomas first and James second (JS). They were asked to complete a sentence and answer three questions. For the second scenario, there were four versions with

each of the four versions having a different ordering of event sequences: headteacher first (HF), ball first (BF), coat first (CF) and thunderstorm first (TF). The participants were asked two questions (see Appendix 2 and 3).

Thus:

- approx. 30 pupils were in TS and HF conditions;
- approx. 30 pupils were in TS and BF conditions;
- approx 30 pupils were in JS and CF conditions; and
- approx 30 pupils were in JS and TF conditions

There were six Dependent Variables (DVs):

1- 2. The event that is altered in the participant's imagined alternative in both temporal and causal order

3- 6. The person to whom the participant assigns more guilt; regret and blame in temporal order and blame for causal order

This experiment was also piloted with four pupils to ensure rigour. Feedback from the process led to a slight redesign of the materials. The children understood the questions in the verbal and written form but it was decided to cement this understanding by using a Power Point presentation (see Appendix 1), as an introduction to make sure that the children fully understood the scenarios and emotions involved.

Thus, the effects of confounding variables were limited by:

- counterbalancing the order in which the participants' names were mentioned in the scenarios. Therefore there were four different conditions into which participants are allocated as explained above;
- piloting the experiment;
- using a Power Point presentation as an introduction so the children fully understood the scenarios;
- carrying out the experiment in the same way for all participants; and

- liaising with staff to try to ensure that the children do not get a chance to talk about the scenarios with children who have yet to undergo the exercise.

The main calculation in this experiment was frequency occurrence by category (i.e. choice of event). Data from the returned answers was analysed and screening procedures were undertaken, including coding of missing values. Percentages were obtained and the data was analysed by the hypothesis test for two proportions to determine significance. This test was used in Segura et al. (2002), which used methodology that most closely resembled the current research. In particular, Segura et al. (2002) tested the occurrence of temporal and causal order whereas the Meehan and Byrne (2005) study compared different age groups.

2.3 iii.b) Design 2: Qualitative.

A total of 13 children, who were randomly selected from the 121 that took part in the experiment, were interviewed individually. This number represented more than 10 per cent of the children who took part in the experiment. The interviews were structured by specific questions that asked them to explain their answers in the experiment. They were given their answer sheets back and were asked to read their responses and then explain each answer in turn. This approach was considered semi-structured as it was structured but allowed some flexibility and fitted in with guidance in the literature on social research, which suggests that this approach is appropriate for multiple individual interviews (Bryman, 2014).

The researcher spent time building rapport such as talking about hobbies before moving on to the interview. This approach was chosen because research has shown that a wide range of techniques is more effective in encouraging children to express themselves (Gray & Winter, 2011). The interview also included questions that checked the children's understanding of the emotions of regret, guilt and blame (see Appendix 4 for the questioning schedule).

Semi-structured interviews were also used in order to collect the views of members of staff. This technique was chosen because, in line with guidance in the

literature on research, there was already a clear focus and specific issues (i.e sharing the findings of the children's counterfactual thinking) needed to be addressed. This type of interview also gave the researcher flexibility to address topics in relation to the research question but freedom to allow the participants to expand on views (Bryman, 2014). A series of questions were used as a prompt (see Appendix 5) and were in line with the literature on effective interview guides, which stresses that the questioning should allow interviewers to access the ways in which participants view their world and ensure there is flexibility in the way the interview is conducted (Bryman, 2014).

All interviews were audio-taped and information from these interviews was transcribed and analysed by the same researcher. The data was analysed via thematic analysis. This method was chosen because it was flexible and could be used with 'virtually all types of qualitative data' (p477, Robson, 2011). The approach to analysis was deductive in that the researcher looked for themes that were linked to the research questions. The analysis followed Braun & Clarke (2006) guidelines on carrying out thematic analysis (2006) to ensure a rigorous approach to assessing the data. This was a five-step process involving transcription; generating initial codes for basic ideas and patterns; sorting initial codes into themes in relation to the research question; reviewing and finally, defining and naming themes.

2.3 iv) Procedure

The experiment and interviews, which were all carried out by the researcher, took place on school premises during the school day. Participants were organised in class groups. The scenarios were presented in a general way to the children as a PowerPoint presentation (see Appendix 1), which the researcher verbally explained. The pupils were then given an A4 piece of paper containing a written version of the scenarios followed by questions, which they were expected to answer (see Appendix 2 and 3). The session lasted approximately 20 minutes and the pupils were debriefed appropriately (see Appendix 10). The participants in the qualitative phase of the study were interviewed in a quiet room and each interview took about 20 minutes. The pupils were asked for their consent and were

debriefed appropriately (see Appendix 6.3 and Appendix 6.5). The staff group interviews took place on school premises at the end of the school day. The participants were interviewed in a quiet room and each group interview took approximately 30 minutes. The teachers were asked for their consent and were debriefed appropriately (See Appendix 6.4 and 6.4).

The quantitative results and interview transcripts were immediately anonymised and kept confidential in a safe place where the researcher alone was able to access.

2.3 v) Ethics

See Appendix 6 for details of ethical considerations.

2.4 RESULTS

2.4 i) Quantitative (see Appendix 7 for raw data)

2.4 i.a) Temporal order

'If only' thoughts. The temporal order effect was observed in the sentence completion task. Participants counterfactual thoughts focused on the second event (60%) more than the first (29%) and the effect was significant (n=121, z = 4.7891, p<.000) (Hypothesis one).

Blame. Ascribing blame also followed the temporal order effect, the participants blamed the second character (63%)rather than the first (36 %) and this effect was significant (n=121, z= 4.2432, p < 0.01) (Hypothesis four).

Regret and guilt. The experiment showed a disassociation between the 'if only' thoughts, ascriptions of blame and judgements of the emotions of guilt and regret. Their judgements of guilt (52% n=121, z=1.5454, p<.261) and regret (53% n= 121, z = 1.0286, p< 0.30302) showed no temporal order effect (Hypothesis two and three).

2.4 i.b) Causal order

'If only' thoughts. The causal order effect was observed in their choice of the first event to focus on (54%) rather than the second event (17%), third event (17%) or fourth event (9%); and the effect was significant. 1st event x 2nd event (n=121, z= 6.0598 $p < 0.000$); 1st event x 3rd event (n= 121, z = 6.0598, $p < 0.01$) and 1st event x 4th event (n =121, z = 7.4789, $p < 0.01$) (Hypothesis five).

Blame. Their judgements of blame showed no causal order effect with 18% choosing the first event with the following statistical results:
1st event x 2nd event (n=121, z= - 1.252, p = 0.2113);
1st event x 3rd event (n = 121, z = -0.9526, p = 0.34212); and
1st event x 4th event (n=121, z = -1.6873, p = 0.09102)

The experiment showed a disassociation between focus and blame in causal order events. Children exhibited the standard causal order effect in their focus on order but do not follow the same order for ascriptions of blame.

2.4 ii) Qualitative

2.4 ii.a) Pupils' views (see Appendix 12 (i) for raw data) were subject to thematic analysis.

This process was aimed at producing a triangulation of data and to assess children's own understanding of their decisions particularly in relation to ascribing emotions as this could potentially explain the results from the quantitative phase of the study.

The main themes that emerged in terms of children's explanation of their decisions in the scenarios is explained below.
1) They explained that order was the reason for their choices.
2) They created stories to explain their ideas, especially for their responses to emotions and blame.
3) Automatic thoughts were given as a reason.
4) Answers focused on the theme of locus of control.

See Appendix 8 for a detailed analysis of themes pertaining to pupils' interviews.

Further thematic analysis was also carried out on the children's responses to general questions on guilt, regret and blame to check their understanding of these concepts in line with the literature as defined in Appendix 9, which stresses emotional, cognitive (counterfactual) and social aspects. Meehan & Byrne (2005) checked for understanding of the scenario but did not question the children about the other concepts so it was deemed necessary in the current study to assess this as a potential explanation of the results. Thus the supplementary question was: What are children's understanding of guilt, regret and blame?

See Appendix 10 for a description of themes relating to understanding and comments on their link to the definitions above.
The main themes that emerged were 1) Regret and guilt share similar themes of feeling wrong and repairing the situation but the children also liked to give stories as examples rather than definitions; 2) Blame was seen as social concept where there were causes and justification and the children liked to give stories (both hypothetical and real) as examples rather than definitions.

2.4 ii.b) Teachers' views were subjected to thematic analysis (see Appendix 12 (ii) for raw data)

The main themes that emerged were:
1) The negative perceptions of how children think about events that have happened in school
2) Teachers' views that children's emotions and social judgements are strongly linked to how they perceive events that happen.
3) Their ideas that children should take more responsibility for their actions.

See Appendix 11 for a detailed analysis of teachers' views of how children think about events.

2.5 DISCUSSION

The findings of this study indicate that children follow some aspects of adult counterfactual thinking but there are also significant differences indicated by the experimental results. The qualitative part of the study also uncovers themes about children's thinking in relation to counterfactual events. This section of the study will analyse in more detail the findings from each part of the research. The quantitative analysis will focus on how the research compares to previous studies and possible reasons for any differences and implications for future study. The qualitative study will seek to interweave the themes resulting from analysis with the experimental results.

2.5 i) Quantitative: Temporal order

The findings suggest that children, in the age range 9 to 11, focus on the last thing that happened when asked basic counterfactual questions involving temporal order and also follow the same pattern for blame. It could be argued that these findings support Meehan & Byrne (2005) and other researchers' conclusions that counterfactual thinking is a developmental phenomenon in children, who demonstrate the temporal order bias from school age even when the scenario is changed to simulate events in school, rather than abstract events. This would fit in with theories on order effects in counterfactual thinking, where the first event is considered immutable in the human mind from an early age (Segura et al, 2002).

However, the current research could be criticised (in accordance with Rafetsder et al, 2013) for possibly not truly reflecting counterfactual thoughts. The sentence completion task asked the children to fill in the blanks (see Appendix 2 & 3) after reading the scenario – 'If only ..... had picked the right colour'. It could be argued that the response (whether James or Thomas) is a basic conditional reasoning response rather than counterfactual thinking. Nevertheless, this particular study did not require a correct counterfactual response like the examples given in Rafetseder et al. (2013) but instead was testing order effects (which are considered to be automatic thoughts rather than reasoning).

This study could also contradict pervious studies about the age of the development of counterfactual thoughts. Meehan & Byrne (2005) suggest that their findings might indicate that the creation of counterfactual alternatives has not fully developed in six year-olds (who did not show the temporal order effect for blame and guilt), but the eight year-olds followed the same adult patterns. Whereas the current study indicates that this full development has not occurred by the age of 11 because the participants did not show the temporal order for regret and guilt. Thus on a general level, this supports research that shows counterfactual thinking and self-conscious emotions have a different developmental path. Indeed, this was Meehan & Byrne (2005) conclusion but they saw eight as the key age of the link. Similarly, Guttentag & Ferrell (2004) suggested eight was also the age counterfactual emotions emerged, though they did not look at order effects and focused solely on regret. However, the findings of the current study also resonates with other research, which suggests counterfactual thinking has not fully developed until the age of 12 (Rafetseder et al, 2013, as outlined above). The current study did have a robust sample size (121 compared to Meehan & Byrne's 62) but equally the Meehan & Byrne (2005) had two groups to compare, whereas there was no comparison group in this study.

It is also worth noting that the findings of the current study could reflect methodological issues. It could be argued that these emotions did not follow the same pattern because the scenarios were school-based so the children could relate to these incidents more and not automatically assign regret and guilt in the same way. Indeed, qualitative analysis (see below) indicated that children were thinking up stories about the scenarios. This reflects Donaldson (2006) suggestion that children think differently in situations that make sense to them. It also reflects Girotto et al. (2007) conclusion that when participants can imagine themselves in the scenarios, they are less inclined to follow these biases. However, one would also expect to see a reduction in temporal order for the basic sentence completion task and blame but these were robust findings. The findings on blame in particular could also provide further evidence that blame is a different developmental phenomenon to self-evaluative emotions. Malle et al. (2014), for instance, argued

that blame is a social and cognitive process and thus could arguably reflect the societal aspects of a child's life. More research would have to be done to gather more information about the child's level of emotional literacy and social awareness and how much impact this has on their counterfactual thoughts. Gender or social economic background was not tested in the current study, as the children were selected because of age rather than any other variable in line with the ethics proposal, but this would be an area of further development to see if there are any effects in relation to regret, guilt and blame.

It would be interesting to use school-based scenarios for research into all ages so maybe the Meehan and Byrne (2005) study could be replicated using six and eight year-olds but using school-based scenarios.

2.5 ii) Quantitative: Causal order.

This experiment sought to partially replicate research done on causal order in the adult population (Wells et al, 1989). There were also significant differences in that the current study focused on causal order effects in children (which has not been done before). A question was also asked about blame for the first time. As stated in the results section, children aged 9 to 11 focused on the first thing that happens in a causal sequence, which is in line with research on the adult population. This backs previous research that counterfactual thinking is a developmental phenomenon and develops in primary school (Meehan & Byrne, 2005). It would also back theoretical implications that causes may be mentally represented with a readily available counterfactual alternative and this may undermine the immutability of the first event seen in temporal order sequences (Segura et al, 2002).

It could be argued that this part of the study in particular should be replicated, as children have not been the focus of causal order research in the past. For example, a more abstract form of the scenario may need to be implemented to be able to argue more strongly that the findings reflect Wells et al. (1987) to ascertain the effect of the school-based scenario. Similarly, the research should also be

conducted on younger children to assess the developmental role. The findings on blame could also indicate that the causal relationship between blame and counterfactual thinking has not emerged by the age of 11. Indeed, the link between causal order and blame has not been tested in the adult population though it has been widely linked with counterfactual thinking in other studies (Byrne et al, 2002; Meehan & Byrne, 2005).

It could also be argued that other methodological reasons played a part in the findings. The causal order sequence was four events compared to two for the temporal order that might suggest overload for the children taking part. This fits in with research on counterfactual models, which suggests that people might think of fewer counterfactual thoughts because of the constraints of working memory (Meehan & Byrne, 2005). So arguably, the application of four events on top of counterfactual thinking overload would make it more difficult. However, Segura et al. (2002) showed that the number of events did not influence the results among the adult population but this again has not been tested in the child population.

If one accepts the limitations of this study, the findings from the quantitative and the qualitative phases indicate that there could be more awareness in primary school of children's counterfactual thinking, emotions and blame. This could have implications for educators in terms of awareness of cognitive development in children and researchers have argued that more needs to be done to educate teachers and other professionals about these issues so they can alter their interactions accordingly. One example given in the literature by Amsel et al. (2003) is there is little point in teachers or parents using counterfactual expressions such as, 'if only you had played a different position' to four year-olds as they do not understand counterfactual ideas. Children arguably need to be educated about self-conscious emotions reflecting Tracy & Robins (2004) suggestion that these emotions are crucial to human functioning. The results from this experiment indicate there could be a window of opportunity when they are in primary school and have not fully formed these emotions but also as they get older, there could be more awareness of faulty thinking and how thoughts about guilt, regret and blame could be challenged.

This research also indicates that counterfactual research, using scenarios, could be a basis for intervention. The scenarios have been widely tested and might be a useful resource to use as assessment or interventions. There is also a research base from interventions used in clinical settings. For example, one experiment (Baek & Shen, 2010) examined the interaction effects of message framing and counterfactual thinking on attitudes toward binge drinking and behavioral intentions. Data from the study showed that a gain-framed message resulted in lower binge drinking intentions than did a loss-framed message after subjects engaged in additive counterfactual thinking.

2.5 iii) Qualitative: pupils

The interviews with the pupils indicated that their views were in accordance with the findings from the quantitative data. Order was a theme, particularly for the temporal order events when thinking 'if only'. This fits in with the Meehan & Byrne (2005) study but it is interesting that the children actually articulated the reason even though the events were just luck-based. It resonates with the research carried out by Kahneman & Tversky (1982) on heuristics. In addition, the thematic analysis also supported the quantitative findings in that the children's understanding of the emotions linked to these scenarios was more complex and confused. In particular, there was evidence that children created their own narrative of the scenarios and connected the emotions/ judgements they were asked to ascribe (regret, guilt and blame) with relationships (e.g. 'Thomas is more of a friend and is having a go at him'). Children also perceived events in a locus of control way, such as blaming events like the weather. This resonates with research (e.g. Tracy & Robins, 2004) suggesting that self-conscious emotions and blame emerge later in childhood compared to basic emotions and are highly complex emotions and judgements that require self awareness and serve socialised needs.

Further analysis was carried out addressing how children in the qualitative phase described regret, guilt and blame. The explanations were compared to the accepted definitions from the literature (see Appendix 9) and it was found that the

children fulfilled most of the criteria. Thus, it can be tentatively suggested that the results were not affected by the children's lack of understanding of these concepts but more research would need to be done in this area. However, the analysis also demonstrated some confusion, with regret and guilt often sharing common explanations, and the children created stories to explain their answers as was evidenced in their explanations to the questions asked in connection with the scenarios, as described above.

2.5 iv) Teachers

The thematic analysis showed that teachers believed that there were events in school life where children gave confusing counterfactual explanations tied in with notions of emotions and blame. They suggested that children often did not have the strategies to deal with it, which caused emotional problems. This echoes work done on guilt, regret and blame, which shows that shame in particular which is a development of regret is a self-damaging emotion which can turn into anger or hostility (Tracy & Robins, 2004). The use of models for these self-conscious emotions like the Path Model (Malle et al, 2004) might be useful in practice. The interviews also indicated that intervention could be effective such as peer mediation or teacher expertise. It is noteworthy that the teachers in this study were experienced senior teachers; it would be interesting to replicate this research using inexperienced teachers.

2.6 SUMMARY AND CONCLUSIONS

To conclude, children's counterfactual thinking is a fascinating area of research that has a lot of potential in terms of practical application. This is the first time that this aspect of cognitive psychology has been applied to educational settings and a number of findings have emerged (see Box B for a summary of the main points and possible implications). It touches on the way children think and how they develop their thinking plus the inherent link between this type of cognition and the emotions of regret and guilt as well as the social judgment of blame. More research is needed to bring this area of psychology into the educational domain.

Box B

- Children aged 9 to 11 engage in counterfactual thinking and there are systemic similarities in how they undo aspects of their mental representation of a factual situation in that they focus on the last thing in a temporal order sequence and the first thing in a causal order sequence. The current study suggests that this is backed up by the children's explanations of their decisions. More research in particular should be done on causal order, as this is the first study of its kind carried out on children. It has been suggested that teachers, educators and parents should be aware of temporal and causal order to better understand their behaviour.
- There is evidence of a disassociation between 'if only' thoughts and self-conscious emotions for children aged 9 to 11 suggesting that primary school children have not fully developed their creation of counterfactual alternatives. This study suggests that this finding is backed up by children's explanation of their decisions and in particular how they create stories to explain something that has not happened. More research needs to be done involving younger and older children to establish a research base for this. It has been suggested that there is a window of opportunity to intervene as well as provide more awareness of these thoughts and feelings, perhaps by incorporating them into current programmes.
- It has been suggested that children's ideas of guilt, regret and blame play an important part in child development. The qualitative evidence indicates that children create stories to explain their thoughts and teachers feel frustrated by how children assign emotions and blame. An awareness of this could arguably help teachers in their professional practice. In addition,

it could be argued that these concepts are not fully developed and some sort of intervention from an early age could help children as they develop. In addition, it provides some evidence both from the literature and from teachers' views that interventions like restorative justice and peer intervention could be effective in dealing with issues in schools.

2.6. i) Educational implications

This research was aimed at addressing the potential impact of counterfactual thinking on education, both within the school environment and within educational psychology. The results of this study and the subsequent discussion section, including Box B, as well as the analysis of the literature provide some evidence that could act as the basis for interventions in educational practice. Below is a list of detailed suggestions arising from this evidence under themed headings. These suggestions can be incorporated into current educational thinking and approaches (including EP practice) but could also be developed into a specific group, class or individual intervention.

i.a) Awareness of developmental issues

The literature and this research suggest that children in primary school are developing their counterfactual thoughts and self-conscious emotions. There are some contradictions about the timing and stages of this development but there is general agreement that it is developmental. This knowledge could be incorporated in training programmes in child development; including teacher training, educational psychology and parenting schemes. In the same way that Piaget's work and concepts such as Theory of Mind are included in courses on child development, counterfactual thinking (and the associated emotions) could be an integral part. For example, research has shown that the development of worry is associated with counterfactual thinking as well as

theory of mind. As outlined in the literature review, being able to worry has benefits as well as drawbacks but it is also pervasive in children's mental life. Arguably, educators would benefit from learning more about how worries arise (as well as how they can be addressed if the worry becomes dysfunctional). In addition, it is possible that this area of psychology could be incorporated into systemic work, such as staff training, that EPs could provide to schools. A training package could include the theory and research on counterfactual thinking and self-conscious emotions as well as suggestions for intervention. For example, a group of children could be presented with scenarios and this could lead to discussion and/or role play over how to deal with these situations. For example, one scenario could be a causal order sequence of how a child forgot his or her homework. This could involve discussion using a CBT approach of how the child would feel/ think and behave. If appropriate, this discussion could include information about the findings from research (so children are learning psychology as well). The children's thinking could be challenged and strategies for dealing with these situations could be produced.

i.b) Positive psychology

The literature also suggests that these processes have functional aspects but there are concerns that these can also be dysfunctional. In line with the positive psychology approach to contemporary educational psychology (as well as the general concern about wellbeing among children), discussion of these thoughts and emotions could be addressed within wellbeing programmes such as ELSA and CBT practices. As a practical example, children could take part in a mini-experiment by responding to a scenario as outlined in this report. This could lead to a discussion about the scenario, which involves challenging thoughts, in line with CBT approaches. In fact, as outlined in the literature review, there have been several successful interventions in the adult population where people were encouraged to think counterfactually and this led to positive outcomes (Baek & Shen, 2010). As another example, children who receive a test or exam result could discuss how to think about it. As is shown in the research, thinking what if and if only can have a positive outcome on mood and

resilience. This has implications for learning as there is a well-known link between flexible mind-sets and academic achievement (Dweck, 2012).

i.c) Awareness of 'faulty' thinking

In line with the work carried out by Kahneman (2011), this report suggests that there are regularities in the way that children think and these tendencies could be faulty (ie. focusing on order is unfair and illogical). As a practical example, a child could automatically focus on the first thing that happens in a causal sequence if there is a playground dispute. This suggests that approaches to dealing with these disputes should focus less on trying to find out what happens, because this is subject to faulty thinking, and more on making children aware of their thinking and to use their conscious brains more, an approach that could be considered restorative. As outlined above, EPs could deliver training on interventions that incorporate these ideas. For example, training could focus purely on playground behaviour and could be delivered to all members of staff including playground supervisors. As outlined in the literature review, playground behaviour is a major cause of concern in education. An example of an intervention might be to have a six-week programme where children are encouraged to think about how to deal with feelings, thought and behaviour during playtime. As outlined above, scenarios and role-play could be used with the aim of challenging thinking as well as increasing emotional literacy.

i.d) 'Window of opportunity' in primary school

As outlined above, there is debate over timing and stages of these processes but there is evidence that these processes develop during primary school and children present confusing explanations (as evidenced by their creation of stories in this research to explain their decisions). There is an argument for including consideration of these processes as part of the personal and social education curriculum.

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2.8 LIST OF APPENDICES

Appendix 7: Raw data (quantitative data)

Appendix 8: Analysis of raw qualitative data for pupils

Appendix 9: Understanding of guilt, regret and blame according to the literature

Appendix 10: Description of themes related to understanding of guilt, regret and blame

Appendix 11: Analysis of raw qualitative data for teachers

Appendix 12: (1) Raw data (transcripts) of pupils' interviews; (2) Raw data (transcripts) of staff interviews

2.8 i) Appendices 1-12

Appendix 1: Powerpoint presentation of scenarios (converted to word)

POWERPOINT PRESENTATION

Presented to participants in June, 2014

SCENARIOS: TWO BOYSAND A GIRL CALLED SOPHIE

WHAT DOES SCENARIO MEAN?

A scene (story) which is not real but could happen. Sometimes we think of scenarios in the future. For example, we

imagine Christmas Day morning etc.

SCENARIO 1: TWO BOYS

What happens in this scenario?

Both boys are given a pile of tokens for good behaviour which are put in a box so they can't see them

These tokens are either red or blue

They each have to pick out a token, If the tokens they pick are the same colour, each boy wins the prize. But if the two

tokens are not the same colour neither boy wins anything

Another friend watches what is happening

What happens?

One boy goes first and picks a blue card from the pile. Then the other boy goes next and picks a red card out of the pile.

What is the result? Do they win?

What is the result?

NO! they both loose

How might they be feeling

about themselves?How do they feel about each other?

Happy
Sad
Guilty
Regret
Blaming
Understanding

What happens next?

Put your initials on the A4 sheet.
Scenario one is printed on the top
You just need to answer the four questions. You just need to just write the name of **one of the boys** for each question.
Don’t think about it too much –

we want your first reaction

If you don't understand, put up your hand

Don't discuss it or talk to anyone else

We are interested in what you think

There are no right or wrong answers

You have 10 minutes

SCENARIO 2: A GIRL CALLED SOPHIE

What happens to Sophie?

She sets off for her music lesson

But a series of events get in

her way

What could have happened?

What could get in the way?
How would she feel about being late?

What happens next?

Read the story carefully to find out what happens next and answer the two questions. The first question asks for four different answers – you don't have to use full sentences. All the answers are in the story.

The second question just asks you for one answer

Don’t think about it too much – we want your first reaction

If you don’t understand, put up your hand

Don’t discuss it or talk to anyone else

We are interested in what you think

There are no right or wrong answers

You have 10 minutes

Thankyou for taking part!

Now please read the debrief – this is a statement that explains what you have just done and what to do if you have any questions.

Thankyou

You have just taken part in a study to find out your views on how you think. I was looking into how you think 'counterfactually'. This means how we all imagine how things could have turned out differently. For example, if you miss a bus, you might think.. 'if only I hadn't .... got

up late' for instance.

Just to let you know that all the information will be kept confidential (between us) unless it would help you to tell other people what you have said.

Any questions? If you can't think of any now, you can ask me later. Your parents and the school have my details.

Thankyou!

Appendix 2: Temporal order scenario (first condition: Thomas second)

READ THE STORY AND ANSWER THE QUESTIONS

James and Thomas are both given a pile of tokens for good behaviour in school. These tokens are either red or blue. They each have to pick out a token. If the tokens they pick are the same colour- so if both are blue and both are red - each boy wins the prize. But if the two tokens are not the same colour, neither boy wins anything. James goes first and picks a blue token from his pile. Thomas goes next and picks a red card from his pile. So, neither boy wins anything.

1) FILL IN THE MISSING WORD WITH ONE OF THE BOYS' NAMES

Their friend comes along and he says he wishes James and Thomas could have won the prize. They could have won the prize if only one of them had picked a different coloured card. Their friend said: 'If only .....had picked the right colour.'

2) i)One of these boys said they felt guilty about them not winning the prize. Which boy do you think said that?

Answer: .....

ii) Which boy do you think felt worse about not winning the prize?

Answer.....

iii) One of these boys said they blamed the other one for not winning the prize. Which boy said that?

Answer.....

Appendix 3: Causal order scenario: ball first (BF))

READ THE STORY AND ANSWER THE QUESTIONS

A girl called Sophie was trying to get to her music lesson in school. However, a number of things happened which made her late for her lesson. She tripped over a ball that had been left in the playground. She was asked to go on an errand by the headteacher. She noticed that she had forgotten her coat in the cloakroom and had to go back for it. Then she was caught in a thunderstorm and had to shelter from the hailstones. Sophie arrived at her lesson 30 minutes late and it had just finished a few minutes before.

1) In no particular order, list four ways that things could have been different for Sophie.

1. .....
2. .....
3. .....
4. .....

2) What event would you blame the most for her being late?

The event is .....

Appendix 4: Questions for pupils

1) We are going to talk about different emotions that people experience every day. Let's list all the emotions we can think about on this blank sheet of paper, here are some emotions cards to help you.

a) The first emotion I would like us to talk about is guilt - what do you think that means?

b) Can you think of an example of when people feel guilt?

Repeat a) and b) for regret and blame.

2) Here are your answers to the questions about the two stories - one was about James and Thomas whereas the other was about Sophia. As I said at the time, there are no right or wrong answers, I am just interested in the way you think.

Would you be able to explain your answers? For example, in story A about James and Thomas you said that (repeat what pupil said).

Appendix 5: Questions for teachers

1) In this interview we are going to concentrate on how children interpret events that have happened, in what is known as counterfactual thinking.
Would you be able to give examples of any events that have happened and how children have dealt with them? For example, if one of your pupils had been rejected for a part in a school play or if they are involved in an argument with another pupil. How do they tend to think about the events leading to this negative outcome?

2) We gave around 60 pupils two scenarios that happened in school that could be construed as negative but were ordinary occurrences. Research shows that people (including children) tend to focus on the first event in a series of causes leading to an event but focus on the last event if there are independent events leading to the event.

The following scenario is an example of a causal order event.

William attempts to get to a store across town in order to take advantage of a sale on a limited number of stereo systems but his progress is impeded by four minor misfortunes: a speeding ticket, a flat tyre, a traffic jam, and a group of senior people crossing the street. William arrives at the store 35 minutes after the sale started only to find that the last stereo system has just been sold a few minutes before. Each event in this causal sequence affects subsequent events yet the removal of any of the events is sufficient to change the outcome.

The following scenario is an example of a temporal order effect.

Two individuals called Jones and Cooper were offered an attractive proposition: Each individual is asked to toss a coin and if the two coins come up the same (both heads or both tails), each individual would win £1,000. However if the two coins do not come up the same, neither individual would win anything. Jones goes first

and tosses a head; Cooper goes next and tosses a tail and thus the outcome is that neither individual won anything.

How does this relate to anything you have experienced in school?

3) Research also shows that people (including children) tend to attribute guilt, regret and blame, according to these biases. For example, in the Jones and Cooper scenario mentioned earlier, participants in this experience automatically blamed and attributed regret and blame to the behaviour of Cooper.

Do you have any thoughts based on your experience?

3) It is hoped that this research will enhance understanding of events in school, particularly negative ones? Can you tell me something about your experience of disputes among children?

Appendix 6: ETHICS

The interviews took place on school premises so a gatekeeper letter and information sheet was sent to the headteacher and relevant members of staff (see Appendix 6.1). A consent letter and information sheet was sent to parents (see Appendix 6.2) that explained the aims of the research. Pupils who participated were also asked for consent in language they understood (see Appendix 6.4) and they were debriefed appropriately as outlined above (see Appendix 6.1). The teachers also received consent forms and information sheets and were debriefed appropriately (see Appendices 6.5 and 6.6). Participants were informed of their right to withdraw from the study at any point and that the information they provided was held confidentially and then anonymised after the data has been analysed.

Ethical considerations

This research involved direct contact with children. Therefore informed consent from parents was required. An information sheet and consent form was sent out (see Appendix 6.2).

The children were aged between 10 and 11 and so informed consent was sought from them via appropriate language (see Appendix 6.3). It was possible that the issues covered would have caused some emotional impact because the scenarios might have been something the participants have experienced and would feel upset about. However, these scenarios were deliberately constructed to be as innocuous as possible (see Appendix 2 and 3). The researcher also made sure the children were debriefed adequately so that they had the opportunity to talk about the issues with a suitable adult after the interviews, if they wished (see Appendix 6.5). During the interviews, the children discussed emotions but the questions were deliberately not focused on their personal experience. The researcher had already stressed at the beginning of the interviews that it was confidential unless the researcher believed the information should be passed on. This was in accordance with Cardiff University's Safeguarding Children and Vulnerable Adults

Policy (2010), which states: "There is no restriction stated in the Data Protection Act or other legislation that prevents reasonable concerns being shared for the purpose of protecting children and vulnerable adults". (p.35)
It was also emphasised that they could withdraw from the study at any point and that the information would be anonymised after the data has been analysed.

Staff, who agreed to take part in the study, needed to be informed about the nature of the research and so were sent an information sheet and consent form (see Appendix 6.4). They might also have been affected by talking about these scenarios though this will be less of a risk factor as they are professionals. The researcher made sure that they were debriefed adequately (see Appendix 6.6). It was also stressed that they could withdraw from the study at any point. They might also have been concerned about talking about other members of staff and children. It was stressed that the information they provided would be held confidentially and then anonymised after the data has been analysed.

Appendix 6.1 Gatekeeper letter to schools

Dear

I am a postgraduate student in the School of Psychology, Cardiff University training to be an educational psychologist. As part of my course, I am carrying out a study which aims to explore the way children think.

My research will focus on counterfactual thinking, which is the way that children (and adults) imagine different scenarios when events happen - the 'what if' or 'if only' thoughts. I am particularly interested in the link between these thoughts and emotions such as guilt, regret and blame.

I am writing to enquire whether your school would be interested in taking part in this research. I would like to involve a number of children who are in year five and six. It will involve presenting them with two different scenarios, which will involve ordinary events and asking them a few simple questions.

I would also like to interview a few of the children who have taken part to gather more information about their thought processes. In addition, I would like to elicit views from some of your teachers working in your school. Ideally, these teachers would have at least five years experience in the junior school sector.

More details are provided in the information sheet attached.
Many thanks in advance for your consideration of this project. Please let me know if you require further information. Below are my details and those of my supervisor Dr Nicola Canale.

Regards,

Joanna Hill

Joanna Hill	**Dr Nicola Canale**
Trainee Educational Psychologist	Professional Tutor
c/o administrator Clair Southard School of Psychology	School of Psychology
Cardiff University	Cardiff University
Tower Building	Tower Building
Park Place	Park Place
Cardiff	Cardiff
CF10 3AT	CF10 3AT
Tel: 029 2087 5393	Tel: 029 2087 5474
hilljc@cardiff.ac.uk	canalen@cardiff.ac.uk

INFORMATION SHEET

You are invited to take part in a study carried out by a trainee educational psychologist at Cardiff University. The focus of this research is to explore how children think. In particular, this study focuses on counterfactual thinking, which is the way that children (and adults) imagine different scenarios when events happen - the 'what if' or 'if only' thoughts. I am particularly interested in looking at how children look at events and the link with emotions/judgements such as guilt, regret and blame.

Please read the following information for more details:

The purpose of the study

The purpose of this study is to look at how children think counterfactually. In particular, how they perceive events and causes of events and related to that, how they perceive emotions/judgments like guilt, regret and blame.

What will taking part involve?

It will involve facilitating the consent of parents, children and staff. Information sheets and consent letters will be provided**.**

The children will be presented with two scenarios and asked a series of simple questions. Both scenarios are short and contained within one paragraph. They involve ordinary events in a school-setting. The questions are simple and require short answers. There are only six questions altogether.

Some children will be asked to take part in an interview to gauge more information about their thoughts.

It would also involve allowing the scenario sessions and interviews to take part on school premises. Each session will take approximately 10 minutes and the interviews will be

about 10 minutes.

In addition, a group of teachers will be interviewed about how these findings relate to their experiences in school and how they perceive the way children think about events and the feelings of guilt and blame.

Are there any risks involved in taking part in this study?

Taking part in this study has few risks. However, you might feel uncomfortable about the study. If this occurs, you may have some time to discuss these issues further with Dr Nicola Canale who is supervising this study. Dr Canale's contact details are included at the end of this information sheet.

What are the benefits of taking part?

Taking part in this study could benefit the education sector by providing valuable information on issues that affect children, parents and staff. It might also benefit the children and staff taking part in the interview by giving them an opportunity to discuss and reflect on their experiences.

What will happen with the results of this study?

Following the study, a research report will be prepared for examination by the University of Cardiff. No personally identifiable information about your school or participants will

be used throughout this process. All the information is kept confidential and then anonymised after the data has been analysed. This means that no one will be able to tell if the school took part in this study by looking at the data that has been collected. You will be able to access a copy of the main points of the research report if you so wish after the study has been completed.

Who has given permission for this study to go ahead?

This study has been reviewed by members of Cardiff University's School Research Ethics Committee and they have agreed for the study to go ahead.

Who can I contact for further information about this study?

You can contact myself or Dr Nicola Canale, my supervisor on the Doctorate of Educational Psychology programme.
The contact details are below.

The University's Psychology Ethics Committee contact details are:
School of Psychology Ethics Committee
School of Psychology Cardiff University Tower Building 70 Park Place Cardiff CF10 3AT
Tel: 029 208 70360
Email: psychethics@cardiff.ac.uk

Joanna Hill	**Dr Nicola Canale**
Trainee Educational Psychologist	Professional Tutor
c/o administrator Clair Southard School of Psychology	School of Psychology
Cardiff University	Cardiff University
Tower Building	Tower Building
Park Place	Park Place
Cardiff	Cardiff
CF10 3AT	CF10 3AT
Tel: 029 2087 5393	Tel: 029 2087 5474
hilljc@cardiff.ac.uk	canalen@cardiff.ac.uk

Appendix 6.2: Parental consent form

Dear Parent/Carer,

I am a postgraduate student in the School of Psychology, Cardiff University training to be an educational psychologist. As part of my course, I am carrying out a study which aims to explore the way children think.

My research will focus on the way that children (and adults) imagine different scenarios when events happen - the 'what if' or 'if only' thoughts (which is known as counterfactual thinking). I am particularly interested in the link between these thoughts and emotions.

I am writing to enquire whether you would be interested in allowing your child to take part. It will involve presenting them with two different scenarios, which will involve ordinary events and asking them a few simple questions.

I would also like to interview a few of the children who have taken part to gather more information about their thought processes.

This will involve a short interview, which will be age appropriate and sensitive to the needs of the young people. The interview will be audiotaped. The study will be explained to the children and they will be told that they can withdraw at any point. They will also be debriefed and information gathered from the interviews will be kept confidential and will also be anonymised after the analysis of data. They will also be told that they can withdraw up until the point that the data is anonymised.

More information can be found on the information sheet attached to this letter. A consent form is attached, which needs to be signed and sent back to school.

If you would like further details about the research, please contact either myself or my university research supervisor Dr Nicola Canale. The details are on the information sheet attached.

Many thanks for your time,

Joanna Hill

(Trainee Educational Psychologist)

CONSENT FORM

I give permission for my child to take part in a study on how children think, which will be conducted by a trainee educational psychologist at Cardiff University.

Name of child/children:_____

Class:_____

Parent/Carer
Name:_____

Signature:_____

INFORMATION SHEET

Your child is invited to take part in a study carried out by a trainee educational psychologist at Cardiff University. The focus of this research is to explore how children think. In particular, this study focuses on counterfactual thinking, which is the way that children (and adults) imagine different scenarios when events happen - the 'what if' or 'if only' thoughts.

Please read the following information for more details:

The purpose of the study

The focus of this research is to explore how children think. In particular, this study focuses on counterfactual thinking, which is the way that children (and adults) imagine different scenarios when events happen - the 'what if' or 'if only' thoughts. I am particularly interested in the link between these thoughts and emotions/judgments such as guilt, regret and blame.

What will taking part involve?

It will involve presenting pupils with two different scenarios and asking them a few simple questions. Both scenarios are

short and contained within one paragraph. They involve ordinary events in a school-setting. The questions are simple and require short answers. There are only six questions altogether.

I would also like to interview a few of the children who have taken part to gather more information about their thought processes.

If you would like your child to take part in this study, you will be asked to sign a consent form, which indicates that you understand the purpose of this study and what it will involve. If you agree for your child to take part, you will be free to withdraw him/her from the study at any time, and do not need to provide a reason for this.

I will interview your child on an individual level using age-appropriate tasks and discussion topics. This will take place on school premises within school hours. The sessions will last about 10 minutes and will be arranged at a time that does not interfere with his/her studies. It will be audio-taped to ensure accuracy but the information will be kept confidential and will be anonymised after the data is analysed. You can withdraw from the study at any point up until the data is anonymised.

Are there any risks involved in taking part in this study?

Taking part in this study has few risks. However, you might feel uncomfortable letting your child take part. If this occurs, you may have some time to discuss these issues further with Dr Nicola Canale who is supervising this study. Dr Canale's contact details are included at the end of this information sheet. You will be able to access a copy of the main points of the research report if you so wish after the study has been completed.

What are the benefits of taking part?

Taking part in this study could benefit your child by having an opportunity to discuss and reflect on his/her experiences. It might also benefit the education sector by providing valuable information on issues that effect children, parents and staff.

What will happen with the results of this study?

Following the study, a research report will be prepared for examination by the University of Cardiff. No personally identifiable information about your child will be used. All the information you tell us is kept confidentially and then anonymised after the data has been analysed. This means that no one will be able to tell if you took part in this study by looking at the data that we have collected.

Who has given permission for this study to go ahead?This study has been reviewed by Cardiff University's School Research Ethics Committee and they have agreed for the study to go ahead.

Who can I contact for further information about this study?You can contact myself or Dr Nicola Canale, my supervisor on the Doctorate of Educational Psychology (DEdPsy) programme. The contact details are below.

The University's Psychology Ethics Committee contact details are: School of Psychology Ethics Committee

School of Psychology Cardiff University Tower Building 70 Park Place Cardiff CF10 3AT

Tel: 029 208 70360

Email: psychethics@cardiff.ac.uk

Joanna Hill	**Dr Nicola Canale**
Trainee Educational Psychologist	Professional Tutor
c/o administrator Clair Southard School of Psychology	School of Psychology
Cardiff University	Cardiff University
Tower Building	Tower Building
Park Place	Park Place
Cardiff	Cardiff
CF10 3AT	CF10 3AT
Tel: 029 2087 5393	Tel: 029 2087 5474
hilljc@cardiff.ac.uk	canalen@cardiff.ac.uk

Appendix 6.3: Child consent form

Below is a script that the researcher will read out to make sure the pupil understands.

We are doing a research study. A research study is a way to learn more about people. If you decide that you want to be part of this study, you will be asked to answer some questions about two stories I will present to you. I might also ask you some other questions in what we call an interview.

There are some things about this study you should know. I will record what you say and take some notes. You will not be asked to do any work for these sessions. After the interview I will have a chat with you, called a 'debriefing' to check that you were ok with the interview and to help if you want to talk.

You might find it is interesting to talk about how your brain works and how you think. It would also be helpful to me to find out more about how you think.

When I am finished with this study I will write a report about what was learned. This report will not include your name or that you were in the study.

You do not have to be in this study if you do not want to be. If you decide to stop after we begin, that's okay too. Your parents know about the study too.

If you decide you want to be in this study, please sign your name.

I, _____, want to be in this research study.

_____ Signed (Date)

Appendix 6.4: Teacher consent form

Dear Sir/Madam

I am a postgraduate student in the School of Psychology, Cardiff University training to be an educational psychologist. As part of my course, I am carrying out a study which aims to explore the way children think.

My research will focus on counterfactual thinking, which is the way that children (and adults) imagine different scenarios when events happen - the 'what if' or 'if only' thoughts. I am particularly interested in the link between these thoughts and emotions such as guilt, regret and blame.
I am carrying out experiments with some children and interviewing them about these issues and I would like to elicit views of teaching staff as well to provide robust data on this issue.

I am writing to enquire whether you would be interested in taking part in this research. I would like to interview a number of teachers about their experiences of how children think. I will send you a list of three or four questions which you can either answer in the written form or verbally. I will ask you to expand on those points if that is appropriate.
More details are provided in the information sheet attached.

Many thanks in advance for your consideration of this project. Please let me know if you require further information. Below are my details and those of my supervisor Dr Nicola Canale.
If you would like further details about the research, please contact either myself or my university research supervisor Nicola Canale. The details are below:

Joanna Hill	**Dr Nicola Canale**
Trainee Educational Psychologist	Professional Tutor
c/o administrator Clair Southard School of Psychology	School of Psychology
Cardiff University	Cardiff University
Tower Building	Tower Building
Park Place	Park Place
Cardiff	Cardiff
CF10 3AT	CF10 3AT
Tel: 029 2087 5393	Tel: 029 2087 5474
hilljc@cardiff.ac.uk	canalen@cardiff.ac.uk

Yours sincerely,
Joanna Hill

CONSENT FORM

I understand that my participation in this project will involve being interviewed about my views, which will require approximately 30 minutes of my time.

I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason.

I understand that I am free to ask any questions at any time and I understand that I can withdraw up until the point that the data is anonymised and I am free to discuss my concerns with Dr Nicola Canale.

I understand that the information provided by me will be held confidentially and will be anonymised so that it is impossible to trace this information back to me individually. I understand that this information may be retained indefinitely.

I also understand that at the end of the study I will be provided with additional information and feedback about the purpose of the study.

I, _____(NAME) consent to participate in the study conducted by Joanna Hill, School of Psychology, Cardiff University with the supervision of Dr Nicola Canale

Signed:

Date:

INFORMATION SHEET

You are invited to take part in a study carried out by a trainee educational psychologist at Cardiff University. The focus of this research is

Please read the following information for more details:

The purpose of the study

The focus of this research is to explore how children think. In particular, this study focuses on counterfactual thinking, which is the way that children (and adults) imagine different scenarios when events happen - the 'what if' or 'if only' thoughts. I am particularly interested in the link between

these thoughts and emotions/judgments such as guilt, regret and blame.

What will taking part involve?

If you would like to take part in this study, you will be asked to sign a consent form, which indicates that you understand the purpose of this study and what it will involve. Even if you agree to take part initially, you will be free to withdraw him/her from the study at any time, and do not need to provide a reason for this.

I will send you a list of the questions I wish to ask, which you are welcome to fill in prior to the interview. I will ask you to expand on those points during the interview that will take place on school premises within school hours. The interview will last approximately 30 minutes to an hour and will be arranged at a time that does not interfere with your work.

Information from the discussions will be analysed and included in the report on the impact of the study. You will be able to withdraw at any time up until the point that the data is anonymised.

Are there any risks involved in taking part in this study?

Taking part in this study has few risks. However, you might feel uncomfortable taking part. If this occurs, you may have some time to discuss these issues further with Dr Nicola Canale who is supervising this study. Dr Canale's contact details are included at the end of this information sheet.

What are the benefits of taking part?

Taking part in this study could benefit you professionally by giving you a chance to discuss and reflect on your experiences. It might also benefit the education sector by providing valuable information on issues that effect children, parents and staff.

What will happen with the results of this study? Following the study, a research report will be prepared for examination by the University of Cardiff. No personally identifiable information about you will be used throughout this process. All the information you tell us is kept confidentially and then anonymised after the data has been analysed. This means that no one will be able to tell if you took part in this study by looking at the data that we have collected. You will be able to obtain a copy of the main points of the research report if you so wish after the study has been completed.

Who has given permission for this study to go ahead?

This study has been reviewed by Cardiff University's School Research Ethics Committee and they have agreed for the study to go ahead.

Who can I contact for further information about this study? You can contact Dr Nicola Canale, my supervisor on the DEdPsy programme. Her contact details are below. The University's Psychology Ethics Committee contact details are: School of Psychology Ethics Committee, School of Psychology Cardiff University Tower Building 70 Park Place Cardiff CF10 3AT. Tel: 029 208 70360. Email: psychethics@cardiff.ac.uk

Joanna Hill	**Dr Nicola Canale**
Trainee Educational Psychologist	Professional Tutor
c/o administrator Clair Southard School of Psychology	School of Psychology
Cardiff University	Cardiff University
Tower Building	Tower Building
Park Place	Park Place
Cardiff	Cardiff
CF10 3AT	CF10 3AT
Tel: 029 2087 5393	Tel: 029 2087 5474
hilljc@cardiff.ac.uk	canalen@cardiff.ac.uk

Appendix 6.5: Debriefing for children

THANKYOU FOR TAKING PART

You have just taken part in a study to find out your views on how you think. I was looking into how you think 'counterfactually'. This means how we all imagine how things could have turned out differently. For example, if you miss a bus, you might think.. 'if only I hadn't .... got up late' for instance.

Just to let you know that all the information will be kept confidential (between us) unless it would help you to tell other people what

you have said.

Any questions? If you can't think of any now, you can ask me later. Your parents and the school have my details. Thankyou!

Appendix 6.6: Debriefing for teachers

Many thanks for taking part in this research, which aims to explore how children think. In particular, this study is looking at counterfactual thinking, which is the way that children (and adults) imagine different scenarios when events happen - the 'what if' or 'if only' thoughts. This study is particularly focused on the link between these thoughts and emotions/judgments such as guilt, regret and blame.

I would like to assure you that all the information will be kept confidential and then will be anonymised after the data is analysed.

You are welcome to withdraw at any point before the data is anonymised.

Below are the contact details of my supervisor and myself if you have any questions.

Thanks so much again for taking the time to take part in this research.

The University's Psychology Ethics Committee contact details are: School of Psychology Ethics Committee
School of Psychology Cardiff University Tower Building 70 Park Place Cardiff CF10 3AT

Tel: 029 208 70360
Email: psychethics@cardiff.ac.uk

Appendix 7: Raw data (quantitative)

Results for temporal order
No of children taking part: 121
Conditions:
Yellow: 31
Pink: 30
Blue: 31
White: 29

Type of question	How many children choose temporal order	How many children do not choose temporal order	Missing /irrelevant
Basic	72 (60%)	35 (29%)	14
Guilt	63	51	7
Regret	64	56	1
Blame	76 (63 %)	43 (36%)	2

Results for causal order

Type of question	First	Second	Third	Fourth	Missing/irrelevant
Basic	65 (54%)	20 (17%)	20 (17 %)	11 (9%)	5
Blame	22	30	28	33	8

The data was analysed by the hypothesis test for two proportions.

Results and hypotheses

Hypothesis	Explanation	Raw data result	Stats	Significance
1: Temporal order (focus)	Children will focus on the last thing that happened in a series of independent events leading to a school-based scenario	Yes	60% n=121, z = 4.7891, p<.000	Yes
2: Temporal order (assigning guilt)	Children will assign guilt to the last thing that happened in a series of	Yes	52% n=121, z=1.5454, p<.261	No

	independent events leading to a school-based event			
3. Temporal order (assigning regret)	Children will assign regret to the last thing that happened in a series of events leading to a school-based scenario	Yes	53% n= 121, z = 1.0286, p< 0.30302	No
4. Temporal order (assigning blame)	Children will ascribe blame to the last thing that happened in a series of events leading to a school-based scenario	Yes	63% n=121, z= 4.2432, p < 0.01	Yes
5. Causal order (focus)	Children will focus on the first thing that happened in a series of four events leading to a school-based scenario	Yes	54% 1st event x 2nd event (n =121, z= 6.0598 p < 0.000) 1st event x 3rd event (n= 121, z = 6.0598, p < 0.01) 1st event x 4th event (n =121, z = 7.4789, p < 0.01)	Yes
6. Causal order (blame)	Children will blame the first thing that happened in a series of four events leading to a school-based scenario	No	18% 1st event x 2nd (n=121, z= -0.1.252 p = 0.2113) 1st event x 3rd event (n = 121, z = -0.9526, p = 0.34212) 1st event x4th event (n=121, z = -1.6873, p = 0.09102)	No

Appendix 8: Detailed analysis of themes pertaining to pupils' interviews

Themes	Description of themes	Supporting quotes
1. Order: This theme illustrates that children thought of order to explain their counterfactual thoughts.		
Picking the last event	In the temporal order scenarios, the majority of children's explanation (eight out of 13) focused on the second event in line with the temporal order effect.	"..because Thomas was the first one that picked out the first card so if James picked out the same card then James would have won but James didn't pick out the same card he picked up the opposite colour to what Thomas picked up." (Participant 1) (P1) "... because Tom picked first and he picked a certain colour James picked the opposite so I think James should have picked the other one." (P13)

	On the question of blame, the majority of children's explanations (nine out of 13) focused on the second event.	".. because Thomas was the first one to pick the card out he was blaming James cos he didn't pick the right colour card out.." (P8)
	On the question of guilt, a number of children focused on the second event (five out of 13) On the question of regret, six out of 13 focused on the second event.	".. because James had it first and he (Thomas) felt guilty for not picking the same colour as him." P11 "... Thomas was the one that had to make the match." (P9)
Picking the first event	In the second scenario (causal order), the majority of children's explanation (seven out of 13) focused on the first event in line with the causal order effect but only for the first question	".. because at the top of the paragraph, it said that she noticed that she had forgot her coat in the cloakroom." (P3)

	In the temporal order scenario, a small number of children focused on the first event for questions 1-3.	" because I think he picked a card up first and then James picked up the second card." (P3)
Stories: This theme illustrates that the children created a story to explain their thoughts particularly for the emotions and blame question		
Stories about the temporal order scenario	The guilt question	"I think Thomas felt guilty because I think he was feeling a little bit guilty because his friend was blaming James but then Thomas thought oh wait it could have been my fault.." (P6)

	The regret question	".... because Thomas is more of a friend and is having a go at him saying if only James had picked the right colour so I think he felt worse because everybody was sort of blaming him." (P6)
	The blame question	"Thomas was blaming him (James) saying oh why did you have to pick the colour blue or something like that." (P11)
Stories about the causal order scenario	The blame question	"Well I blame that one because she could have run past, she couldn't run through the thunderstorms cos that was quite bad and you don't mind if she forgets her coat.." (P7)
Automatic thoughts: This theme illustrates that some children could not		

explain their choices		
		"I dunno, I just picked James like and then on the other answers, it kind of slotted in and it kind of made sense." (P9
Locus of control: The idea of having (or not having) control over events was a theme for the causal order scenario		
External locus of control	Focusing on events being caused by external agencies	"Because when hailstones come down for quite a while and you can't really do stuff" (P2)
Internal Locus of Control	Focusing on events that a person has control over	"I focused on the coat first (Sophie forgot her coat as one of the events in the causal sequence) because although all of them are not her things, if you were running like oh that's my responsibility, my mum bought that if I don't get that, the other things aren't really that (much) important." (P5)

Appendix 9: Understanding of guilt, regret and blame according to the literature

Concept	Description	Reference
Guilt	(1) A negative emotion associated with having acted or not acted in a manner that impacts on internal standards or codes of conduct (2) Cognitive operations of negatively comparing states of affairs with ones that 'should have' been. (3) Associated with a sense of being responsible for and/or empathising with the harm or pain others experience as a result of one's actions, particularly those others with whom one has a social bond (Moreover, guilt is associated with a motivation to repair	Ferguson & Stegge, 1995; Ferguson, Stegge, Miller & Olsen, 1999; Baumeister, 1998.

	the damage to the other person involved in order to restore the relationship	
Regret	(1) A sense of sorrow, disappointment, or distress over something done or not done (2) Cognitive operation of negatively comparing states of affairs, which happened to ones that could have been. (3) Social relationships appear to play no special role in regret and, although people may think about undoing regretted actions, regret is uniquely associated with no other reparative actions other than making sure that the regretted actions do not occur again	Landman, 1987; (Amsel, Robbins, Tumarkin, Janit, Foulkes, & Smalley, 2003).
Blame	Blame: 1) Linked to	Malle et al. (2014)

	emotion but is generally seen as a social/moral judgement. 2) Four cognitive properties: It is both cognitive and social; it regulates social behaviour; it fundamentally relies on social cognition; and, as a social act, it requires justification	

Appendix 10: Description of themes related to understanding of guilt, regret and blame

Concepts	Themes and explanations	Quotes	Links
Guilt	1) Sense of doing something wrong	"You're guilty if you've done something wrong" (p2)	There is evidence of all aspects of regret and guilt in the data.
	2) Sense of being sorry	"Ashamed of yourself" (P4)	
	3) Stories given as examples	'In court, you would feel guilt of you did something and somebody else is going to jail.' (p1)	
	4) Using counterfactual language	"Why have I done it, I'm silly for doing it." (P7)	
Regret	1) Sense of doing something wrong	'You might feel regret because of what you've done' (P2)	There is evidence of all aspects of regret and guilt in the data.
	2) Sense of being sorry	'You feel sorry" (P3)	
	3) Stories given as examples	"When your mother shouts at you... " (P3)	

		"When I had a falling out with my friend..." (P1)	
	4) Using counterfactual language	"Like you wish you didn't do what you had just done" (P4)	
Blame	1) Social concept	"Blaming it on her rather than owning up" (P1)	There is evidence of all aspects of blame in the data.
	2) Causes	"Argued with a friend.." (P7)	
	3) Justification	"When you didn't do anything" (P3)	
	4) Stories given as examples	"Your friend just comes up, when people are talking about something and tells you a secret and somebody knows about it." (P3)	

Appendix 11: Teachers' views of how children think about events

Themes	Description of themes	Supporting quotations
Negative impact: This theme focuses on the teachers' negative perceptions of how children think, both factually and counterfactually about events that have happened in school.		
Type of event	The teachers specified events that were focused on forgetting items such as packed lunches and money; being late and not being chosen.	

Children's thinking	They believed children's thinking focused on making excuses	"If they can't find a packed lunch or they've lost money, the first thing, I've dealt with is somebody's stolen it." (Interview 1, Male 2) "... it's your fault that this has happened or they like to pass the buck in many ways." (Interview 2, Female 1)
Children's counterfactual thinking	They recounted incidents where the children appeared to focus on events that could have been different.	" Children avoid coming to class when they think they are late for school, they then actually say, well I didn't wake in time, okay and then they will say, my mum didn't wake up in time.." (Interview 1 Male 1)

		"I think children look for the immediate cause for something to blame." (Interview 2 Female 1)

Teachers' frustration	They expressed their frustration at dealing with these events which has meant time wasted	"You get a bit frustrated.. if you're spending 20 minutes of your time to try and sort something out and you find out that the parent hasn't put it in the bag, or the child didn't do it you know, I feel quite frustrated that the child has wasted your time..." (Interview 1, Male 1)
Emotions and social judgements: This theme focused on teachers' perceptions that children's emotions and social judgements are strongly linked to how they perceive events that happen.		
Basic emotions		Respondent 1: " I

		gave out some rubbers and there were some allocated to each table and when they came back they'd lost some and immediately a child was blamed, another child got upset and started to cry"
Self-evaluative emotions	The teachers described the emotional impact of these events	
Blame		Respondent 2: They are looking for that one person or that one incident to blame and then they get very frustrated, their levels of frustration rise very very quickly because of it."
Responsibility: The theme focused on teachers' views that children needed to take more responsibility		
Responsibility	The teachers expressed their frustrations at the children's lack of	Male 2: "You get a bit frustrated don't you? because if you are

	responsibility in dealing with these issues	spending 20 minutes of your time trying to sort something out .....I feel quite frustrated about that child who has wasted your time."
Restorative approaches	The teachers perceived that these children would benefit from help to solve these problems.	Respondent 1: " I think you find ways to diffuse the situation..." Respondent 2: "...because we've got a peer mediation group with my year six pupils and they deal very well with any sort of discrepancies that arise out in the yard or any quarrels and very often it's the younger ones that go to the peer mediators more." Male: "I think that any information on how

		children think and process things is useful to us, Whether we can apply it to scenarios I think is another thing."

Appendix 12: Raw data (qualitative)

12.1 Children's interviews

Analysis of responses for pupils followed by raw data (transcripts)

Type of response	S1 - question 1	S1 - question 2	S1 - question 3	S1 - question 4	S2 - question 1	S2- question 2
Order - conforming to temporal order and causal order effects	P 1 P4 P5 P7 (i) P8 P10 P11 P13	P3(i) P4 P5 P7 (i) P11	P5 P7 (i) P8 P9 P10 P13	P1 P2 P3 P4 P5 P6 P7 (i) P8 P13	P4 P4 P7 P9 P10 P11 P13	P10
Order not conforming to order effects	P2 P3	P4 P9	P4			
Narrative explanation	P6 P7 (ii)	P1 P3 (ii) P6 P7 (ii) P8 P10	P1 P3 P6 P7 (ii) P11	P7 (ii) P9 P10 P11	P1 (i) P3 (i) P6	P1 (i) P6 (ii) P7 P8 P9 (i) P12 P13
Just in my head	P9 P12	P2 P12 P13	P2 P12	P12	P2	

explanation/ Don't know						
Locus of control explanation					P1 (ii) P3 (ii) P5 P12	P1 (ii) P2,P4 P5, P6 (i) P9 (ii) P12

APPENDIX 12 (1): Raw data (children)

Participant 1

INTERVIEWER: ok hello, just to remind you of what we did in class a few weeks ago. Do you remember I put up a PowerPoint and we went through a story?

RESPONDENT: yeh

INTERVIEWER: can you remember what we called the story…..scenario, yes there was two scenarios, can you remember what the first one was about it was about two boys

RESPONDENT: the first scenario is about two boys named James and Thomas

INTERVIEWER: yes

RESPONDENT: they were being good so they had to get something when they be good so they get a dip in the box and if they pick out a blue and a blue they win, and if they pick out a red and a red they win but if one picked out blue and the other one picked out red then they wouldn't win anything and then one of them picked out the red one and the other one picked out the blue one so they didn't win anything

INTERVIEWER: ok so they both lost, that's really well remembered and do you remember there was a question and I said at the time don't think about it too much, just the first thing that comes into your head, now this is just about having a think about why you wrote what you wrote really so if you read that first question there for me

RESPONDENT: their friend comes along and says he wishes Thomas and James could have won the prize, they could have won the prize if only one of them could have picked a different colour card, they said if only James had picked the right colour.

INTERVIEWER: and why do you think in that missing space there the first name that came into your head was James, why do you think that?

RESPONDENT: because Thomas was the first one that picked out the first card so if James picked out the same card then James would have won but James didn't pick out the same card, he picked up the opposite colour to what Thomas picked up

INTERVIEWER: ok and why did you think of James because he was second was it

RESPONDENT: yes because he was second

INTERVIEWER: ok now the other questions are all about emotions about what's happening, remember we had a look at emotions last time, can you remember what you said about guilt, how you would define guilt

RESPONDENT: I would define guilty as say if like in court you would feel guilt if you did something and somebody else is going in jail for it, you feel like guilt saying oh I should have owned up to it

INTERVIEWER: ok and in this question I ask you about guilt and I ask you which boy felt guilty about the result, it wasn't a very good result was it they both lost and you in that case you felt that Thomas would feel the more guilty, why do you think Thomas would feel more guilty

RESPONDENT: I felt Thomas felt more guilty because their friend said, their friend I thought blamed it on James so I think Thomas would feel more guilty and I thought he felt oh right I could have picked out the different colour and James could have stayed with the same colour that he had

INTERVIEWER: ok so you were thinking of it as a story then, that James got blamed and then Thomas felt guilty cos he got blamed, yes, is that how you were thinking? That is really good. And the next question was about regret which means feeling worse, can you give an example in your own experience of feeling bad about something or feeling worse than you did before

RESPONDENT: erm

INTERVIEWER: does anything come to mind, not necessarily about you but say just an example

RESPONDENT: (silence)

INTERVIEWER: cos I think when we feel regret we often say sorry don't we, can you think of any example of when you feel sorry

RESPONDENT: when I had a falling out with my friend Harvey and it got really serious but then I noticed oh it was just a silly thing so I just apologised and then I just regret having that argument cos now we're like great friends

INTERVIEWER: great ok so that's a really good example, so in this case we've got a bad result again but you felt that James would feel worse, why do you think James would feel worse

RESPONDENT: I think James would feel worse because the friend is blaming him and he might feel like a little bit insecure now cos he's like oh I didn't win the prize it's all my fault and then Thomas is also thinking oh right it's my fault as well but James thinks, I thought James felt the worse cos their friend was blaming him so he's like oh I wished id picked out that card so he's really regretting not

INTERVIEWER: ok good, that's really good, and the last one is about blame, what does blame mean to you

RESPONDENT: say if I had a row for something I'd go it weren't me, it was her so I blame it on her rather than owning up to it

INTERVIEWER: ok that's a really good example and one of the boys said they blamed the other and you said it was Thomas blamed James, why do you think Thomas blamed James

RESPONDENT: I think Thomas blamed James because at the end I think James was like oh well James could have picked out the right one because he couldn't help the one he picked out first and but it was not James fault either so I thought Thomas blamed that on James because I think Thomas would like blame James

INTERVIEWER: ok that's fine and in this situation do you think it's right to have guilt, regret and blame, do you think its right or?

RESPONDENT: yes I think it is kind of right to feel all these emotions cos we can't really help how you feel and maybe like later on in life they could become friends

INTERVIEWER: right ok so you're saying you're going to feel these things but it's important to know that you're feeling these things, that's really good. Let's go onto the next one, do you remember the girl called Sophie, scenario two can you remember what happened to her? Remember she was late for a lesson?

RESPONDENT: oh yes,

INTERVIEWER: so she's in school she's late for lessons

RESPONDENT: she's in school and she was late for her lesson and there was a number of things that stopped her from getting to her lesson

INTERVIEWER: can you remember any of them

RESPONDENT: there was a hailstorm or thunderstorm and then she had to go back for her coat, then was there a choir or something

INTERVIEWER: yeh she forgot her coat, you said that, she was caught in a thunderstorm, she was asked to go on an errand for the head teacher and she tripped over the ball

RESPONDENT: and she tripped over the ball

INTERVIEWER: she was late and she was so late she was late for her lesson and there was a series of causes that led to not the worst thing in the world, but not a very, a bit like the first scenario, not great event happening. Now what I asked you to do and again I asked you not to think about it too much, I asked you to list four ways things could have been different for Sophie so she got to her lesson on time. Can you read out what you put in?

RESPONDENT: I said first that she was caught in to a thunderstorm and second I said she had forgotten her coat, she ran an errand for a head teacher, and she tripped over a ball

INTERVIEWER: ok and I was quite interested in why you put the thunderstorm first, why you wrote that first, why do you think?

RESPONDENT: I wrote the thunderstorm first cos I thought well you can't really help it this thunderstorm and then it just like wouldn't be right cos it would probably start raining and she'd probably be bad and she'd probably have to go home so I think the teacher in the lesson would rather her stay in shelter than her be bad and not come to her lesson at all

INTERVIEWER: ok that's really good thinking and this one, the emotion we looked at in this event was blame, blaming an event rather than a person, can you read out what you blamed the most?

RESPONDENT: I blamed the most that she ran an errand for the head teacher cos the head teacher she can't really say no and it's her teacher's boss as well so if he give her a row she could just say oh right I had to do if for the head teacher and he should be all right with that because it's for the head teacher and it could be really important and he could lose his job if he could blamed the head teacher

INTERVIEWER: that's great, I think it really great that you can … I know that I told you to do these things without thinking really too much but you've actually had a look at it and had a thought about what was going on in your own head and that's really clever so thank you so much, I'm going to stop the tape

Participant 2

INTERVIEWER: ok then can you remember it is going back a bit now but what happened in scenario one about the two boys

RESPONDENT: there was two boys, they had to put their hands in a box and if they picked the same colour card out then they both get a prize and if they picked different colours then neither of them would get anything

INTERVIEWER: ok and what happened in this case, did they win or not

RESPONDENT: they lost

INTERVIEWER: they lost ok, so they were both disappointed, so can you read so that's brilliant that's really well remembered by the way, can you read that first question for me their friend comes along

RESPONDENT: their friend comes along and he says he wished James and Thomas could have won the prize, they could have won the prize if only one of them would have picked a different colour card, their friend said if only James had picked the right colour

INTERVIEWER: that's great, that's really good reading, erm ok so at the time I said just put the name that comes to your head first, don't think about it too much but now I'm asking you to think about why you might have put James in that missing spot there if only James had picked the right colour, why do you think you focused on James and not Thomas

RESPONDENT: I only focused on him because it was like the first name that came up in the story

INTERVIEWER: ok, ok so it was the order because he was the first one excellent, ok the second question and the rest of the questions are asking about emotions involved in this because it was obviously a disappointing event, the first emotion we looked at was guilt what does guilt mean to you, how do you define it?

RESPONDENT: like you're guilty if you've done something wrong

INTERVIEWER: ok so it's how you feel about it that's excellent ok, so in this one do you want to read it out for me?

RESPONDENT: one of these boys said they felt guilty about them not winning the prize, which boy do you think said that?

INTERVIEWER: ok and you've said James again so James feels more guilty, why do you think you said James in that question about guilt?

RESPONDENT: I don't know

INTERVIEWER: you don't know, any ideas, ok but that was the first thing that came into your head, ok that's fine the second question is about regret, feeling worse about things, can you give an example of how people feel worse about things, can you give an example of regret?

RESPONDENT: like if you've done something bad to someone and you don't like say sorry and you stop talking to him but you might feel regret because of what you've done

INTERVIEWER: excellent that's a really good example and in this one you feel that James felt more regret than Thomas, is that right yeah, any idea why you thought he might feel more regret?

RESPONDENT: erm

INTERVIEWER: no that's ok as I said there's no right or wrong but I'm just wondering if having a look at it now why you might think you might have written James at the time

RESPONDENT: no it's just what's in my head

INTERVIEWER: no that's fine the last question is about blame so one person blaming another because it doesn't go their way because obviously they wanted to win the prize in school didn't they, erm what does blame mean to you?

RESPONDENT: like if the two people involved in something and they do something bad then you might just blame it on one of them

INTERVIEWER: ok and I think we all do it don't we yeah especially when things don't turn out the way we want to and in that case you said Thomas blamed James, why do you think, why do you think that?

RESPONDENT: because Thomas picked like maybe one of the colours before but James picked a different colour

INTERVIEWER: ok so Thomas blamed James, ok that's great if you want to turn over now, this is the second scenario about a girl called Sophie, do you remember what happened to her, she was late for a lesson

RESPONDENT: she was late for her lesson because everyone kept interrupting her and she kept doing stuff like a job for the principal and like hailstones or something

INTERVIEWER: yeah that's a good word principal, it's another word for head teacher, ok and she was late for her lesson by thirty minutes so in this case I asked you to list four things that could have been different for Sophie, so can you read out what you wrote?

RESPONDENT: she fell over and ripped her clothes, tripped up and hurt herself,

INTERVIEWER: can you read the next one, is it there she had to cross a road

RESPONDENT: yeah she had to cross a road and slipped in mud

INTERVIEWER: ok so you are saying that all of those things would have made her late for her lesson as well, if I was saying what would need to happen for her to be on time for her lesson, what do you think you would focus on, which of those events?

RESPONDENT: the principal one

INTERVIEWER: ok that's the one ok, and that one can you read the last question out the last question is about blame again?

RESPONDENT: what event would you blame the most for her being late?

INTERVIEWER: ok and which event would you blame, you've said hailstones so why do you think you would focus on that one as blame?

RESPONDENT: because like when hailstones come down they come down for quite a while and you can't really do much stuff

INTERVIEWER: ok that's great, thanks ever so much

Participant 3

INTERVIEWER: right hello, were just going to talk about this experiment we did the other day and at the time I said just don't think about your answers too much just write down what comes into your head cos I was looking at your thinking at the moment but now this a chance to perhaps have a look at why you might have answered the way you did, what ideas you've got. There's no right or wrong, it's just how you think. Now can you remember scenario one, it was about two boys, can you remember what happened at all? …….. Thomas and James

RESPONDENT: were they going out?

INTERVIEWER: that was Sophie, so Thomas and James were the two boys and they were given tokens for good behaviour, do you remember what happened then, they had to pick out the tokens? …. And if they picked out the same colour they would win but if they picked out different colours then they'd lose, can you remember what happened did they win or not?

RESPONDENT: they didn't win

INTERVIEWER: they didn't win so it was a very disappointing for them so in this question you've put their friend comes along and says he wishes Thomas and James could have won the prize; they could have won the prize if only one of them had picked a different colour card, their friend said if only you, who did you mean by you there do you think? Which boy?

RESPONDENT: Thomas

INTERVIEWER: Thomas ok why do you think you thought of Thomas first there?

RESPONDENT: because I think he picked a card up first and then James picked up the second card

INTERVIEWER: ok so it's because of the order cos he picked up first?

RESPONDENT: yes

INTERVIEWER: ok great and then we started talking about the emotions involved when things go wrong not that this is a terrible thing but obviously they were very disappointed and the first emotion we talked about was guilt, how would you describe guilt?

RESPONDENT: like guilty because they didn't, because Thomas or James might feel sad because they didn't pick up the right card and they might feel really sorry for each other because they didn't win

INTERVIEWER: yes, they might feel that they should have done things differently, ok so can you read out the names of the boys that you said were feel more guilty?

RESPONDENT: James

INTERVIEWER: so why do you think James felt more guilty than Thomas?

RESPONDENT: because James picked out last, he probably know what colour Thomas picked and then he picked a different colour

INTERVIEWER: ok and then the next one we talked about feeling worse about things, the word I used for that was regret, do you understand what that means, can you give an example of when you feel regret or feel worse about things?

RESPONDENT: when your naughty and your mother shouts at you and you feel sorry

INTERVIEWER: sorry, yes so it's just a little bit different to guilt isn't it, guilt is a little bit different but it's still not a great emotion to feel but we all do it and in that one you said Thomas would feel worse than James, why do think Thomas would feel worse than James

RESPONDENT: because they both picked out different colours and because Thomas picked out first he might have felt worse because he could have blamed it on James for picking the wrong one

INTERVIEWER: ok and the last question is about blame, what does blame mean to you?

RESPONDENT: when you didn't do anything and your friend just comes up, when people are talking about something and tells you a secret and somebody knows about it and then they tell your friend that they know about it and then they just say that you done it

INTERVIEWER: ok that's a good explanation and in that one you think that Thomas blamed James, why do you think Thomas blamed James?

RESPONDENT: because James picked out the card second and Thomas could have just been like upset because he didn't win and took it all out on Thomas

INTERVIEWER: ok, and is it, with all these things about guilt and feeling worse and blame, is it fair in this; do you think it's fair to feel that way? Yes? Even though the result is, its luck isn't it?

RESPONDENT: yes

INTERVIEWER: Yes but we can't help feeling this way. Now the second one was a little bit different, it was about Sophie who was late for her lesson; can you remember? Do you remember some of the things that happened to her to get in her way?

RESPONDENT: was it pushing and shoving?

INTERVIEWER: well, one was that she tripped

RESPONDENT: coat

INTERVIEWER: yeh she noticed she had forgotten her coat, so she went back for it, she was caught in a thunderstorm and had to shelter, she tripped over a ball and she was asked to go on an errand, which is a job for the head teacher so she was late and that was the end of that she missed her lesson. Then I asked you to list four ways that things could have been different and you put coat there, that so she didn't forget her coat, thunderstorm, tripped over a ball and asked to go on an errand. That's great. What I'm interested in is why do you think you put coat first?

RESPONDENT: because at the top of the paragraph it said that she noticed that she had forgot her coat in the cloakroom

INTERVIEWER: ok because it was the first thing that happened, ok great and then we were talking about blaming not a person but an event that made her late, we all do this don't we, we blame something If we're late and you've said being asked to go on an errand by the head teacher, why do you think that was the most to blame?

RESPONDENT: because if she went on a job for the head teacher the teachers won't give her a row because then she's helping the teachers out

INTERVIEWER: ok fine ok, that's great, thank you very much, let me just check ….

Participant 4

INTERVIEWER: ok can you remember the scenario we did, the first one which was about two boys, James and Thomas, can you remember what happened?

RESPONDENT: not really

INTERVIEWER: do you remember they both had tokens for good behaviour and they were red and blue tokens and they couldn't see them so they were put in a box, one took out one token and the other took out another token, if they got the same colour they'd both win the prize for good behaviour but if they were

different colours neither of them would win. Can you remember what happened?

RESPONDENT: Yes

INTERVIEWER: did they win or not?

RESPONDENT: no

INTERVIEWER: no they didn't win so it was very disappointing for them, ok, now all I want you to do is read out that paragraph which is question, can you do that?

RESPONDENT: their friend comes along and he says he wishes James and Thomas could have won the prize, they could have won the prize if only one of them had picked a different colour card, the friend said if only Thomas had picked the right colour

INTERVIEWER: That's excellent reading, now at the time I said don't think about it too much just put the name that comes into your head but now I'm asking you just to have a little bit of a think about why you may have written Thomas instead of James, why you focused on Thomas?

RESPONDENT: I picked Thomas because he grabbed the card after James, cos James went first grabbing one

INTERVIEWER: ok

RESPONDENT: so he would have to blame for not grabbing the right one

INTERVIEWER: ok, that's a very good answer and then we started talking, you mentioned blame there, we started taking about the emotions, when something happens that's not that positive we have all sorts of emotions, and guilt was the first one we discussed. What does guilt mean to you?

RESPONDENT: guilty as you're ashamed of yourself of what you've done

INTERVIEWER: ok that's a really good answer. Can you think of when you've felt guilty or someone you know has felt guilty?

RESPONDENT: like my non friend felt guilty when she told my friend that he's grounded when he didn't do nothing wrong, it was his little brother

INTERVIEWER: ok and they felt guilty about that ok

RESPONDENT: yes

INTERVIEWER: ok so in this case you have said that Thomas felt more guilty than James, why do you think you wrote Thomas there?

RESPONDENT: because he was ashamed of himself cos he didn't grab what James grabbed

INTERVIEWER: ok that's great and then we started talking about regret, feeling worse, what does that mean to you can you give an example of when you feel regret?

RESPONDENT: like when you wish you didn't do what you had just done

INTERVIEWER: ok and what word do people often say when they feel regrettable?... that word we use all the time….sorry

RESPONDENT: yes

INTERVIEWER: yeh, yeh so in that case you've put James, why do you think James felt worse?

RESPONDENT: because he might get some of the blame as well but Thomas grabbed out the second colour some of them can't just blame Thomas they can blame James as well

INTERVIEWER: ok then we talked about blame, what does blame mean?

RESPONDENT: that the blame should be on somebody who done, like

INTERVIEWER: ok can you give an example of when you've blamed or when somebody's blamed you or

RESPONDENT: my brother always blames me when I go up to .....

INTERVIEWER: right ok so what does he blame you about then?

RESPONDENT: because my Dad lives in .....and I go up there every holiday, he just says that I do all the things wrong like

INTERVIEWER: right

RESPONDENT: break the toys

INTERVIEWER: oh I see when you're away, I see so in this case you've said that James blamed Thomas, why do you think that James blamed Thomas?

RESPONDENT: because James must have blamed because Thomas didn't grab out what James got

INTERVIEWER: ok they couldn't see the tokens could they so do you think it was fair to blame and to have guilt and regret?

RESPONDENT: no

INTERVIEWER: no but it's something people feel so it's worth knowing. That's really good. Right can you remember the second scenario; this is about a girl who was late for her music lesson?

RESPONDENT: oh when she done loads of different things wrong while going to school

INTERVIEWER: yes she was on her way from one side of playground to her class to her music lesson but a couple of things happened to her to get in her way. Can you read, there are four ways you said things could have been different?

RESPONDENT: there was a thunderstorm

INTERVIEWER: yes so what your saying is there was no thunderstorm yes?

RESPONDENT: yes, she forgot her coat

INTERVIEWER: yes, so she wouldn't have forgotten her coat?

RESPONDENT: she fell over a football

INTERVIEWER: yes

RESPONDENT: and the teacher asked her to go on an errand

INTERVIEWER: errand, yes which is like a job, a message, so basically you're saying that if there hadn't been a thunderstorm, if she hadn't forgotten her coat etc then she would have been on time. What I'm interested in is why you said the thunderstorm first?

RESPONDENT: because that must have held her back because of the weather and after that she must have thought she could have brought her coat

INTERVIEWER: yeh, yeh, and then talking of which we started talking about the event she would blame the most and you put forgotten her coat so why do you think that is most to blame out of all the things that happened to her on the way to the lesson?

RESPONDENT: cos a thunderstorm she can't help that , she fell over the ball, she could have helped but not as much and asked to go an

errand, she can't say no to so I picked forgot her coat because she could have brought that more than anything

INTERVIEWER: yes that's a really good answer and it's her sort of personal responsibility so it's nice that you've answered that way that it's something she could have done to make things different. Ok thanks you very much

Participant 5

INTERVIEWER: ok, right, I know it's a while ago now but we were just having a little chat about the scenes we looked at, the scenarios, and one involved two boys and one involved a girl. Can you remember anything about the two boys?

RESPONDENT: was it that the boys went to the shop?

INTERVIEWER: not quite, do you remember the boys had tokens for good behaviour?

RESPONDENT: oh yeh if they picked out the same colour tokens they'd have a prize but if one picked out the one and the other didn't they wouldn't have a prize

INTERVIEWER: that's right and they couldn't see it so they both picked out red or blue and what happened in the end did they pick out the same?

RESPONDENT: no

INTERVIEWER: they didn't no

RESPONDENT: so they fell into an argument, they were like it's your fault you didn't pick out, something like that

INTERVIEWER: that's right we were just imaging what would happen because when something negative happens like that we've got all these emotions haven't we. This isn't the worst thing in the world to happen is it but it's still disappointing. Now can you read that out that for me, their friend?

RESPONDENT: their friend comes along and says he wishes Thomas and James could have won the prize; they could have won the prize if only one of them had picked a different colour card, their friend said if only you had picked up the right card

INTERVIEWER: that's excellent reading. Now I know you've put you there but which boy did you mean?

RESPONDENT: James

INTERVIEWER: James, why do you think you meant James?

RESPONDENT: because when James picked it up James picked it up first, no Thomas I mean, cos yes who picked up first?

INTERVIEWER: Thomas picked up first, James picked up second

RESPONDENT: oh yes, James because the girl probably wished that he could of saw the token and picked it up so ..

INTERVIEWER: ok so he picked up second and that's what you thought of if only he had picked up. Ok and then we started talking about these emotions, the first emotion we talked about was guilt, what does guilt mean?

RESPONDENT: when you know you've done something wrong, or something like really makes you feel uncomfortable, then you get like a strange feeling

INTERVIEWER: can you give me an example of when you've guilty or when somebody you know has felt guilty?

RESPONDENT: when I, well my sister was winding me up and I pushed her bike over so

INTERVIEWER: and you felt guilty, yes that's a good example I think we've all done it. So in this case you said James felt guilty, why do you think you've said James felt guilty?

RESPONDENT: because when Thomas picked up the token he probably thought oh that's the token I've got to pick up and he picked it up and it was wrong so probably felt that

INTERVIEWER: yeh so it was the order again

RESPONDENT: yeh like it's my fault

INTERVIEWER: and then we started talking about feeling worse about things, regret was the word I used, what does regret mean to you?

RESPONDENT: regret means like when you punch someone and you calm down and you're like oh I should have done that I should have done something else which is better not just

INTERVIEWER: Yes that's a really good example and in this case you said that actually again James felt regret, why do you think James?

RESPONDENT: because the same thing really, he picked up the wrong token

INTERVIEWER: yeh and then the last emotion we talked about was blame, what does blame mean to you?

RESPONDENT: if you got into a row you just blame other people instead like it weren't me it was him and her

INTERVIEWER: so when something's negative you perhaps look at something to blame. So one of these boys blamed the other so why do you think James blamed Thomas?

RESPONDENT: because he probably, because he picked up second he's like oh you should of picked up the same one as me and I couldn't see

INTERVIEWER: all right so you mean that Thomas blamed James because of the order again

RESPONDENT: yes

INTERVIEWER: ok, really good answers and at the time I said don't think about it too much so it's really good that you have been able to think about why you might have written what you did. Now can you remember the second scenario it was about a girl called Sophie, do you remember what happened to her, again it was a negative thing, not the worst thing in the world but still?

RESPONDENT: she was supposed to go to a class and loads of things got in her way so she couldn't quite get there on time

INTERVIEWER: excellent can you remember any of things that happened to her?

RESPONDENT: I remember that…

INTERVIEWER: I mean it's really good remembering if you can cos it's going back two weeks now

RESPONDENT: I think it's like a cat got in her way

INTERVIEWER: she forgot her coat

RESPONDENT: and an old lady needed help

INTERVIEWER: oh right ok, it was actually the old lady was probably the head teacher your thinking of, going on an errand. So I asked you in no particular order to list four ways things could have been

different so you've written coat thunderstorm ball head teacher, so you mean that if she didn't forget her coat, that there wasn't a thunderstorm, that there wasn't a ball and that the head teacher hadn't done. What I'm interested in is why you focused on coat first?

RESPONDENT: I focused on the coat first because although all of them are not her things, if you were running like oh that's my responsibility, my mum bought that if I don't get that, the other things aren't really that much important

INTERVIEWER: ok so that's what really struck you, you remembered that one when you were reading it and you wrote that first

RESPONDENT: yes

INTERVIEWER: that really good, when it comes to blame, so that's blaming events now rather than people and we do that a lot don't we, we blame events, you said the thunderstorms the thing you blamed the most for her being late, why do you think the thunderstorm?

RESPONDENT: because if there's a thunderstorm like you've got to find a shelter instead of like running and looking a mess so you're going to have to be out for ages and you never know when a thunderstorm is going to stop

INTERVIEWER: it lasts for a long time

RESPONDENT: it's get worse and worse

INTERVIEWER: that's brilliant, thanks so much

Participant 6

INTERVIEWER: right ok, can you think of ten different emotions?

RESPONDENT: happy, sad, upset, angry, mad, furious

INTERVIEWER: good words

RESPONDENT: tamping,

INTERVIEWER: good yeh

RESPONDENT: upset, destroyed,

INTERVIEWER: that's fine, that's fine, that's loads. Ok so have a look at those pictures there. What emotion do you think she's showing?

RESPONDENT: really sad

INTERVIEWER: yeh, what makes you think that she's feeling like that?

RESPONDENT: cos she's got like a little bit of a jib

INTERVIEWER: Yes

RESPONDENT: so she's upset

INTERVIEWER: it's her face language isn't it, that's excellent. Any reason that you can think of that she might be like that? You don't know her obviously, but what would you guess?

RESPONDENT: would it be like her kitchen or whatever it is, is a bit untidy so she might be upset

INTERVIEWER: yeh, well it could be, that's really good thinking cos we don't know do we but we try and guess sometimes why people are upset. How about this one, what emotion is she showing?

RESPONDENT: maybe something like upset

INTERVIEWER: yeh upset and why do you think she might be upset

RESPONDENT: she's like sad, she got like her head down and she's not up and running

INTERVIEWER: yeh and any reason you think she could be sad?

RESPONDENT: maybe she has to go to bed or something's gone wrong

INTERVIEWER: something in the home isn't it we think because of where she is, how about this one, how's he feeling

RESPONDENT: angry

INTERVIEWER: yeh and how do you know he's angry

RESPONDENT: because he's pointing and it looks like he's saying you so I think that somebody is

INTERVIEWER: yeh

RESPONDENT: is going on his property or doing something to his property

INTERVIEWER: absolutely

RESPONDENT: that would annoy him

INTERVIEWER: how about this one?

RESPONDENT: may be mad

INTERVIEWER: may be but we're not sure are we, why is it difficult to work out

RESPONDENT: because she could be upset or she could be mad I'm not sure which one

INTERVIEWER: she could be, why is it more difficult to read her emotion, his emotion

RESPONDENT: because she got all her arms covering her face you can't see what's going on

INTERVIEWER: yeh, excellent, excellent answer, so the emotions we're going to talk about are guilt which some of these may be feeling, we're not sure, what does guilt mean?

RESPONDENT: does it mean like if you go to court and you go I didn't throw that punch and you actually did throw that punch so you might feel a little bit guilty

INTERVIEWER: yeh that's a really good example, how about the word regret? What does that mean?

RESPONDENT: say like if I punched somebody and I think about it later and I regret doing it, like I'd have to go to say sorry

INTERVIEWER: ok, how about the word blame, what does that mean?

RESPONDENT: when maybe I punched somebody and then somebody says .. And then I just blame it on somebody else

INTERVIEWER: yeh

RESPONDENT: so I just blame it on somebody else and they get the row and I won't

INTERVIEWER: excellent, just speak a little bit louder but that's brilliant ok, now we're really there, can you remember what scenario one was about?

RESPONDENT: was it about two boys called Thomas and James

INTERVIEWER: well remembered

RESPONDENT: and they have, they both have good behaviour points

INTERVIEWER: yeh

RESPONDENT: and they put them in a, is it a basket or a box

INTERVIEWER: yeh that's fine

RESPONDENT: and if you picked out a blue card and a blue card both of them would win a prize but if you picked up red card and red card they'd both win a prize but if somebody picks out a blue one and the other one picks out a red one you don't get a prize

INTERVIEWER: so what happened in this scenario?

RESPONDENT: one of the boys picked out a blue one and the other one picked out a red so they didn't win

INTERVIEWER: Ok great so, very well remembered, the first question I asked you was just to fill in the blank, do you want to read out that little paragraph there

RESPONDENT: their friend comes along and said he wishes Thomas and James could have won the prize. They could have won the prize if only one of them had picked out a different colour card. Their friend said if only James had picked up the right colour

INTERVIEWER: ok, so the first name that came into your head was James and I did ask you to not think about it too much just to write it but now you've got time to think about it why do you think you went for James and not Thomas?

RESPONDENT: I think I sort of went for James cos I thought the friend could be more on Thomas' side and say like if James was sort of really clumsy he could slightly be more on Thomas' side and he'd be more sticking up for Thomas than he would be sticking up for James as in changing the colour card.

INTERVIEWER: ok and the second question is, one of these boys, well you read it for me

RESPONDENT: one of these boys said they felt guilty about them not winning the prize. Which boy do you think said that?

INTERVIEWER: so why do you think Thomas, why did Thomas feel guilty do you think, Thomas is the one that went first isn't it

RESPONDENT: I think Thomas felt guilty because I think that he was feeling a little bit guilty because his friend was blaming James but then Thomas thought oh wait it could have been my fault, I picked up the thing so he might feel a little bit guilty

INTERVIEWER: ok and what's the next question, do you want to read it to me.

RESPONDENT: which boy do you think felt worse about not winning the prize

INTERVIEWER: James, James is the boy that went second so why do you think he felt worse? Regret about not winning the prize

RESPONDENT: I think he felt worse about not winning the prize because Thomas is more of a friend and is having a go at him and saying if only James had picked the right colour one so I think he felt worse because everybody was sort of blaming it on him

INTERVIEWER: ok and how about the last question do you want to read that out to me?

RESPONDENT: if one of these boys said they blamed the other one for not winning the prize, which boy said that?

INTERVIEWER: and you've gone for Thomas

RESPONDENT: Yeh

INTERVIEWER: which position did Thomas go in, he was the

RESPONDENT: first one

INTERVIEWER: first one so which one, so why are you saying Thomas blamed James

RESPONDENT: I think Thomas blamed James because James picked second, cos Thomas picked first and go oh well it, whatever card he picked up, whether it was the red or the blue, and then he could have, because he picked out the one first whatever colour was left James could have picked up the right one and the wrong one but he picked up the wrong one so they didn't win anything so I think they blamed him for that

INTERVIEWER: ok lovely, thanks ever so much cos sometimes its difficult to explain why you've chosen something especially when I tell

you don't think about it just write it. So that's excellent. Can you remember what happened in scenario two?

RESPONDENT: there was a girl called Sophie,

INTERVIEWER: yes

RESPONDENT: and she wanted to get to her music lesson in school

INTERVIEWER: well remembered

RESPONDENT: and then she had four different things stopping her, it was a thunderstorm so she had to go under shelter away from the hailstones and then she forgot her coat so she went back and got her coat , then she come in and she had to run an errand for the head teacher

INTERVIEWER: well remembered

RESPONDENT: and then she tripped over one of the balls that was left out on the floor

INTERVIEWER: excellent, really well remembered. So the thing I'm interested in is why you chose when you were saying how things could have been different so she got to her lessons on time so all those four things were not happening the first thing that came to your head was she was caught in a thunder storm. Why did you go for that one do you think?

RESPONDENT: I think she said that because she was caught in a thunderstorm but then if she would have had her coat then she could have gone so I think she should have remembered her coat an all and make sure before she leaves any building to have her coat with her so if there is a thunderstorm she can run to her class and that wouldn't hold her up so much

INTERVIEWER: good answer, so what have you blamed, what event did you blame?

RESPONDENT: I blamed that she ran an errand for the head teacher because if she ran an errand for a head teacher she can't exactly say no so they can't exactly blame her for saying she had to go in for her head teacher because he's sort of the boss

INTERVIEWER: ok, really good answers, thank you very much, have you got any questions

RESPONDENT: no

INTERVIEWER: no ok I'll stop there

Participant 7

INTERVIEWER: so here we go, talking of emotions, what emotion do you think she is showing there?

RESPONDENT: Sad

INTERVIEWER: Yes, how can you tell she might be sad?

RESPONDENT: Well she's leaning against the wall and she's all couched up like she's sad and scared really

INTERVIEWER: Yes, we call that body language and sometimes we show how we're feeling through our body language. Ok and talking of body language what's going on there, what emotion is he feeling?

RESPONDENT: Angry and mad

INTERVIEWER: How do we know?

RESPONDENT: His face

INTERVIEWER: His face and anything else

RESPONDENT: finger

INTERVIEWER: His finger, why, we don't know what's going on here but what might be a possible reason why she's feeling that way? Any ideas

RESPONDENT: Her mother or father might have shouted at her, or she might have argued with her friend

INTERVIEWER: Yes that really good, that's really observant cos obviously she's in a house isn't she so that's quite a good idea. That's more difficult to work out isn't it? But any idea what could make him that angry?

RESPONDENT: Well I was going to say like, she might have argued and he might have been her dad and he was angry

INTERVIEWER: Ok, so they might be connected. Yeh but we just don't know but he's so angry isn't he? Really really angry. Ok, so the emotions that we were talking about today was guilt regret

and blame so what does guilt mean, that's an emotion but what does it actually mean?

INTERVIEWER: Ok guilt, what does guilt mean?

RESPONDENT: It's like if you've done something bad and then you come home and say you've done something to your friend and then when they go home or something they find out or something you feel guilty for doing it, like oh why have I done it, I'm silly for doing it

INTERVIEWER: so you've felt guilty before then, we all feel it don't we? Definitely. How about regret, what does regret mean?

RESPONDENT: Like if you're with your friend and you argue and you say a bad word it's like I regret saying that word to them it was quite nasty

INTERVIEWER: Ok that's a very good example, and blame what does that mean?

RESPONDENT: If you done something like argued with your friend or done something bad in class and you blame it on someone, your teacher comes round and you say like I didn't do t, she done it or he done it

INTERVIEWER: Right ok, so that something we do as well, have you ever blamed somebody or something else?

RESPONDENT: Well I've done it for a laugh but I haven't done it on purpose

INTERVIEWER: It's an automatic emotion sometimes isn't it and that's what I was saying about these scenes, Ok. Can you remember there were two scenes, can you remember what happened in the first one

RESPONDENT: With the boy and the other boy

INTERVIEWER: Yes

RESPONDENT: There's a blue token and a red token

INTERVIEWER: Good well remembered

RESPONDENT: They had to pull a token out each and if one boy had a blue one and the other boy had the same one they'd get a prize, if one boy had a red and the other had a red they would have got a prize. If they had a different one each they don't get a prize

INTERVIEWER: Ok, and so then we ask questions and I know I said don't think about it too much but now I'm sort of, were having a think about why you might have written that question, there's no right or wrong which is quite interesting why you would have picked one boy rather than the other. So read that paragraph for me

RESPONDENT: Their friend comes along and he says he wished James and Thomas could have won the prize. They could have won the prize if only one of them had picked a different colour card. The friend said if only Thomas had picked the right colour.

INTERVIEWER: So why did you pick Thomas do you think, looking at it now why do you think you went for him rather than James?

RESPONDENT: Well I think because boys like blue and stuff like that I thought they would have rather picked the blue one and Thomas picked the blue as well

INTERVIEWER: Right Ok, so you were thinking about the colours were you? Right ok, how about this one, one of these boys said they felt guilty, which boy do you think said that? And you've written again Thomas, what's your reasoning there was it a different reason

RESPONDENT: Well because when he pulled the card out he pulled the red one out and he felt guilty like he didn't do it like he wanted to

INTERVIEWER: Ok and why do you think Thomas rather than James, why do you think Thomas would have felt more guilty than James?

RESPONDENT: Because Thomas was the one that picked the card out cos I think they're like, they'd rather be like, I think he was the one who would rather

INTERVIEWER: Ok that's fine and how about who felt worse, is that the same reason feeling worse or is that different?

RESPONDENT: I think Thomas felt worse but I don't know cos I think boys want the blue one and he wanted to pick a blue too

INTERVIEWER: right that's fine and one of these boys they blamed the other one so why again did you say James blamed Thomas?

RESPONDENT: Because then Thomas picked the red and like the boy would rather like blue so sort of James blamed Thomas for picking the blue

INTERVIEWER: Ok let's turn over can you remember what happened with Sophie? Ok can you remember what happened with Sophie?

RESPONDENT: She had a lesson but she had all these obstacle things in her way

INTERVIEWER: Good word that obstacles, I like that

RESPONDENT: She got to her lesson 30 minutes late

INTERVIEWER: Ok can you remember anything about what made her late, does anything stick in your mind

RESPONDENT: Well first she tripped over the ball in the playground, then it started to thunderstorm and then she remembered she left her cost in the cloakroom

INTERVIEWER: Yeh

RESPONDENT: Third she, errr forgot about that one

INTERVIEWER: There we are I think that's very well remembered, now what I was interested in was which one you sort of remembered first from the story and you went for the ball, so why do you think that sticks in your mind

RESPONDENT: Well it's easy for me to remember and it's like it was the first obstacle she come to

INTERVIEWER: right ok

RESPONDENT: so it's easy to remember

INTERVIEWER: ok and then you blamed that one as well, why did you blame that event

RESPONDENT: Well I blame that one because she could have, if a ball were near she could have run past, she couldn't run through the thunderstorms cos that was quite bad and you don't mind if she forgets her coat or nothing

INTERVIEWER: all right so that's the one you think, the ball is the most guilty, the most to blame, that's brilliant, thank you very much

Participant 8

INTERVIEWER: yeh

RESPONDENT: when you're in your friends playing and you've done something wrong and you have a row and you blame your friend then for doing something cos you had a row

INTERVIEWER: ok good, right were going to talk about these two scenarios now that you did this afternoon. Can you remember what the first one was about?

RESPONDENT: two boys and they had to pick the same colour cards and they could win a prize and if they didn't pick the same colour they would not win a prize

INTERVIEWER: excellent now I know I told you don't think about it just put whatever comes into your head but now were going to have a little bit of a think of why you thought that automatically. So let's read, if you can read to me that paragraph, starting with their friend

RESPONDENT: their friend comes along and says he wishes Thomas and James could have won the prize, they could have won the prize if only one of them had picked a different coloured card, their friend said if only James could have picked the right colour

INTERVIEWER: Ok now why do you think he went for James?

RESPONDENT: because Thomas picked a colour out first

INTERVIEWER: ok

RESPONDENT: and because he was relying on James to pick the same colour card so that's why he blamed James cos he was the last one to pick out

INTERVIEWER: ok that good thinking, I think a lot of people think that way and it's really good you've managed to say why you've done something. The second question, read it out for me please

RESPONDENT: one of these boys said they felt guilty about them not winning the prize. Which boy do you think said that?

INTERVIEWER: so why do you think you went for Thomas, a different, another boy in this one, this is the guilt question

RESPONDENT: because, he picked out first and because I went for James there and he was the last one to pick it out maybe Thomas then thought he felt guilty because he picked the colour out first and he was relying on

Participant 9

RESPONDENT: guilty

INTERVIEWER: Yes, good one what does guilty mean?

RESPONDENT: like if you did something you're not supposed to do you'd feel guilty about it?

INTERVIEWER: Yes is it an emotion you feel sometimes

RESPONDENT: yes

INTERVIEWER: Yes I think most of us do don't we and can you remember any of the others

RESPONDENT: upset

INTERVIEWER: Yeh there was one that was regret, can you remember that where he wished it hadn't happened?

RESPONDENT: yeh

INTERVIEWER: can you give me an example of regret that might happen to you or one of your friends

RESPONDENT: you could regret it if you like went somewhere and missed, say someone going out to play and you missed their going

INTERVIEWER: yes, that's good, and can you remember the other emotion or sort of emotion we talked about, blame, do you remember that, what does blame mean

RESPONDENT: it's like when sometimes you're like upset you blame other people for what happened.

INTERVIEWER: ok good so going to this scenario, scenario one is about two boys, can you remember what happened?

RESPONDENT: there were tokens like a big pile of tokens and if they picked the same colour tokens out they would both win a prize but if they were different colours what they picked up neither of them would get anything

INTERVIEWER: right and that's what happened didn't it, they both lost now if you can read that paragraph for me, this is your isn't it, yes their friend

RESPONDENT: their friend came along and he says he wished James and Thomas could have won the prize. They could have won the prize if only one of them had picked a different colour card. Their friend said if only James had picked the right colour.

INTERVIEWER: ok, now I know I told you at the time just to write down what came into your head, don't think about it cos I was looking at your automatic thoughts, I'm now looking at it and I'm just wondering why you picked James? Why do you think you picked James as the person at that point?

RESPONDENT: I dunno, I just picked James like and then on the other answers it kind of slotted in and it kind of made sense.

INTERVIEWER: ok, it's just you don't really know why you chose them, looking at it now can you think of any reason. So the next one for example you talked about feeling guilty, you said James felt guilty, why do you think James felt guilty.

RESPONDENT: Cos he picked the first card really

INTERVIEWER: Cos he picked the first one, ok. And how about feeling worse, why do you think Thomas felt worse.

RESPONDENT: Because he had picked one and Thomas was the one that had to make the match.

INTERVIEWER: Yeh, that's a good explanation and that one's about blame so you think Thomas blamed James do you

RESPONDENT: Yeh

INTERVIEWER: why do you think you might have said Thomas there

RESPONDENT: Because he didn't get it, he was feeling angry, because of all the different things that happened and blaming other people

INTERVIEWER: ok, in all of this is it fair to have these emotions of guilt, regret and blame

RESPONDENT: No it wasn't really their fault

INTERVIEWER: but people do feel these things don't they even though it doesn't make any sense really and that's what I'm looking at is how important that is. Let's turn over, scenario two, which was a girl called Sophie. Can you remember what happened to her?

RESPONDENT: she was going to her music lesson

INTERVIEWER: yeh

RESPONDENT: and things kept getting in her way and in the end by the time she got there it was finished by just a few minutes

INTERVIEWER: ok that's good, ok so can you read out what you've written there

RESPONDENT: one, if she'd been watching where she'd been going. Two, she should check if she'd got everything, three, if she had told the head teacher her problem politely and four I would have put my coat on and run through the storm

INTERVIEWER: excellent really nice long sentences there that was more than I expected so you did really well. What I'm interested in is why you focused on the, that was about the fall wasn't it.

RESPONDENT: Yeh

INTERVIEWER: When she fell, why did you focus on the fall do you think?

RESPONDENT: I was like looking through them and I put one for each thing, like that was the coat, that was the fall

INTERVIEWER: ok so you did it in order that it happened, that made sense to you, ok so talking about blame why did you blame, that is her coat again is it? Why did you blame the coat?

RESPONDENT: and because all the rest you can't really like stop a storm and all that but if she had just checked she had everything she would have got there quicker, cos she had to go there then she had to go all the way back for her coat.

INTERVIEWER: excellent that's really good. Ok.

Participant 10

INTERVIEWER: three emotions we talked about this morning, this afternoon rather was guilt, regret and blame. What does guilt mean and can you give an example?

RESPONDENT: well, say now I knocked a book off a shelf and the teacher said it was someone else and I felt guilty cos the other person had a row and I didn't own up for it

INTERVIEWER: that's a really good example. How about regret what does that mean?

RESPONDENT: regret, say now I said something horrible to a person, later on then I might feel like I didn't want to say that, I didn't mean to say it

INTERVIEWER: that's really good is that something you say sometimes, guilt, regret, we all do don't we. How about blame that's a little bit different what does that mean

RESPONDENT: Well if I've done something then I blamed someone, I blamed it on someone else and they had a row for it and I didn't they had the fault and I didn't

INTERVIEWER: Yeh so their all linked really, guilt, regret and blame. Ok were going to talk about scenarios now, can you remember what happened in scenario one,

RESPONDENT: there were two boys

INTERVIEWER: yes

RESPONDENT: Thomas and James and they had this game and they had tokens and they were mixed blue and red, and two boys would do it and if they had the same colour they'd win a prize so Tom picked out the blue and James picked out the red so they didn't win the prize.

INTERVIEWER: Now let's have a look at what you actually wrote and at the time I said I don't want you to think about it I want you to just write what you automatically think. Do you know what I mean about automatic, you don't think about it you just write it down

RESPONDENT: it comes in your head

INTERVIEWER: yeh and this goes against most of what you do in school doesn't it, where you've got to think about things really carefully but now were going to look at why you chose the way you chose and perhaps have some ideas about why you think you chose it. So could you read that little question there, which is question one.

RESPONDENT: their friend came along and he says he wished James and Thomas could have won the prize. They could have won the prize if only one of them had picked a different coloured card. Their friend said if only James had picked the right colour.

INTERVIEWER: Ok why do you think you he went for James in that question?

RESPONDENT: Because I think Thomas picked out the first card so I think Thomas was really blaming him for not picking out the right colour.

INTERVIEWER: Ok, excellent, but the second one you say you felt Thomas felt guilty, so why did you choose Thomas as feeling guilty.

RESPONDENT: Because if he said that about James then later on he might think well I could have picked out the blue one, not just him, kind of put all the pressure on him

INTERVIEWER: Ok and then the next one, you talk about, this is regret about feeling worse about things or feeling bad about things. Why have you answered James there?

RESPONDENT: because I think he feels bad because he thinks it's all his fault because he picked out the second card so he feels a bit like it was his fault.

INTERVIEWER: ok and then the third one which is about blame why have you chosen Thomas? Thomas blaming James, why have you chosen that?

RESPONDENT: because Thomas thinks that James really at least tried to get the card

INTERVIEWER: Right ok, do you think it's fair any of this, blaming and regret and guilt in this scenario

RESPONDENT: no

INTERVIEWER: why not

RESPONDENT: because it is anyone's game it's a fifty fifty game chance you can't get it.

INTERVIEWER: that's really good but it doesn't stop us feeling this way though does it, we still feel these emotions, ok what do you think about Sophie, what happened to her

RESPONDENT: she was late for her music lesson

INTERVIEWER: yes

RESPONDENT: got caught in the hailstones, left her coat had to go back to school to get her coat and tripped over the ball, was 30 minutes late

INTERVIEWER: ok you were telling me about Sophie being late for her music lesson, so what I'm interested in is how you ordered the things, the way that things could have been different. Could you read out what you've written please?

RESPONDENT: It could be sunny and she wouldn't have to take a coat to school, so she wouldn't have forgot her coat

INTERVIEWER: yeh

RESPONDENT: maybe the lesson could have gone on longer, the music

INTERVIEWER: yeh

RESPONDENT: maybe she should say to the head teacher she was in a rush

INTERVIEWER: yes

RESPONDENT: and maybe the ball should be inside

INTERVIEWER: ok excellent, why do you think in your mind you focused on the weather first

RESPONDENT: because it would have solved three problems, she wouldn't have got caught in the storm, at the thing so she wouldn't have stopped in the shelter and she wouldn't have probably taken her coat to school so she wouldn't have forgotten her coat

INTERVIEWER: yes

RESPONDENT: and then she wouldn't have gone back to school and the head teacher wouldn't have given her a job and she wouldn't have tripped over the ball

INTERVIEWER: that's really good and you've actually blamed the weather as well, why have you blamed the weather?

RESPONDENT: because the weather is making all the things

INTERVIEWER: so if it's the first thing that happens you're blaming really, ok

Participant 11

INTERVIEWER: the emotions we talked about in the scenarios can you remember any of them

RESPONDENT: there was one that was sad,

INTERVIEWER: yes

RESPONDENT: a bit disappointed

INTERVIEWER: yes

RESPONDENT: there was one beginning with a B

INTERVIEWER: was it blame

RESPONDENT: Blame. Yes

INTERVIEWER: yes so there was guilt wasn't there that we asked the question about, what does guilt mean do you think?

RESPONDENT: say now I took the last cake or something and then I blamed it on someone else, like I'd feel guilty for blaming someone else and not saying it was me

INTERVIEWER: ok so you've got both there haven't you guilt and blame, how about regret, what does that mean?

RESPONDENT: Say now I go down this tunnel and I weren't supposed to and my mother said don't go down there I'd regret not doing what she said not to do

INTERVIEWER: ok that's really good, so all of those were involved in these scenes how those boys were feeling the questions we asked. Scenario one can you remember what it was about, it was two boys

RESPONDENT: two boys and they were very good in school and they had these tokens, there was blue and red and if they had the same colour, so say now one boy had blue, and the other boy had blue you get a prize, and red and red you'd have a prize but if one boy had blue and the other one had red you wouldn't get it.

INTERVIEWER: what happened to them?

RESPONDENT: they like blame each other cos they didn't get it

INTERVIEWER: so one had blue and one had red didn't they so they lost

RESPONDENT: yes

INTERVIEWER: ok what I want I'm interested in, you know I said to you don't think about it too much it's your automatic thoughts

RESPONDENT: yes

INTERVIEWER: that I'm interested in I'm now going to have a look at your answers and perhaps have a think about why you may have thought your thoughts. So if you can read out question one to me and your answer.

RESPONDENT: their friend came along and he says he wishes James and Thomas could have won the prize. They could have won the prize if only one of them had picked a different coloured card. Their friend said if only Thomas had picked the right colour.

INTERVIEWER: ok why do you think you picked Thomas?

RESPONDENT: because James picked the colour first so like you would think Thomas could have picked the same colour

INTERVIEWER: Yeh I think that's the way a lot of people think, that's really good, really good that you're able to articulate it. With the second one do you want to read that out to me as well?

RESPONDENT: One of these boys said they felt guilty about them not winning a prize. Which boy do you think said that? Thomas

INTERVIEWER: Thomas felt guilty, why have you put Thomas there and not James

RESPONDENT: like the same thing because James had it first and he felt guilty for not picking the same colour as him

INTERVIEWER: ok well when we're talking about feeling worse, why have you said James there?

RESPONDENT: James because like he might think it's his fault but it's like Thomas might think it's him and it's like he's just feeling guilty for his friend

INTERVIEWER: ok and the last question about blame, so who are you saying blamed who?

RESPONDENT: I think that Thomas was blaming him saying oh why did you have to pick the colour blue or something like that

INTERVIEWER: ok, ok, that's really good, turn over well before you do that I'll just see if you remember any of it. Can you remember the second scenario?

RESPONDENT: it was about this girl called Sophie and she had to go to a music lesson but she was running late with all this different stuff that was happening to her

INTERVIEWER: ok that's really good, really well remembered, what I'm interested in is, if you can read it out to me is how you decided could be different so could you read it out to me?

RESPONDENT: you know when someone was playing with the ball

INTERVIEWER: Yes

RESPONDENT: They could have picked it up after them

INTERVIEWER: ok yeh

RESPONDENT: she could have put the message down to the headmaster and say I'm a bit busy sorry and then she could have just worn a coat instead of shelter

INTERVIEWER: yeh

RESPONDENT: and she could have ran straight through the hailstone into the school

INTERVIEWER: that's really good why do you think you focused on the ball first

RESPONDENT: I think I focused on the ball because it was one of the first description things and then I just wrote it down and I thought that must be one of the answers

INTERVIEWER: the important things, and then when it comes to blame you blamed something else, didn't you why did you blame the head teacher?

RESPONDENT: because I think the head teacher, she shouldn't have stopped for him, she should have just said, oh I'm sorry I'm a bit busy at the moment I'm trying to get to my lesson, so that's why I put it

INTERVIEWER: ok, and in all of these things, is there any point, people feel these emotions all the time, if you're late you do feel all this, is there any point feeling these emotions do you think?

RESPONDENT: I think you know if you get late in a class and it's just by a ball you fall over, you'd be a bit worrying and disappointed

INTERVIEWER: Yeh it's difficult not to feel these things isn't it, ok that's lovely

Participant 12

INTERVIEWER: ok yes were talking about scenario one and you just described what happened can you read that first paragraph for me?

RESPONDENT: from there?

INTERVIEWER: Yes

RESPONDENT: their friend comes along and he says he wishes Thomas and James could have won the prize. They could have won the prize if only one of them had picked out a different colour card. Their friend said if only Thomas picked the right colour

INTERVIEWER: ok so why do you think, I know at the time I said to you don't think about it, its automatic thoughts, why do you think now looking at it you might have picked Thomas to put in that gap?

RESPONDENT: cos I think that Thomas is more innocent than James

INTERVIEWER: ok why do you think that?

RESPONDENT: I don't know, even though like James picked first I think it weren't Thomas's fault

INTERVIEWER: ok and with this one you've also put Thomas for this one is that the same reason why do you think he felt guilty?

RESPONDENT: yes

INTERVIEWER: yes you think it's the same reason. Why have you picked James for the next two?

RESPONDENT: cos James felt worse for not winning the prize I thought

INTERVIEWER: ok and about blame, you think James blamed Thomas did you?

RESPONDENT: yes in that second one

INTERVIEWER: ok right. Can you remember what happened in scenario two involving Sophie?

RESPONDENT: Sophie was late for her music lesson because it was a thunderstorm and she couldn't like get herself and she got like taking to the headmaster and tripping over balls

INTERVIEWER: ok very well remembered, can you just read the four ways things could have been different for Sophie so she got to her lesson on time

RESPONDENT: a coat

INTERVIEWER: yes

RESPONDENT: it could have been sunny

INTERVIEWER: yes

RESPONDENT: she could have ran

INTERVIEWER: yes

RESPONDENT: and she didn't see the head master

INTERVIEWER: ok that's good that's fine and why do you think you went for her coat first, for her forgetting her coat, why you went for that one

RESPONDENT: because I think she should have remembered her coat because it's her responsibility

INTERVIEWER: right that's a good answer yes, I see that and what event would you blame the most for her being late

RESPONDENT: I think she would have blamed herself

INTERVIEWER: blamed herself because of the coat is it so the coat really strikes you as important, lovely

Participant 13

INTERVIEWER: Emotions

RESPONDENT: Shall I just write different ones?

INTERVIEWER: Yes, different emotions, can you name some for me

RESPONDENT: Upset, devastated, happy, amazed

INTERVIEWER: good yes

RESPONDENT: frustrated, annoyed

INTERVIEWER: Yes, that's really good. So I've got two pictures here, what emotion do you think is going on there?

INTERVIEWER: with the little girl, what do you think she's feeling?

RESPONDENT: Upset and lonely

INTERVIEWER: Upset and lonely, good words and any idea why, we don't know what's going on but any idea why she might be feeling that way?

RESPONDENT: Cos somebody might be leaving her out of something

INTERVIEWER: Yeh that's good, how do you know she's feeling that way?

RESPONDENT: Cos she's sitting on the side of the stairs with her head down

INTERVIEWER: Really good, this is quite different this one, what emotion do you think he's feeling then?

RESPONDENT: Angry

INTERVIEWER: Yes, how do we know, how do we know he's feeling angry

RESPONDENT: His face

INTERVIEWER: His face and?

RESPONDENT: What he's doing

INTERVIEWER: Yeh ok so what we're going to talk about are a few emotions that we mentioned today in the scene that we were doing, so guilt, what does guilt mean to you? What does the word mean guilt?

RESPONDENT: Isn't is something like taking the blame

INTERVIEWER: Yes I think it can be can't it, it's how you feel about something. Can you give me an example of when you've felt guilty or when somebody you know has felt guilty?

RESPONDENT: er….. No

INTERVIEWER: No have you ever felt guilty about maybe taking something that maybe doesn't belong to you or? You know in the scenario we were just talking about, we were talking about guilt then weren't we, why did the boy feel guilty? The one that you choose

RESPONDENT: Because he probably thinks he should have picked up

INTERVIEWER: excellent

RESPONDENT: a piece of paper

INTERVIEWER: is it fair to feel guilty in that scenario?

RESPONDENT: No

INTERVIEWER: Not there is it because you still feel it even if it's silly. How does the word regret, what does regret mean?

RESPONDENT: not really liking something that you're going to do or you've done

INTERVIEWER: Exactly and what's the sort of word that people use to show their regret often, beginning with S, which we use a lot… Sorry

RESPONDENT: sorry

INTERVIEWER: Sorry yes that's the word we use and in our scenario can you remember one of the questions was who feels most sorry for what's happened. How about the word blame, what does that mean?

RESPONDENT: saying like it was the other person, not them even if it was them and not the other person

INTERVIEWER: Yes, so just blaming somebody else and in this one boy blamed the other, is this fair?

RESPONDENT: No

INTERVIEWER: No but they still did it didn't they so Ok, show me the answers, let's go through the scenario now, can you tell me a little bit about what happened in scenario one, can you remember, you can read it if you want but can you remember? Two boys

RESPONDENT: In school they had the tokens there, the two boys did they both picked different ones out

INTERVIEWER: Ok, do you want to read that little paragraph for me there?

RESPONDENT: The paragraph

INTERVIEWER: Yes, just the first one there. Their friend.

RESPONDENT: Their friend comes along and he says he wishes Thomas and James could have won the prize

INTERVIEWER: Yes carry on

RESPONDENT: They could have won the prize if only one of them had picked a different colour card. Their friend said

INTERVIEWER: If only James

RESPONDENT: If only James had picked the right colour

INTERVIEWER: Ok so you chose to put James in there, I know that I told you, don't think about it just the first thought, but thinking about it now why do you think he was the first person that comes to mind?

RESPONDENT: Well because Tom picked first and he picked a certain colour James picked the opposite so I think James should have picked the other one

INTERVIEWER: Ok that's a very good answer so read the next question for me, one of the boys

RESPONDENT: One of these boys said they felt guilty about not winning the prize, which boy do you think said that?

INTERVIEWER: Why do you think Tom? Why do you think he feels more guilty than James about it all?

RESPONDENT: I dunno, I just wrote

INTERVIEWER: you just wrote one of them, ok how about the next one, go onto the next one.

RESPONDENT: Which boy do you think felt worse about not winning the prize?

INTERVIEWER: James, do you know why you wrote that one down?

RESPONDENT: Because he chose second and he got the different card

INTERVIEWER: Yeh ok, and then the last question, one of these boys said they blamed the other one and you've chosen Tom

RESPONDENT: Because Tom went first and he picked the opposite

INTERVIEWER: Excellent, that's really good. That's all I need to do.

RESPONDENT: late for her school or something

INTERVIEWER: Yeh can you remember the sort of things that made her late

RESPONDENT: thunderstorm

INTERVIEWER: yeh

RESPONDENT: she tripped over a ball

INTERVIEWER: yeh

RESPONDENT: Forgot her coat,

INTERVIEWER: that's really well remembered anyway, that really good now what I….

RESPONDENT: and she got sent to do a message

INTERVIEWER: excellent, can you remember the word I used for message?

RESPONDENT: errand

INTERVIEWER: errand good there we are, now what I'm interested in is in your thinking which one you went for first and you went for remember her coat, so she should have remembered her coat. Why did you go for that one first do you think? Why was that the….

RESPONDENT: I just did it in the order of the book

INTERVIEWER: in the order that it was written

RESPONDENT: yeh

INTERVIEWER: yeh, ok that's fine, this is interesting, why did you blame the thunderstorm the most?

RESPONDENT: Well if the thunderstorm was for quite a fair time she would have been under a shelter for a long time

INTERVIEWER: ok, so we don't really know how long it lasted but in your mind you can imagine a thunderstorm lasts for quite a while

RESPONDENT: Yeh cos I've been stuck in a thunderstorm

INTERVIEWER: yeh there we are, it's your own personnel experience

RESPONDENT: and I was sprinting, and slipped on the marble flooring and then banged my head

INTERVIEWER: oh dear where was that?

RESPONDENT: in Tunisia

INTERVIEWER: Oh ow right

Appendix 12 (2) Raw data (teacher transcripts)

Teachers1

RESPONDENT1: it triggers the reaction then that happens on the path that you take, then looking back at it in retrospect you think that that one thing was to blame that this really is a CV so yes I do agree with that and I think that's what happened to me this morning. This morning I left just slightly later, I was very tired after sports yesterday, we had quite a long all day so I thought right its Friday I'll just leave 5 minutes later and I did, left the house and as I approached the roundabout, there was a huge queue, a motorcyclist had been knocked over and the ambulance and the police were there, so this then made me late, I ended up in the traffic with lots of parents and by the time I got to school there were lots more things going on, the fact that the supply had turned up and because my SA is ill teachers were being moved around and helpers were being moved around and I wasn't there to help out and you know have an intervention with this so then things were in my mind, this all happened because I was late this morning, if I'd been earlier then everything would have gone perfectly

INTERVIEWER: yeh and how did you feel about that?

RESPONDENT1: I felt a little bit panic stricken when I was coming to school late, I felt out of control really not in charge as I should have been and things weren't going smoothly.

INTERVIEWER: is it useful to know that this is what human beings do?

RESPONDENT1: yes I think it is because we all react, I think we all have similar thoughts but when we see people from the outside we don't think that this happens but I think it is, I think it is also important for your pupils, your learners so you know how to sort of intervene and help out

INTERVIEWER: ok, does it resonate with you

RESPONDENT2: I think there are many situations where we get frustrated over things and we look for a reason which normally ends up being a blame, it's a blame culture, if I hadn't done this then this would have happened but I do think as you mature through life you learn to deal with those in a slightly different way, you identify the reason and that you know maybe the following Friday in your situation that you would leave that bit earlier because it would have a knock on effect. I have a similar kind of situation at the roundabout, I know if I don't

get to it by a certain time then I know I'm going to be late, then I have less time to prepare in class then that then has a knock on effect and it tends then to have a knock on effect throughout the day but I feel as you mature you learn to deal with the situation and whereas my levels of frustration would have been much higher a few years ago, now it doesn't bother me as much, it's not such a big thing in my life as it would have been previously.

INTERVIEWER: and does it resonate in terms of your professional practise in the way that the children are thinking and the way they are behaving, do you see these events, where they're feeling the same way

RESPONDENT2: I think children look for the immediate cause for something to blame, it's your fault that this has happened or they like to pass the buck in many ways. If at the end of the day they're not tidying up quickly enough for me and I'll say there's a paper there, there's a pencil there or maybe I'll just sit at the front and wait they all realise then that I am waiting for them and they look for somebody to blame and start saying, so and so pick that piece of paper up or that's your pen, you put it away, you're keeping us waiting and they'll know the knock on effect but instantly they're looking for that one person or that one incident to blame and then they get very frustrated, they're levels of frustration rise very very quickly because of it

INTERVIEWER: and how do you find dealing with it? Is it frustrating for you as well or have you found a way of dealing with the way that they behave?

RESPONDENT2: do you mean the way my levels of frustration at waiting for them to sort all those things out

INTERVIEWER: yes

RESPONDENT2: there are some days where days have been harder than others where my levels of frustration would be much higher but then I try to impress on them that I'm putting the onus on them rather than it being me, this is a daily routine that they should be reiterating and understanding. A Friday would probably be a day when I get more frustrated than other days I say I've got a staff meeting tonight, I'm not bothered and I'll shrug my shoulders at them and hope that it has that knock on effect that they have to take that level of responsibility, so I'm trying to put the onus onto them rather than letting it bother me and I think the more of those situations that you have the less the level of your frustration rises.

INTERVIEWER: so an experienced teacher is going to be much better at dealing with these

RESPONDENT2: yes

RESPONDENT1: I think you find ways to diffuse situations because I had a similar incident this week, I gave out some rubbers and there was some allocated to each table and when they came back they'd lost some and immediately a child was blamed, another child got upset and then started to cry. You find ways then to diffuse it, I was quite firm, I wanted the rubbers back and they were going to be found. They did find them but in the meantime one child was in tears because she'd been blamed. We diffused it we got music to calm the situation, the girl that was causing some of the difficulties then was put to the side, sat somewhere quietly for a little while and then things came back together and I think very often when their younger as well they still haven't got that.

RESPONDENT2: they react

RESPONDENT1: reaction, yes, yes

INTERVIEWER: what age group do you teach?

RESPONDENT1: I've got seven, eight year olds

INTERVIEWER: right ok

RESPONDENT1: some will be turning nine so quite immature

RESPONDENT2: and I do think that because we've got a peer mediation group with my year six pupils and they deal very well with any sort of discrepancies lets say that arise out in the yard or any quarrels and very often it's the younger ones that go to the peer mediators more. The older ones will sit either side of the table and will say what's your opinion, what's your opinion and they've got a list of questions that they're quite confident in asking them, they will then say well how do you think you should have dealt with it, how do you think we can move forward, are you ready to move forward, so a lot of the year six have those strategies already in place with dealing with those incidents then that may cause them the frustration and the blame culture whereas the younger ones haven't got that mechanism in place. It's that level of maturity and the way they deal with it.

RESPONDENT1: and it think it's in the curriculum with things like circle time and PSHE work, you know lots of role play, especially with the younger ones so their acting out these sort of situations.

RESPONDENT2: I do think the older ones are very good, they have a lot of pupil voice here and they're very good at expressing their opinions and we encourage them to think about how others would feel in different situations

RESPONDENT1: and it sounds like it's a no blame because if you're trying to find out who's at fault, it's almost impossible anyway isn't it so you deal with it in a different way

RESPONDENT2: and it's a case of well what should you have done in that situation, now should you have lost your temper and hit somebody, or what should you have done and it's that constant reminder of how to deal with it, putting strategies in place to help them deal with those situations rather than blame. I think a lot of the work that you did in class this morning the initial response was younger ones were feeling guilty because they didn't support each other enough and I think the older ones are better at understanding that concept than actually blaming like oh I could have helped them more by doing this, if I hadn't done that then that wouldn't have happened and its more about self blame with older mature children rather than oh it's your fault.

INTERVIEWER: yes, yes, have you had any sort of event that really stick in your memory where you've had this big event that's come from this idea of blaming something or focusing on something and it's escalated?

RESPONDENT2: I think possibly the most that has happened with is .....where something has happened and it hasn't suited him and he hasn't wanted to do it and then he automatically blames the situation

INTERVIEWER: yeh that's interesting, yeh

RESPONDENT1: I think maybe the way we work together, the team work because we all hold the same values, ethos so I think that really helps us as a school

INTERVIEWER: yes, do you think then it would be useful if this research is enhancing understanding of how people's minds work, including adults not just children do you think some sort of intervention would be useful. Its sounds like you're doing it as you say, a sort of no blame and everything, so do you think

it's something children should be aware of, that they have these automatics thoughts.

RESPONDENT3: I think it's quite difficult for them to understand the concept of the way that they think, we can give them some strategies to put in place to say well if you were faced in this situation then you need to do this this and this but to get them to think about how they think is very difficult

INTERVIEWER: yes

RESPONDENT3: that is a concept that is hard for adults to do and I'm not sure how well children do it, over the years we've had lots of things where we've tried to put thinking strategies into place for them and I can remember one example where they were shown a PowerPoint of various things and they had to try and guess what it was, and it was a completely open ended situation, oh what do you think this is and why do you think it is and there was no definite answer at the end of it and they couldn't cope with that they were sort of, oh ok what was the point of that so very often for them to think about how they think about things is, it almost seems to them as a waste of time unless they get a definite answer out if it, well I thought this and maybe I shouldn't have been feeling envy or guilt or whatever but I did, so what it's that emptiness at the end of it all

INTERVIEWER: no that's interesting

RESPONDENT2: I think that that's what happens with adults in our lives, it's so busy and you're thinking so many different things, multi-tasking and we sit down and think and having time to reflect bit very often we don't sit and consider all these trained events that these are relating to.

INTERVIEWER: yes

RESPONDENT1: it's very hard for them to understand how they are feeling something and why their feeling it and what they can do with it at the end of it, you know, why are you feeling guilt, or why do you feel jealous, jealousy I think is one of those emotions I think that is very difficult to explain. Why do you feel jealous because you want something that somebody else has got, why do you want to be like them?

INTERVIEWER: it's all very complicated

RESPONDENT1: it is very complicated, for children to take that on board I'm not sure how they would actually deal with it. They like

something complete at the end or a piece of work or something to present to the class, it's that nothingness.

RESPONDENT3: also I think that the difference is that in school with peers and maybe what happens outside, you know the differences there that they see in how adults react to situations.

RESPONDENT2: because they know there are certain rules in place in school and very often children will conform to those in school but then they just lose it completely outside, its two different mindsets then

INTERVIEWER: it seems the way forward is to carry on in the way that you've been doing it, this research almost substantiates your approach, which is peer mediation, no blame culture, restorative justice some people call it don't they rather than doing intervention

RESPONDENT1: its giving them something to move forward with rather than just being reflective, because if you said, reflection is important for them but if you just leave it at that and you don't find a way forward in it then its means nothing to them

RESPONDENT2: they don't learn from it

INTERVIEWER: ok, thank you very much, is there anything else that springs to mind, no that's lovely

Appendix 12 (2) Teachers raw data
Teachers School 2

Interviewer: Okay, in this interview we're going to concentrate on how children interpret events, and how this leads to counterfactual thinking. Would you be able to give any examples of events that have happened and how children have dealt with them? Does anybody want to go first?

Male 1: Yes children will very frequently not bring their reading book into school because they haven't actually read, but what they will do is that they will actually blame it on some other event, I was at my nan's house, or my mum didn't hear me read, or I left my bag in the car, which has then gone up to their nan's and they will put a sequence of things together that will actually identify why they're not to blame for the incident, whereas in fact they are to blame, it's their responsibility to do that, so that was the first one I had, but I also have one with lateness. Children avoid coming to class when they think they are late for school, they actually then say, well, I didn't wake up in time, okay, but then they will then say, my

mum didn't wake up in time, so they don't actually cause the one thing with the other, and they don't know what the solution is, so we say well how could you solve that problem, they just look at you. So the reaction is the children feel a great guilt, coming into school, and they don't actually recognise that it's the parent who's at fault in the beginning, so they look at the last thing, well I got up late, rather than saying that the parent didn't wake up in time, because they are young children. And so they feel the guilt, they come in, they skulk into school, and likewise I have a child who is constantly let out late, her mother doesn't collect her from school, but she will always say, oh, she always makes justifications for her mother, like oh, my mum is probably is doing this, even though she's always looking out of the door looking to see where her mother is, and again it's the guilt coming out that she's making her mother come to school, and she's told me that she's looking forward to come to the juniors so she can walk home on her own. So she's trying to find her own solution.

Interviewer: And as a teacher, how does that make you feel?

Male 1: I'm very angry with the mother to be honest with you, and I have addressed it with the mum, but things haven't changed, you know because it's the emotional impact on that girl, because when she was younger, at the beginning of the year, it didn't bother her too much, you could distract her, and she could come in, whereas now she can't be distracted. I'll turn my back, she'll be out in the yard walking down the yard trying to find her mother. So it's having an emotional impact on her, and it's having an emotional impact on other parents because other parents come in and say, I'll take her. So other parents are recognising that this child has emotionally suffered through being left. So other parents are stepping in for her as well.

Interviewer: That's interesting.

Male 1: Okay?

Interviewer: Okay. Anybody else?

Male 2: Some of the things like just when children are going from which - if they can't find a packed lunch or they've lost money, the first thing, I've dealt with is somebody's stolen it. The first thing is somebody's stolen it. Then when you question them about well where was it last, and you go and stepping back, where did you see it, and I don't know, I think last week, there were two pupils adamant their packed lunches had been stolen, we went through and through and through it and eventually we phoned the parents, no, they'd left it on the, in the house, you know, so they were looking for reasons why they couldn't find their packed lunch,

rather than, and the first thing was, it's stolen. Except it can't be my fault that I've left it in the house or something like that, as well. You know, sometimes it might have been the parents' fault, but sometimes it's the children's fault for not doing it. It's the similar sort of thing with the reading books.

Female: And when they find it they then say that someone must have put it there they won't remember that that's where they last left it, or even admit that's where they last left it. They'll say, oh, they must have moved it.

Interviewer: How much of an impact do you think that has on them, and on you as the sort of the adult dealing with these events?

Male: You get a bit frustrated don't you, because if you're spending 20 minutes of your time to try and sort something out and you find out the parent hasn't put it in the bag or, or the child didn't do it you know, I feel quite frustrated about that child, has wasted your time, but, you know they're perhaps in a sense of panic, weren't they, so they worry, and they've gone well somebody's got to have taken it, and when you think about it, they've just had too many things to think of perhaps coming in and....it's the panic yeh

Female: ...the child often feels anxious don't they?

Male: Oh totally yeah.

Female: But I think it depends on the individuals then and how often it happens because there's, you got a scenario in school, where this happens almost on a daily basis, but the parent also joins the child and says that it's been some kind of malicious act that the packed lunch or whatever has been missing, and that's much more difficult to try and evidence that nothing malicious has happened. If it's the odd occasion, then I think it's easier to deal with, isn't it?

Male: Yes.

Female: Because it tends to be a one off, it's when it happens regularly with that child and trying to teach that child that they've got to be more independent, particularly in the juniors, and the parents sharing that understanding, if you haven't got that then it's more problematic.

Male: I don't know if we're going quite off but just looking at the example there, the rejection from the school play, is an example of, we've all had that I'm sure, and one child, they said absolutely nothing when the parts had been given out. There'd been auditions so about four or five pupils had gone for that and then you get a parent coming in complaining that so and so wasn't

picked because she was better than so and so, and she's only said the two people that she was better than. Then whereas maybe there were another two that were better than her, you know, sometimes they're only picking the one, I was better than that one, I don't think that one, I don't know, they're having arguments about being picked for a play, or, you know, not picked for an after school club. And again then, it's coming back when you're giving the parents a certain amount of information and the parents are with them then as well. I don't know if that's quite ...

Male 1: And I've got one that fits the if only, what if scenario that's exactly that, where I had a child who come and auditioned for school choir, some years ago, and they didn't get in and they actually came back and said well, what if I sang this song, what if I did this instead? And they said, yes but if only, if only you had played the piano for me then I would have been okay, if only this .. so they were trying to reason their own anxiety and their own sense of rejection, through actually saying, yeah okay, I could have sung a different song and it would have been okay, but if you had played the piano for me, or if you had done something different, so they were actually blaming me for the fact that they weren't good enough, so they were trying pass off the feelings that they had, and likewise the feelings that you have as a person is desperate disappointment for them because you as a teacher want to be inclusive, you want everyone to just have the opportunity if they want it, but unfortunately it wasn't in this school in the situation that I was, the head teacher absolutely said no. If they're not good enough, they must not be in there, and so it does have an impact, and then likewise the child's friends who are in there, it caused a sense of isolation because they were then coming to choir practice and that child was the one who was left out, so it had a bigger impact socially for that child because at lunchtimes then they were on their own. So these things are really broad ranging, they can have a ripple effect, so one little decision that's made by a teacher, can have a bigger ripple on the children. And have a real emotional impact on them, and because what will happen is, they probably won't go for something like that again. That one rejection could literally make them say well I'm never going to do anything again, because I don't want to face that situation again.

Interviewer: That's interesting, yeah.

Male: I think a big one is fights in the playground as well, then you're going back and you're trying to, they're all thinking of the reasons why they did it, and it could be just a little spark out there in a football game, but they've been wound up by some other people, all throughout the day, and it was not, it was, Jim kicked me and I've lost the plot, so I think fights in playgrounds and arguments, trying to get back and find out what the reasons are, and they can

give this reason and give that reason, it's sometimes difficult to get to the main point isn't it?

Interviewer: Any more examples? Because I think we are covering sort of other questions, questions two and three here which is all about guilt and regret and everything, any other examples that come to mind? What I was going to ask next was, what do you think, it sounds like that this is something that does impinge on school life, sort of, almost low level issues that can have ripple effects and, does it affect your standard of, you know, wellbeing as well? What do you think would help? So, with the knowledge that children and adults think this way, would that help? If there was a sort of an intervention that was based around that? Have you got any ideas what would help these disputes?

Male: I think that any information on how children think and process things is useful to us. Whether we can actually apply it to scenarios I think is another thing. But information is power and the more information we have about how children react, and how children actually are supposed to be, ...and I went on a course last week, where we heard about self talk, which I mentioned to you and it had a huge impact. It wasn't anything that we didn't know, that we haven't experienced, but hearing someone else verbalise it, just made you went, that's it. That is what we are experiencing. These children who self talk negatively about themselves, and that does feed into what you're saying, is that how do you actually break that cycle of negative self talk, within children, when if they've had failure, and they've had failure from a very early age, I'm talking pre-school, you know, or they've had rejection or anything before then, they're actually coming into school with that. We then as practitioners have to find a way to actually turn that around and on the course that we went on, they said to actually do that is actually an incredibly difficult thing, because self talk is so sub-conscious within them, and I think that us as adults, we all have our own self talk, and so how do you, if you're not a positive person yourself, then how can you change somebody else without changing yourself. So I think that there's a lot of self learning goes on with teachers, and a lot of self reflection goes on in the way that you react to scenarios based on what you think about yourself, and what you want to project onto others, and the children do the same thing. The children think about themselves and they project what they feel about themselves onto others, so children who feel negatively about themselves, say a child who thinks they're naughty, will behave naughtily. If you can convince a child that they're good and that they're worthy and that they're worthwhile, then that child's behaviour will change. It might revert back on a spring but that child will try and actually change the behaviours, because they

intrinsically want to be happy. And so I think all the information that we can have on how children think, is actually good for us.

Interviewer: Yes, that's really interesting. Is there anything else maybe you'd like to say about these issues?

Male: No, I wouldn't disagree with the information, it might not work but it's worth having a look at.

Interviewer: Yes. Are you surprised by what I've told you about, how, this is how adults think as well, as children, but in a school situation you're more involved in these events, you know, negative events, because you're surrounded by, you're growing up and developing and you're surrounded by peers. But does it surprise you what I've told you about, does it have any resonance in your own experience? About how you view events?

Male: I don't know, I'd have to think about it. Think about it in more detail.

Male: The total thing about speeding and things like that, we'll always blame it on some other scenario, like I'm heavy right footed you know, I'm an absolute case in point for that. When Ceri is in the car having a lift, I'll always drive more carefully, and I'll always drive more carefully because I always think, he's a father, he's got children, if something would happen, I couldn't forgive myself. When I'm on my own in the car, I don't care.

Female: I did have a speeding ticket once and I was going over the speed limit, but the reason I was going over the speed limit (laughter and joking comments) in a previous job I was working an afternoon shift, and the staff on days phoned me in my house and asked me to call into the fish and chip shop on my way to work, so I was rushing, I didn't have any time, I went tearing down the road in my car, and I was caught by the police at the bottom of the road. Now, it was their fault because they had asked me to buy the food to take into work. If they hadn't asked me I wouldn't have gone over the speed limit, so it was their fault. So that is true.

Interviewer: And you've obviously remembered that event. (more laughter and joking comments). That's great, thanks ever so much.

PART 3: A PERSONAL REFLECTION ON RESEARCHING AND WRITING THE THESIS: AN EXPLORATION OF PUPILS' USE OF COUNTERFACTUAL THINKING IN SCHOOL-BASED SCENARIOS

3.1 ABSTRACT

This is a critical account of research undertaken for a thesis. The thesis aimed to add an educational perspective to the work done by cognitive and developmental psychologists in the area of counterfactual thinking. Previous research had used mostly experimental techniques to unpack the way this type of thinking works and the possible role of it in the lives of human beings. Developmental psychologists have carried out work on the way that counterfactual thinking develops in children and its links with other cognitive and affective functions. It has also been used in clinical psychology but it has not been applied to educational settings. The findings of this study partly reiterated findings from the cognitive literature but showed differences and have also been enriched with qualitative findings. The research has implications for the contribution of counterfactual thinking to education. This paper presents a critical account of the research process.

3.2 EARLY STAGES/INTRODUCTION

This thesis was researched and written between April 2014 and January 2015. The topic of counterfactual thinking was chosen during the previous winter term (December 2013) following advice from the course's then research director. This advice was to start thinking about a topic from the first year of the doctoral programme. He suggested choosing a topic that the student was passionate about and even had some knowledge of prior to starting the course. This proved to be sound advice because despite working on this project for two years the researcher retained passion and interest in the subject. In addition, the researcher has done some research on counterfactual thinking around six years previously and was hopeful that this was still a fairly new and interesting area of research.

Counterfactual thinking was seen by the researcher as a fascinating facet of the human condition that had not been applied to educational psychology previously

and there was a desire at the time to carry out research that could serve some wider purpose than attaining a thesis. This area of psychology also had a strong link with emotions and the researcher had carried out previous research on emotional literacy and was interested in well-being in schools, particularly the potential impact that thinking and emotions can have on relationships in schools between pupils as well as teachers and parents as well as the issues of disputes in that environment, such as playground incidents. During the researcher's first year, she had carried out some systemic work on playground problems in a primary school and was struck by how endemic these issues were and how teachers and carers struggled to deal with events and children's perceptions of events. The researcher had also witnessed first-hand as a teacher and parent how debilitating issues surrounding disputes were for the school environment and felt that research and intervention was needed in this area but she was also aware that she needed to try to be aware of her own influence on the research process. For instance, she could arguably have used her interest in playground disputes to skew the research in that particular direction. This viewpoint was helped by the researcher's adoption of the Constructionist Model of Informed, Reasoned Action (COMOIRA) (Gameson, Rhydderch, Ellis & Carroll, 2003), which included the core elements of social constructionism, so an awareness of people (including the researcher) constructing the world in their own way, and systemic thinking. The systemic thinking section of the model was the driving force in the researcher's wish to view counterfactual thinking within the systems of class, school and education generally. The researcher had a construction that 'thinking' was systemic and could not be viewed in isolation and it was important to understand thinking, emotions and behaviour within its social setting, which included the family and community as well as the school. There was an awareness at this stage that this viewpoint and approach was in contrast to the way counterfactual thinking has been viewed in the literature as it had largely been in the domain of the cognitive and developmental experimental tradition.

Overall, there was possibly more optimism about developing understanding and adding to the body of research than of the potential for any impact on anyone else, but it seemed like a noble ambition anyway.

It is clear now looking back on the process that the researcher's constructions of the role of the educational psychologist was significant here and could bias an approach to the subject. Intervention was perceived as really important and there was perhaps frustration that the latest theory and research in psychology was often not translated into practice. The latest edition of Educational Psychology in Practice, at the time the research was undertaken, contained an article (Chodkiewicz & Boyle, 2014) on the application of attribution training. The authors made the point that not enough research on cognitive psychology was being translated into practice, so this gave some encouragement that this area of research and the possible practical applications were appropriate. In this paper, Chodkiewicz & Boyle (2014) argued that attribution training could contribute to student perceptions and the learning process. But the authors also argued that there were signs that this situation might be changing and researchers were starting to "focus on understanding how interventions such as attribution retraining can be implemented within the naturalistic educational setting by educational practitioners (p82)". This echoed the beliefs of the researcher and again gave encouragement that this work was topical in both its area of research and its application.

It was essential at this stage to do background reading and get a clear understanding of the way the subject matter could be approached and address a gap in the literature, whilst keeping in mind the researcher's desire to make this study relevant to the educational sector and educational psychological practice.
In addition, the researcher communicated with a number of cognitive psychologists, from the universities of Cardiff, Dublin and Birmingham, and asked about the issue of research on counterfactual thinking and other areas of cognitive psychology often not being linked to the idea of practice. There would be interesting findings such as "people focus on the last thing to happen in a series of independent events" but not to answer the "so what?" issue. These academics were clear that they felt that was practitioner's (i.e the researcher in this case) role so this again gave confidence that something worthwhile was being attempted.

The researcher took advice from her supervisor who stressed that the primary aim of this thesis should be to add to the body of literature and other issues such as educational psychological practice should be secondary. This background research showed that a lot of research has been undertaken with children on developmental issues of counterfactual thinking. It was seen as a necessary part of development, much like theory of mind. The research tended to focus on the mechanisms of counterfactual thinking but did not link it with practice in educational settings. It was a challenge to narrow down the research so it was pertinent, particularly in relation to children's experience in the classroom. Given this apparent gap, and the reasoning behind addressing it, there was a degree of optimism about the plans. However, some trepidation was felt regarding the feasibility and usefulness of the study. The preliminary discussions held with academics to advise on various aspects of the process both reassured and revealed the extent of the researcher's ignorance in some areas. All these researchers showed an interest in the subject matter of the thesis, which was promising. However, in these discussions, there was also a discovery – among many other things – that there were many opinions on the role of counterfactual thinking. This challenged one of the unconscious assumptions the researcher had carried into the plan and made her wonder whether more fundamental, unseen assumptions might be waiting to reveal themselves.

3.3 THEORETIC APPROACH

The researcher was keenly aware that she should not get too immersed in the background literature but should also concentrate on exploring the theoretic approach. It was helpful to think on three levels from the onset of the project; namely ontology, epistemology and methodology. There was a belief that spending some time exploring these issues would be beneficial in all aspects of the research. It was also important to read the literature on theory of social research as well as the papers and books on counterfactual thinking. In terms of perceptions of reality and ontology, the researcher had been firmly in the idea of social constructionism. This theory made sense in that it was the core process in the doctoral programme and approach to professional practice but the researcher also felt personally that

this had resonance in all aspects of life. This linked to epistemology – how did the researcher know this reality and how would this research and methodology used reflect that? It was clear from the preliminary reading carried out in the early stages that counterfactual thinking was in the experimental tradition with its ontological and epistemological assumptions that a reality existed. Therefore, there already seemed a boundary between the researcher's natural inclination to a social constructionist ontological and epistemological approach and the experimental tradition of research into counterfactual thinking.

The researcher was interested in conducting a mixed methodological approach but at this stage felt unsure of how to marry the two traditions. However, some reading of the methodology literature provided some reassurance. There had been much debate about the differences between quantitative and qualitative research (Robson, 2011) but researchers had argued that either type could be carried out from a range of philosophical stances (Maxwell & Mittapalli, 2002) and both can be concerned with making generalisations (Brannen, 2005). The researcher was aware that she still had to be careful that her study was robust and had firm theoretical foundations but felt confident to go ahead with the mixed methodology approach under the theoretical umbrella of the critical realist constructionist stance (Nightingale & Clomby, 2002). At this stage, the researcher was also aware that it would be necessary to develop a clearer understanding of the theoretical underpinnings of the research on counterfactual thinking as well as undertake a comprehensive review of the background literature.

3.4 LITERATURE REVIEW

A simple search for counterfactual thinking using the Psych Info database indicated that it was a huge undertaking to read and analyse all 409 articles that was just one part of the search. It was necessary to also search specifically for research on counterfactual thinking in children as well as research into emotions as this was the area that was of interest in relation to children's experiences in schools. At the time, the researcher believed that she was wasting time as the search felt chaotic and unsystematic. So she decided to seek advice from both her researcher and do some reading on how to approach literature reviews. It was

with some relief that she read from the literature on literature reviews, that this process could be littered with mistakes and problems. Boote & Beile (2005) claimed that “the dirty secret known by those who sit on dissertation committees is that most literature reviews are poorly conceptualized and written” (p4). The advice from the literature proved invaluable and it was also useful to read Greenhalgh (2003) on how to read an academic paper; even though it was about medical papers, it described in layman's language how to analyse and synthesise papers as well as constructively criticise. The researcher also took advice from her research supervisor who had been impressed by students who applied a systematic 'weighting' to the literature. This appeared to involve accessing all articles related to the theme in a systematic way. The researcher took guidance from this and also reflected on the researcher's previous reviews, which although had obtained clear passes, there was a comment that they were not critical enough and found that difficult to understand because at one point the researcher was criticised for being too critical but too realised that they needed to be critical in relation to the research question. As Boot and Beile (2010) argued "doctoral students seeking advice on how to improve their literature reviews will find little published guidance worth heeding. . . . Most graduate students receive little or no formal training in how to analyse and synthesize the research literature in their field, and they are unlikely to find it elsewhere. (p. 50)."

The researcher also found it very useful to follow Cooper’s (1988) Taxonomy of Literature Reviews. Cooper suggests that literature reviews can be classified according to five characteristics: focus, goal, perspective, coverage, organisation, and audience. However, he argues that if a researcher is using the literature review to justify a later investigation, the goal will place more emphasis on critically analysing the literature, perhaps to identify a weakness and propose to remedy that weakness with research. Either way, the author must integrate reviews to present the reader with the big picture. He concludes that without integration, the map of the research landscape would be as large as the research landscape itself. He also claims that electronic searches lead to only about ten percent of the articles that will comprise an exhaustive review. This was a daunting prospect to find the remaining 90 per cent but Randolph (2009) provided guidelines that

proved to be useful, advising to firstly search the databases using the key words but making sure that careful and accurate records were kept of the date of each search, the number of records resulting from these searches and very brief descriptions of the search result. Then the reference section of the most relevant articles should be accessed to determine which of these were relevant, then these articles were found and read. The reference sections of these articles are read and the procedure was repeated until 'a point of saturation' was reached.

Therefore this approach was followed so when electronic and reference searching were exhausted, the researcher also contacted colleagues and experts in the field to determine if they could detect any missing articles. In particular, the researcher was in regular contact with Ruth Byrne, who has carried out a significant amount of research into counterfactual thinking and who also co-wrote the paper that this current research was seeking to emulate (Meehan & Byrne, 2005). This contact was the key to the researcher's confidence that her research was addressing a gap in the literature and was of interest not only to educationalists but academic researchers. Meanwhile, the researcher tried to read widely in an attempt to gain some understanding of the role of counterfactual thinking in children's development. She found literature in the fields of developmental psychology to be particularly instructive in this regard.

It had also become apparent from early on that there appeared to be a large amount of research into the order effects of counterfactual thinking. There were robust findings that humans showed a remarkable degree of regularity in how they ordered events in counterfactual thinking; namely they focused on the last thing that happened when there were two independent events leading to an event but focused on the first thing that happened in a causal sequence. These findings were also linked to specific emotion and social judgements. There was an interest in this area because there appeared to be no literature on children and these particular emotions were important to the well-being of children.

This literature helped to allay fears regarding the legitimacy of this study, since it seemed to build up a picture congenial to the aims. This was further reinforced by

research that, for the most part, seemed to confirm assumptions regarding faulty thinking that is part of counterfactual thinking. At this point, the researcher contacted one of the main researchers in temporal order effects in the world, and discovered that there was one paper on the effect on children (Meehan & Byrne, 2005). This proved to be a turning point in the process as it gave the researcher a study to replicate and extend but also confidence that she had found a gap in the literature. With hindsight, this was one of the best decisions the researcher made.

3.5 DESIGN

At this stage, the researcher was confident that she could achieve robustness in her design by emulating previous studies, with some alterations. This proved to be the most challenging aspect of the work. The researcher was looking at developing hypotheses based on previous studies but was also mindful of the criticisms that could be levelled against previous studies and how to overcome them. These criticisms were: design of study being weighted towards scenarios; too small sample size and a lack of a control group. The researcher has already decided to carry out a mixed method study in line with her own constructions as a researcher so it was hoped that this would alleviate (to a certain extent) concerns about using scenarios. She also wanted a large sample size that was at least double the number in the Meehan & Byrne (2005) study. The control group issue proved to be a bigger challenge, as it was difficult to construct a control group to fit in with the hypotheses. Previous research had tended not to have a control group but some of the papers including Meehan & Byrne (2005) had involved a comparison, so in the case of Meehan & Byrne, a group of six year-olds were compared to a group of eight-year-olds. However, this research was not looking for a comparison but was addressing the existence of the temporal and causal order effects when children were presented with a school-based scenario. It also sought to reduce confounding variables by having different conditions. The researcher took advice from her supervisor and researchers in the field and although some people expressed reservations (one researcher suggested that the scenario could be altered so that it was comparing temporal and causal order), there was also an agreement that previous research had not attempted to do this. Looking back, it might have been advisable to compare say 9 year-olds to 11 year-olds to ensure robustness but the

researcher also felt that her research was so novel that it was better to start with more basic hypotheses. In fact, Segura et al. (2002) looked at temporal order and causal order separately but incorporated it in the same paper. They found that temporal order effect occurs for sequences with four events as well as for sequences with two events. The second experiment showed that the causal order effect occurred for sequences with two events as well as four events. There was no control group in this study, which offered the researcher some reassurance about the design of her experiment. A recent journal article (Burden, 2014) also provided a different perspective that echoed some of the researcher's approach to this process. Burden (2014) argued that randomised controlled trial were of limited value in judging the effectiveness of interventions and he questioned whether it was ever possible to arrange for a clear-cut experimental-control group design. In particular, he pointed out that the sample of participants should be selected across a whole population, but this is seldom available so the researcher has to be selective so it is questionable whether the samples selected are truly representative. In addition, the same argument applies for the 'random' allocation to the control or experimental conditions, but these two groups may differ on variables that are relevant, such as social background or gender. The researcher was aware that her study might have some biases but also believed (backed up by other literature, e.g. Greenhalgh, 2003) that the basic rationale for experimental-control studies was also prone to biases.

The researcher was also concerned that although temporal order experiments on children had been carried out before, causal order experiments had only been carried out on adults. It was important then that the researcher adopted some of the principles that had been adopted by Meehan & Byrne (2005) to cater for children (such as building up a rapport and making the instructions accessible) when designing the causal order as well as analysing in detail the causal order experiments that had been carried out on adults (Wells et al, 1987; Segura et al, 2002) to ensure robustness.

As mentioned earlier, the researcher's theoretical approach meant that she was keen to adopt a mixed method design. This proved to be challenging as the

researcher quickly realised that the subject matter was complicated to explain to children during an interview process. Therefore she decided that this qualitative phase of the process needed to be specific to the experiment the children had undertaken, so the questions reflected that, asking the pupils directly why they had made these choices. Later, the researcher did a lot of research on mixed method design (Cresswell, 2007) and found this really useful in ensuring robustness in her approach. In particular, she adopted the guidance from Cresswell, 2007, who suggested including a mixed method research question so that the study did really reflect the concept that a mixture of two approaches provides the best information to fulfill the aim of the study.

3.6 ETHICS

This research was required to go through the university's ethics committee because the research involved an intervention of sorts and was not auditing a situation that was already occurring. Overall, the researcher found this a useful process as it meant that additional people were looking at her proposal and would ensure more robustness. Although the committee was primarily addressing the ethical considerations, they also commented on the proposal itself. It was particularly interesting that members of the committee questionned the researcher's decision to include teacher's views and the researcher then had to justify this inclusion, primarily that the inclusion of teachers' views contributed to the triangulation of data, which actually cemented the decision to include this, particularly as the committee then accepted the researcher's justification. There was also a certain amount of confidence that the ethical elements could be justified. The researcher had already accepted that taking part in the experiment might have an impact on the children and teachers but she had already anticipated this and made it clear in the information guidelines about what participants could expect.

3.7 THE PROCESS

Having worked as a teacher as well as in other professions, the researcher had a strong belief in the value of preparation and persistence and she applied both of these characteristics to the process of recruiting participants and carrying out the

experiments. Although there were a few mishaps (such as a few of the interviews did not record), the process went smoothly and the researcher found it invaluable to have colour-coded the answer booklets as well as preparing a short PowerPoint to explain the scenarios to the children. She had also decided to carry out the experiments in a whole-class situation. It could be argued that this meant confounding variables such as there was no absolute guarantee that the children were not copying each other though there was a number of adults in the classroom who were making sure that the experiment was carried out in 'test' conditions. However, the researcher was present during all the experiments and in each case, imposed 'exam' conditions so arguably this increased the robustness of the data. With regard to the interviews, the researcher was confident that the data was more robust in the pupils' interviews because there were specific questions so the researcher's role was more divorced from proceedings. However, the teachers' interviews, which were carried out via two focus groups, were semi-structured so the researcher was aware that her questions and focus could influence the teachers' views. However, the fact that two separate focus groups produced broadly similar views added to the robustness of the data.

3.8 THE RESULTS

The researcher spent a lot of time working out what statistical test to use on the data. Initially, the statistics were going to be analysed via chi-square as that is a statistical test for categories and after much investigation, the researcher found the most appropriate form of this test was the Goodness of Fit simple chi-square. Chi-square was also used in previous research on order effects in counterfactual thinking (Wells et al, 1987 etc.). An expert from the university, who advises on quantitative data, also confirmed this was appropriate. When this test was used, the results showed significance for hypothesis 1, 4 (temporal order experiments) and 5 (causal order experiment). However, a month after, the researcher re-read the Segura et al (2002) research and the researchers had used the hypothesis test for two proportions and it was felt that this was particularly appropriate as this research most closely resembled the design of this study. The results were broadly similar to the initial chi-square test carried out by the researcher, which arguably added some robustness to the data. It was also felt that this particular test was

most closely aligned with the Segura et al (2002) research. However, the researcher also did some research on both tests and they had some weaknesses, but there was some reassurance nevertheless that both tests had been used in previous research, which had been published in peer-reviewed journals. Doing the two proportion test also indicated that the initial thought that the researcher could look at type of event in the causal order sequence was not appropriate Although there was a disparity in the figures in that the headteacher had the least focus for the basic counterfactual question and falling over the ball was blamed the least for the cause of events, these events were not significant in terms of proportion with the others apart from the ball being blamed. It was obvious that more work would need to be done on blame in the future in research with a different design but this was not relevant at this point.

3.9 WRITING UP

The subject matter was complex and the report needed to be academic yet explain the terms so a decision was made to use explanation tables and use a lot of sub-headings. After a supervision session, the researcher also realised that she had not addressed the theoretical side of the subject matter in the literature review or report. Some background reading on the theoretical underpinning of research (Bryman, 2014) really helped in this area and it was useful to use Bryman (2014)'s distinction between grand theories such as social constructionism and more specific middle-range theories. There was also some reassurance that the background literature itself can be a theory and the researcher believed that her thesis fitted in with the background research of cognitive and developmental psychologists (particularly Kahneman, 2013) but also with a theoretical background of positive psychology and social constructionism. It was also necessary to make it clear that this was a deductive process and the researcher was not trying to create theory but looked at theoretical considerations in relation to the domain and deduced hypotheses and research questions that must be subject to scrutiny. The last step was then induction and inferring the implications of these findings for the theory that prompted it. This knowledge proved very useful in writing the discussion because there were so many results from this study and it was necessary to break it down yet try to keep a coherent narrative. It

was also useful at this stage to get feedback from a presentation that was given a month or so prior to first submission. In retrospect, the researcher believed that she should have given more information to the audience about the process instead of presenting the research with a few comments about the process. However, this was also a good opportunity for the audience to give comments, which helped with writing the reflective summary and the discussion section of the report.

Feedback from the first draft of the thesis proved to be invaluable as the researcher's supervisor gave very positive comments but also highlighted some issues that needed clarifying. In particular, the supervisor hypothesised that the children's lack of understanding of emotions and blame might be a reason for the results. This idea enabled the researcher to do some further analysis, which showed that the children did have an understanding (according to the definitions in the literature) but this was linked to their propensity to create stories around these concepts, a theme which had been apparent in other parts of the research. A final supervision session also gave the researcher more ideas for reflection and in particular there was a discussion over whether or not the participants were a reflection of the 'parent' population (as stipulated in the marking checklist). All the participants came from an area where there was a certain level of deprivation and the researcher pondered on whether or not this might have had an effect on the outcomes. She was confident that she had justified her decision to use age as a selection criteria, regardless of gender, social economic background or ability in line with previous research. However, this was certainly an area of future research and needed to be included in the discussion section.

3.10 CONCLUSION

This reflective summary has aimed to reflect critically on the process of producing a thesis highlighting the strengths and weaknesses at each stage of the process. Overall, the researcher aimed to be critical and to take advice from her supervisor and psychologists in the field throughout. This proved invaluable and meant that the researcher believes that this is a robust piece of work that has some weaknesses, but overall provides some valuable insights. There is still an ambition to turn this piece of work into an intervention or at least a tool in the EP's kit but

there has been reassurance throughout that adding to the body of research is also a worthy outcome. As Elsabbagh (2014) argued in the *Psychologist* recently " good science does not need to be justified and does not directly yield products other than knowledge. Its intrinsic value is to move us forward in an incremental, iterative and slow path" (p757).

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