

“It’s not all doom and gloom, it’s life”: parental beliefs and parent-child conversations
about death and their influence on children’s developing conceptions of death

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Abstract

Four studies are reported that investigated when and how children acquire an understanding of aspects of death, especially its five ‘subcomponents’ of irreversibility, inevitability, universality, cessation, and causality. Building on previous research and providing a unique and novel perspective, child, parent, parent-child factors, and their associations with children’s developing understanding of death were explored. These factors include experiences with bereavement, pet ownership, parental afterlife and religious beliefs, and parent-child conversations. Through interviews with nine mothers, Study 1 took a grounded theory approach to explore how parents’ beliefs about death influence what they discuss with children. In Study 2, 96 children were interviewed, and their parents completed questionnaires, to further investigate how these parental beliefs and other factors predicted children’s concepts. In Study 3, a new storybook task was used to observe naturalistic conversations about death between 19 of the parent-child dyads who participated in Study 2. By comparing data from Studies 2 and 3, Study 4 addressed issues highlighted in the previous three studies, including conceptual change during the period between studies, and how actual conversations compare with those self-reported by parents. Key findings were that such self-reports are often unreliable measures of parent-child conversations because parents tend to underestimate children’s active roles within them; parent and child factors likely influence children’s conceptions, primarily through their impact on parent-child discussions; and children are able to reason spiritually about death from as young as 5 years, as their biological knowledge develops. This latter finding contrasts with that of previous research (e.g., Harris & Giménez, 2005), according to which spiritual reasoning first occurs only after biological knowledge has been acquired. The findings of this thesis have numerous methodological and theoretical implications for research and for adults (e.g., parents, teachers, and clinicians) facing discussions of death with children.

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Finally, given the topic of this thesis, it would be remiss of me to not dedicate this thesis to the loved ones lost before, during, and after its creation.

It's not all doom and gloom.

Author's Declaration

I declare that the work contained in this thesis has not been submitted for any other award and that it is all my own work. I also confirm that this work fully acknowledges opinions, ideas and contributions from the work of others.

Any ethical clearance for the research presented in this thesis has been approved. Approval has been sought and granted by the School of Psychology Ethics Committee at the University of East Anglia.

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Chapter 1: General Introduction

Talking about death is hard. Not only is it an emotionally charged topic for most, but it is also conceptually challenging, with many people being uncertain of what comes next. Given the difficulty in discussing death in general, talking to and teaching children about death can be particularly challenging. In discussing death with children, parents and other caregivers must consider what information they wish to share and how best to share it. For example, they may aim to avoid confusing or scaring their child with information that is too complex or contradicts their current understanding. To achieve this aim, they need to assess what their child is able to understand and what they may already understand or believe about death. These assessments may lead parents to have different aims during these conversations, for example, to reassure or to inform their child (Gutiérrez et al., 2015; Longbottom & Slaughter, 2018). Conversations with children are also reciprocal. While parents may intend to talk to their child in a certain way, children's questions and responses may derail these intentions. Conversations about death may therefore be influenced by both parent's and child's beliefs, motivations and feelings. This thesis explored the nature of parent-child conversations about death, factors which may influence these conversations and the subsequent impact of these conversations on children's developing understanding of death. In this exploration, both parent's and child's understanding and beliefs around death are investigated.

One way to better understand how children understand death is to explore how and when their understanding develops. Research of this kind has important implications for how we understand and research children's conceptual knowledge development. For example, children's understanding of death can give important insight into how they develop their biological knowledge. Previous research has used children's understanding of death to explore the nature of children's biological reasoning about anthropocentrism (e.g., Ross et al., 2003) and causal mechanisms (e.g., Slaughter & Lyons, 2003).

Greater understanding of how children conceive death also allows for greater understanding of the best way to talk to them about it. Insight into how best to talk to children about death can have important real-world implications, such as giving those who talk to children about death (e.g., parents, clinicians, teachers) confidence to support children's needs during these conversations. For example, research of this kind may highlight the capability of children to have discussions about death, both cognitively and emotionally. Both parents and teachers describe feeling uncomfortable about talking to children about death, despite supporting discussing death with children before they encounter it (McGovern & Barry, 2000). Mahon et al. (1999) found that although 74% of teachers in their study felt that death-

related interventions belonged in schools, less than a third described themselves as qualified to provide education about death. Similarly, Engarhos et al. (2013) found teachers felt uncertain in discussing death with students and lacked confidence in participating in or initiating such discussions, despite acknowledging their importance. Pervasive discomfort in discussing death can even act as a barrier for clinicians discussing hospice care with their patients (McGorty & Bornstein, 2003). Kreicbergs et al. (2004) found that of parents who spoke to their terminally ill child about death, none regretted it, whereas almost a third of parents who had not, regretted having not done so. Increased confidence in raising the topic of death with children may also allow others to support parents in having these discussions. For example, clinicians may play a central role in supporting parents in their decision to discuss (or not) death with their terminally ill child (Nielson, 2012; van der Geest et al., 2015).

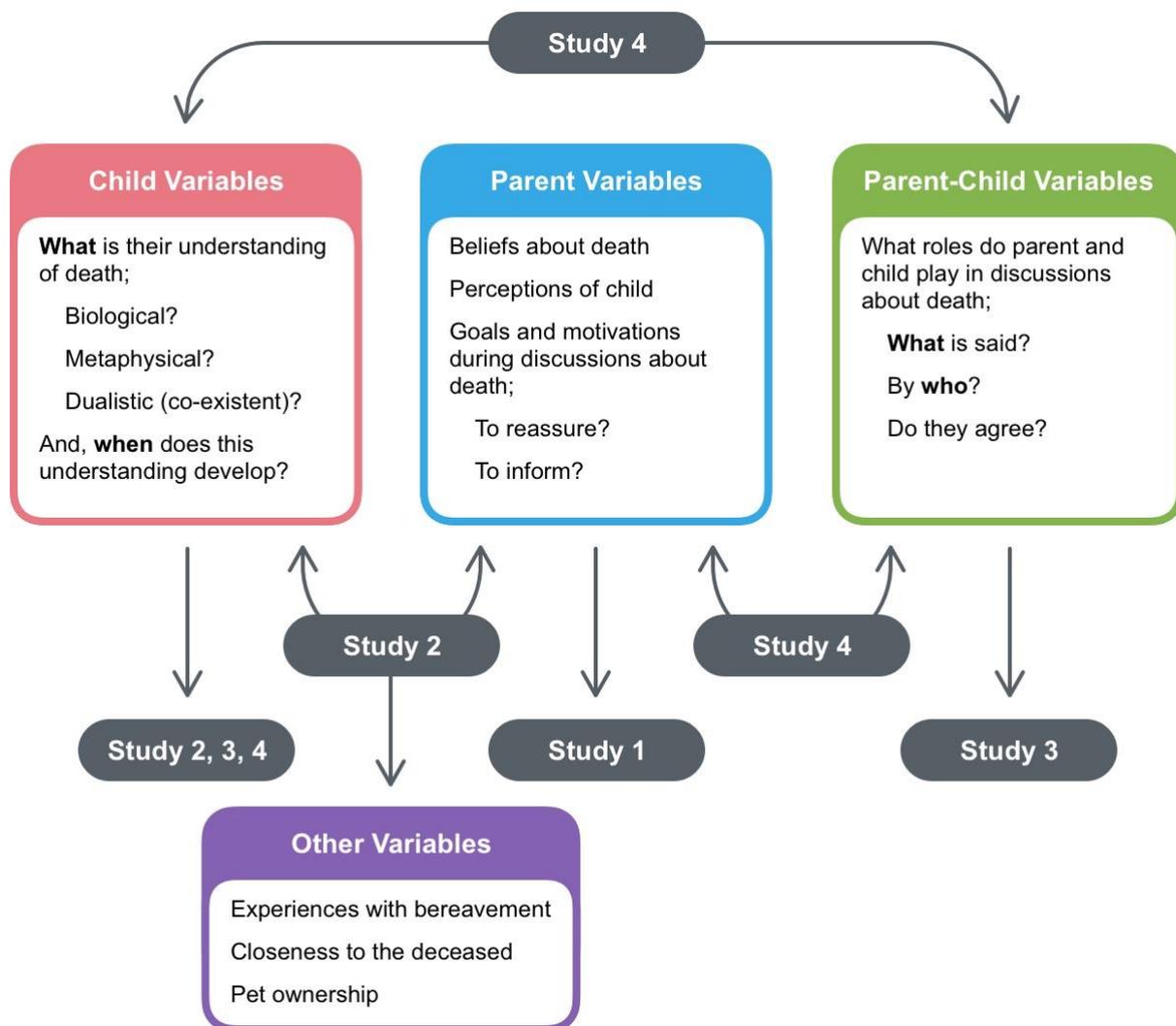
Avoiding discussions about death can have a negative impact on children's wellbeing by discouraging children from addressing their fears (Hurwitz et al., 2004) and increasing fear and misconceptions around their own illness or death (Beale et al., 2005). Alternatively, greater understanding of biological death has been shown to reduce children's feelings of fear about death (Slaughter & Griffiths, 2007). This is not to say that children with a greater understanding of biological death have no feelings of fear – but a “small but significant reduction in their fear of death” (p. 534, Slaughter & Griffiths, 2007). It is expected even those with a mature understanding of death, and acquisition of all subcomponents, normal fear of death will be evident into adulthood (Gullone, 2000). Gullone and King (1992) found that their revised fear survey schedule (FSSC-II) was applicable across a broad age range of 7 to 18 years, with rankings of fears of death and danger only changing slightly in relation to age and gender. Most common fears of death and danger included ‘someone in my family dying’, ‘not being able to breathe’, and ‘myself dying’.

Learning about the biological facts of death may help children to understand and conceptualise death, however conversations about death likely do not only focus on biological facts. Spiritual ideas may also be discussed, perhaps to reassure children by describing a continued existence in the afterlife (Gutiérrez et al., 2015; Longbottom & Slaughter, 2018). Spiritual ideas may have a different influence on children's understanding of death than biological facts. For example, they may introduce biological misconceptions through euphemisms or contrasting information. Spiritual ideas may also complement biological ideas to provide two different types of reasoning to be used during different contexts (e.g., Harris & Giménez, 2005). This thesis aimed to shed light on how discussions about death may affect children's conceptualisations, and in doing so, how best to talk to children about death.

This thesis considered the role of child, parent, and parent-child variables to explore how children understand death, and what influences this understanding. Figure 1.1 illustrates how each study in this thesis worked together to provide an extensive investigation of each of these variables, including interactions between variables and their influence on children’s understanding of death.

Figure 1.1

Illustration of how each study in this thesis explored child, parent and parent-child influences on children’s developing understanding of death.



Current thesis

First, a review of the literature was conducted on a number of issues relevant to this thesis. These issues included: previous and current approaches to researching children’s death understanding; children’s conceptual development and naïve biological knowledge; and

potential influences on children's death understanding, including parent-child talk (Chapter 2). This literature review helped to develop a theoretical framework of children's understanding of death and informed the methodological approaches taken in the four empirical studies. Several areas in which there has been little, or no research were also indicated. As a result of this limited research, our understanding in these areas was poor, and research questions were generated for each study in this thesis to address these. Specifically, these gaps concerned influences on children's developing understanding of death, including parent-child conversations – which became the focus of the current thesis.

As will be expanded upon during the literature review, this thesis will explore children's understanding of death through their understanding of five biological subcomponents and types of reasoning they use to explain death. These five subcomponents refer to five key biological facts of death: irreversibility, inevitability, universality, cessation and causality. Understanding of these subcomponents is thought to develop with age and indicates greater understanding of death, with acquisition of all five implying a mature understanding of death. However, reasoning about death is often not purely biological. Adults and older children are thought to exhibit co-existent reasoning, whereby both biological and spiritual explanations of death are used (Legare et al., 2012). It is suggested that co-existent/spiritual reasoning only occurs once children have acquired a biological, mature understanding of death (Harris & Giménez, 2005). Previous research has focused on children's biological reasoning, which may have led to children's use of spiritual reasoning to be disregarded and instead used to imply poor biological reasoning. Implications of this approach by previous research mean that children's understanding of death may be underestimated and not accurately measured; children's conceptions of death may be reduced to their understanding of biological facts and fail to consider spiritual facets to death understanding. Spiritual conceptualisations may play a large role in how children experience and conceptualise death and are worth further exploration alongside biological understandings of death.

Underestimating children's understanding in this way can have important implications for how parents perceive their children's capability and choose to discuss death with their child. For example, if spiritual reasoning is conflated with a worse understanding of death, parents may feel discouraged in explaining death spiritually. Biological and spiritual reasoning may complement each other, with type of reasoning used being dependent on context (e.g., Harris & Giménez, 2005). This thesis addressed this gap in previous research by exploring both children's biological knowledge and spiritual ideas. More specifically, Study 2 explored both children's biological understanding of death through their knowledge of these subcomponents, and spiritual understanding of death through their explanations of death.

Studies 3 and 4 further explored both biological and spiritual reasoning during discussions of death between parent and child.

Several gaps regarding the influence of parent and parent-child factors were also uncovered. First, beyond parental religiosity, little research has explored parents' own beliefs about death and how these beliefs may influence what they choose to say to their child. For example, focusing on religiosity of parents, fails to take into account those parents who are not religious but hold afterlife beliefs, or vice versa. Religiosity alone, may not be a reliable indicator of how parents understand death, the beliefs they hold around it nor what they choose to express to their child. This unreliability may explain the lack of agreement in previous research on the influence of religiosity on children's understanding of death. This gap was addressed by exploring parental beliefs more extensively. First, Study 1 focused on mothers and their beliefs around death, their perceptions of their child's beliefs and how they have or would approach discussions of death with their child. This was an important first step to establish a framework through which to explore parent variables. This framework was then carried through to Study 2 and measured in a larger sample. Study 2 then compared this parent data with measures of their child's understanding to investigate the relationship between the two.

Second, much of previous research has focused on parent self-report data to explore parent-child discussions of death. Use of parent self-report data alone to explore parent-child conversations about death appears limited in its ability to capture and measure the nature of these conversations. By failing to acknowledge the reciprocity of parent-child conversations and parental ability to remember and/or accurately report discussions, parent-child conversations are reduced to what parents can remember their child saying and how they think they responded. No previous research has observed what parents actually say to their children during conversations about death. Further, no previous research has compared these conversations against measures of children's understanding of death. Given this approach in previous research, the influence of parent-child conversations is often assumed. How parent-child conversations influence children's understanding of death had yet to be observed. Study 3 used a storybook design to observe parent-child conversations about death. This approach allowed for exploration of parent and child's contribution to conversations and content of these discussions. Study 4 then investigated the implications of these discussions by making comparisons with children's understanding of death as measured in Study 2. Study 4 also allowed for investigation into the validity of self-report measures, by comparing parents' self-reported conversations with those actual conversations seen in Study 3.

Several aims are addressed in this thesis. First, it aimed to investigate how children conceptualise death, and factors which may influence these conceptualisations. To address this aim, both biological and spiritual understandings of death were considered. Age was explored as a factor in children's developing understandings, with comparisons to previously suggested developmental timelines being made. Children's experiences with pet ownership, and human and pet bereavement, including closeness to the deceased, were also explored.

Second, this thesis aimed to investigate how parents understand death, how they perceive their children to understand death, and how they choose to discuss death with their child. To explore parents' understanding of death, parental religiosity and afterlife beliefs were also investigated. By investigating these factors, this thesis aimed to develop a basis from which to consider how parent variables may affect their child's understanding of death. For example, do these variables impact how they explain death to their child?

Finally, this thesis also aimed to investigate the role of parent-child conversations about death on children's developing conceptualisations. It aimed to elucidate what is spoken about during these conversations (content) and how it is spoken about between parent and child; what roles both parent and child take up during these conversations (structure). This thesis extends on previous research exploring parent-child conversations by using both self-report and observational measures. Influence of both child and parent variables on these conversations were also explored.

Each empirical study explored three overarching research areas: children's understanding of death, parental beliefs and understandings of death, and parent-child conversations about death. Study 1 (Chapter 3) explored parental beliefs about death, how they wish to talk about death with their child, and their perceptions of their child's own beliefs and understanding of death. Findings from Study 1 began to establish a framework of how parents perceive conversations about death with their child, and how they hope to explain death to their child, be it with reassurance or facts. From this framework, parental beliefs were then explored in a larger scale in Study 2 (Chapter 4) and comparisons with children's actual biological death understanding were made. Study 3 (Chapter 5) then moved the investigation to actual parent-child conversations about death. Study 4 (Chapter 6) used data from both Studies 2 and 3, to explore how children's understanding of death develops across two time points, how actual parent-child conversations compare with self-reported conversations, and the influence of actual parent-child conversations on children's understanding.

Accordingly, this thesis aims to:

- 1) Contribute to our understanding of children's developing conceptualisations of death through further investigation of parental and experiential factors and consideration of both biological and spiritual reasoning;
- 2) Add to the body of research exploring how children's biological and spiritual understanding of death differs across age groups;
- 3) Expand on previous research to provide a more comprehensive understanding of children's developing death understanding by exploring parental factors in greater detail;
- 4) Explore how parent-child communication about death may differ according to parental beliefs, children's beliefs, or experiences with different types of death;
- 5) Investigate the content and structure of parent-child communication about death.

To address these aims, a series of four studies were conducted. These four studies explored three overarching research areas: children's understanding of death, parental beliefs about death, and parent-child conversations about death (see Figure 1.1). An overview of each study, including aims, research questions and design is given below.

Study 1

First, an exploratory study was designed to identify how parents understand death, how they believe their child understands death and how they choose to discuss death with their children. Semi-structured interviews were conducted with nine mothers of children aged 9 to 11 years old. Transcriptions of interviews were analysed using grounded theory. Study 1 gave greater insight into how parents approach the topic of death with their children. This insight was used to inform the research questions and focus of the following three studies.

Study 2

Following on from Study 1, Study 2 aimed to explore the impact of parental beliefs and explanations on their children's understanding of death. Alongside parental factors, experiential factors of pet ownership and experiences with pet and human death were also investigated to further understand their influence on children's understanding of biological death. Interactions between parental explanations and experiential factors were also explored. For example, do parents whose children have experienced the death of someone close explain death differently from those whose children have yet to experience death? If so, might conversations with parents play a mediating role in the influence of experiential factors?

Four main research questions were addressed in Study 2:

1. How does children's understanding of death differ across age groups? Do children exhibit co-existent explanations of death?
2. How are children's experiences with death associated with their acquisition of the five death subcomponents?
3. How do parental afterlife and religious beliefs influence their child's understanding of death?
4. Do parental explanations around death influence their children's understanding?

To address these research questions, structured interviews with children aged 4 to 11 years old were conducted, and questionnaires given to their parents. Child and parent responses were scored for biological death understanding and coded for types of explanations used in their answers (e.g., biological or metaphysical). This approach allowed for children's understanding of biological death to be measured, and their ways of conceptualising death to be explored. Parents' beliefs and explanations to their children were self-reported in questionnaires. This approach meant that parental beliefs and explanations could be explored as factors in the development of their child's subsequent understandings.

Study 3

Drawing from both Studies 1 and 2, Study 3's research questions emerged:

1. How are discussions about death structured between parent and child, does this vary with child age?
2. What content is discussed during real-time parent-child conversations; does this vary with child age?
3. Is there an association between the content of parent and child talk about death and how these discussions are structured?

Study 3 was designed to explore these research questions using observations of parent-child conversations about death, as prompted by a storybook. Nineteen parent-child dyads who had taken part in Study 2 also took part in Study 3. Children from two age groups (5 to 6 or 9 to 11-years-old) were selected. Parent-child dyads were asked to read a storybook together which contained questions about the life and death of different living things. Conversations were then transcribed, and content analysis was used to explore the structure and content of discussions. For example, structure was measured through the roles both parent and child took on during discussions. Study 3 gave insight into the dynamics around

parent-child conversations and allowed for observation of the content of these conversations in real-time. This approach allowed for greater understanding of how parent-child conversations take place and the nature of the influence on children's subsequent understanding. By addressing the reciprocal nature of parent-child conversations, Study 3 expanded on findings and measures of previous research.

Study 4

Stemming from the findings of the previous three studies, five further research questions were identified and investigated:

1. Do children's explanations change between Time 1 (Study 2) and Time 2 (Study 3)?
2. How do parents' self-reported and actual conversations about death with children compare?
3. How do parents' beliefs about death relate to their explanations during conversations with their children?
4. How do parental conversational roles (passive or active) relate to children's biological death understanding scores?
5. How does content of parents' explanations during actual discussions compare to their child's biological death understanding scores?

Using a subsection of Study 2's sample allowed for direct comparisons between parental factors in Study 3 and children's understanding as measured in Study 2. Study 4's use of novel methods highlighted important implications for future research in this area, including the use of more observational and longitudinal methods.

This series of studies used a novel approach which extended on findings and methods of previous research with several key innovations. First, using one-time measures of children's understanding of death limits the ability to deduce how children's understanding of death develops at an individual level. This thesis is the first research of its kind to explore children's individual developing understanding of death using longitudinal measures. This meant that during this thesis, children's death understanding was measured during two separate studies and then compared in a final study to explore how their understanding of death had developed at an individual level.

Second, previous research in this area has relied upon self-report and one-time measures to analyse parent-child conversations. These approaches are limited because of

parents' ability to accurately remember conversations or predict how conversations will occur, as well as reducing the reciprocal nature of these conversations between parent and child by focusing on parents' perceptions. This thesis explored both parents' self-reported explanations about death to their children (in real or hypothetical conversations) and observed actual parent-child conversations. This allowed for comparisons between actual and self-reported/hypothesised discussions to test the reliability of previous self-report measures of parent-child discussions.

Third, to capture parent-child conversations about death, Study 3 used a storybook design as a naturalistic method to encourage open discussion. This is the first study in this research area to both use this design, and to observe actual parent-child discussions of death. Previous research has used storybook designs to explore parent-child talk on the origins of living things (Tenenbaum & Hohenstein, 2016) and as interventions for teaching natural selection (Keleman et al., 2014), for example. As discussed further in the literature review, storybooks may be a potential influence on children's death understanding, and in this thesis were seen as effective research tools to encourage natural discussion of death.

Finally, this thesis used mixed methods, alongside self-report and observable measures. Using both qualitative and quantitative measures allowed for a more comprehensive investigation of children's understanding of death and potential influences on this understanding. For example, using qualitative measures allowed for greater depth of understanding of how parents approach discussions of death with their children, including factors which influence how parents choose to discuss death with their child (Study 1). These factors could then be quantified for investigation with a larger sample (Study 2).

Each of the four studies in this thesis relate to and complement each other to provide an extensive exploration of parent-child conversations about death and their influence on children's understanding and conceptualisations of death, including consideration of parent and child beliefs around death. The first step in this investigation was to explore how parents think about death, how they think their child thinks about death, and how they choose to discuss death with their child – as explored in Chapter 3, Study 1.

Ethical Considerations

It is worth addressing the sensitive nature of death as a topic for both parents and children, and the implications this has had on the design and execution of these studies. First, care was taken to ensure participants were informed about the focus of these studies and their child's involvement within them before taking part – each study was advertised as exploring

children's understanding of death. Second, narrative and storybook designs were used to provide a more natural and child-friendly context in which to discuss death and avoid upsetting participants. For example, no children were asked about their understanding of death in relation to themselves or anyone they knew. Parents were asked about their child's experiences with the death of loved ones but did not have to answer any questions they did not want to. They were also aware that they could stop or take a break at any point during the study. In Study 3, a storybook was designed for both parent and child to discuss together. In designing this book, questions around death were balanced with questions and activities about life to avoid focusing on death alone.

Chapter 2: Literature Review

The following literature review provides an overview of the research area and aims to highlight gaps in existing research which were addressed in this thesis. First, how children's understanding of death is thought to develop was explored, and an overview of methods and approaches used in past research covered. Next, how children develop their conceptual knowledge, including their biological knowledge, was considered. Finally, factors which are suggested to influence children's understanding of death were covered, these included: culturally specific experiences, portrayal of death in children's media and parent-child talk.

Early Studies of Children's Understanding of Death

Several approaches have been taken in the exploration of children's understanding of death. Over the last 60 years, psychoanalytical, Piagetian and naïve biological knowledge approaches have been used to investigate children's death understanding (Slaughter, 2005). Psychoanalytical researchers were the first to publish research on children's understanding of death, using descriptive, open-ended and projective methods to encourage children to freely express their beliefs about death (Slaughter, 2005). Using psychoanalytical methods, Nagy (1948) identified three stages of death understanding. Nagy (1948) asked children to write compositions of "everything that comes into your minds about death" (children aged 7 to 10 years) and draw their own sketch of death (6- to 10-year-olds). From these, Nagy had discussions with each child about what they think about death (3-6- and 7-10-year-olds) and explaining their compositions and sketches. During the first stage, children under 5 years old were seen to not understand death as an irreversible fact, and instead attributed life and consciousness to the dead. Some of these children describe death as a departure, or a sleep, while others recognised the fact of death but did not separate it from life. Nagy suggests that these children do not accept death, instead to die means the same as living on, under changed circumstances, e.g., in a coffin; "it can't move because it's in the coffin" (p. 9, Nagy, 1948). The idea of separation, no matter the form, was described as the most terrible thing about death by older children. The second stage involves the personification of death by children aged between 5 and 9. Death was either personified as a separate person, or identified with the dead, e.g., "death is a skeleton" (p. 18); "death is a living being and takes people's souls away" (p. 17, Nagy, 1948). The third stage is reached after the age of 9 and involves recognising that death means the cessation of corporal life and is a process operating within all life. For example, "it is a thing from which our bodies cannot be resurrected. It is like the withering of flowers" (p. 25, Nagy, 1948).

Psychoanalytical approaches indicated death was an emotional topic for children, with emotional responses including sadness, anxiety and fear owing to the separation death entails (Anthony, 1940; Nagy, 1948; Von Hug-Hellmuth, 1964). Children's reasoning behind this separation appeared to be influenced by their state of understanding. For example, for children under 9/10 years old, some described not being able to come back owing to Heaven being too far away, not being able to get out of the coffin, or death being a permanent sleeping state (Anthony, 1940; Nagy, 1948). Following these findings, psychoanalytical researchers concluded that children's capacity to understand and accept death was limited by their cognitive and emotional immaturity, with anxieties forming through their own misunderstandings (Slaughter, 2005).

The next wave of research moved on from emotional responses to death to focus on cognitive development. In this focus on cognitive development, researchers used structured interviews with children to access and measure children's understanding of death. One way to measure this understanding was to investigate children's ability to correctly answer questions relating to components which constitute a death concept. Components were derived from previous research, including psychoanalytical approaches, to break down death understanding into different notions, different researchers identified different components.

Kane (1979) used ten components to categorize children's conceptions. These components included separation (children's ideas of where the dead are), causality (what brought about the state of death), and realisation (awareness of death, being deceased or an event which happens). Realisation was acquired first, by 3 years old, and by age 12 all components had been acquired (Kane, 1979). Kane found that in children's death concept development, components clustered together to reveal three stages of development. In stage one, children's thinking was ego-centric and magical, they could make someone dead by their behaviour, wish or label. During this stage, death was seen as getting into a particular position, with closing the eyes of the dead causing the separation of death. In stage two, children began to see death as specific and concrete with death as an explanation for dysfunction. At the start of this stage, children believed death was caused by external forces. Later into this stage, children began to understand internal causes, and saw death as part of old age and very far away. Stage three saw children able to think of death in the abstract, with some considering existential issues of life and death. At this stage death was seen as caused by internal dysfunction, with dysfunctionality and insensitivity as conditions of death (Kane, 1979).

Each of Kane's stages were seen to relate to Piagetian stages of cognitive development. Piaget's stages of cognitive development are as follows: sensorimotor, until

around 18 months; pre-operational, 18 months to 7 years old; concrete operational, 7 to 11 years old; and formal operational, through to adulthood (Piaget, 1964). Sensorimotor children are pre-verbal, and developing their representational knowledge (Piaget, 1964), and so are not included in this research area. An operation refers to the transformation of reality (Piaget, 1962). For example, when liquid is poured from one glass to another, there is a transformation in which the liquid changes form, but its liquid property stays constant. Pre-operational children do not understand this conservation, instead the child thinks the quantity has changed, and perceptually the liquid is not the same thing anymore (Piaget, 1962). Piaget suggests that pre-operational children do not reason from the transformation, but instead from the initial configuration and then the final configuration, forgetting the transformation as they are unable to understand it. Kane (1979) found that children in stage 1 showed pre-operational thinking as they were tied to the perceptual, e.g., being dead means having your eyes closed, and could only consider one aspect of a situation at a time. When a person has died, pre-operational children may not understand the person as perceptually the same thing anymore, and so may not understand that death is irreversible as they do not understand the transformation from life to death.

Concrete operational children are able to reason with logical classes, relations or the number (Piaget, 1962). These children are able to classify objects according to similarity and difference, using classes and subclasses, implying and understanding of inclusion. For example, children may understand flowers as a class, with types of flowers as subclasses within these, e.g., daisies and roses are a subclass of the class of flower. Kane (1979) suggested that children in stage 2 compared with concrete operational as they were able to consider two aspects of a situation and hold ideas which may conflict or agree. Here, children appear to understand that death is irreversible and happens to all living things. Concrete operational children's ability to classify may help them to classify things as 'living' and understand that death is something which occurs to all those under this class of 'living'. At this stage, children are thought to understand death as caused by external factors (e.g., guns) or as something which only occurs to the very old (Kane, 1979).

Formal operational children are capable of reasoning beyond objects and into the basis of hypotheses or propositions (Piaget, 1962). Formal operational children can use a new class of operations, propositional operations, alongside operations of logical class and number. Here operations refer to language, operations with concrete objects, and have much richer structures. Formal children can use flexible combinations of groupings. For example, if given numerous coloured disks and asked to combine each colour, they will be able to find all possible combinations, where a concrete operational child would only be able to find some

(Piaget, 1962). Children at stage 3 of Kane's (1979) findings were able to be abstract, hypothesise, and be logical; understanding that death is inevitable, universal, and caused by the breakdown of bodily functions – indicating formal operational reasoning.

Previous research also measured children's death concept development by dividing children into groups based on these Piagetian stages rather than age. These stages were indicated by their performance in Piagetian-type tasks, for example, conservation tasks measuring children's understanding of mass, number, and volume (Koocher, 1973). Koocher used conservation tasks to group children into stages of cognitive development before using open-ended interviews to measure their death concepts. Children's responses to four questions about death (e.g., "what makes things die?") were classified based on their relation to three levels of cognitive functioning: egocentric, concrete, and abstract reasoning. Egocentric indicates lower-level cognitive functioning, followed by concrete, and abstract as higher-level. Pre-operational children's concepts of death were shown to reflect lower-level cognitive functioning, egocentric responses, in comparison to concrete and formal operational children showing higher cognitive functions and higher order responses (Koocher, 1973).

It is worth noting that research focused on children's cognitive ability found no support for the personification of death seen by Nagy (1948; e.g., Kane, 1979; Koocher, 1973), which may reflect a difference in the two approaches and children's freedom of expression, despite use of open-ended questions in both approaches. Future research may benefit from an integrative approach between methods, using more than one method to capture children's death conceptions.

Current Approaches to Researching Children's Understanding of Death

Death as a biological event

Most recent approaches to researching children's understanding of death have focused on cognitive abilities of children to understand death as a biological event (e.g., Hunter & Smith, 2008; Panagiotaki et al., 2015; Poling & Evans, 2004; Slaughter & Lyons, 2003, Slaughter & Griffiths, 2007). To measure children's level of biological understanding, researchers have focused on children's understanding of five subcomponents which refer to five key biological facts – though the nature and number of these subcomponents vary between researchers. These five subcomponents are as follows:

- (1) Irreversibility, death is permanent;

- (2) Inevitability, all living things will die one day;
- (3) Universality, death happens to all living things;
- (4) Cessation, at death all physical and psychological functions stop;
- (5) Causality, death is caused by the breakdown of bodily processes (Panagiotaki et al., 2015; Poling & Evans, 2004; Slaughter & Lyons, 2003).

Children's understanding of death is thought to improve with acquisition of each subcomponent, and a mature understanding of death consists of an understanding of all five subcomponents. Acquisition of these subcomponents supports the view of a linear developmental pattern, in which irreversibility is the first to be acquired, at around 5 years old. This is followed by inevitability, universality, and cessation, usually acquired between 7 to 10 years old. Causality is seen as the most cognitively challenging subcomponent to understand and is the final subcomponent to be acquired, at around 10-11 years old (Panagiotaki et al., 2015; Poling & Evans, 2004; Slaughter & Lyons, 2003; Slaughter & Griffiths, 2007; Speece & Brent, 1984).

Recent research has focused measures on children's ability to correctly answer questions about these five subcomponents, with more correct answers indicating a better understanding of death. Using these subcomponents researchers can track development of death understanding according to when each subcomponent of death is understood – a method utilised in this thesis.

To assess children's understanding of the five subcomponents, the death concept interview is often used (e.g., Panagiotaki et al., 2015; Slaughter & Griffiths, 2007). During this interview children are asked open-ended questions, which refer to each subcomponent. For example, for irreversibility, children are asked "could a dead person at some time become a living person?" (p. 37; Panagiotaki et al., 2015). Children's responses are then coded and given scores which reflect their biological accuracy. During coding children's explanations are often grouped into categories which reflect the type of explanation given, for example biological or spiritual. In using the death concept interview, Panagiotaki et al. (2015) were able to investigate influences on children's death understanding including age, and cultural and religious backgrounds; comparing Pakistani and British samples. Panagiotaki et al. (2015) suggest that children's understanding of death as a biological event may be universal, with all children acquiring understanding of each subcomponent, except causality, somewhere between 4 and 7 years. Pakistani Muslim children were found to understand irreversibility

earlier than their British counterparts. A finding which may reflect rural Pakistani children's exposure to animal death through the life cycle of domestic animals killed for domestic or religious purposes (Panagiotaki et al., 2015) – which will be further discussed during 'culturally-specific experiences'.

Slaughter and Griffiths (2007) used the death concept interview to investigate how children's acquisition of each of the biological subcomponents affects young children's fear of death (aged between 4 and 8 years). To measure children's fear of death, a death anxiety scale was used which asked children to self-report their fear responses to death-related, life-related, and neutral words (e.g., dying, life, and use). Fear responses were reported using a Likert scale of 'not scared at all', 'a little scared' or 'very scared' (Slaughter & Griffiths, 2007). Parents were also asked to report on their children's general levels of anxiety. Death understanding was seen to positively correlate with age and the expected pattern of acquisition of subcomponents. Fear of death was not seen to correlate with age but did negatively correlate with death understanding. Better understanding of biological death was associated with reduced levels of fear of death (Slaughter & Griffiths, 2007).

Poling and Evans (2004) explored children's conceptions of individual and species death (extinction). They found that in 4- to 9-year-olds, children's understanding of death improved with age. Most older children recognized the irreversibility and universality of death, understood that dead things cannot breathe, and that death can be caused by lack of air. To explore children's conceptions of individual death, they used forced-choice measures. These included unambiguous questions requiring yes or no responses (close-ended questions), e.g., "If this X died, could it become alive again?" (p. 368). Four questions were randomly ordered to address irreversibility, non-functionality, inevitability, and causality. This measure was thought to amplify young children's ability to understand death by not relying on their ability to explain it (Poling & Evans, 2004). Poling and Evans also asked one open-ended death question, "What usually happens to Xs after they die?" (p. 382). Measuring children's explanations in response to open-ended questions gives further insight into how children conceptualise death.

Co-existent Thinking

As children grow older and develop their knowledge of the biological subcomponents, their explanations of death appear to adjust from a biological focus to include spiritual ideas. This conceptual change from biological reasoning to the inclusion of spiritual thinking, appears to occur by around the age of 11, once the final death subcomponent has been acquired

(Astuti & Harris, 2008; Harris 2018; Harris & Giménez, 2005). Spiritual ideas often reflect a form of afterlife which describe a belief in the continuation of bodily and/or mental functions (Legare et al., 2012). For example, religious explanations suggest that a dead person continues to function when they are in heaven (Harris & Giménez, 2005).

More recently, research has begun to address the relationship between biological and spiritual conceptualisations of death. Contrasts between biological and spiritual thinking suggest the two are incompatible. For example, biological reasoning would suggest that all bodily processes cease after death, which conflicts with spiritual notions of loved ones watching over us after death. Instead, biological, and spiritual conceptualisations are thought to show co-existent thinking, in which both conceptions are held by adults and older children (Legare et al., 2012). This spiritual conceptualisation in children's understanding of death is thought to occur once they have developed a mature understanding of death (Astuti & Harris, 2008; Legare et al., 2012; Harris & Giménez, 2005; Harris, 2018). It is suggested that children develop their metaphysical reasoning only when they can make inferences from their biological knowledge (Harris & Giménez, 2005). Once children understand that all bodily functions cease at death, the continued functionality described in religious or metaphysical reasoning becomes more meaningful and persuasive (Harris & Giménez, 2005). Moreover, children's explanations reflect the belief that biological processes cease in a more pervasive manner at death than psychological processes (Watson-Jones et al., 2017). Children are likely to believe that biological and psychological processes still function after death, whereas adolescents and adults are more likely to believe in the continued function of psychological processes than biological (Astuti & Harris, 2008; Harris & Giménez, 2005; Watson-Jones et al., 2017).

Research exploring contexts in which each type of conceptualisation is utilised give some insight into how biological and spiritual conceptions are held. For example, in religious contexts describing someone's death, e.g., with talk of God and priests, spiritual conceptions are more often elicited, and in secular contexts, e.g., doctors and medicine, biological conceptions are more likely elicited (Astuti & Harris, 2008; Harris & Giménez, 2005). Religious contexts/primes appear to increase the number of spiritual justifications for the continuing of mental, as well as bodily processes, as opposed to biological primes which appear to decrease the number of functions thought to continue after death/into the afterlife and increase biological justifications. This effect of priming demonstrates a sensitivity to context of death discussions and an ability to use different conceptions based on this context. Different conceptions are instead seen as compatible rather than competitive as they can be used in different contexts (Harris & Giménez, 2005). Notably, this conceptual change appears predominately in

children's understanding of human death, as opposed to animal death (Legare et al., 2012; Poling & Evans, 2004). These findings support the idea of co-existent reasoning in older children's and adults' conceptions of death and offers insight into how both sets of beliefs exist within their conceptualisations, e.g., to be used in relation to different contexts. This role of context in children's reasoning about death, also offers insight into how contexts used in research measures may affect children's responses. Further research is needed to explore the sensitivity of children's responses in other contexts, for example, the context of animal versus human death, or the context of who they are responding to (e.g., parents or teachers).

Given the focus on children's biological knowledge of death in previous research, children may understand biological subcomponents sooner than previously established, as different subcomponents may prompt more spiritual responses. For example, irreversibility and cessation are argued to elicit more spiritual explanations (Panagiotaki et al., 2018). Rosengren et al. (2014a) included a non-corporeal continuity subcomponent to try and address this spiritual reasoning alongside investigation of biological subcomponents. In including this subcomponent, they found evidence of spiritual reasoning in children as young as 4 years old – much earlier than suggested by previous research (e.g., Harris & Giménez, 2005, 7-10 years old).

These different ways of conceptualising death illustrate the difficulty in not only researching children's developing conceptions of death but having these discussions with children. Death concepts can exist within two streams of thinking, the biological in which bodily processes are observed to cease owing to illness or age, and the spiritual in which what happens after death is unobservable and unknown.

How Children Develop Their Conceptual Knowledge

Conceptual Development: theory theory

Theories of conceptual development may shed some light on the context in which children develop their knowledge, and how experiences may shape this knowledge. According to theory-theory, important conceptual structures are similar to everyday theories and cognitive development akin to theory revision in science (Gopnik & Wellman, 2012). Accordingly, children construct intuitive theories of the world and alter and revise such theories in light of new evidence (Gopnik & Wellman, 2012). Theory-theory also purports that theories have dynamic features which “reflect a powerful interplay between hypotheses and data, between theory and data” (p. 3, Gopnik & Wellman, 2012). Theory-theory predicts that children's prior beliefs and evidence create initial theories which should interact to affect

learning and exploration (Gopnik & Meltzoff, 1997). When evidence conflicts with their prior beliefs about an object, children will spend longer exploring the object than when evidence is consistent with their beliefs, or they have no prior beliefs (Bonawitz et al., 2012). For example, in using their theories about balance, older children (6-7 years old versus 4-5 years) were much more likely to revise their predictions and learn from theory violating data when unexpected evidence could not be accounted for, e.g., variables which would explain the evidence, like a magnet, were absent (Bonawitz et al., 2012; Karmiloff-Smith & Inhelder, 1974).

Bayesian inference concerns how statistical evidence interacts with theories. These interactions include determining probability of possibilities and describing how learners update their beliefs about a set of hypotheses following the data (Bonawitz et al., 2012). Following Bayesian inference, conceptual change will occur through the accumulation of counter evidence, allowing children to change hypotheses based on patterns of evidence (Gopnik & Wellman, 2012). Conceptual change involves restructuring existing knowledge system, change in core concepts, conceptions, and conceptualizations, such as rules, models, and theories (Inagaki & Hatano, 2002). Theory change involves changes in the causal device of explanation and/or large-scale changes in the range of phenomena or entities included (Inagaki & Hatano, 2006).

Theory-theory highlights the importance of considering what information/evidence children are being exposed to, which they may then incorporate into their theories to affect their understandings of death. For example, parents may consistently present testimonial evidence of a spiritual life after death, in contrast to biological evidence children may themselves collect through experience (e.g., experience with animals). Children may then incorporate this testimonial knowledge into their conceptions of death, changing their conceptions of death from biological to dualistic (using both biological and spiritual explanations).

Wellman and Gelman (1992) suggest children acquire framework theories of three core domains – naïve physics, naïve psychology, and naïve biology – which dictate domain specific forms of reasoning and knowledge acquisition, framing further conceptual acquisition. These three core domains are thought to encompass most of the external world with which we interact (Wellman & Gelman, 1992). Naïve biological knowledge is thought to be reflected in understanding of biological processes such as organic growth, evolution and inheritance, functions such as eating and sleeping, and outcomes such as illness and death (Wellman & Gelman, 1992). Inagaki and Hatano (2006) state a naïve biological knowledge system must

be able to: distinguish between non-living and living entities; between mind and body; and have a set of causal devices for biological phenomena. Each of these are seen in each of the subcomponents (e.g., inevitability, cessation, and causality). In contrast, Carey (1985) suggests that children lack domain specific knowledge in biology, leading to anthropomorphised reasoning about biological phenomena – stemming instead from a naïve psychology until around the age of 10.

Naïve Biological Knowledge

As discussed above, Inagaki and Hatano (2006) describe three essential components of a demonstrable naïve biological knowledge system: distinctions between non-living and living entities; mind and body; and a set of causal devices for biological phenomena. Following this definition, understanding of death as a biological event can be seen to support a naïve biological knowledge system. For example, to understand that something is dead, knowledge of what makes something alive is needed, and in turn, distinctions between living and non-living need to be made. Afterlife beliefs may also exhibit distinctions between mind and body, for example, mental faculties continuing in afterlife while the body remains on earth.

Two causal devices that children are thought to draw on to understand biological phenomena are life teleology and vital power (Inagaki & Hatano, 2006). Life teleology is the view that the biological part or properties of an entity exist to serve a function, for example organs exist to sustain life (Inagaki & Hatano, 2006; Keleman et al., 2005). Vital power suggests bodily processes sustain life by taking in or exchanging vital life force, which enable things to grow, maintain health and be active (Inagaki & Hatano, 2004; 2006). Vital power is thought to be taken from outside, usually through food or water, and to primarily consider human bodily processes. When defining the word nutriment, 6 years olds make references to vital power, “it gives us power” (p. 358, Inagaki & Hatano, 2004). According to Inagaki and Hatano (2004; 2006), children do not commit to a single causal device, instead these causal devices are thought to be complementary with teleological explanations being used for biological parts or properties and vitalism for biological processes. Taken together, these two causal devices constitute a teleo-vitalistic assumption as a biological causal framework: bodily properties, functions, and processes exist and operate for maintaining life by taking in life force. When compared to mechanical, intentional, or physiological causal explanations for biological phenomena, children aged 5 to 7 years old show a preference for teleo-vitalistic explanations (Keil, 1992; Inagaki & Hatano, 2004).

Vitalistic thinking has been shown to facilitate learning in the domain of biology, and more specifically, death understanding (Slaughter & Lyons, 2003). Slaughter and Lyons explored the role of vitalistic reasoning in young children's learning about the human body and death using a short-term longitudinal approach of three phases: pre-test, training and post-test. Sixty Australian children aged between 3 and 5 years old were classified as 'life-theorisers' or 'non-life theorists' based on their pre-test responses to questions about class inclusion, the human body and death. 'Life-theorisers' spontaneously offered 'life' as explanation for human body functions more than once, "you need to breathe air because that's what keeps us alive" (p. 9, Slaughter & Lyons, 2003). Children who mentioned 'life' once or less were classed as 'non-life theorists', "your lungs are for sitting on" (p. 9). 'Life theorists' were found to have a more sophisticated understanding of death and the functions of specific organs than 'non-life theorists'. Children were then given training which focused on the role of vital body organs and processes in maintaining life. Information conveyed to children included, "we need clean blood to keep us alive" (p. 16). When trained in vitalistic thinking all participants improved their understanding of death, despite there being no mention of death during training. This finding suggests acquiring a vitalistic understanding of the body allows children to make inferences about death as a biological phenomenon (Slaughter & Lyons, 2003). Children can then make intuitive inferences about life and death through the understanding of death as the opposite of life (Slaughter & Lyons, 2003).

This finding has important implications for those uncomfortable talking to children about death. Teaching children about how the human body functions may help improve children's understanding of death without the need to explicitly mention it. Slaughter and Lyons' study suggests that when taught using a coherent framework which makes sense to them, children are capable of relatively sophisticated understandings. In teaching children about death, it is important to explore ways of framing conceptualisations which may be better understood. For example, explaining what body parts/processes are for and what happens when they fail. Further, it is worth exploring ways in which children are exposed to knowledge about death, outside of formal teaching, for example in conversations with parents.

Vitalistic thinking in children is thought to largely concern human bodily processes (Inagaki & Hatano, 2004). Children have been thought to be limited to similarity-based inferences and anthropocentric reasoning, extending their biological knowledge about humans to other living things based on behavioural similarity (Carey, 1985). However, a fully coherent understanding of death is thought to apply to all biological entities equally, all types and all subcomponents (Nguyen & Gelman, 2002). Children's understanding of death has been found to be more sophisticated for animals than plants (Nguyen & Gelman, 2002).

Trajectory of conceptual development may differ across biological entities. Fouquet et al. (2017) asked children and adults to attribute seven biological properties (growth, movement, nutrition, aging, death, eating, illness and reproduction) to animals, plants, or artefacts. With age, children's attributions increased for animals, and decreased for artefacts, but remained constant for plants. Adults attributed the same number of properties to plants and animals. Fouquet et al.'s findings suggest that children's conceptualisation of the animal category stems from the properties of movement and nutrition, with plants stemming from growth followed by movement. One of the least frequently attributed properties for animals and plants was death. The context in which children experience animal death, e.g., through pets, is worth exploring to gain further insight into how their understanding of animal death develops and how it may differ from their understanding of human death.

Influences on Children's Understanding of Death

Culturally Specific Experiences

Previous research suggests that children's conceptualisations of death may differ between human and non-human animals because of anthropocentric reasoning. When projecting properties from a base to a target – e.g., from a human to an eagle – anthropocentric reasoning is indicated when children show asymmetry in the direction of projecting more properties from humans to other animals, than from other animals to humans (Ross et al., 2003). However, children as young as 4 years old can accurately project biological reasoning across living entities (Fouquet et al., 2017; Nguyen & Gelman, 2002), suggesting children may not always be anthropocentric thinkers. Inagaki and Hatano (2004) suggest anthropomorphised thinking may be weaker in cultures closer to animals and plants. Little early experience with animals and plants may create anthropocentric bias. Consequently, previous research may be limited by their use of children from urban environments (Geerds et al., 2015).

Comparisons between rural and urban children have further shown that not all children reason anthropocentrically. For example, rural samples have been shown to not display anthropocentric reasoning (Medin et al., 2010) whereas young urban children have (4-5-year-olds, Waxman & Medin, 2007). Children are thought to use humans as a reference when they are the only entity that they have extensive knowledge of, with anthropocentric reasoning not expected in children who grow up around animals or in cultures with a focus on ecological reasoning (Ross et al., 2003). Ross et al. found that urban children show a developmental change between ages 6 to 8/10 years old, from undifferentiated projections to similarity-based

projections and asymmetrical projections in favour of humans. This favour is thought to show thinking of humans as atypical animals. Rural children, however, showed reasoning in terms of biological similarity, and any asymmetries observed in younger children appeared to disappear with development (Ross et al., 2003). A third sample of Menominee children also indicate a role for culture in children's development of biological reasoning, as well as supporting the view that anthropocentric reasoning develops owing to lack of knowledge about other biological species. The Menominee are a native Indian tribe with traditional knowledge of local plant and animal species, which involves children in harvesting, hunting and fishing, and whose culture views all natural entities as alive, including rocks and water. Menominee children showed no asymmetries across age groups and showed broader similarity-based projections – they were as likely to project from humans to higher animals as to lower animals, unlike the urban and rural groups, which may indicate a greater perceived similarity between human and nonhuman animals (Ross et al., 2003). In Yukatek Mayan children, a rural community in Mexico, Atran et al. (2001) found little evidence of anthropocentric reasoning. For most children, projections made were no stronger from humans than other living kinds. However, less projections were made from humans to non-human mammals than from non-human mammals to other mammals. This finding suggests that humans are still seen as atypical animals. Atran et al. found some asymmetries for younger children which suggest these asymmetries are owing to a lack of familiarity with types of living things (e.g., invertebrates) rather than a bias to human centred thinking.

Asymmetries, as described above, are more likely to reflect a familiarity effect than an anthropocentric bias (Atran et al., 2001). Urban samples increase their biological knowledge through direct experience with animals through pet ownership. For example, children who raised goldfish had both more factual and conceptual knowledge about goldfish which they used to make analogies about unfamiliar 'aquatic' animals (e.g., a frog, Inagaki, 1990). Geerds et al. (2015) found that children treat their pets as social partners engaging them in social activities including talking and playing with them. This experience of having a pet increased biological knowledge, with both younger and older children being more willing to extend biological properties to other animals than children without pets. Children's experiences with pets may have a positive effect on their understanding of biological death as a process which occurs to all living things (universality).

A role for culture in mediating children's biological reasoning is further supported by Herrman et al.'s (2010) findings of anthropocentric reasoning about biological phenomena in 5-year-olds but not in 3-year-olds. These findings suggest that anthropocentric reasoning is acquired as a learned perspective which is supported by certain cultures, including

environments where contact with non-human animals is limited like urban environments, or where portrayals of animals are anthropomorphised (Herrman, et al., 2010).

Tarlowski (2006) suggests that biological reasoning and knowledge are affected by experience and cultural transmission. Humans are a cultural species who acquire beliefs, knowledge, skills, customs and norms from others through social learning processes such as imitation, teaching and language (Mesoudi, 2011). Cultural factors may affect how children understand death in several respects – for example the speed of subcomponent acquisition, or explanations for causes of death. Culturally specific experiences that have been shown to affect children's concepts of death include first-hand exposure to death, exposure to biological accounts of death, and cultural or religious beliefs about the afterlife (Lane et al. 2016; Rosengren et al., 2014b; Watson-Jones et al. 2017). For example, as discussed earlier, the context in which death is spoken about has been shown to influence children's reasoning about death in US, Spanish and Madagascan samples (Astuti & Harris, 2008; Watson-Jones et al., 2015; 2017). However, this effect of narrative contexts was not seen in a sample of Chinese children aged 4 to 12 years old, who were less likely to be exposed to religious contexts in everyday life owing to discouragement of religious beliefs and fear of bad luck through talking about afterlife beliefs (Lane et al., 2016). Without exposure to religious ideas children may be less able to reason spiritually despite being presented with religious/spiritual primes.

Influence of first-hand exposure to death has been suggested by previous studies which explore death understanding in cultures which are usually more rural and better connected to nature than their urban counterparts. Panagiotaki et al. (2015) suggest that rural Pakistani children understand irreversibility earlier than their British urban counterparts owing to their exposure to the life cycle of domestic animals and limited healthcare available within impoverished villages. It is suggested that exposure to the killing of domestic animals and people dying due to poor sanitation (for example), exposes rural Pakistani children to the fact that living things die and death is irreversible more often than urban British children (Panagiotaki et al., 2015). Urban samples are less likely to be exposed to dying animals or people during their everyday experience. For example, human death will often occur within hospital settings owing to greater availability of healthcare or slaughter of domestic animals will occur on farms and within slaughterhouses, neither of which children will be exposed to without approved access.

In urban samples, first-hand exposure to death through pets may be more likely and is often seen as a way to introduce the concept of loss to children. Hunter and Smith (2008)

found that experiencing pet death helped children to understand death at a younger age, with children who owned pets showing greater understanding of universality. However, children's experiences with the death of relatives were less clear cut. Children's experience with the death of an immediate family member was shown to have no effect on children's understanding of death, but experience with the death of an extended family member was associated with greater understanding of universality and finality (Hunter & Smith, 2008). Two explanations for this finding were considered, first the number of children who had experienced the death of an immediate family member was very small (3 out of 37). Second, parents may choose to shelter their children from the events involved with the death of an immediate family member to avoid upset and discussions which may be perceived by parents as anxiety inducing for their child (Hunter & Smith, 2008).

The majority of research exploring parent and child communication about death has focused on American, Mexican, Australian, Spanish and Madagascan communities. This thesis adds to the research area to include the cultural experience of British families, with families from Norwich most represented. British families may differ in religiosity from previous study samples, for example. According to the British Social Attitudes survey (BSA; Voas & Bruce, 2019), 52% of participants did not regard themselves as belonging to any religion, suggesting a decline in religiosity since the survey began in 1983. In the 2011 census data, East of England, in which Norwich is situated, had 42.3% of respondents identified as having no religion, the highest proportion of 'no religion' in England and Wales at the time (ONS, 2019). These figures reflect a difference between British and American adults in terms of their religiosity. Only 23% of Americans do not affiliate themselves with any religion (PRRI, 2021). Difference between acceptance and tolerance of religious beliefs may affect how individuals conceptualise death, and their reasoning about the afterlife. For example, in comparing US and Chinese samples, China has much lower levels of religious expression and tolerance. Lane et al. (2016) found Chinese children reported that biological and psychological functions ceased more than US children and made less reference to supernatural reasoning.

As well as increasing secularism within the UK, Britain is seen to view death as a taboo and not an open topic of discussion. Co-op Funeralcare commissioned a national survey into death which found that 24% of people were not comfortable talking about death, owing to not wanting to worry others. Only 45% of people felt able to discuss their bereavement with another person, with the remaining choosing to keep it to themselves, or keep busy with work or distractions (Co-op, 2018). This view of death may have important implications for how death is portrayed and discussed with British children. Research of this kind may help to reduce the taboo associated with death by raising awareness and giving parents, and other

caregivers (e.g., teachers, clinicians), the confidence to discuss death in a way that benefits children.

Portrayal of Death in Children's Media

Portrayals of death in children's media present an informal way in which children may learn about death and/or parent-child conversations may be prompted. Renaud et al. (2015) found that parents reported death seen in the media as children's most frequent death exposure (e.g., in human, animal and cartoon characters). However, the way in which death is portrayed varies greatly within and across different types of media. For example, death might be the main focus of a book or TV show, or a small part of the plot. How death is portrayed to children in books, film and television, and the implications this may have for children's understanding needs to be considered.

In a systematic review of children's literature, Arruda-Colli et al. (2017) conducted a content analysis of 210 books aimed at 6-12-year-olds, which discuss death and/or dying. Their analysis revealed a number of common themes across different books. The dying subject was most often a grandparent or a pet, and a child dying was rare. The words death and dying were used in 75% of books, while euphemisms like being gone and departing on a journey were used for others. Spiritual elements, such as heaven and a better place, were discussed in nearly 60% of books. Of the biological subcomponents, irreversibility was discussed in most books (95%), with some including children's learning process of this subcomponent, e.g., questioning when the deceased would come back. Causality was also discussed with death being attributed to aging, illness, or accident (12.8%). Arruda-Colli et al. found that books emphasized the idea of permanence with the deceased maintaining some connection through watching over loved ones, and/or through everlasting love or spiritual presence. The emotional impact of death on the child was also described in most books (60%). Emotions most described were sadness (79.5%), followed by anger (19.5%) and fear (13.3%). Coping strategies were also addressed in some books, with the most frequent being remembrance and sharing memories (44.8%), followed by receiving emotional support from others (23.3%), talking about death (13.3%) and saying goodbye (11.4%, Arruda-Colli et al., 2017). These findings give insight into the types of information children are exposed to in books which reference death and dying, and ideas which may influence and help to develop their conceptions. For example, books may help children to understand the irreversibility of death and the normality of feeling sad after the death of a loved one.

Gutiérrez et al. (2014) found that parents were more likely to use books as a resource for helping their young children cope with death than film or television; a strategy which is also recommended by experts on child's bereavement (e.g., paediatricians, teachers, clinicians). In their content analysis of 109 children's books about death, Gutiérrez et al. (2014) found that 90% included stories that portrayed characters experiencing death, and the remaining 10% were descriptive, intending to be educational and teach children about death and how to cope with it. Death figured in the main plot for 91% of the books, with the majority portraying human death (66%) and most characters dying being grandparents (40%). As with Arruda-Colli et al. (2017), sadness was the most common emotional reaction presented. Gutiérrez et al. (2014) also found that educational books explicitly discussed the variety of feelings that can arise from experiencing a death. Their findings demonstrate there is a variety of books intended for young children, which may be used as a socialising resource for parents to use in conversations about death with their children (Gutiérrez et al., 2014). Similarly, Renaud et al. (2015) found that of those parents who wished to prepare for future conversations around death, 70% indicated they would read information on how to talk to children about death, as opposed to other methods, e.g., discussing with other parents. These findings taken together support the value of children's books which address death in an accessible way for both children and parents and encourage discussion between the two.

In considering different types of media's portrayal of death, Gutiérrez et al.'s (2014) finding that 35% of parents indicated they would shield children from representations of death in books, and 75% indicating they would shield their children from representations of death in television and movies, is particularly striking. One reason given for this difference was that parents found it easier to skip or modify content while reading rather than watching television or a film (Gutiérrez et al., 2014). During content analysis of 23 death scenes portrayed in ten Disney films, Cox et al. (2005) discovered five trends of death portrayals: character status, both "good" and "bad" characters are susceptible to death; depiction of death, deaths were implicit or explicit; death status, deaths were permanent or reversible; emotional reaction, negative and positive emotional reactions to the death of a character; and causality, purposeful or accidental and justified or unjustified deaths of characters. These trends may have relevant implications for children's developing conceptions of death. For example, only "good" characters were shown to have reversible deaths or were able to 'come back' in some way, e.g., Simba talking to a cloud shaped Mufasa in *The Lion King* (Cox et al., 2005). Regarding irreversibility, children who have yet to acquire this subcomponent may develop a misunderstanding in which the deceased may return. Conversely, portrayals of deaths of both "good" and "bad" characters may help children to understand that every living thing dies one day, even those who are 'good' and we care about (inevitability). Some aspects of Disney

films may also serve as effective learning tools for children. Cox et al. (2005) acknowledge the role Disney films may play in encouraging more comfortable discussion between children and adults about death. For example, adults may deconstruct and clarify aspects which may be unrealistic or confusing.

More recently, Cox et al.'s (2005) study has been extended using the same content analysis coding scheme to explore 51 Disney and Pixar films (Tenzek & Nickels, 2019). In their extension, Tenzek and Nickels used thematic analysis to construct four emergent themes representing the depictions of death in Disney and Pixar films: unrealistic moments; managing end of life; intentions to kill; and transformation and spiritual connection. Unrealistic moments were seen to show characters near death but then able to survive. Tenzek and Nickels expect that by repeated exposure to these ideas in films, children are encouraged to believe that even when someone is dead, if you wait or hope long enough, they will come back to life. In managing end of life, thoughts and feelings relating to grief, sadness, coping and embracing or rejecting reality were encompassed. Often the plots of films followed the course of the characters' grief and uncertainty in response to a death. Some films portray unconstructive responses to death (e.g., attaching balloons to house) whereas more recent films explicitly address the emotional response of grief, loss, and the need for social support (Tenzek & Nickels, 2019). Transformation and spiritual connection also described potential impact on children's conceptualisations of death. Spiritual connections were seen to occur when characters were led by their ancestors, gods and/or spirits. Again, this might be seen to create unrealistic expectations for children and challenge their understanding of irreversibility. However, viewing spiritual depictions of death in film may also help children to develop their conceptions of death beyond biological understanding.

More recently, Bridgewater et al. (2021) analysed 50 top-grossing children's animated films from the past five decades to examine the prevalence of death scenes, content of biological death subcomponent information and context in which these deaths are presented (e.g., biological, spiritual, or misconceptions). Seventy-six percent of these films were found to portray death. Of these portrayals, most treated death as universal and final, with the cessation of psychological and biological processes. Most scenes portrayed implicit death which left space for uncertainty as to whether a character had died. Despite the generally biologically accurate manner in films were portrayed, Bridgewater et al. consider that children may not learn from the media alone, and instead may need scaffolding from parents to increase their understanding. In their second study, Bridgewater et al. used online surveys to examine parental attitudes toward death in animated films and parent-child talk about these deaths with parents of 3 to 10-year-olds. While watching with parents, children were reported

to ask questions about deaths that had occurred. Religious parents were seen to care more about how death was portrayed and were more likely to discuss misconceptions within these films – an opportunity not taken by 65% of parents.

In exploring portrayals of death in the media, it is worth noting that which topics are addressed and how they are portrayed are governed by social norms or what is seen as 'appropriate' for children (Longbottom & Slaughter, 2018). The taboo nature around death can affect its portrayal and whether parents expose their children to it or have conversations around it. Renaud et al. (2015) found that children's first conversations around death were most often related to the death of a character or individual in the media, contrasting with Bridgewater et al. (2021) who found that few parents took advantage of these opportunities to talk about death with their children, for example, not wanting to rectify misconceptions in portrayals.

Overall, portrayals of death in children's media are mixed. Parents are seen to choose books as resources over film and television (Gutiérrez et al., 2014; Renaud et al., 2015), perhaps owing to their ability to skip or modify content when reading (Gutiérrez et al., 2014). Children's books about death are seen to help children understand the irreversibility of death and deal with their feelings of grief, with sadness being most commonly addressed (Arruda-Colli et al., 2017; Renaud et al., 2015). Parents are more likely to shield children from images of death in film and TV (Miller et al., 2014). Yet, portrayals of death in many may be biologically accurate with death shown as universal, final, with the cessation of psychological and biological processes (Bridgewater et al., 2021). Disney and Pixar films are seen to use unrealistic portrayals of death which may foster misunderstandings, e.g., that loved ones can return (Cox et al., 2005; Tenzek & Nickels, 2019). However, more recent films explicitly address emotional reactions to bereavement (Tenzek & Nickels, 2019). This finding suggests that recent Disney and Pixar films could be utilised by parents to facilitate their child's grief response. Misconceptions portrayed in films may also provide parents with an opportunity to increase their child's understanding if they choose to take it. Religious parents are more likely to address misconceptions, and care more about how death was portrayed overall than non-religious parents (Bridgewater et al., 2021). These opportunities are further reflected in children's first conversations about death and first exposure to death being related to the death of characters in the media (Renaud et al., 2015).

Parent-Child Talk

Existing research has shown that adult testimony can help children consolidate knowledge of unobservable phenomena, for example, the function of hidden bodily organs and the afterlife, where first-hand observation is not possible (Harris & Koenig, 2006). Given the inability to observe/experience the afterlife and the cognitive challenges this may pose, children may rely on caregiver testimony to develop their understandings of death. Consistent with theory-theory, children are thought to rework information communicated through testimony to arrive at coherent understandings about processes and entities that are usually invisible to them (Harris & Koenig, 2006). Indeed, children's reasoning about properties which require inference correlates with parent talk, for example sensory and psychological properties, (Jipson et al., 2016). Sensory and psychological properties are not directly visible and must be inferred, for example visual and auditory abilities, and emotions, desires, or intentions (Jipson et al., 2016). In discussions about a robotic dog, parental talk was found to influence features attributed in a property projection task. For 3-year-olds, when parents spoke about sensory features for the robotic dog (e.g., see, hear, smell), their child more frequently attributed sensory features to the robotic dog during the property projection task. For 5-year-olds, those parents who used more gendered pronouns (e.g., describing the robotic dog as she/he) during discussions then attributed more psychological (e.g., think, know, desire) and sensory features to the robotic dog in the property projection task (Jipson et al., 2016). Parental talk was seen to influence children's reasoning about the robotic dog, only for properties which could not be visually confirmed and instead require inference. Language is therefore important in making invisible phenomena explicit, helping children to conceptualise these phenomena, and for parent and child to share their experiences of it (Thompson, 2006). When exploring how children conceptualise death and the afterlife, how parents discuss it with their child must be explored.

Parent-child conversations are not passive from parent to child, instead parent and child respond to each other to create shared representations, through interactivity and contributions from both (Thompson, 2006). Children's questioning illustrates that they are prepared to seek information from an adult to solve anomalies in their knowledge and assimilate their own knowledge (Harris & Koenig, 2006). Children can be selective in which testimony they trust – children aged 3-4 years are able to keep track of informants' prior accuracy and use this information to justify whether they can be trusted about new information (Harris, 2012). Children are also able to identify unreliable/reliable informants and remember their identity over a short period (Koenig et al., 2014). Informants' traits, such as being nice, smart, or honest, can also factor into how much children seek and trust their testimony (Lane

et al., 2013). In cases where perceptual cues are unavailable, children ask for and endorse information from their mother as opposed to a stranger (Corriveau et al., 2009). Children are therefore likely to seek information from their parents and investigating their questions to parents may shed light on the types of information they seek.

How parents answer these questions may also have important implications for children's conceptual development and knowledge acquisition. For example, parent and child endorsements on the origins of living things have been found to be related (Tenenbaum & Hohenstein, 2016). However, children's endorsements were more strongly related to the content of their conversations with their parents than to parents' endorsements (Tenenbaum & Hohenstein, 2016). For example, parents may endorse spiritual beliefs, e.g., creationism or an afterlife, but unless these are discussed during conversations, children may not endorse these same beliefs. Endorsements were measured through levels of agreement with statements concerning different explanations of how different entities (rain, chair, human, deer, and flower) came to be on earth (e.g., creationism, evolution, artificialism, and spontaneous generation). Conversations about the origins of living things were prompted by a science book with different activities created by the researchers.

During parent-child conversations about science topics, parents' use of similarity comparisons, including relational analogies, increased children's understanding of unfamiliar content domains (Valle & Callanan, 2006). Analogies allow parents to compare two objects which share some, but not all features. Relational analogies are used when there is a high relational similarity – e.g., between a plant and a person because they both need water to live – but low appearance similarity (Valle & Callanan, 2006). Analogies created by parents may be more personally relevant to their children, potentially aiding their child's understanding of the analogical relations involved (Valle & Callanan, 2006). In discussions of death, parents could draw relational analogies between humans and non-human living things. If a child shares a particular interest in sunflowers, for example, parents may use relational analogies which describe that both sunflowers and humans need water to live. From this information, parents may choose to discuss what happens if each of these things go without water, or children may go on to make inferences themselves (e.g., Slaughter & Lyons, 2003). These findings illustrate the impact parental talk can have on children's knowledge acquisition beyond parent-child discussions.

A number of factors may affect how parents talk to their children and answer their child's questions. Patterns in parent-child talk suggest that parents talk about types of living entities differently, for example, sea animals with or without faces (e.g., fish or sea stars,

Rigney & Callanan, 2011). Rigney and Callanan found that parents talked about psychological properties and body parts more for sea animals with faces than for those without. Children did not differentiate by sea animal type (face or not) and spoke more about physical properties and body parts than psychological properties (Rigney & Callanan, 2011). Following this research, it might be suggested that living things which do not have faces, such as plants, are not discussed by parents in the same way as other living entities and may influence how death is conceptualised for each entity.

Death as a topic may also affect how parents discuss it, or do not discuss it. Parents do not always wish to openly discuss death with their children and may instead try to shield their children from it, for example, through avoiding media images of disaster and death (Miller et al., 2014). One justification for this shielding is that some parents believe children are too young to understand death both cognitively and emotionally (Miller et al., 2014). Those that do discuss death with their children, tend to respond to questions with reassurance or facts and explanations (Gutiérrez et al., 2014). Types of reassurance include using emotional/psychological reassurance that the deceased led a happy life but are not limited to these types of ideas (Gutiérrez et al., 2014). For example, reassurance could include biological, emotional, or religious ideas – as could facts and explanations. As opposed to providing comfort, facts and explanations were offered to provide factual information and explanations about death, including associated rituals and representations (Gutiérrez et al., 2014). Bridgewater et al. (2021) found that parental attitudes to death may affect whether parents challenge misconceptions portrayed in animated films, and the topics discussed if they do engage in these discussions. For example, parents who addressed misconceptions were more likely to be religious and/or mention afterlife beliefs. Some parents were seen to combine both biological and spiritual information in their answers, for example, providing information about biological subcomponents and following up with information about afterlife beliefs (Bridgewater et al., 2021).

Renaud et al. (2015) found that parents were more likely to be satisfied with explanations that described a continued existence than parents who described not seeing the deceased again. Continued existence was emphasised both through the afterlife and in remembering the deceased. This finding suggests that parents find more satisfaction in explanations which are reassuring, which does not equate to spiritual thinking. This finding also reinforces the importance of exploring children's understanding of death beyond biological explanations and into spiritual, metaphysical explanations which may better represent the content of early discussions about death (Renaud et al., 2015). Further, Renaud et al. highlight that parent-child conversations around death occur earlier than previous

research has shown. Renaud et al. found that parent-child conversations were reported to occur at as young as 3 years old. Not only is this earlier than expected for children to begin developing their conceptions of death but it also reflects the importance of exposure to different types of deaths as opportunities for discussion. For example, exposure to insect or TV character deaths (Renaud et al., 2015), which may be overlooked by both the literature and parents who do not perceive importance in these types of deaths. As is likely with most studies of this nature, most parents in Renaud et al.'s study were comfortable in discussing death with their child. These findings may reflect the type of sample willing to partake in this research; those more comfortable in discussing death with their child, may be more likely to discuss death with their child at an earlier age.

Parents who are anxious about death are seen to be more avoidant of death conversations. Matalon (1998) found that when unable to avoid conversations about death, anxious parents were more likely to use euphemisms in their discussions with children. However, use of euphemisms may impact children's biological understanding of death by contrasting with biological realities. Take Longbottom and Slaughter's (2018) example of the euphemism "we lost her" (p.3). Children need to understand the biological fact that death is irreversible, and not something living things can return from or be 'found'. Without an understanding of the irreversibility of death, children may take these phrases to imply that the dead could return, impacting their biological understanding of death and irreversibility. Research into the content of parent-child conversations around death is limited and relies upon self-reports of parents on what they and their child have said. Parent-child conversations may have important implications on their child's understanding of death and bereavement following the death of a loved one. The role parent-child conversations play in children's developing understanding of death needs to be established using more extensive measures of both parent and child data.

In exploring the content of parent-child conversations around death, parental beliefs must also be considered. Parents' own beliefs are likely related to beliefs they encourage in their children (Braswell et al., 2012; Misailidi & Kornilaki, 2015; Tenenbaum & Hohenstein, 2016; Zajac & Boyatzis', 2020). For example, parents' religious beliefs were positively correlated with encouraging religious beliefs and negatively correlated with encouraging scientific beliefs in their children (Braswell et al., 2012). Religious beliefs encouraged by parents included beliefs in God, prayer, angels, and miracles, whereas scientific beliefs encouraged included evolution, accuracy of science, and science as the best explanations. Parental encouragement however does not guarantee that children will endorse these beliefs. For example, among Greek Orthodox Christians, religious parents with strong beliefs in a

mental afterlife were more likely to describe continued existence of the deceased to their child than less religious parents. Yet, no significant association was found between children's afterlife beliefs and their parent's religiosity (Misailidi & Kornilaki, 2015). Similarly, in relation to beliefs about the origins of life, children's endorsements were more closely related to parent-child conversations than parents' own endorsements (Tenenbaum & Hohenstein, 2016). Nonetheless, parents perceive that their religiosity and spirituality shape their conversations about death with their child, and that these in turn will shape their child's religious and spiritual views (Zajac & Boyatzis', 2020). The extent to which parental religious and spiritual beliefs influence children's understandings of death and how these are communicated to children during discussions is unclear. For example, parents may describe themselves as non-religious but still believe in an afterlife, or vice versa. Investigation of parent-child conversations and the extent to which parental beliefs, and what beliefs, are expressed during these conversations is needed.

Children may initiate conversations, ask questions, and end discussions (Thompson, 2006). This bi-directional nature of conversations has been overlooked in previous research which focuses on parental self-reports of how they respond to their children's questions. In relation to parent-child discussions of religion, conversations are seen to show mutual, bi-directional, and reciprocal qualities, in which children are active participants and express their own ideas (Boyatzis & Janicki, 2003). Parent-child conversations of emotions also appear to share these qualities in which parent and child collaborate and mutually construct discussions, both acting as active social partners, initiating, and following prompts from one another (Lagattuta & Wellman, 2002). However, Boyatzis and Janicki suggest the reciprocal nature of parent-child conversations may depend on both parent and child's goals during conversations. This suggestion is particularly important when considering parent-child conversations about death, where parents may have specific goals in mind. Longbottom and Slaughter (2018) suggest that the content of parent-child conversations fall into two categories: a) scientific facts and explanations; and b) religious, spiritual, or emotional reassurance and comfort. These two approaches illustrate different goals that parents may have in conversations about death with their children which may shape conversations. For example, conversations may be more one-sided when parents enter them with a goal to teach their child a particular notion. Previous research has yet to explore parent-child conversations about death using observational methods. Instead, previous research implies these conversations are primarily led by parents, with less focus on children's contributions and more on parents' self-reports of conversations. Research exploring parent-child conversations about death should do more to shift this focus to consider both parent and child's roles within these conversations, beyond using self-report measures with parents alone.

Chapter 3: “It’s a part of life, isn’t it?” The balance between parental beliefs and child-friendly talk in discussions of death between mother and child: A grounded theory study. [Study 1]

Introduction

Parent-child discussions are thought to play a large role in children's developing conceptualisations of how the world works. For unobservable phenomena in particular, children are thought to rely on the testimony of adults to develop their knowledge (Harris & Koenig, 2006). Death and the afterlife are one such phenomenon. However, relatively little research has gone into how parents talk to their children about death and the content of these discussions. Death can be a difficult topic for both children and adults to think about and discuss, and so further exploration into the factors which affect how parents talk to their children is needed to better understand this process and help facilitate future discussions. The current study is the first of a series of studies which aims to explore how parents understand death, how they perceive their child to understand death, and how they discuss death with their child. This study contributes to the thesis' aim of investigating how children conceptualise death, and factors which may influence these conceptualisations, including parental beliefs and parent-child discussions. Study 1 explored a) parents' own beliefs about death, b) what they think their child believes about death, and c) how they have/would discuss death with their child. By exploring these factors, this study highlights how parents' beliefs about death and their child's understanding of death may influence potential parent-child discussions about death and children's developing understanding.

Children's developing understanding of death has been well researched, with current research trends focusing on developmental timelines corresponding to the acquisition of biological knowledge. Children's understanding of death is argued to develop along five subcomponents, which correspond to five key biological facts: (1) irreversibility, death is permanent; (2) inevitability, all living things will die one day; (3) universality, death happens to all living things; (4) cessation, at death all physical and psychological functions stop; and, (5) causality, death is caused by the breakdown of bodily processes (Panagiotaki et al., 2015; Poling & Evans, 2004; Slaughter & Lyons, 2003). Irreversibility is first acquired by children at around the age of 4/5 years old, followed by inevitability, universality, and cessation, with causality the final subcomponent to be acquired at around ages 10-11 years old (Panagiotaki et al., 2015; Slaughter & Griffiths, 2007). Understanding of each of these subcomponents is thought to demonstrate a mature understanding of death, as seen in adults.

Older children and adults are also seen to consider spiritual ideas within their conceptions of death. Spiritual thinking, alongside biological, is argued to only occur with a mature understanding of death, once the final death subcomponent - causality - has been acquired (Astuti & Harris, 2008; Harris & Giménez, 2005). In contrast to biological conceptions,

spiritual thinking often considers the continuation of bodily and/or mental functions (Legare et al., 2012). For example, some religious explanations assert that a dead person continues to function in heaven (Harris & Giménez, 2005). Owing to this contrast, conceptions of death which consist of both biological and spiritual reasoning are known as co-existent, or dualistic. Religious adults often hold a dual conception of death being a biological endpoint *and* the beginning of an afterlife (Watson-Jones et al., 2017).

Parents' own beliefs about death may influence the beliefs they encourage in their children – for example, religious parents may be more likely to express religious explanations with their child. Parents' religious beliefs are positively correlated with encouraging religious beliefs and negatively correlated with encouraging scientific beliefs in their children (Braswell et al., 2012). For example, in Greek Orthodox Christians, the more religious parents were, the stronger their belief in a mental afterlife and, the more likely they were to describe to their child the deceased as having a continuous existence (Misailidi & Kornilaki, 2015). Parental anxiety around death may also influence what they share with their child. Parents who are anxious about death are more avoidant of death conversations, and more likely to use euphemisms in their discussions with children (Matalon, 1998).

Ideas endorsed by parents during discussions may influence children's developing understanding of death. For example, parent and child endorsements on the origins of living things have been found to be related (Tenenbaum & Hohenstein, 2016). However, children's endorsements were more strongly related to the content of parent-child conversations than to parents' own endorsements (Tenenbaum & Hohenstein, 2016). This finding has important implications for how parental beliefs may influence their child's understanding. Parental beliefs may also have little impact on their child's developing conceptions if they are not readily discussed with their child.

Miller et al. (2014) found that parents described wanting to shield their children from death when they believed they were too young to understand death. However, there has been little investigation of how parents judge their children's capabilities, and the influence this may have on parent-child discussions. For example, some parents may make judgements based on their child's age and/or based on outdated developmental timelines referenced in popular press (Longbottom & Slaughter, 2018). Longbottom and Slaughter highlight a disparity between developmental milestones in children's capabilities of understanding death in early approaches (e.g., Piagetian cognitive developmental theory) and modern approaches (e.g., biological subcomponents). According to the former approach, death is an abstract concept, the understanding of which does not begin until children are around 7 years of age. In contrast,

latter approaches consider death a biological concept, which children can understand between the ages of 5 and 7 years old (Longbottom & Slaughter, 2018). In making comparisons between parents' expectations of their child's understanding and children's understanding scores, Gaab et al. (2013) found that parents underestimated their child's understanding of irreversibility, cessation, and causation. This underestimation in children's capabilities may affect how parents choose to approach discussions of death with their children and children's subsequent understanding of it.

Existing research has shown that parental testimony can help children consolidate knowledge of unobservable phenomena (Harris & Koenig, 2006). Harris and Koenig define testimony as using language to make credible assertions, listeners of this testimony may then use it as reliable evidence for the truth of those assertions. Given the impossibility of observing or experiencing the afterlife – and the cognitive challenges this may pose – children depend on the testimony of others to make sense of it (Harris & Koenig, 2006). Children are thought to rework testimony and implications to arrive at a coherent understanding of a domain (Harris & Koenig, 2006). This reworking occurs through conceptual reorganisation which is facilitated by children's ability to accept and build upon assertions about processes and entities that are usually invisible to them (Harris & Koenig, 2006). Parent-child conversations may influence children's conceptual development and knowledge acquisition.

Longbottom and Slaughter (2018) describe the content of parent-child conversations about death as “broadly divided into two categories: scientific facts and explanations, and religious, spiritual or emotional reassurance and comfort” (p. 3). This description illustrates the existence of these dual conceptions, biological and spiritual, as two streams of explanation. We might assume that parents use scientific explanations to inform children, and spiritual explanations to reassure them (and to some extent themselves). It is worth considering the contexts in which death is discussed during parent-child conversations and how this may influence children's developing understandings. For example, do parents prefer spiritual/religious contexts over biological ones, and does this have an impact on children's biological understanding of death?

Although limited, previous research into the content of parent-child conversations around death has found that parents often seek to shield their child from death discussions, because they believe their child is cognitively and emotionally too young to understand death (Miller et al., 2014). This shielding might occur by hiding media images of death and disaster from their child, or by keeping their own negative emotions bottled up (Miller et al., 2014).

Parents also seek to comfort their child by using emotional and psychological reassurance that the deceased led a happy life (Gutiérrez et al., 2014).

Renaud et al. (2015) interviewed 89 parents about the types of explanations they give in response to their child's questions. They found that the first and second most common explanations of death referred to religious/spiritual explanations and a continued existence after death. Around a third referred to the physical causes of death, followed by references to personal experiences concerning death. The fifth most common explanation referred to the fact that people are no longer able to see the deceased, and the sixth most common included references to the irreversibility of death (Renaud et al., 2015). Explanation types appeared to correlate with the child's age. Parents were more likely to mention to younger children that everyone dies and to introduce the idea of life after death with older children (Renaud et al., 2015). These findings potentially indicate different goals for parents during discussions of death with their child. For example, Renaud's findings suggest that parents may aim to teach younger children the biological facts of death, before going on to introduce spiritual ideas with their children. One reason for this may be to avoid misconceptions in their child's developing understanding of death. Again, parents' perceptions of their child's capabilities may influence how they discuss death with their child.

Importantly, children are active participants in conversations with their parents. In conversations, parent and child respond to each other to create shared representations, which both will appropriate differently through interactivity and contributions from both (Thompson, 2006). Parent-child conversations around religion, for example, appear to show mutual, bi-directional, and reciprocal qualities, in which children actively participate and express their ideas (Boyatzis & Janicki, 2003). For example, children may bring their own ideas to the conversations which may be accepted or corrected by their parent. Children are also able to both initiate and end conversations, as reported by parents in diaries after conversations about religion with their child. However, as Boyatzis and Janicki note, it is worth considering both parent's and child's goals during conversations as to how reciprocal they may be. For example, if a parent's goal is to teach their child a particular notion, e.g., the Catholic view of afterlife, conversations may be more one-sided.

More exploration of how parents talk to their children about death and how their own beliefs and perceptions of their child's understanding may influence these discussions is needed. Greater understanding of the factors which may influence parent-child discussions will help to elucidate the role in which parent-child conversations play in children's developing discussions of death. Study 1 aimed to investigate a) parents' own beliefs about death, b)

what they think their child believes about death, and c) how they have/would discuss death with their child. Study 1 will also begin to establish how parents perceive their conversations about death with their child and their intentions during these discussions, for example to reassure or educate. By addressing these aims, Study 1 adds to the understanding of how parent-child conversations may affect children's developing understandings of death and informed subsequent studies of this thesis.

To address these aims, Study 1 utilised an exploratory qualitative approach. Semi-structured interviews with nine mothers were conducted and grounded theory (GT) was used to analyse the data. Owing to the lack of research regarding parents' own beliefs, their perceptions of their child's understanding and content of parent-child conversations, GT was chosen to construct data-driven theory which was used to inform the next studies of this thesis. Study 1 used a small data set with rich data to extensively explore how mothers experience discussions of death with their child. Study 1 used mothers' self-report of discussions between parent and child, and mothers' own perceptions of these conversations to gain insight into parent-child discussions.

Method

Recruitment and Sampling

An opportunistic sample of nine participants was recruited through informal networks and word of mouth. Participants were all mothers of children aged between 9 and 11 years and had a mean age of 45 years ($M = 44.89$, ranging from 31-54 years). All participants were British (including two Northern Irish mothers), seven were married or cohabiting, and two were single parents. They had an average of three children ($M = 2.56$, ranging from 1-4). All but one participant reported that their child had experienced the death of a relative or pet – ranging from death of parent, cousin, grandparent, great-grandparent, goldfish, mouse, rabbit, and dog. These experiences dated from around 1 year to 8 years since their death with varying degrees of child's closeness to the deceased. This meant that although all mothers had had conversations about death with their child the recency and intensity of these conversations differed. For example, the one mother whose child had not experienced a death, described only having the 'odd conversation' about death. For this participant, conversations were harder to remember and consisted more of hypothesised conversations, what they think they would say or would have said.

Theoretical sampling was used during the interviews. Theoretical sampling is a method of data collection in which decisions on what data to collect are informed by emerging theory

and categories from the data (Glaser & Strauss, 1967). By using theoretical sampling, more data can be collected throughout the analysis to clarify ideas and fill in gaps (Charmaz, 1996). Initial sampling focused on mothers of children aged between 9 and 11 because this is the age at which children appear to have more mature concepts of death, and show evidence of spiritual reasoning (e.g., Legare et al., 2012). Interviews were semi-structured to allow for the continuation of theoretical sampling. This meant that the interviewer could change the schedule to include questions which addressed any gaps or expanded on areas of interest as they emerged during the interview or to be added to interviews as analysis progressed. Interviews were carried out until theoretical saturation was thought to have occurred, at this point, patterns across participants were seen and additional interviews were not thought to offer any new information. Glaser and Strauss (1967) define saturation as occurring when no additional data are being found, and similar instances are seen repeatedly.

Interview questions were also adapted according to the participant, for example if they had one child or more. Where participants had more than one child, they were asked to focus on one target child aged between 9 and 11 years old. All participants were given pseudonyms in the transcripts and any identifying information was changed or removed.

Measures and Procedure

A 36-item interview schedule was designed to explore: parents' own beliefs about what happens after death; their children's experiences with death; how they discussed, or would discuss, death with their children; and how they think their child understands death (see Appendix A). The design of the interview schedule was informed by areas of interest and existing literature. For example, to explore how parents perceived their children's understanding of death, questions referring to their child's understanding of biological subcomponents were adapted from death concept interviews used with children in previous studies (e.g., Panagiotaki et al., 2015; Slaughter & Griffiths, 2007). For example, "Do you think X knows that all living things die?" and "Do you think X believes that dead people can feel hunger or cold?". Ten demographic questions were asked at the start of the interview. Excluding five questions which referred to their child's experience with death (e.g., "Has your child known anyone that has died?") the remaining interview questions were open-ended. Examples of these questions include: "What particular beliefs do you hold around death?"; "Can I ask how you explained their death to X?"; and "What do you think X believes happens after death?".

Interviews were conducted at an appropriate time and place for the participant, either in their own home or a quiet room at the University of East Anglia campus. Interviews were audio-recorded and lasted between 30 and 90 minutes. Interviews were transcribed by the researcher after each interview, and before the following interview took place. Interview transcripts were the basis of data analysis.

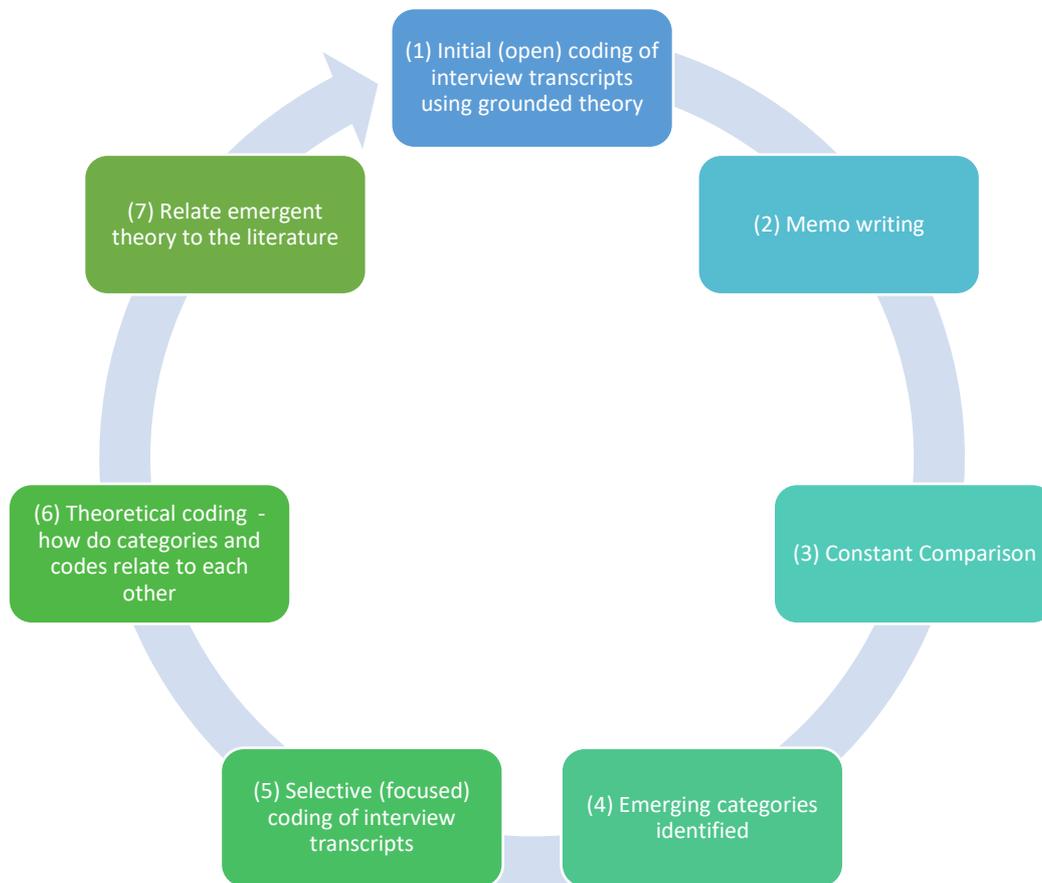
Data Analysis

Grounded theory (GT) was used to analyse the data. Each transcript was analysed using a combination of handwritten notes and NVivo (version 11, MacOS), a computer program that aids the consolidation and creation of codes and memos.

Transcripts were analysed using the constant comparative method of qualitative analysis (Glaser & Strauss, 1967). To assist the process, memos were written, diagrams were drawn, and theoretical sampling used. See Figure 2.1 for a visual representation of the coding process. Willig (2013) describes a full version of GT as one in which the researcher collects some data, explores the data, and establishes tentative links and then returns to the field to collect further data. By this definition, a full version GT was used in the current study, as described below. Further, a constructivist approach was adopted that explored how and why participants construct meanings and actions in specific situations (Charmaz, 2006). In this case, I studied how mothers constructed their own understanding of death and how they would explain or had explained death to their child in real or hypothetical conversations.

Figure 2.1

Example of coding process



To begin the process, (1) initial coding was conducted on transcripts of the interviews with mothers. This was conducted by breaking down the data into smaller parts and developing a code to describe each part. Codes were developed in vivo – directly from the data using descriptions derived from the data (Vollstedt & Rezat, 2019). For example, sections which described considerations of their child’s age and the restrictions this imposed, were coded as ‘age as limiting factor’. See Table 1.1 for examples of initial open codes. After each interview, the researcher transcribed recordings and carried out initial coding before conducting the next interview. This allowed for any emerging ideas to be explored in following interviews using additional questions.

Throughout this process, if any codes or excerpts of data prompted any ideas, coding was stopped, and ideas were written down as memos (2). Memo writing often considered how codes and categories may relate to each other to form an emergent theory. Throughout open coding and memo writing, constant comparison occurred (3). Constant comparison involves comparing data with codes, codes with other codes and categories, and categories with other

categories. Through constant comparison of codes, several emerging categories were identified (4).

Table 1.1

Examples of open coding

Excerpt from interview transcript	Initial open code
<i>something which at the end of the day, he's 9, there's sort of a limit of what they need to know as such. They can know that people die and that has happened and why that has happened, but maybe not go too deep.</i>	Age as limiting factor
<i>so not to put the fear of God in him with cremation that someone's been burnt basically</i>	Avoid gory details to reduce fear
<i>She wanted her to wear certain clothes when she was put in her coffin, because she knew that she'd want to look smart</i>	Child considering deceased's desires
<i>It's protecting, I guess, you think you're protecting them but then actually I did tell them in the end what had happened</i>	Avoidance as protection

Initial emerging categories included: 'continuation of person'; 'certainty of belief'; 'death as natural'; 'child-led discussion'; 'family-specific beliefs'; and 'discomfort with death'. Using these categories, interview transcripts were then selectively coded, using codes which corresponded to the emerging themes (5). For example, to highlight areas of the transcript which reflected parents' discomfort with death, transcripts were coded for the selective codes of 'death as the end', 'death as unknown', 'avoiding discussion', and 'unpleasant topic'. See Table 1.2 for further examples of selective codes. 'Death as the end' for example, was seen to reflect mothers' discomfort with death owing to the number of mothers who described this as an uncomfortable or scary thought.

Table 1.2*Examples of selective codes*

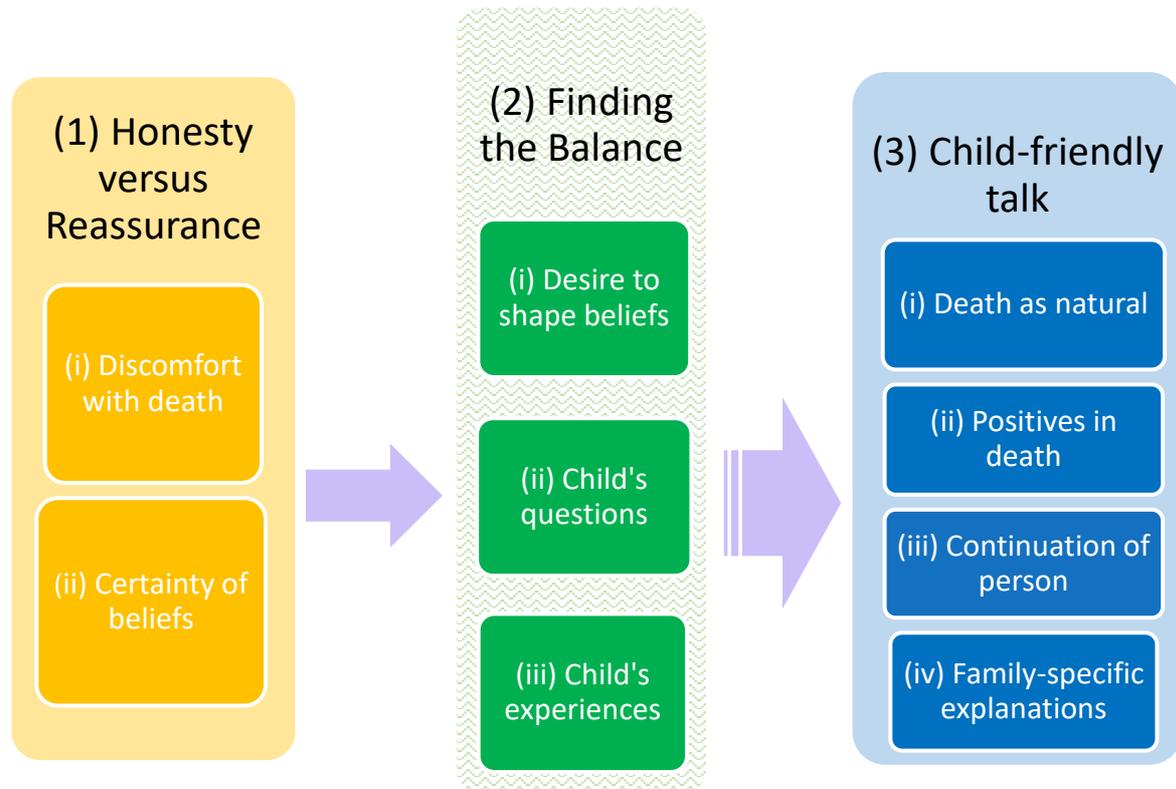
Emerging category	Discomfort with death	Continuation of person	Death as natural
Selective code	Death as the end	Live on in spirit	Life cycle narrative
	Avoiding discussion	Live on in memory	A life well lived
	Unpleasant topic	Ways to remember person	Inevitable, part of life

Theoretical coding was then undertaken to explore how the categories and codes relate to each other and this informed the final categories (6). To carry this out, a mind map was created using post-it notes with category or codes written on them. This method allowed for the physical rearrangement and visual representation of the relationship between codes and categories. See Appendix B for a photograph of the mind map process. Codes were then rearranged until the researcher felt that the categories, and sub-categories, best reflected the data and an emerging theory was apparent. All initial emerging categories, as defined above, became sub-categories helping to define the final categories and emerging theory. For example, 'certainty of belief' and 'discomfort with death' were joined together beneath a main category which considered how mothers perceive death and their own beliefs around it.

Through theoretical coding three final categories emerged: (1) honesty versus reassurance; (2) finding the balance; and (3) child-friendly talk. These categories were seen to interact and form a process which mothers went through before deciding on how to discuss death with their child. For example, before any discussion, mothers appeared to consider their own beliefs around death then assess what information would be most appropriate for their child, before finally discussing with their child using 'child-friendly' explanations. A visual representation of the final categories and sub-categories, including the relationship between them, is given in Figure 2.2.

Figure 2.2

Visual representation of categories



In the final step of the coding process (7) the emergent theory from the data was related to the existing literature. This will be explored in more detail in the discussion section of this chapter.

Findings

As represented in Figure 2.2, three main categories emerged from the interviews with mothers; 1) how mothers themselves understand death (honesty versus reassurance), 2) how they feel their child understands death (finding the balance) and 3) how they discuss death with their child (child-friendly talk). These categories emerged to describe the process through which mothers decide how to discuss death with their child.

The first category of this process, 'honesty versus reassurance' refers to mothers' own beliefs around death and what they perceive as honest or reassuring information. In mothers' consideration of their own beliefs, two sub-categories emerged, 'discomfort with death' and 'certainty of belief'. The second stage of this process, 'finding the balance' describes how mothers decide to use honest or reassuring information based upon what they perceive their child needs. In this category, three sub-categories emerged to encapsulate factors considered

by mothers in deciding how to discuss death with their child, 'desire to shape beliefs; 'child's questions'; and 'child's experiences'. The final and third category, 'child-friendly talk' describes the themes across the resulting explanations which were seen as appropriate for their child, or 'child-friendly'. These themes are described in four sub-categories, 'death as natural', 'positives in death', 'continuation of person', and 'family-specific beliefs'.

In this section, how mothers think about death and their perceptions of what is honest and what is reassuring (1) are first discussed, and then how mothers assess their child's understanding of death (2) considered. These assessments provide mothers motivation for their discussions with their child and help them consider the balance of honesty and reassurance most appropriate for their child. Finally, as a product of these previous categories, or stages, the resulting explanations which are seen as 'child-friendly' or appropriate for their child (3) are addressed.

(1) Honesty versus Reassurance

The first step to understanding how mothers perceive discussions of death with their child, and how they choose to discuss death with their child, was to explore mothers' own beliefs around death. This category relates to mothers' own beliefs around death and highlights the subjectivity between what is honest and what is reassuring, and the perceived contrast between these two ideals. Establishing their own beliefs about death appears to provide the foundation for how they go on to discuss death with their child. Mothers' beliefs about death influenced the types of information that were seen to be reassuring or honest. What is seen as reassuring for one mother, may be the opposite to another with different beliefs, likewise for what is honest.

To best illustrate this subjectivity, a comparison between two mothers is made. In discussing the idea of death being the end, one mother found this to be an uncomfortable thought (as did most other mothers): "If you start saying there is no, there is nowhere, that's it, it's over, then suddenly it's horrific the thought". This viewpoint shows a stark contrast to the view of another mother who found the idea of death being the end a comforting thought, providing an end to suffering and not forever wandering the earth in spirit:

I don't want them to think that there is more, I want them to have open minds, but I think it's quite worrying to think that, for children, that after we die that then the spirit remains, because then there's an overcrowding of souls searching

Similarly, comparisons between religious and secular mothers give some insight into how honesty is subjective dependent on your beliefs. For example, while one mother may believe in heaven, another may believe death is the end. Both viewpoints are honest dependent on the individuals' belief. Both viewpoints may also be used to provide reassurance to their child, despite honesty and reassurance being portrayed as contrasting ideals during descriptions of mothers' beliefs and choices for discussing death with their child.

Within this category, two subcategories emerged – discomfort with death and certainty of beliefs. These two sub-categories provided the basis of what honesty and reassurance meant for each mother and went on to influence how they would discuss death with their child. In considering their own beliefs, mothers often described ideas that provide comfort and those that are less comforting but more realistic or 'true'.

(i) Discomfort with death

Discomfort with death was implied several times in exploration of mothers' beliefs about death. For example, several mothers in this study described having not thought about death in any depth before these interviews. Mothers often stated that they avoided thinking about the death of loved ones or death in general, unless they had to, which usually meant until they (or their child) experienced a bereavement. This notion of only discussing death when prompted – either by children's questions or experiencing bereavement – implies that death is not a comfortable topic.

The notion of death as an unpleasant or taboo concept creates discomfort and fosters the idea that it should not be discussed unless absolutely necessary. This is likely to reduce spontaneous discussion and continues to promote death as a taboo topic.

Yeah, I try not to think about death until it happens as well, there's no point, I don't think

Me as a parent, you just kind of go on with things and if something hasn't happened you don't kind of address it and I think it's, it's made me think as you're talking kind of maybe it is a good thing to talk to them about before it happens, rather than wait until the inevitable does happen

Often mothers assumed that sources of fear and discomfort for themselves were also likely fears for their child and so tried to address these in their explanations. For example, those who feared death being the end, emphasised the continuation of person through both

memory and spirit. Whereas for those whom death being the end was a more comforting thought than living on in spirit put less emphasis on continuation of spirit and more on continuation through memory.

Then it was just explaining that they no longer exist but again, it was all about keeping the memories of that person alive

I remember them saying to me when I was really young “oh don’t worry your he will always be in the corner looking at you” which was supposed to reassure me as a kid but actually scared me to death

These potential sources of discomfort highlight the disparity between perceived honesty and reassurance. For example, many mothers expressed that their belief in what happens after death is that it is the end, we cease to exist. However, this thought provides little comfort to most mothers and was expected to also not provide any comfort to their child. Therefore, to mitigate their child’s discomfort they may instead discuss an afterlife with their child. While some mothers described death being the end as their belief, some of these same mothers also went on to discuss ideas that they would like to believe are true, ‘would-like-to-believes’.

Some mothers were open with their children and told them they did not know about what happens after death. Although this was not always expressed to their child, this acknowledgement appears to allow mothers to consider ideas beyond their beliefs, which they would like to believe instead. Mothers’ beliefs were perceived as ‘true’ or factual and so these other ideas were seen as less honest. Most mothers felt that death being the end was their belief, because this was the most likely, factual belief from a biological and secular standpoint. Two Catholic mothers described their religious beliefs, in which belief in an afterlife is both ‘true’ and comforting; “I have a belief that there is some form of afterlife, what that is I don’t know but, I do feel that people that have died are still there somewhere”, “I believe there is an afterlife, in some form or other, death is part of life. It doesn't scare me, probably related to my job as well, you just, you see a lot of it, it's natural progression”.

Most mothers described ideas which were seen as “just a nice thought but...”, and these were often discussed with their child. Mothers’ use of these ideas in discussion with their child reveals how they try to comfort their child, drawing from their own ideas.

It's just nice like to think, like my Granddad always used to say that he's going to come back as a cat. So, like that's quite nice to sort of think of things like that, but no I don't really believe that there's an afterlife

If she wanted to believe that there was still part of them around or that she could speak to them or, and I think I would probably do that too, because it's comforting, not necessarily because I believe it to be true but it's just a nice thought

Mothers often described an afterlife as what they would like it to be but stated they did not believe it to be true – hence 'would-like-to-believes'. When mothers felt their belief was an upsetting thought, they discussed their 'would-like-to-believes' with their child. Death being the end was referred to most often as being upsetting. By discussing 'would-like-to believes', they felt they were shielding their child – but also themselves - from these upsetting thoughts.

If you start saying there is no, there is nowhere, that's it, it's over, then suddenly it's horrific the thought

It's tricky because I don't believe in the whole heaven thing. But then it seems a bit of a waste to have nothing

The above quotes illustrate that having mothers think about how they might discuss death with their child, also forces them to examine their own thoughts and feelings around death. The balance between honesty and reassurance, wanting to inform their child but also comfort them, appears harder those mothers who usually avoid thinking about death and/or are less certain in their beliefs.

Returning to the mother who felt death being the end was more comforting than living on in spirit, ideas which are seen as reassuring are not the same for everyone:

I don't want them to think that there is more, I want them to have open minds, but I think it's quite worrying to think that, for children, that after we die that then the spirit remains, because then there's an overcrowding of souls searching

Here, the idea of an afterlife is seen more as purgatory and an unpleasant prospect rather than a comforting thought and not something they want their children to believe in. This mother did not describe what these souls were searching for, but my interpretation was that they are searching for loved ones, purpose, or to finish their 'unfinished business'. Again, we can see mothers are exploring what they find to be comforting thoughts for themselves and translating

these into explanations they assume would also be most comforting for their child. While mothers' intentions are to avoid scaring their child, there may be some element of projecting their own fears onto their child. Mothers stated they were comfortable talking to their child about death, yet the need to provide comfort in their explanations and own beliefs around death, indicate a noticeable discomfort around the topic of death. Although these two types of ideas might appear to conflict with each other, mothers still find comfort in the 'would-like-to-believes' despite ultimately believing death is the end. This illustrates the importance of having ideas that bring comfort when coping with bereavement.

(ii) Certainty of belief

As described above, mothers often described not having thought enough about death. Taking part in this study brought up questions within themselves about how they understood death and what beliefs they held, as well as their child's perception of death. Not only implying discomfort, this lack of thought about death was also attributed by mothers as reasoning for their lack of certainty in their beliefs about death.

Being uncertain in their beliefs meant that these mothers found it harder to explain death to their child. They were unsure of their own beliefs and so unsure of what information should be passed on to their child. Non-religious mothers expressed the feeling that those with religious beliefs must find these thoughts and conversations easier to have because they have something like a religious script to build on and describe to their children. This suggests that mothers consider how other people view death as a point of comparison for their own explanations (e.g., how 'acceptable' their explanation is or other ways in which they can explain death to their child).

I haven't really explored it, I haven't done, you know, I don't know much about it really, I haven't really questioned it

If you've a specific religion or religion because you just say 'oh this is where you go, it's done' and it must be so easy

I wish I was religious I thought you know, going somewhere nice and hallelujah, that would make it a lot easier, wouldn't it, because nobody likes really talking about death, do they?

Roughly half the mothers were certain of their beliefs and confident in sharing these beliefs with their child. The other half were uncertain and more conscious of the unknowns

which surround death and the afterlife. The notion of not knowing what happens after death, appeared to shape the strength of and confidence in their beliefs.

I've not, I haven't got any strong views because I'm not 100% certain myself

Mothers who were certain about their beliefs were happy to instil their own beliefs into their children whether they believed in an afterlife or not. They were also less open to their child hearing differing explanations that might conflict with theirs. Those who were most certain in their belief were more 'matter of fact' about death, making them appear relatively comfortable with discussing death in comparison to those who were uncertain. The following quote is from a mother who was certain that death was the end and there was no afterlife:

If I did hear anybody saying something to them that isn't how they've already been told or I would want them to be told, then I would interject

On the other hand, mothers who were uncertain in their beliefs demonstrated a reluctance to shape their child's beliefs. Uncertain mothers discussed a variety of explanations around death with their children and encouraged their child to keep an open mind. This tactic was used in the hope that their child would believe in whatever they found most comforting or easy to understand. Mothers' encouragement to keep an open mind, while relating to afterlife beliefs, may also extend to other beliefs more generally, e.g., religious beliefs. In discussions around afterlife beliefs, mothers may also hope to foster tolerance and acceptance of those who have different beliefs from themselves.

I think it would be quite good to give all the, or a few different beliefs that people have about it. I'd really like for her to make up her own mind

I've just left it really really open because I thought well then she can think what she's happiest with

Another reflection of mothers' difficulty having and being certain in their beliefs, is that most mothers were open to listening and considering the beliefs of others. Some mothers stated they could be persuaded to consider the beliefs of others more when these other people thought they had some evidence for these beliefs, usually in the form of anecdotal evidence.

I would need to have some kind of experience of it or, yeah, or have some evidence base for it yeah, I mean that it might not be like scientific fact, but it might be, as much

as someone I completely trust sharing with me their experiences and I'm trusting them going 'yeah that sounds like that is possible

Several mothers described thinking about death and in turn discussing death, only when they had experienced a death, and not before. By avoiding thinking about death, mothers may struggle to establish their own beliefs around death or to find thoughts which bring them comfort. Parents who do not think about death, or actively avoid thinking about it, may be less certain in their beliefs.

If something happens, I'll talk about it but otherwise, I don't really discuss it hugely, so I don't know what my opinions are

Summary of 'Honesty versus Reassurance'

The first step in mothers' approach to discussing death with their child appears to be consideration of what is honest and what is reassuring, and in turn what information they would like to pass on to their child to either inform or comfort. For mothers to begin talking to their child about death, they must first establish their own thoughts and feelings around death. In establishing these beliefs, both a discomfort with death and differing levels of certainty in their belief was seen across mothers. This gave insight into the struggle for balance between what mothers believe to be 'true' and what gives them comfort, which is echoed in the balance between honesty and reassurance in their discussions with their child. Where mothers lie on discomfort and certainty appears to influence the type and level of honesty and reassurance they wish to convey to their child.

However, discomfort with death and certainty of beliefs can also be seen to interact. For example, mothers who are certain in their beliefs appear more 'matter-of-fact' and comfortable with discussing death with their child. That is not to say they find the idea of death comforting, but that the strength in their beliefs helps to mitigate any discomfort felt. This also means that mothers feel they can be both honest and reassuring. Alternatively, mothers who are less certain in their beliefs and avoid the topic of death, indicate discomfort with death which is not mitigated by their beliefs. Instead, being honest and being reassuring appear to be conflicting ideals. For example, mothers who believe death is the end but do not find this a reassuring thought, may choose to describe an afterlife that they do not believe in to comfort their child. In this example, mothers appear to prioritise reassuring their child over being honest, informing their child of their own beliefs or teaching them the 'facts' of death. As seen in the next category, mothers appear to seek a balance between honesty and reassurance in their explanations about death with their child. Mothers who are uncertain in their beliefs may

find it harder to balance their explanations between honesty and reassurance. How mothers find this balance is discussed in the second category.

(2) Finding the Balance

A second stage in mothers' reasoning about how they explain death to their child emerged which suggests mothers consider several factors in their child's understanding of death before deciding how to explain it to them. Consideration of these factors informed mothers' perceptions of their child's understanding of death and provided motivations for their discussions with their child. As described in the previous category, these motivations appear to be a desire to inform their child about death (honesty) or to provide comfort (reassurance). This second stage described how mothers find the balance between these two motivations.

During this stage, factors may tip this balance depending on what mothers perceive their child needs. For example, if a child has experienced a close bereavement, they may choose to provide more reassurance. However, as seen in the previous category, while there appears to be a conflict between reassurance and honesty for some mothers, the two need not be mutually exclusive. Some mothers felt their honest explanations were more reassuring than trying to create comforting stories.

Don't tell them weird and wonderful tales because they will work it out and I think sometimes by doing that, you end up putting more fear into children than actually being honest

Three sub-categories of considerations taken by mothers before explaining death to their child emerged; desire to shape child's beliefs, children's questions, and children's experiences. Each of these sub-categories involved mothers' perceptions of their child's understanding of and experiences around death, including how much they felt they wanted to shape their child's beliefs with their explanations. Considerations of factors within these sub-categories help mothers to decide where the balance between honesty and reassurance lies and how they wish to frame discussions of death with their child.

(i) Desire to shape beliefs

In transitioning between their own beliefs and child-friendly talk, most mothers appeared reluctant to shape their child's beliefs and framed their explanations in a way that allowed consideration of alternative beliefs. Mothers who were less certain of their beliefs reported describing death in terms of what other people believe happens after death. When

mothers did not feel they knew what happens after death, they did not wish their child to adopt a single explanation about death and the afterlife – perhaps owing to not wanting to give their child a ‘wrong’ answer or idea they themselves were uncertain of. Keeping conversations open to several afterlife beliefs meant that mothers did not undermine their child’s developing beliefs, even when mother and child did not share the same beliefs.

I would always ask what she thought as well, because I don’t want her to think the practical approach is necessarily the right one, I mean she wants to make her own beliefs

I just haven’t explored enough myself to be able to pass on anything particularly useful to them I don’t think, because I don’t want to shape the way they think about it because I think they can make up their own minds

I like her to try and come up with her own thoughts and beliefs about things, but I just kind of give her the information and then she can choose from it, and I try and remain unbiased, as far as you can

By keeping conversations open to consider other people’s beliefs, most mothers gave access to a variety of explanations so that their child could come to their own conclusions as to what they believe happens after death. Children may then pick a belief that sits most comfortably with them. Although mothers in this study described telling their child what their belief was, this did not always mean that they encouraged or imposed that belief in their child.

Interactions between each stage of the emerging process can also be seen here. For example, in consideration of what their own beliefs are, mothers were faced with how certain in their beliefs they were. This certainty can be seen to influence how much mothers felt they wanted to shape their child’s beliefs. Those mothers described above, who discussed wanting to keep their explanations open and variable, were often uncertain of their own beliefs. Alternatively, mothers who were certain in their beliefs were more likely to describe wanting to explain death to their child in the same way, implying a desire to share these same beliefs too.

That isn’t how I want it explained to my children, and if I did hear anybody saying something to them that isn’t how they’ve already been told or I would want them to be told, then I would interject and say “no let’s just be honest here with this, this is what happens”

Mothers varied in their desire to shape their child's beliefs, with some mothers wanting to educate their child according to their beliefs and others being reluctant to impose their own beliefs on their child. Regarding the balance between honesty and reassurance, it appears that those mothers who wish to shape their child's beliefs (and are certain in their own beliefs) likely feel they are being both honest and reassuring to their child by providing them the 'right' information to aid their child's understanding of death and ease any discomfort. Mothers who show reluctance in wanting to shape their child's beliefs may wish to avoid giving their child the 'wrong' information. This 'wrong' information might include perceptions of factually incorrect information, conflicting information with their child's current beliefs, or information that does not comfort their child as they would hope. Given these perceptions, mothers also appear to take into account their child's understanding of death before explaining death to their child. How mothers judge their child's understanding and needs during conversations are described in the following two sub-categories, children's questions and children's experiences.

(ii) Children's Questions

In considering how they discuss death with their child, mothers were guided by perceptions of their child's cognitive ability and emotional maturity. Children's explicit questions about death were described to both initiate and guide discussions. When asked questions by their child, mothers were able to be guided by what their child was asking to consider what information their child needs from the discussion.

I think they understand what death is but, you know, depends if they wanted to know any of the details about how or why, then yeah, I'd just be guided by what they're asking

Mothers' perceptions of their child's cognitive ability or emotional maturity were often used as a guide to the depth of information discussed. Emotional maturity was important to mothers as they wanted to be sure that their child understood the emotions that come with grieving, and that these emotions were a normal part of the process. Several mothers described their daughters as being cautious to bring up discussions of a dead loved one, for fear of upsetting their mother (as they would cry during discussions).

Perceived cognitive maturity was often dictated by the child's actual or chronological age, with some mothers describing their child as being more mature than is expected for their age, e.g., "she's very mature for her age". Age, however, also meant some mothers felt their child was too young to understand some aspects of death. Therefore, while most parents have

a desire to be open, they feel constrained by the perceived cognitive and emotional abilities of their child, which dictate the level of detail considered appropriate in conversations.

I think she can take it, because she is very, like I said, she is very grown up, she is very intelligent, and I think she could take that information, but then I don't really want to fill her up with bad stuff

I think they're old enough, I mean explaining that I wouldn't be making up some silly excuse about how they gone off to live with somebody else

Perceptions of children's cognitive ability and emotional needs guided mothers' assessments of what depth of information was appropriate for their child. This appropriateness constraint may be eased by children's questions which led discussions and some of which were described as unexpected in their insightful nature. Mothers found it easier to be open when their child asked specific questions because they gave insight into the level of their child's understanding. Mothers often described explanations in as little detail as possible until their child accepted the explanation. By assessing their child's maturity and need for detail, parents can make the process a little easier for themselves and reduce the pressure of needing a catch-all answer. For example, if a child asks, "what happens after we die?", some parents may choose to focus on the afterlife rather than the specifics of decomposition, depending on what they believe their child needs from the explanation.

I think I'll feed from what she asks really, I think it's very much what they understand, and I think their understanding is a lot more sometimes than we give them credit for

When she was a lot younger, the questions were, you know, quite simple and she was very happy with the answer of heaven and very happy to think we're all going to be all together again in this happy place

It is worth reflecting on the two-way nature of parent-child discussions, as not only can parent or child initiate discussions around death, but they can both also choose to not initiate these discussions. Parent or child may avoid discussions around death when they are aware of their emotional impact. One mother described their child as not wishing to bring up conversations so as to avoid upsetting her. This finding illustrates the reciprocal nature of conversations between parent and child, whereby both parent and child may wish to protect each other from difficult feelings.

She's got a lot of questions, but she didn't feel like she could ask us, even though we'd said, you know, ask anything. I think she's aware that the moment she did, we were sort of at that stage, we were all very going through grief, so we'd say ask us but at the same time be crying, so I think she'd felt she didn't want to ask us

When they noticed their child's hesitance to initiate discussions around death, mothers responded by emphasising the importance of emotions, normality of feeling upset at the death of a loved, and the importance of expressing these emotions.

They need to see that this is life, and that grieving is normal and they're not upsetting anyone if someone cries when they mention the person who's died

We'd just have to work on the emotions of the child and how upset they are, or not, and deal with the emotion side of it

I would probably spend more time talking about their grief than your own, or encouraging them to talk about it really

In cases where this death is also of a loved one or even parent, parents must discuss death with their child despite their own grief. Mothers tried to encourage their child to talk about and understand their grief, without fear of causing upset. Mothers emphasised that emotions like sadness are a *natural* and normal reaction to bereavement. Mothers made a point to say they wanted their child to feel able to open about their thoughts and feelings, and to not bottle up or internalise them. Internalising these thoughts and feelings was seen as detrimental to their child's wellbeing.

We have had similar attitudes in terms of you know outlook on death and grieving that's it's all natural, that it's part of life, that it's not something to be frightened of or feel bad about, that it's okay to feel sad

In taking the time to talk to their child about the natural emotions that follow a death, mothers also had the opportunity to explore their own emotions. Parent and child often went through shared experiences of grief, sharing emotions and conceptions of death with each other.

(iii) Children's experiences

Another consideration in how mothers chose to discuss death with their child was their child's experiences of bereavement, either their own or that of their peers. One example of a

child experiencing bereavement through a peer came from a mother whose discussion of death with her child had focused on the best ways for her daughter to support her friend through the death of a relative.

And the big thing is if someone has someone that has died that you support them, you don't be afraid to talk to them ... sometimes it's emphasising that you can do things without having to say things and that you know, they can kind of relate to that a bit more

This approach offers some insight into what mothers may consider 'easier' conversations around death. For example, it may be easier to provide care and practical support rather than reconciling their own beliefs about death. Considering some mothers' avoidance of thinking and talking about death, it may be easier to support their child in the moment of bereavement, where they can provide care and support, rather than have hypothetical conversations about beliefs they are uncertain of.

Importantly, thoughts and questions around death – for both parent and child – do not only centre around the experience of the deceased, but also of those who are left behind. This can lead to more practical discussions between parent and child, e.g., “Who will look after me if you die?”, which focus on more tangible concepts and less on understanding what death is, what might happen after death, or more existential questions.

Another factor involved in the transitional process between mother's beliefs and child-friendly talk is consideration of their child's relationship with the deceased. The impact a death can have on people appears to vary according to the relationship between the child and the deceased. The closer a child was to the deceased the stronger the likely emotional impact. Further, the closer the deceased was to friends and family, the closer the child's exposure to the grief of others (e.g., their parents). The death of those less close, on the other hand, did not appear to have the same impact or be discussed in the same way and with the same level of detail. For example, the death of a neighbour or friend of a neighbour, might be touched upon but will not necessarily be discussed in depth.

Because he was a close family member, I think it made it easier to talk about it all, because they were off from school with us for a day or two, so we were all talking, you know all together, so yeah, they weren't isolated from conversations

It just depends on how close they are to the person that dies as to how it affects them

I think, it's different in terms of you're not really looking at their family being upset, because we might not see their family as much ... but they wouldn't have been exposed to the same amount of grieving, if you like, because they didn't see them as closely

The importance of closeness was illustrated in the context of pet ownership and death of a pet, usually a dog or cat. Our mother participants saw pets as an opportunity for children's first experience of death. Dogs or cats were described as part of the family, with companionship and affection felt by the family, whereas smaller animals such as mice or goldfish were described as a burden to be cared for.

I should think people feel because a dog is a friend and follows them around, and they go for walks, they hug it and sit with it, but a goldfish just doesn't do anything does it

They'd love a pet unconditionally and the pet loves them unconditionally ... I don't think it should be underestimated the grief of a pet any more than, in their world, in their eyes really, as an adult you can rationalise it a bit more and say at the end of the day it is a pet but as a kid that's potentially their world really

The death of pets which children have formed strong attachments to were described comparably to that of humans by mothers in this study, with a focus on acknowledging children's feelings of grief. For example, in parallel to human death, pet death often featured traditions like small funerals. Mothers described pets as having a long and happy life and going to have a lovely afterlife in heaven. Most mothers described pet heaven as separate from human heaven, while some described a reunion between pets and other members of the family in heaven.

She's got some idea of a little doggie heaven or something where animals become some sort of spiritual thing and can all be happy and run around together, that is separate, seems to be separate from anything human type

I had to explain to her that he was really really old, little, tiny dog, he was 16, and he'd had a really long and happy life

I'd probably let them think that it's up there playing with its other doggy friends. With the relatives that are dead, they'd be minding them, they'd be delighted to get a pet

Despite not wanting to diminish children's feelings of loss following the death of a pet, human and pet death were treated differently by mothers. As such, discussions around each of these deaths will differ. For example, in descriptions of separate afterlives between pets and humans, or lack of afterlife for pets/animals.

It remains to be seen if the difference between explanations (e.g., spiritual, or biological) affects children's subsequent understanding of death for types of living entity. For example, are humans subject to more spiritual explanations than non-human animals, and if so, do children understand human and non-human animal death differently? This thesis provides further clarity into the role of parental testimony in children's developing conceptions of death, including aspects of conversations which may differ between living entity types.

Summary of 'Finding the Balance'

This category describes a second stage in the process of mothers' deciding how to explain death to their child. In 'finding the balance' mothers' perceptions of what is honest and what is reassuring are used to decide how to balance discussions in response to different motivations for discussions. These motivations are influenced by numerous factors, including how much they wish to shape their child's beliefs, how they think their child understands death, and how their child has previously experienced bereavement, be it their own or others. These factors allow mothers to find an appropriate balance between honesty and reassurance for discussions with their child. Mothers make this judgement on what is appropriate by considering what their child can understand and what may distress their child – each requiring a perception of what beliefs their child already holds around death.

Up to this point in the process, mothers have considered what their own beliefs about death are, including what types of information they perceive as honest and reassuring, and how they wish to explain death to their child based upon their perceptions of their child's understanding of it. The next and final stage is for mothers to translate their considerations into 'child-friendly' talk and actual explanations for their child.

(3) Child-Friendly Talk

In the previous categories, it is described how mothers process their own beliefs about death and their child's understanding of death in a way that allows them to find a balance between honesty and reassurance. This process leads to the final category; the resulting child-friendly information which is shared by mothers in conversation with their child. This category reflects how mothers frame their conversations around death and the content of parent-child

discussions. Mothers' resulting explanations consider their own beliefs and perceptions of their child's understanding about death to frame conversations in a way that is both honest and reassuring. Four sub-categories emerged which described four themes to the types of information wished to be conveyed by mothers in discussions of death with their child. These sub-categories were: death as a natural; positives in death; continuation of person; and, family-specific explanations.

(i) Death as natural

One approach to dealing with the discomfort of death was to describe it as a natural part of the life cycle, followed by the feeling of grief, and not something to be hidden or ashamed of (e.g., we are born, we reproduce, we die after having a long and fulfilling life).

At least he had that much time, and he did see them and enjoy them, and all the grandchildren and he lived his life to the full, so you try to explain it from that perspective

Death in old age was viewed as 'natural' whereas young deaths were seen as 'unnatural' violations of life cycle expectations. This violation of expectation made parents' explanations to their child harder, as the death was experienced as more tragic and difficult to explain. Mothers aimed to use explanations positioning death as a natural part of life to make things more understandable for their child, providing a way of reasoning about the world. Death at a young age does not as easily conform to this type of explanation and so mothers had to be more careful in their reasoning to avoid scaring their child. One reason that mothers felt the death of a younger person might be scarier than that of an older person is that it brings them closer to idea everyone dies eventually, including themselves.

I think you haven't lived your life so that's much more difficult to explain to somebody because then, obviously you've got the worry that you're going to instil more fear into them that something's gonna happen

It would end up being that the death of a young person is more tragic because it was sort of before their time and they didn't get to lead the life that they wanted to lead and that it was really sad that they weren't able to do that

He knows anything can happen at any time but if you're sensible hopefully and look after yourself, you will live to be older

This last quote illustrates ways in which mothers were also able to use death as a lesson in how to live well, for example, eating your vegetables and crossing the road safely will help you live longer.

Relating back to the previous category and 'children's questions', when death was viewed as a natural part of life, mothers reported their children as asking fewer questions. One reason for this could be because this life cycle narrative gave them enough information to satisfy their needs.

He [child's grandfather] had a good successful, busy life and so it came to end probably for her as 'well that's sort of what just happens isn't it'

They'll just have the normal grief pattern I guess, of someone's old, someone's died that's just something that happens

By describing death as a natural event, mothers encouraged their children to view death, and the thoughts and feelings that come with it, as natural and normal. This focus on thoughts and feelings was also particularly relevant for those whose children had experienced the bereavement of someone close to them, as discussed in 'children's experiences'.

(ii) Positives in death

Alongside discussing death as a normal part of the life cycle, most mothers also chose to emphasise positive aspects to death. One of these positives included describing death as an end to the suffering and pain that the deceased may have been feeling in the lead up to death, be it through old age or illness. For families that described a spiritual afterlife, death was described as an opportunity to reunite with loved ones who had also died. In one notable case, the moments leading up to a loved one's death were described as fitting, and of all the ways to go "the way she would have wanted". Mothers also remarked that for those who had died more suddenly, a quicker death would have been their preferred way to go, for example:

She was the kind of person who wouldn't have coped with illness, she wasn't, she didn't, you know, she would just get on with things, she didn't like people being sick and or didn't like exposure to illness ... the fact that it was all, you know, that was all still part of her when she died, it wasn't taken away from her identity, I think that was good for them

Mothers' reflection of the positive sides of death, appeared to allow them to deal with their own feelings of grief. Describing death in a positive way allowed mothers to acknowledge that while death is inevitable, it is not always a bad thing, and often may come as a welcome relief to those that are in pain. In these descriptions, by drawing upon their own feelings of discomfort to mitigate their child's fears, mothers' explanations also appeared to address their own fears and provide reassurance to themselves as well as their child.

It would have been that death is a part of life, everybody dies, it's sad but it's inevitable, it's going to happen to everybody, and that the person who died isn't suffering any more, particularly if they've been unwell

We're just trying to keep all the options open on what possibly could be out there and saying any ideas she has are also great but trying to dress it up, so it sounds like a positive thing ... if we had to go early I don't want her to be thinking 'oh god what's going to happen to them' I want her to have this sort of vision or this idea that we're going to be somewhere nice

We've just said 'okay well they're at peace now they're not in any pain' I guess we've not used the word 'heaven' but we've just implied that you know, this has been a positive thing really because they're no longer suffering

Mothers' desire to explain death as a potentially positive event, emphasises how negatively they view death. For example, wanting to 'dress it up' implies that an honest explanation would not be 'child-friendly'. Thinking of the positives in death, forces mothers to reconcile aspects of death which scare them, and by extension their child, in order to counteract them.

(iii) Continuation of person

As previously discussed, one pervasive source of discomfort for mothers in this study appeared to be the idea of death being the end, e.g., "I'm not happy with the idea of it just being the end of everything". This seeming pervasiveness was also supported by mothers' approaches of reassuring their child by describing the deceased as continuing on in some form, usually in spirit or memory.

This sub-category also gives insight into the differences in explanations of those with the same motivations (e.g., to reassure) but different belief systems – again, highlighting the subjectivity in what is honest or reassuring. These different belief systems were most apparent

for those mothers who described themselves as religious and those who did not. Religious mothers described the dead as continuing on in spirit in an afterlife, more specifically Heaven, whereas most secular mothers described the dead as continuing on in our memories of them. However, some secular mothers also described the deceased as continuing on spirit in non-religious contexts, such as:

It's more of sort of a when you're finished living here then you can sort of live with God and the angels and meet up with people who died before you and just have one big party

... their body gets buried, but their spirit goes up, and then we say like you know they sit on the stars and they watch, they watch over us

As illustrated in these quotes, descriptions of the deceased living on in spirit often assumed a separation between body and spirit. In these explanations, the body remains on earth, whereas the spirit will go up to a heaven-like place, where they can watch over loved ones. Some mothers avoided the use of the word 'heaven' as their child got older – perhaps owing to religious connotations which may go against their own non-religious beliefs. In secular mothers who described a spiritual afterlife, it is in this 'continuation of person' narrative that they expressed their 'would-like-to-believe' thoughts.

Living on in memory was also used by secular mothers as a way to describe the continuation of a person after death. These mothers purported that dead people do not cease to exist as long as we have our own memories of that person to comfort us when we miss them. Several ways to maintain memories of the deceased were described and encouraged by mothers. For example, pictures of the deceased for their children to look at and talk to if needed, or special places devoted to the memory of the dead person that people can visit to remember and feel closer to them. Mothers appear to also consider mechanisms which help to manage grief and use these to decide upon their 'child-friendly talk'.

My whole thing around death is that person obviously is no longer there, but the living people just maintain their memories of that person

I think that the main thing is really is about talking about the person who has died and remembering them so that it kind of keeps them alive in their mind

We try to keep a memory book but also having photographs around and sort of you know said 'if you want to talk to the photograph or do what have you, then that's

absolutely fine' ... we have also talked about having special places that they go and remember that dead person

Again, parents seem to address ways to help both themselves and their child cope with the loss. This choice of explanation deals with the long-term feelings and effects of loss, beyond the initial explanation of death. The ways of dealing with bereavement employed by those in this study reflect techniques described in bereavement literature; for example, the use of memory boxes or jars containing mementos of the deceased (Way & Bremner, 2005), or activity books which encourage using pictures, drawing and writing about memories about the person who died (e.g., 'Muddles, Puddles and Sunshine' by Crossley, 2000, for Winston's Wish, a UK bereavement charity).

(iv) Family-specific explanations

While mothers often described themselves as the main influence on their child's beliefs around death, they also described shared explanations amongst their immediate family. Mothers and fathers were often described as having differing beliefs around death. For example, one mother was spiritual and believed in the afterlife, whereas her partner was more scientifically minded and hard-headed in his belief that "once you're dead, you're dead". Despite these two conflicting beliefs, these parents described sharing the same explanation with their child, often opting for a more spiritual and softer view of death. Parental beliefs appear to converge to create family-specific explanations which are consistently discussed with their child, rather than parents' personal beliefs that might contradict each other. These family-specific explanations result from parents' agreement on what explanations would be best, or most reassuring, for their child – as is considered by mothers in 'Finding the Balance'. This convergence results in some unique stories that were comforting to individual families. Different families often shared similar stories which suggest common influences on these stories, like religious beliefs for example. Indeed, one mother was surprised that I had not heard of their story before. Two examples of family-specific beliefs include:

If a white feather drops down, for no explained reason, that's somebody who's passed away saying hello

We say they sit on the stars, and they look down and watch, and we say the brightest star is their star

These family-specific beliefs illustrate the need for cohesion across explanations of death with different family members. This may again be seen as a way to provide reassurance

to children by presenting them with consistent, stable ideas and avoid the confusion of conflicting ideas which may upset children. This balance between parents' differing ideas provides an interesting parallel to the need for balance between honesty and reassurance in their explanations. This may suggest that parents go through the process described in this study together when preparing to jointly discuss death with their child, requiring reconciliation of both parents' beliefs and perceptions of their child to agree on how they wish to explain death.

Alternatively, these family-specific explanations and stories appear to be passed down through generations, taking the pressure off parents to come up with their own explanations. Alongside converging stories across different families, this passing down of stories suggests that framing discussions around death in a way to reassure their child and discourage their own feelings of fear is a common way for parents to explain death to their child when motivated by reassurance.

Summary of "Child-Friendly" Talk

This final category describes the final stage of the process of how mothers explain death to their children, what they actually say to their children (or believe they would say to their children). This category is a culmination of the previous two categories which work together to help mothers decide on the best way to explain death to their child, usually motivated by a desire to both comfort and inform their child. In this category, several themes as to what is considered 'child-friendly' talk are described. These themes provide ways to frame conversations which can offer both reassurance and inform their child of what death means.

The desire to make the facts of death more palatable suggests that the motivation to reassure children is stronger than wanting to educate them alone. However, the themes in this category illustrate that parents need not consider honest and reassuring information as mutually exclusive. Further, although what may be perceived as honest and reassuring is subjective, these sub-categories highlight common themes amongst mothers' explanations which may suggest a universality in how parents approach discussions of death, despite differing beliefs and perceptions around it.

Information which is seen as 'child-friendly' is reliant on mothers' beliefs and perceptions of their child, hence the process described. It is worth noting that what ideas may bring mothers comfort and what ideas comfort their child may not always be the same – again highlighting the subjectivity in what is reassuring.

I remember them saying to me when I was really young “oh don’t worry your dad will always be in the corner looking at you” which was supposed to reassure me as a kid but actually scared me to death

The mother in this extract highlights the how the impact of being told stories as a child can impact their own developing understanding of death and subsequent choices of how they discuss death with their child. Again, this mother will seek to avoid scaring her child by drawing up her own sources of fear. Throughout this process there is a clear motivation for parents to avoid distressing their child during discussions of death which is emphasised in the ways in which mothers choose to explain death. This distress may be caused by uncomfortable ideas or confusion, highlighting the desire to not only reassure their child but to also inform about what death involves.

Mothers’ Process of Discussing Death with their Child

To summarise the findings of Study 1, a three-stage process emerged through which mothers decide how to discuss death with their child. The first of these stages, ‘honesty versus reassurance’, describes how mothers must come to terms with their own beliefs and perceptions of death. By establishing their own viewpoint of death, mothers may then clarify what information they wish to pass on to their children. This information appeared to be divided into honesty and reassurance. In being honest, mothers established what their beliefs were and what information would help their child to understand death. For less certain mothers, this type of information was seen to contrast with reassuring information.

Given this seeming contrast, the second stage of this process reflects the desire for balance between being honest and being reassuring in mothers’ explanations to their child. To find this balance, mothers appear to consider their own desire to shape their child’s beliefs, their children’s questions and capability of understanding death and the emotions that come with it, and their children’s experiences around bereavement. Through consideration of these factors, mothers are motivated to discuss death in a certain way.

How mothers choose to describe death is explored in the final, third category, ‘child-friendly talk’. In this category, four sub-categories focused around four themes in how mothers chose to describe death to their child emerged. These four themes revolved around presenting information to their child in a way that is both reassuring and informative for their child. These themes included describing death as a natural part of life, highlighting the positives that can be found in death, describing the continuation of the deceased in spirit or memory, and family-specific explanations which are passed down through families. Each of these sub-categories

were seen to be used as ways to confront mothers' own fears, which they felt would also be sources of discomfort for their child.

Sub-categories within and across categories were seen to interact during this process. For example, within the 'honesty versus reassurance' category uncertainty and discomfort with death can be seen to interact. One such interaction might be that those mothers who were uncertain in their beliefs about death, drew more from their sources of discomfort as they did not have beliefs to draw from. This may then go on to also interact with sub-categories in the second stage, 'finding the balance', such as 'desire to shape beliefs'. Again, in being uncertain of their beliefs, mothers may not have beliefs to draw from to want to shape their child's beliefs into. Uncertain mothers were therefore more likely to describe a range of beliefs to their child, keeping the discussion open to their child's own interpretation. Further, mothers' uncertainty and discomfort around both thinking and talking about death was reflected in a focus on reassurance in 'child-friendly talk'. This is best illustrated in secular mothers' use of describing continuation of person in spirit, whilst describing themselves as not believing in this idea themselves, or at least not beyond it /as a nice thought. Therefore, being uncertain during the first stage of this process, may lead to a tip in the balance towards reassurance in the second stage, resulting in a focus on reassuring talk as 'child-friendly' in the final stage, for example.

Discussion

Study 1 explored how mothers perceive their conversations about death with their child, and how these perceptions may shape parent-child discussion about death. Three main aims were explored: a) parents' own beliefs about death, b) what they think their child believes about death, and c) how they have/would discuss death with their child. Qualitative analysis of nine interviews with mothers of children aged between 9 and 11 years old, suggests that what parents believe about death and what information they choose to discuss with their children, are not always the same. Using grounded theory, a process of three stages emerged in which mothers consider their own beliefs around death, motivations for discussions of death with their child and how they choose to explain death to their child. The first stage in this process is described in the category 'honesty versus reassurance'. In this category, mothers seem to establish their own beliefs around death: what they believe in, how strong their beliefs are; what alternative explanations they are willing to consider and express; what they find comforting; and what they find uncomfortable. In establishing their own beliefs, a differentiation between what information mothers see as honest and reassuring emerged. The next category, 'finding the balance', describes mothers' desire to balance reassuring and honest information based upon their own perceptions of their child's understanding and needs. Here, mothers

consider what they think their child understands and thinks about death, and how they would like their child to think about death. In the final category and stage in the process, how mothers articulate their considerations and balance into 'child-friendly talk' which is used to explain death to their child.

Parents' own beliefs about death

Study 1's findings shed light on parents' own beliefs about death to provide greater understanding of how they arrive at parent-child conversations about death. Parents' beliefs about death formed the first category of this analysis, which found that mothers' beliefs varied in their certainty of their beliefs and perceptions of what makes thinking about death uncomfortable. Owing to this variation, information which mothers perceived as 'honest' and 'reassuring' differed, and sometimes conflicted within their own perceptions. Often mothers felt that to be reassuring to their child meant not necessarily being honest, and instead offering comforting explanations in which they would like to believe.

Discomfort around death was seen both through mothers' perception of what information is reassuring and through the avoidance of thinking about death described by most mothers. Mothers described having not thought about their own beliefs until these interviews and waiting until their child experiences a bereavement before facing these discussions. This avoidance meant that not only were mothers less certain in their beliefs, but also further highlights the need to address the discomfort felt around death. Challenging the discomfort associated with talking about death may also help to lessen the apparent taboo of it and encourage greater discussion which in turn may also lessen the discomfort. One way to challenge this discomfort may be to increase education about death, for both parents and children. For example, Slaughter and Griffiths (2007) found that the more knowledgeable children were about death, the less fearful they reported to be. This finding is particularly relevant when we consider that mothers in the current study often felt that greater understanding of death would increase their child's fear, rather than reduce it. A gap in parents' knowledge of research in this area is highlighted. Longbottom and Slaughter (2018) made similar observations in their discussion of parents judging their child's capabilities based on outdated research. Greater communication of more recent scientific findings may benefit parents more generally, however death as a taboo topic of conversation must be overcome to facilitate such communication. In turn, parents may benefit from an increased confidence in talking to their child about death.

Descriptions of 'would-like-to-believes' used by mothers in consideration of their own beliefs and what they would explain to their child may also reflect 'real versus fictitious' reasoning which is used to reconcile and reason about seemingly conflicting belief systems (Legare & Gelman, 2008). This finding also meant that what mothers believed and what they shared, or would share, with their children differed for some mothers. This finding is important because it illustrates that mothers do not always express their beliefs to their children, meaning research investigating the role of parent beliefs on children's understanding must also explore what parents say to their child, rather than beliefs alone. This is in contrast with what we might expect based on previous research that shows parental religious beliefs correlate positively with encouraging religious beliefs in their child (Braswell et al., 2012). This finding also highlights the importance of not only investigating parental beliefs in relation to their children's understanding of death, but also looking at how real-life conversations take place, and the type of information passed on in these conversations. As illustrated by Tenenbaum and Hohenstein's (2016) finding that parent-child conversations were more strongly related to children's endorsements than parents' own endorsements; endorsements or beliefs may only be influential if they are expressed during these conversations.

The distinction between honest and reassuring information made by mothers also draws parallels with Gutiérrez et al.'s (2014) findings that in response to their child's questions, parents responses fell into two categories, 'facts and explanations' and 'reassurance'. Reassurance was found to be used to provide comfort and solace whereas facts and explanations offered factual information about death and associated rituals and representations (Gutiérrez et al., 2014). This factual information included both religious and biological information, as seen in types of information perceived as 'honest' in the current study. Study 1 further illustrates how facts and explanations, and reassurance are utilised in discussions with their child. Study 1 also extends on Gutiérrez et al.'s (2014) findings to consider the extent to which parents believe in what they are sharing with their child and factors which are taken into account when deciding whether to provide factual information or reassurance. Study 1 found that these factors included children's questions about and experiences around death, as well as how parents would like their child to think about death.

What parents think their child believes about death

The second aim of this study was to explore how parents perceive their child's understanding and beliefs about death. This aim was addressed in the second stage of the emerging process in Study 1, 'finding the balance'. In this category, mothers were seen to consider a number of factors before deciding how best to discuss death according to their

child's needs and how they would like their child to think about death. These factors seem to work together to help mothers decide on the balance between reassurance and honesty. For example, honesty often introduces frightening ideas that mothers may wish to shield their child from. As an alternative, they may offer reassuring information which aims to counteract these frightening ideas. It is also these factors which allow parents to make assessments of their child's understanding of death. These factors included their child's questions about death, and experiences with bereavement, including their relationship to the deceased.

Mothers in this study described finding conversations easier when their child asked specific questions, as this gave insight into their level of understanding and helped to direct conversations. Often mothers described providing only as much detail as needed to satisfy their child's questions, to avoid providing too much detail which may upset or confuse their child. This idea of satisfying their child's questions draws on some important parallels with research exploring how children learn from questions. For example, Piaget would suggest that young children are always satisfied with any explanation given without question, whereas more recent research has found that children will process the explanations given and respond accordingly (Harris, 2012). Children who are satisfied with given explanations have been found to acknowledge their satisfaction and ask follow-up questions, whereas those who are not will continue to repeat their question or propose their own explanation (Frazier et al., 2009). Mothers' reports in Study 1 support this suggestion that children process the responses they get in reply to their questions and do not passively accept any answer.

Children's questions also illustrate the reciprocal nature of parent-child discussions around death. Children's active role during conversations, as described by their mothers, corresponds with previous research that suggests both parent and child contribute to conversations (e.g., Thompson, 2006). Further, most mothers did not want to dictate their beliefs to their child and expect them to think the same as them but listened to their child's own questions and experiences to tailor the information they provided. Mothers' assessments of their child's capabilities allowed them to pitch their explanations so that they were not too difficult, or too simple are reflective of finding their child's zone of proximal development (ZPD; Vygotsky, 1978). ZPD considers what learners are able to accomplish on their own, and what they are able to accomplish with the help of an expert (Vygotsky, 1978). Importantly, assistance is shown to function most effectively when: it is at an appropriate level for the learner; adapted to the learner's developing level; offered only when needed; and, withdrawn once the individual can function independently (Aljaafreh & Lantolf, 1994). Children's questions are valuable indicators of their developmental level and future research into the

types of questions children ask may provide important insight into the types of information they seek in order to consolidate their knowledge.

Mothers in Study 1 also described their child's age as being an indicator for cognitive ability and emotional needs. This corresponds to Longbottom and Slaughter's (2018) suggestion that age at which children are believed capable of understanding death, and therefore should be taught, influences death concept development in Western populations. As Study 1 illustrates, different parents likely have different perceptions on at what age their child is capable of understanding death. These differences may leave parents' perceptions of their child understanding open to underestimation as has been shown in previous research (e.g., Gaab et al., 2013). This underestimation may also contribute to mothers' avoidance of discussions until necessary.

Longbottom and Slaughter (2018) suggest one reason for this underestimation is that parents are influenced by outdated research, which suggest children's understanding develops at an older age than more recent research has shown. One way to combat this underestimation could be to educate parents on the five death subcomponents as developmental milestones for biological death understanding. Knowledge of these subcomponents may help guide parents to more accurate assessments of their child's understanding and provide a framework from which to build their explanations.

Study 1 also found that mothers' assessments of their child's understanding also came from consideration of their child's experiences with bereavement. Depending on the relationship between the child and the deceased, mothers perceived children as needing differing levels of detail and types of explanations. For example, if their child experienced the death of someone not at all close, mothers described less emotional impact on their child and less detail in explanations. Greater impact was expected for the death of someone close to their child, with mothers putting greater thought into their child's needs at that time. Most mothers felt their child needed reassurance and support when going through bereavement, rather than informing and educating.

These differing approaches to discussions based on experiences with bereavement may have implications for children's developing understandings of death. Impact of experience of death on children's developing conceptions of death has been explored with mixed findings in previous research. Hunter and Smith (2008) found that only experience with death of extended family members (rather than immediate) accelerated death understanding. Panagiotaki et al. (2018) found no association between experience with illness and death and

children's death understanding. Further, Panagiotaki et al. (2018) suggest it is not the experience alone which affects this understanding, but the way in which parents explain it to their child. Study 1 suggests that experiences may influence how parents explain death to their child. How mothers choose to explain death to their child, as discussed in the next section, illustrate the influences of these perceptions of their child's needs and understandings of death.

How parents have/would discuss death with their child

The third aim of this study, how parents have or would discuss death their child, was addressed in the final category, 'child-friendly talk' which describes themes across how mothers choose to explain death to their child. This final category extends on previous research to give more detailed insight into the content of parent-child discussions and the specific ideas and information which are passed on to children during these conversations. Four themes were seen across mothers' depictions of how they would discuss death with their child. These themes were: death as a natural part of life; death can be a positive thing; the dead can continue on in memory or spirit; and family-specific explanations which are passed down.

In explaining death to their child, mothers were seen to be motivated to find a balance between being honest with their child, to inform and educate them on the facts of death, and reassuring them, providing comfort and avoiding upsetting ideas. As a result of this balance, mothers can be seen to frame facts of death in reassuring ways. For example, mothers may explain that death is a part of life, and something which happens to every living thing. Within this explanation, mothers may also describe that death *usually* does not happen until people are very old or very ill, so as to avoid their child fearing their own death. Framing explanations in this way allows mothers to pass on biological facts about death, while reassuring their child that death is nothing to be afraid of, and for some people may even be seen as a positive thing (e.g., end to suffering). These types of explanations also give insight into how the five biological subcomponents may come through naturally in parent-child conversations (irreversibility; inevitability; universality; cessation; and causation). Universality, inevitability and, to a lesser extent, causation are touched upon in describing death as a natural part of life that happens to all living things at some point, usually once they are very old and their body does not work like it used to.

Potential for misunderstandings of biological death also become apparent in mothers' chosen explanations. For example, mothers' reluctance to describe death as the end, and

instead describe the continuation of the dead person as living on in memory or spirit may encourage children's misunderstanding of cessation. Through this explanation, children may expect that people still function after death through their spirit (or memory) in a way that allows them to continue to watch over their loved ones, eat their favourite foods, or live as normal in the afterlife. However, some mothers appeared to anticipate these misunderstandings and discouraged them by explicitly describing the separation of body and spirit.

Referring to Gutiérrez et al.'s (2014) finding that parents' responses to children's questions considered either a) facts and explanations or b) reassurance. Study 1's findings illustrate how parents are able to balance facts with reassurance, in a way they perceive to be suitable for their child. Study 1 also illustrates how this balance may shift based on their perceptions of their child. For example, in response to children's questions parents may wish to draw on facts, whereas in response to a bereavement they may wish to reassure and comfort (both themselves and their child). Study 1 again supports and extends upon Gutiérrez et al.'s (2014) findings to provide context on how parents choose to respond. This context includes how parents understand death themselves, how they perceive their child to understand it, and events which may affect their child's needs during these conversations (e.g., recent bereavement).

Limitations and Future Research

Reflecting on my experiences and motivations for undertaking this research, several important considerations were illuminated. My own experiences of grief and the emotionally charged nature of discussions around death with those recently bereaved or still coming to terms with their grief, are one example. Regarding my own loss, I have found it difficult to come to terms with my own grief and as such, this analysis has also allowed me to challenge my own beliefs around death and find my own comfort and reassurance – which likely influenced my interpretations and drew me to particular aspects within the data. I was also very aware of the difficulty of interviewing those who had recently experienced grief, and often did not wish to draw upon upsetting thoughts for the mothers (and myself) which may have led to less exploration of some answers. In the wider context, this difficulty of talking about death meant it has been very difficult to find participants that are not only happy to discuss death generally, but to also share with me how they discuss it with their children and their own personal experiences around death.

Further considerations which are worth greater exploration include the role of fathers and other caregivers and how they may talk to their children about death. For example, several

mothers in this study described relinquishing fathers of the responsibility of having these kinds of discussions with their children. Mothers also expressed that their child would choose to go to them for these discussions, rather than their father. It is worth investigating whether or not fathers would agree with these descriptions. Further, whether fathers go through this same process of considering their own beliefs before deciding what may be appropriate for their child and how this might affect perceptions of what is 'child-friendly'. Research has shown that when parents discuss past events with their child, mothers converse more overall, talk more about emotional aspects and use more emotion-focused words than fathers (Fivush et al., 2000). Given this previous finding, we might expect that fathers are less focused on the emotional maturity of their child which may result in differing testimony.

Some cultural differences were touched upon in this study with the inclusion of two Northern Irish mothers who were both Catholic and described Irish rituals as more open than those seen in England, e.g., bodies kept in the houses in which children had full access. Cultural differences in traditions, rituals around death and expressions of grief and religion, and their relationship with children's conceptualisations of death warrants further investigation. For example, those cultures in which there are higher levels of religious expression or exposure to death through seeing the life cycle of animals or experience with war. Lower levels of religious expression and tolerance may lead to less reference to supernatural reasoning (Lane et al., 2016). Greater exposure to the death of animals and humans has been suggested to increase the rate at which the biological subcomponents are acquired by children (Panagiotaki et al., 2015). Further exploration of how this experience may affect children's developing conceptions of death through investigating parent-talk which may (or may not) accompany these experiences would be worthwhile.

Conclusion and Next Step

To conclude, Study 1 aimed to explore how parents understand death themselves, how they think their child understands death, and how they choose to discuss death with their child. Interviews with nine mothers were conducted and analysed using grounded theory. Through this analysis, an emerging three-stage process was identified in which (1) mothers establish their own beliefs around death, before going on to (2) consider what their child needs during conversations about death and into (3) how they choose to explain death to their child. Findings from Study 1 give greater insight into the motivations of parents in conversations about death with their child as well as the content and information passed on during these conversations.

Study 1 highlighted several areas worth further investigation. First, what mothers believe and what they express to their child are not always the same. This finding has important implications for how influences on children's developing conceptions of death are investigated and warrants further exploration. Study 1 also highlights several child factors which may influence parent-child conversations, including children's questions and experiences with bereavement. These areas will be further investigated in the next stage of this research, Study 2. Study 2 will utilise questionnaires to ask a greater number of parents and caregivers to report their own beliefs about death, how they would explain death to their child, whether their child has experienced a bereavement, and what their child has asked about death. Using child interviews, Study 2 will extend upon the findings from Study 1 to investigate how parent-child conversations may influence children's developing understanding of death. For example, does parents' choice of explanation, e.g., reassurance over honesty, influence their child's developing understanding?

Chapter 4: Influence of experiential and parental factors on children's developing understanding of death [Study 2]

Introduction

Death is an unavoidable aspect of life, yet it is often seen as a taboo topic of conversation, not to be discussed and least of all with children. Both parents and teachers describe feeling uncomfortable about talking to children about death, despite strongly supporting discussing death with children before they encounter it (McGovern & Barry, 2000). Discomfort with talking about death resonates in various contexts. For example, this pervasive discomfort can act as a barrier to discussions of death for clinicians discussing hospice care with their patients (McGorty & Bornstein, 2003). However, mothers' use of warm, positive, and engaging communication when talking to their bereaved child can help to reduce negative emotions, facilitate their child's grief reaction, and perhaps help children to feel safer exploring their emotions (Shapiro et al., 2014). Slaughter and Griffiths (2007) suggest that learning biological facts about death can help to reduce confusion and support children to feel less afraid of death. Understanding of children's knowledge of biological death can aid communication with children and avoid confusing information.

Children's conceptualisations of death

A biological conceptualisation of death has been characterised in the research by measuring children's understanding of key biological facts of death, known as subcomponents. There is some variation in the literature as to how many subcomponents there are, and at what age they are acquired. For Study 2, we recognise five key subcomponents. These five subcomponents are: (1) irreversibility, death is permanent; (2) universality, death happens to all living things; (3) inevitability, all living things will die one day; (4) cessation, at death all physical and psychological functions stop; and (5) causality, death is caused by the breakdown of bodily processes (Panagiotaki et al., 2015; Poling & Evans, 2004; Slaughter & Lyons, 2003). These subcomponents are thought to be acquired with age in a linear developmental pattern. Pre-school children are aware of death but not yet able to understand the biological aspects of death and the life cycle. Instead, they are thought to understand death as an altered state of living, which only happens to those who are old and sick, and in which physical and mental functions continue (e.g., the dead still need oxygen, water, they are still able to see, hear and feel; Slaughter & Griffiths, 2007). Between the ages of 4 and 5, children are seen to begin developing a biological conceptualisation of death. Irreversibility is first acquired at around the age of 4-5 years, followed by inevitability, universality, and the cessation of physical and mental functions (at around 7 years). Causality is the final subcomponent to be acquired, at around 10-11 years (Panagiotaki et al., 2015; Slaughter & Griffiths, 2007). Children who have acquired each of these subcomponents are

then thought to have developed a mature understanding of death, usually around 10-11 years old (Slaughter & Griffiths, 2007).

Conceptualisations of death are not always only biological and secular in nature, they may also include metaphysical or spiritual ideas. For example, they may take the form of an afterlife in which bodily and/or mental functions continue (Legare et al., 2012). Astuti and Harris (2008) propose that spiritual reasoning only starts to be considered once children have acquired a biological basis to death understanding – indicated by a mature understanding of death. Use of spiritual explanations likely increases with age rather than decreases (Harris & Giménez, 2005; Legare et al., 2012). For example, in justifying whether a function continues to work or not after death, younger children have been found to produce more biological justifications than older children, who produced more metaphysical justifications (Harris & Giménez, 2005).

Older children and adults can hold both biological and spiritual conceptions of death simultaneously – known as explanatory coexistence (Legare et al., 2012). For example, an individual might believe that in death the body no longer works, but the soul lives on. Use of each conception may differ based on context in which death is discussed (Harris & Giménez, 2005; Lane et al., 2016; Watson-Jones et al., 2017). Religious narratives use cues which describe death within a religious context, e.g., visited by a priest, dead person being with God (Harris & Giménez, 2005). Secular narratives avoid religious cues and describe visits from a doctor and the person being dead now. For religious narratives, children describe more functions as continuing to work and use religious justifications for this continuation. For secular narratives, more functions are described to not work and explained using biological justifications (Harris & Giménez, 2005). As described above, this finding was more pronounced in older children (11 years old) than younger children (7 years old). This sensitivity to context is important to consider when framing conversations around death with children both within research methods and when exploring potential influences on children's understanding of death.

Experiential and Parental Influences

Numerous experiential and parental factors are thought to influence children's developing understanding of death. For example, culturally specific experiences around death may influence children's understanding of death and acquisition of subcomponents. In a study comparing urban British and rural Pakistani children, Pakistani Muslim children demonstrated a better understanding of irreversibility than their urban British counterparts (Panagiotaki et

al., 2015). Panagiotaki et al. suggest that living in rural and impoverished communities and being more exposed to the life cycle of animals and humans, provided Pakistani children with informal learning opportunities around death and the life cycle which improved their understanding of irreversibility – opportunities unavailable to urban children.

Cultures in which ideas around religion and afterlife are more freely expressed may encourage more spiritual thinking than cultures where religious expression is discouraged (Lane et al., 2016). Rosengren et al. (2014a) suggest that family religiosity influences how children conceptualise and discuss the continuity of life processes after death. Those from more religious families were more likely to use religious references in their answers to whether 'a special part' remains after death (Rosengren et al., 2014a). Parents with religious beliefs have also been found to be more likely to encourage religious explanations than biological ones in their children (Braswell et al., 2012). However, parental encouragement does not guarantee children will share these beliefs. For example, in Greek Orthodox Christians, the more religious parents were, the stronger their belief in a mental afterlife, and the more likely they were to describe the deceased as having a continued existence to their child. Yet, no significant association was found between children's afterlife beliefs and their parents' religiosity (Misailidi & Kornilaki, 2015). There is a need to better establish the role religion and parental afterlife beliefs play in children's developing death conceptions.

Experience with bereavement may also impact children's conceptualisations, however findings of previous research are mixed. For example, Panagiotaki et al. (2018) found no association between children's experiences with death and their death understanding. Hunter and Smith (2008) found only those who had experienced the death of an extended family member or pet had accelerated understanding of universality and finality (irreversibility). For children with experience of immediate family bereavement there was no significant association between experience of death and understanding (Hunter & Smith, 2008). However, Hunter and Smith's study had a very small sample of children who had experienced death of an immediate family member ($n = 3$) and their quantitative results need to be treated with caution. Those experiencing the bereavement of an immediate family member may be less likely to take part in studies of this kind contributing to smaller sample sizes. In this research area, where small samples sizes are expected, qualitative analyses are better suited. Qualitative analyses can provide rich, in-depth data which can then be used to generate quantitative measures. Hunter and Smith's findings illustrate the need for more qualitative research into how experiencing a bereavement may impact children's developing death understanding. Panagiotaki et al. (2018) suggest that explanations given by parents are more relevant in children's developing understanding than the experience of bereavement itself. Considering

Hunter and Smith's (2008) findings, when their child experiences the death of someone close, parents may focus on reassuring their child and be less likely to discuss the biological facts of death which may lead to the lack of association found for these children. Experience with bereavement may be fundamental in creating opportunities for parent-child discussions around death, in which parents can share ideas, beliefs and explanations, and confirm or challenge children's misconceptions. Further research is needed to investigate whether it is the experience of bereavement which shapes children's understanding or discussions which may stem from these experiences.

Children's experiences of pet death appear somewhat neglected in previous research, despite the widely held view that pets can teach children important lessons about death and coping with loss. For example, pet loss in children's literature often addresses the relationship between pet and child, and the subsequent importance of the loss (see Corr, 2004, for a review of pet loss themes in children's literature). To illustrate the impact pet death may have, reactions to the death of a pet are consistent with attachment theory and comparable with the loss of a romantic partner in adults (Zilcha-Mano et al., 2011). The death of a pet can be a significant life event, and yet is often not treated as such. Disenfranchised grief often occurs after pet bereavement, whereby grief reactions to pet death are not seen as socially acceptable, and so discouraged (Attig, 2004). This difference between how pet and human death are treated at a societal level, may have important implications for how children may understand human and non-human animal death. Experiences with both human and pet death warrant further research.

Parent-Child Conversations

Each of the factors described above can also be seen to influence how parent and child discuss death. For example, parents may frame conversations about death differently based on the type of death they are referring to (e.g., pet or human, loved one or stranger) or whether they are secular or religious. Parental explanations may influence several aspects of children's understanding of death, for example, speed of acquisition or the form the spiritual notions take. Existing research has shown that parental testimony can help children consolidate knowledge of unobservable phenomena and that children depend on this testimony when first-hand observations are not possible, e.g., hidden bodily functions or the afterlife (Harris & Koenig, 2006). Parental testimony has also been suggested to impact children's biological reasoning. Parents who were biological experts – those working in biology fields who reported sharing biological knowledge with their children – were found to have children with more sophisticated biological reasoning than children of lay-people (Tarlowski,

2006). This finding suggests that parents who share their biological knowledge during conversations with their child may influence their child's subsequent biological reasoning, supporting the role of parental testimony in children's acquisition and consolidation of biological knowledge. Accordingly, language is an important tool which can help children conceptualise non-observable phenomena and share their experiences between parent and child (Thompson, 2006).

However, parent-child conversations consist of more than parental testimony and involve contributions from both parent and child. Parent-child conversations more specifically, have been shown to influence children's reasoning when considering the origins of life. Tenenbaum and Hohenstein (2016) found parent-child conversations had greater impact than parental endorsements on beliefs endorsed by children. For origins of life, endorsements refer to parent and child's expression of support for creationist or evolutionary beliefs, as shown by their agreement with statements referring to these beliefs. Investigation into what parents express to their children during conversations about death, and whether this reflects their own beliefs, is needed. Research of this kind would further elucidate the relationships between parental beliefs, parental explanations during conversations with their children, and children's subsequent beliefs about death.

There is limited research focusing on the content of conversations around death between parents and their children. Miller et al. (2014) suggest that parents may not always wish to openly discuss death with their children and instead prefer to shield them from it by, for example, avoiding sharing images of disaster and death. One justification given for this shielding is the belief that children are too young – cognitively and emotionally – to understand death and its consequences (Miller et al., 2014). When shielding is not possible, many parents instead use reassurance in their conversations of death (Gutiérrez et al., 2014). For example, they reassure their children that the deceased led a happy life or is continuing in an afterlife (Gutiérrez et al., 2014). Renaud et al. (2015) found that parents were more satisfied with explanations which described a continued existence – the afterlife or in our memories – than parents who described the finality of death. This finding suggests parents give more importance to their child's emotional response to death by focusing on reassurance rather than teaching biological facts. It also reinforces the importance of exploring children's understanding of death beyond biological explanations. Spiritual, metaphysical ideas may better represent the content of early conversations about death (Renaud et al., 2015). Renaud et al. highlight that parent-child conversations about death occur earlier than previous research suggested, at around 3 to 3.5 years. Not only is this earlier than expected for children to begin developing their conceptions of death, but also highlights the role of exposure to any

type of death as opportunities for death discussion; for example, the death of an insect, or a TV character (Renaud et al., 2015). Greater understanding of how children understand death, and how best to take children's understanding into account during conversations with children is needed.

Current Study

Study 2 aimed to further investigate when children's understanding of biological death develops, and how their understanding of death develops. Several factors highlighted during Study 1 of this thesis were explored. These factors included children's experience with bereavement, parental afterlife and religious beliefs, and parent explanations used during parent-child conversations.

Study 2 aimed to investigate how children develop their conceptions of death by exploring the influence of experiential and parental factors in several novel ways. First, to expand on previous research and gain further insight into how experiences with bereavement may shape children's understanding of death, Study 2 broke down experiences of death into types of death experienced (e.g., pet or human) and closeness of relationship to the deceased. Study 2 is the first study to explore children's experiences with pet and human death in a British sample. Second, as suggested by previous research and supported by Study 1, children's experience with death may not be the only influential factor on children's developing understanding of death and may instead be fundamental in creating opportunities for parents to explain death to their child (Panagiotaki et al., 2018). Study 2 is the first study in this research area to explicitly address how parent-child conversations may impact children's understanding of death by exploring associations between parental reports of explanations used with their child alongside measures of children's understanding.

Study 1 suggested that parents' beliefs about death are fundamental in how parents perceive information about death and in turn, how they wish to explain death to their child. The relationship between parent's religious beliefs and children's understanding of death is not well established in previous literature. Study 2 further investigated this relationship by exploring both afterlife and religious beliefs. It is thought that by exploring both afterlife and religious beliefs, parent beliefs around death will be better understood, as will their influence on children's developing conceptions. Study 2 took on a novel approach by not only exploring children's understanding of death and factors which may influence this, but also their parents' understanding of death, how parent and child may talk about death, and factors which may influence these conversations.

As highlighted in Study 1, parental beliefs may not be directly conveyed to their child in their explanations of death. Parental explanations and their relationship with children's developing understanding were also investigated. Study 2 aimed to explore the relationship between parental beliefs and explanations to better elucidate the roles of each in children's developing conceptualisations of death. Comparisons between parental beliefs and parental explanations of death have yet to be conducted in this research area but the importance of which has been emphasised in similar research areas (e.g., origins of living things, Tenenbaum & Hohenstein, 2016).

Through investigation of experiential and parental factors, Study 2 aimed to better understand how children develop their understanding of death and how best to take this development into account during conversations with children. Better understanding of how to talk to children about death may help parents (and any caregivers, e.g., teachers and clinicians) to reduce their child's fears or negative emotions and encourage safe exploration of their emotions in reaction to grief (Shapiro et al., 2014; Slaughter & Griffiths, 2007).

To explore these aims, British children aged 4 to 11-years-old and their parents took part in Study 2. These children were divided into three age groups, corresponding to school year: 4-7-year-olds (Years 1-2); 7-9-year-olds (Years 3-4); and 9-11-year-olds (Years 5-6). These age groups were chosen as they were expected to still be developing their understanding of biological death, with differing levels of subcomponent acquisition for each age group.

The following research questions were explored to address the Study's aims:

1. How does children's understanding of death differ across age groups? Do children exhibit co-existent explanations of death?
2. How are children's experiences with death associated with their acquisition of the five death subcomponents?
3. How do parental afterlife and religious beliefs influence their child's understanding of death?
4. Do parental explanations around death influence their children's understanding?

The first research questions made two predictions consistent with developmental patterns of subcomponent acquisition established by previous research (e.g., Panagiotaki et al. 2015; Poling & Evans, 2004; Slaughter & Lyons, 2003). First, it was predicted that children's understanding of death would follow a linear developmental pattern, with the oldest year group showing a more mature understanding of death than the youngest (hypothesis 1.1). More

specifically, it was expected that all children will show an understanding of irreversibility but only the oldest children and adults will show an understanding of causality. Children in the youngest age group were expected to show poorer understanding of the remaining subcomponents (inevitability and cessation) than older children. Parents' responses were used to provide an adult developmental endpoint.

Second, as part of this linear developmental pattern, it was predicted that children in Years 5-6 would be more likely to use metaphysical explanations and exhibit co-existent reasoning than younger children (hypothesis 1.2). Previous research has shown older children to be more likely to offer metaphysical justifications and less likely to offer biological justifications, than younger children (e.g., Harris & Giménez, 2005). To better explore implications for their developing understanding, comparisons were also be made between children's understanding of biological death and how they explain death. It was predicted that children who use biological or co-existent (dualistic) explanations will have a greater understanding of biological death (1.3). This was predicted to reflect the expected linear developmental pattern, in which co-existent reasoning only occurs once children have a biological basis for their understanding (Astuti & Harris, 2008).

To explore the second research question, it was predicted that children's levels of death understanding would be associated with their levels of experience with death (2). These different levels of experience were explored through experience with pet death and ownership and human death. It was predicted that those children who own pets and/or have experience with pet (2.1) or human death (2.2) will have a greater understanding of biological death than those who do not. The closeness of the relationship between the child and the deceased was also considered. It was predicted that children with a closer relationship to the deceased (human or pet) would have a better understanding of death than those with less or no experience with death (2.3).

For the third research question, it was predicted that parental afterlife beliefs and religiosity would be associated with their children's acquisition of the five subcomponents (3.1). It was also predicted that parental beliefs would be associated with their children's explanations around death (3.2). Parental understanding of death, as measured through their own knowledge of subcomponents, was predicted to be associated with their child's acquisition of the five subcomponents. More specifically, children whose parents had higher understanding scores would also have higher understanding scores (3.3). This prediction was made owing to Tarlowski's (2006) finding that children of biological experts showed more sophisticated biological reasoning than those of lay people.

The fourth research question addressed the influence of parental explanations of death on their child's subsequent understanding (4). Here, four predictions were made about the influence of parental explanations on children's understanding of death as well as factors which may influence these explanations and in turn, their child's understanding. First, children whose parents give spiritual explanations were expected to have less understanding of biological death than children whose parents offer biological explanations (4.1). Second, it was predicted that how parents and their children explain death would be associated (4.2). Specifically, parents who provide spiritual explanations, would have children who were more likely to give spiritual explanations. These predictions correspond to previous research which suggests parent-child conversations, rather than parental beliefs, shape children's developing understanding (e.g., Panagiotaki et al., 2018; Tenenbaum & Hohenstein, 2016). Parental explanations were also explored in relation to parental beliefs and children's experiences with death which may influence how parents choose to discuss death with their child. Given the findings of Study 1 of this thesis, it was expected that parental explanations would differ from parental beliefs (4.3). It was also expected that parents would offer more spiritual explanations, as a form of reassurance, when their child had experienced the death of someone/something they shared a close relationship with, than those who had no experience with death (4.4).

Method

Participants

A total of 96 children were recruited from three Norfolk primary schools ($n = 25$) and through the Developmental Dynamics (DD) Lab at the University of East Anglia ($n = 71$). Primary schools consisted of a Roman Catholic independent, privately funded school ($n = 3$), a non-religious, state-funded community school ($n = 11$) and a non-religious state-funded foundation school ($n = 11$). Four participants were also recruited through opportunity sampling.

To compare developmental differences across ages, participants were divided into three age groups based on UK school years. School year groups were chosen over age groups to expand on previous research and to acknowledge the possible impact of school context in children's developing conceptions, such as the differing levels of information children in each year group receive and are expected to understand. In Science, Y2 students are taught the difference between things that are living, dead and have never been alive (Department for Education, 2013). Later year groups are expected to already understand this distinction and develop their abilities to further categorise living things.

Children in Years 1-2 were aged 4 to 7 years old (ranging from 4 years and 6 months to 7 years and 3 months); in Years 3-4 they were 7 to 9 years old (ranging from 7 years and 0 months to 9 years and 2 months); and in Year 5-6 they were 9 to 11 years old (ranging from 9 years and 2 months to 11 years and 4 months). Children's mean ages and SDs are shown in Table 1. In the UK school system children can start school in the September after they turn 4, and if they are born in the summer (April – August) they can start in the September after they turn 5. As such, there are some overlaps in age between year groups. There was only one 4-year-old in the sample. Two children's exact ages were unknown, owing to missing data on parental questionnaires. These were not included in the mean and SD calculations but still included as missing values. Parental ages were not collected for this study.

In Study 2 we aimed to recruit at least 90 children per age group. This number was chosen on the basis of previous research which has included similar numbers of participants per age group. For example, Panagiotaki et al. (2015) recruited 82 4- to 5- year-olds and 106 6- to 7-year-olds (both British and Pakistani participants). Owing to time constraints and difficulty recruiting, around 30 children per age group were recruited, $N = 96$. However, this was still comparable to previous research in this area, for example, Panagiotaki et al. (2018) recruited 93 children aged 4- to 11-years-old and their parents, and Gutierrez et al. (2014) recruited 32 3- to 4- year-olds, 37 4-to-5- year-olds, and 32 5- to 6- year-olds. sensitivity and a priori power analyses were conducted to investigate these. Sensitivity and a priori power analyses (Perugini et al., 2018) were used to investigate the test power given by this smaller sample.

Child participants were 58% girls; 93% White; 43% from religious households; and 70% had pets. Only 8% of children had no experience with death, with 32% having no experience of the death of someone or something with whom they shared a close relationship. See Table 2.1 for more detailed characteristics of the child sample.

Table 2.1*Characteristics of child participants (N = 96)*

	Year 1-2	Year 3-4	Year 5-6	Total
	(n = 33)	(n = 32)	(n = 31)	(N = 96)
Age (mean, SD)	6.40(0.66)	8.21(0.56)	10.31(0.47)	8.28(1.70)
Gender (%)				
<i>Female</i>	66.70	56.30	51.60	58.30
<i>Male</i>	33.30	45.20	48.40	41.70
Ethnicity (%)				
<i>White British</i>	90.90	87.50	83.90	87.50
<i>White Other</i>	3.00	9.30	9.60	6.00
<i>Mixed</i>	6.00	0.00	6.40	4.10
Currently own pets? (%)				
<i>Yes</i>	48.50	78.10	80.60	69.80
<i>No</i>	51.50	21.90	19.40	30.20
Death experience (%)				
<i>No death experience</i>	18.20	6.30	0.00	8.30
<i>Pet death</i>	12.10	9.40	22.60	14.60
<i>Human death</i>	45.50	31.30	22.60	33.30
<i>Both pet and human death</i>	24.20	50.00	54.80	42.70
Close death experience (%)				
<i>No close experience</i>	48.50	21.90	25.80	32.30
<i>Some close experience</i>	33.30	43.80	51.60	42.79
<i>Very close experience</i>	18.20	31.30	22.60	24.00
Parental Afterlife Beliefs? (%)				
<i>Yes</i>	48.50	65.60	41.90	52.10
<i>No</i>	36.40	31.30	58.10	41.70
Religious household? (%)				
<i>Yes</i>	48.50	34.40	41.90	42.70
<i>No</i>	51.50	65.60	58.10	57.30
Conversations around death? (%)				
<i>No</i>	3.00	87.50	87.10	90.60
<i>Yes</i>	97.00	9.40	12.90	8.30

Parent participants ($N = 75$, owing to sibling participants; 21 parents had two children) were made up of 84% mothers; around 60% had a degree or above; and 43% belonged to Christian denominations. Based on household income, around 67% of families came from a middle- and upper-class background. Ninety-one percent of parents reported having had conversations around death with their child. See Table 2.2 for more detailed information of parental characteristics.

Table 2.2

Characteristics of parent participants, for each child participant ($N = 96^$)*

	Year 1-2	Year 3-4	Year 5-6	Total
	($n = 33$)	($n = 32$)	($n = 31$)	($N = 96$)
Parent/Guardian (%)				
<i>Mother</i>	78.80	90.60	83.90	84.40
<i>Father</i>	21.20	6.30	12.90	13.50
<i>Grandmother</i>	0.00	3.10	3.20	2.10
Ethnicity (%)				
<i>White British</i>	90.90	87.50	83.90	87.50
<i>White Other</i>	3.00	9.30	9.60	6.00
<i>Mixed</i>	6.00	0.00	6.40	4.10
Guardian Education (%)				
<i>GCSE/O Levels/equivalent</i>	9.10	18.80	3.20	10.40
<i>A Levels/equivalent</i>	15.20	12.50	6.50	11.50
<i>Some university</i>	9.10	9.40	12.90	10.40
<i>Bachelor's Degree</i>	45.50	40.60	32.30	39.60
<i>Master's Degree</i>	3.00	6.30	16.10	8.30
<i>Doctorate/Professional Degree</i>	15.20	6.30	12.90	11.50
<i>Trade Apprenticeship</i>	0.00	3.10	12.90	5.20
Household Income (%)				
<i>£10,000-£30,000</i>	9.10	25.00	19.40	17.70
<i>£30,000-£50,000</i>	33.30	43.80	22.60	33.30
<i>£50,000-£70,000</i>	12.10	9.40	16.10	12.50
<i>Over £70,000</i>	27.30	9.40	25.80	20.80
<i>Did not wish to share</i>	15.20	12.50	16.10	15.60

Parental Afterlife Beliefs? (%)

Yes	48.50	65.60	41.90	52.10
No	36.40	31.30	58.10	41.70
Religion (%)				
None	48.50	65.60	58.10	57.30
Christian (unspecified)	33.30	25.00	6.50	21.90
Church of England	12.10	3.10	9.70	8.30
Catholic	3.00	3.10	22.60	9.40
Protestant	0.00	0.00	3.20	1.00
Methodist	0.00	3.10	0.00	1.00
Unitarian	3.00	0.00	0.00	1.00

*Although there were 75 parent participants, there were 96 children because 21 parents had two children

Procedure

Two different methods of recruitment were used: (i) child participants recruited through their school received a parent invitation letter and information sheet that was sent home via letter or email. Parents were provided with the researcher's and research supervisors' contact details in case they wished to ask questions about the study before consenting. Only children whose parents signed and returned the consent form were approached to take part in the study. Parents who consented to take part were sent two parent questionnaires to complete and return to the school. The researcher liaised with each school to arrange a mutually convenient time and place to individually interview children. (ii) Parents of participants who were recruited through the DD Lab at UEA were sent an email with the parent invitation letter and information sheet. Parents who were happy to take part, arranged with the researcher a day and time to come to the lab with their child. The researcher explained what the study would entail, and parents were given the opportunity to ask any questions before signing the consent form. Then, each parent completed the two parent questionnaires while their child was interviewed by the researcher in a separate room.

Children were interviewed individually, with each interview lasting around 15 minutes (ranging from ~10 to 30 minutes). In their school, children were interviewed in a quiet room which was visible to members of staff. In the lab, children were interviewed in a quiet room within the lab, while their parents filled out questionnaires in the waiting room. The interviewer explained that she was going to read a very short story and ask questions about the characters

in that story and that there were no right or wrong answers. She explained that this was a topic that everyone had different ideas about and she wanted to find out what different people thought. The interviewer also explained that they could stop at any time and did not have to answer any questions they did not want to. All interviews were audio recorded after children gave their assent, and detailed notes were taken throughout the interview by the researcher. Once the interview was finished, children received a certificate and sticker for taking part in the study. They were also offered the opportunity to ask any questions. Children who were recruited through the DD Lab also received a t-shirt with the DD Lab logo on as a thank-you present for coming to the lab.

Measures

Child Story Interview

Following Astuti and Harris' (2008) use of narrative contexts, the interview schedule consisted of a story about a person named Gerald/Geraldine. They were described as having lived a long life with their children before becoming ill and dying (see Appendix C). Stories were followed up by 16 close-ended and 5 open-ended questions that assessed children's understanding of cessation, inevitability, irreversibility, and causation. For example, "now that Gerald is dead, do his eyes still work?" Children answered a total of 21 questions on human biological death. Universality was not addressed during the interview schedule owing to the original interview schedule also addressing different living entities (human, dog, and deer). However, for the purpose of this thesis, only children's understanding of human death is investigated. Data addressing children's understanding of death across different entities will be explored at a later date beyond this thesis.

In contrast to Astuti and Harris, Study 2's narratives were developed to be as neutral as possible to avoid priming biological or religious responses. Characters were gendered corresponding to children's genders, e.g., male Gerald or female Geraldine. Sixteen questions addressed four key subcomponents (cessation, irreversibility, inevitability, and causality). Eleven cessation questions were adapted from Astuti and Harris (2008). Five of these questions related to the cessation of biological functions (e.g., "Do his/her legs still move?") and six psychological functions (e.g., "Does he/she miss their children?"). The interview schedule was developed further to include: two questions related to irreversibility (e.g., "can they come back to life?"); two inevitability questions (e.g., "Do all people die?"); and one question related to causality (e.g., "What causes people to die?"). Each question required a

yes/no/don't know response, except the final question on causality. See Appendix C for full interview schedule.

Five of these questions were followed up with a "why" question to allow children to explain why they thought Gerald/Geraldine could or could not do something. These questions were: "Does their stomach need food?" "Do they grow older?" "Does their mind work?" "Can they come back to life?" "Will they be dead forever and ever?". Two further questions required elaboration only if the answer conflicted with a biological understanding of death (i.e., incorrect): "Do all people die?" and "Can some people live forever?". Only these questions were chosen to avoid making the interviews too lengthy for children. These questions were chosen for their representation of subcomponents and areas of interest relating to afterlife beliefs (e.g., physical cessation, mental cessation, irreversibility, and inevitability).

Parent Questionnaires

Parents were asked to complete the parent belief questionnaire (PBQ) adapted from Panagiotaki et al. (2018). The PBQ was developed to gather demographic information, parental beliefs around death, their child's death experience, and how parents would speak/had spoken to their child about death. Demographic information included: child's age; gender; respondent's relationship to the child; parent education; occupation; household income; and whether their child had a pet. Parental beliefs around death were explored through questions about their religion and self-described beliefs around death (e.g., "Do you regard yourself as belonging to any particular religion?" "If yes, how often do you and your child attend services connected to your religion?" "What particular beliefs do you hold around death?"). Information about their child's death experience of humans and/or pets was explored by asking if their child had experienced the death of someone they knew or of a pet, and if so, what their relationship was to the child, how long ago it happened, how close they were to their child, and whether their child attended a funeral/ceremony (for humans only). Parents also reported if their child had asked them any questions around death, and if so, what these were. Few parents were able to recall their child's questions which meant child questions were unable to be investigated. They were then asked to write about how they would explain or had already explained, the death of a friend or family member, a pet, and a wild or farm animal to their child (see Appendix D).

Parents were also asked to complete a second Parent Story Questionnaire (PSQ), adapted from the child interview schedule. The PSQ featured the same stories and questions as the child interviews, however parents were not asked to follow up on or elaborate on any

of their answers. As such, parents read a narrative about a human death, followed by 16 closed-ended questions (see Appendix E). This allowed for quick, direct comparisons between parent and child understandings of the biological subcomponents and provided an adult endpoint for developmental acquisition of these subcomponents.

Coding

Quantitative Coding

For each question (except Q16), children provided “yes,” “no,” and “maybe,” “don’t know,” “sometimes” responses. “No” responses were coded as biological and received a score of 1. “Yes” “Maybe” and “I don’t know” were coded as non-biological and received a score of 0, as they reflected lack of biological knowledge. For two questions (i.e., Q13 “Will they be dead for ever and ever?” and Q14 “Do all people die?”) scores were reversed: a “yes” response was coded as biological and received a score of 1 and a “no” response as non-biological and received a score of 0.

For Q16 (“What causes people to die?”), responses were coded to reflect children’s understanding of causality through a score of 0, 1, or 2, with 2 reflecting biological explanations. Here, responses were coded following Panagiotaki et al.’s (2015) coding scheme, whilst also considering a Piagetian viewpoint. For example, whether children are describing causes of death which originate from outside the body (concrete operational thinking) or are recognising the more abstract internal workings of the body (formal operational, Slaughter 2005). See Table 2.3 for causality coding framework and examples.

Table 2.3

Causality coding framework

Code	Description	Example
0	Irrelevant / wouldn’t lead to death / lack of description	Too many sweets
1	External cause of death, no biological explanation given	Old age, accidents, illness
2	Reference to body or organs, mention of biological causes	Heart stops beating, heart attack, brain stops working

Following the scoring of responses to individual questions, participants received a possible maximum score of 17 (all questions scored 0-1, except for Q16, 0-2). Scores were also given for each subcomponent (maximum score 11 for cessation, 2 for irreversibility, 2 for inevitability and 2 for causality). Higher scores reflected a greater biological understanding of death. The same coding was used for parent responses to the PSQ – meaning both parent and child received understanding scores. Parent understanding scores were also used as an adult sample for a developmental endpoint. ‘Adult’ and ‘parent’ understanding scores refer to the same data.

Qualitative Coding

For children’s open-ended responses to the five “why” questions, a coding scheme based on Harris and Giménez (2005) and Panagiotaki et al. (2018) was developed. Children’s responses were allocated to three broad categories (biological, non-biological, and metaphysical) with a fourth broad category added to reflect dualistic responses (both biological and metaphysical). Biological category was applied to explanations which corresponded to a biological understanding of, or way of thinking about death. For example, “once you’re dead you’re dead”, or references to decay after death. Metaphysical referred to explanations which reflected a metaphysical understanding of, or way of thinking about death. For example, explanations which refer to the continuation of a person in spirit, in heaven or as a ghost. Dualistic was assigned to any explanations which contained elements of both biological thinking and metaphysical thinking. For example, “their body rots away but their spirit looks down on us”. Non-biological referred to explanations which showed neither biological nor metaphysical thinking. For example, “don’t know” or continued functioning for no particular reason, with no metaphysical justification.

Responses were independently assessed for common themes by the first coder to further develop the coding categories. Sub-categories were used as further descriptors and devices to aid coders broad category decisions, but only the broader categories were used during analysis (biological, metaphysical, dualistic and non-biological). These sub-categories were merged into the four broader categories to allow for more meaningful analysis of the data, owing to the sample size. See Table 2.4 for the full coding scheme.

A second coder coded 90% of children’s responses. For overall responses (across questions) there was almost perfect agreement between coders, $k = .92$ (CI, .88 to .96), $p < .0005$. By question, there was perfect agreement for Q14 and Q15 (where there were far fewer responses ranging from 11 to 28 responses). Agreement between each question ranged from

substantial to almost perfect agreement, with lowest agreement between codes for “Do they grow older?” (Q5), $k = .78$ (CI, .64 to .92), $p < .0005$. Any disagreements were resolved through discussion.

Parent explanations given in the PBQ were coded according to the same coding scheme, to allow for comparisons between child response types and parental explanations. In the PBQ, parents gave explanations for human, pet, and wild animal death. These explanations were used to form parent explanation types. The second coder coded responses relevant to the death of a human only (i.e., 33% of all responses). However, it is worth noting that many parents wrote “same as above” or similar for explanations succeeding human explanations. There was substantial agreement between coders, $k = 0.74$ (CI, -0.08 to 0.17) and any disagreements were resolved through discussion. In contrast to child participants, parents were not given ‘why’ questions to justify their responses during the PSQ and so were not given response types.

Table 2.4*Full coding scheme for child response types and parent explanation types*

Broad Categories	Sub-categories	Description	Example
(1) Biological	a) DEAD/BURIED/BURNED*	Explanations that only referred to death or burial with no further elaboration	"Once you're dead you can't come alive"
			"Because he is dead"
			"He's not alive"
			"He is ashes"
			"Can't go from underground to up ground".
	b) NO MOVEMENT	Explanations referring to a lack of movement or action	"Because he is dead, and he can't move" "Because if he is dead his legs can't move." "Doesn't move, doesn't need energy"
	c) BODY PARTS/FUNCTIONS	Explanations referring to specific internal organs and bodily functions	"If you're dead, your whole body would stop working"
			"Stop breathing and body shuts down"
			"Body shuts down and stops"

			<p>“Because his heart doesn’t work, his muscles don’t work”</p> <p>“His brain and heart aren’t working, and they control his legs”</p> <p>“No blood flow around body”</p> <p>“Body doesn’t function anymore”</p>
	d) LIFE CYCLE/END OF LIFE	Explanations asserting that death is a part of the life cycle, the end of life or the end of functioning, but not the end of time	<p>“When you’re alive it [your mind] will keep on going until you die”</p> <p>“Because he is dead and so none of his body parts work” “Because he’s not alive”</p> <p>“His body is switched off” “It’s a part of life”</p> <p>“His body gets old because it’s still there, but he doesn’t grow older”</p> <p>“In the end” “Way of life, everyone dies and can’t come back”</p>
	e) DECAY	Explanations referring to the decay of the body after death	<p>“He’ll dissolve and get preserved”</p> <p>“He’s decaying.” “His skin disintegrates, and he turns into bones” “Bugs eating his brain”</p> <p>“Gets mouldy and moulds away”</p>

	f) INCORRECT	Attempts at biological justification which were incorrect and show a misunderstanding of biological processes but a biological way of thinking.	“They can live forever if you keep electrocuting them” “Can come back to life if only dead for a few hours”
(2) Non-Biological	a) UNINFORMATIVE	Unclassifiable or “don’t know” answers	“Possibly”
			“Maybe”
			“Don’t know”
	b) NON-METAPHYSICAL	Explanations reflect belief in the continuation of functions, or non-biological explanation without reference to metaphysical	“Deer’s that are special stay alive”
			“Special kind of person”
	c) UNNECESSARY	Explanations which describe lack of function owing to no need to for	“Don’t have anything to think about”
			“Nothing to learn”
			“Can’t grow old because doesn’t need do”
	d) SELECTIVE	Descriptions of continued function of select processes	“it’s mind stops working but it can still think”
			“Can remember a few things” “Still think a lot about family”
	e) ASLEEP	Comparisons to death and being asleep	“They’re asleep forever”
			“Don’t eat because they’re asleep”

			“Can’t wake up”
f)	MEMORY	Continuation of person through others’ memories	“It’s something to remember if he has died” “They live on through their children” “We remember them”
g)	PERSONAL	Explanations which draw from personal experience	“My uncle didn’t have any medicine and that’s how he died” “My grandpa’s dead and he hasn’t come back yet”.
h)	MEDIA	Explanations inferred from things seen in books, television and other popular culture	“Only in horror movies” “She came back as a cat in my book” “I saw that happen on YouTube”
i)	TECHNOLOGY	Explanations which consider existing technology and abilities of people, e.g., doctors	“The technology doesn’t exist yet” “Nobody has invented a bring back to life machine yet” “If there was a cure to bring them alive again then they would do that” “People haven’t discovered how to bring dead back alive”
(3)	Metaphysical		“Only God could bring back”

	a) RELIGIOUS GOD/HEAVEN/HELL	Explanations asserting that living things continue to live on after death with God or in heaven or hell.	"In heaven, they can float."
			"If they're naughty they will go to hell"
	b) REINCARNATION	Explanations which describe turning into something or someone else after death, including reincarnation beliefs	"When they die, they turn into another person" "They turn into a robin" "They can pick what they turn into next".
	c) PARTS	Explanations asserting that there is a part of the mind or the body—or some special entity such as a spirit, soul — that continues on after death	"He's dead, his spirit goes up and works." "He's walking as a spirit." "Spirit can stay for rest of time":
	d) SUPERNATURAL	Any reference to a belief in supernatural beings or belief in magic, e.g., ghosts, zombies, vampires	"Could be a ghost" "Ghosts don't get older" "If they came back to life, they would be a zombie" "Giants can live forever if healthy" "Santa knows if you're dead" "There are no magic potions to bring back" "Only witches or wizards can"
	e) DEATH RITUAL	Explanation of a ritual surrounding death	"We leave flowers at their grave on their birthday"
			"Body rests in the coffin"
	f) WORLDS		

		Explanations which describe going to another world after death, without religious references	“Gone to live in the sky/stars”, “Live in another world but can’t come back to this world”
	g) OTHERS	Explanations which consider the beliefs of others, e.g., Egyptians, or those with different beliefs to themselves	“Would need food if Egyptian, mummified and given food to travel”

Responses were coded participant by participant, and where any discrepancies occurred between closed and open-ended responses, close-ended responses were interpreted in the context of their open-ended responses. For example, “Yes, they still get older” “Why?” “Because time still goes on, but they don’t grow or get physically older” would be recoded to reflect a “no” response.

Participants’ ideas sometimes changed over the course of the interview making it necessary to look at all their responses. Most discrepancies were addressed during the interview, as some children’s ideas became more consistent as the interview went on – a point which will be reflected upon in the discussion.

From this coding scheme, child participants’ ‘why’ responses were then used to work out their response types. Dualistic response types were made up of responses which were coded as both biological and metaphysical, or coded as dualistic. For the other three response types, a threshold of 75% (3/4s) was required to be coded as either a biological or metaphysical response type. This threshold was chosen to reflect the four possible response types. For example, if 75% of children’s responses reflected biological thinking through biological codes, they were denoted as having a biological response type, likewise for metaphysical. However, if children’s responses did not meet the 75% threshold, they were coded as non-biological response types as they did not clearly reflect consistent biological or metaphysical reasoning. This threshold was set to ensure consistency of participants’ responses before applying response types to each child. For example, if responses are inconsistent and show a misunderstanding of biological death but show one instance of biological reasoning this would not be coded as a biological response type.

Results

A series of multivariate analyses of variance (MANOVAs) were conducted to explore participants' overall death understanding scores, individual subcomponent scores (cessation, irreversibility, inevitability, and causality) and response types (biological, non-biological, metaphysical, and dualistic). Overall death understanding scores had a maximum score of 17, with maximum scores of 2 for irreversibility, inevitability, and causality and a maximum score of 11 for cessation. Scores were weighted for analyses, with each actual score being divided by the maximum score for each subcomponent, providing a maximum score of 1 for all subcomponents. Participants' scores and response types were explored in relation to numerous factors, including age groups, death experience, parental explanations, and parental religious and afterlife beliefs. Significance levels (p values, at a .05 significance level) and effect sizes (partial eta squared, η_p^2 , values) are reported. For η_p^2 effect size, magnitudes above .01 were considered small, those above .06 were considered medium and those above .14 were considered large (Cohen, 1988). For participants' response types, a series of chi-square tests were conducted. For chi-square tests Cramer's V values are reported as a measure of effect size. For Cramer's V values below .05 were considered weak, those above .10 were considered moderate and those above .15 were considered strong (Akoglu, 2018). Where relevant, sensitivity analyses (Perugini et al., 2018) and a priori power analyses using G*Power (Faul et al., 2007) indicated whether each statistical test had enough power ($\alpha = .05$ and power = .80) to detect the relevant effect size. Sensitivity analyses have been argued to be more informative than post hoc power analyses by identifying the minimum size of effect that can be reliably detected with the given alpha level (.05), power (.80) and sample size – effect sizes smaller than this value will not be significant (Perugini et al., 2018). G*Power uses Cohen's w as a measure of effect size with 0.10 considered small, 0.30 medium, and 0.50 large – this was calculated by dividing the chi-square value by the number of scores and taking the square root (Colman, 2009).

(1) Developmental trajectory of death understanding

To address the first research question, the prediction that children's understanding of death would follow a linear developmental pattern was tested. First, children's overall death subcomponent scores were investigated. It was predicted that older children would score higher than younger children. Scores for each individual subcomponent were explored. It was expected that all children would understand irreversibility, and would have started to understand inevitability and cessation, with only adults and older children scoring highly on causality. Here, parent understanding scores were used to provide a developmental endpoint

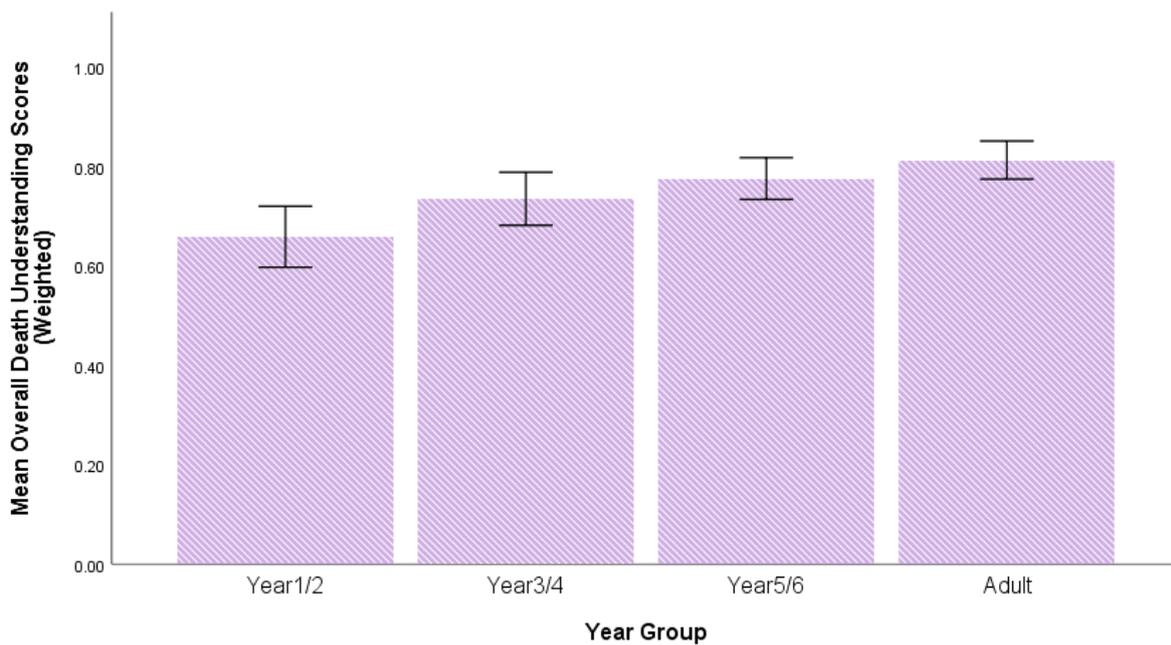
and so are referred to as ‘adult’ scores. Second, children’s response types were investigated. It was also predicted that children in Years 5-6 would be more likely to use metaphysical explanations and exhibit co-existent reasoning than younger children. Finally, children’s understanding scores and response types were compared to investigate how children’s conceptualisations of death may impact their understanding of biological death.

(1.1) Subcomponent Scores

A MANOVA explored the relationship between year group (Y1-2, Y3-4, Y5-6, and adult) and subcomponent scores (irreversibility, cessation, inevitability, and causality). A statistically significant medium effect of year group on children’s and adult’s death understanding scores was found, $F(5, 184.00) = 802.21, p = .00$; Wilk’s Lambda = .04, $\eta_p^2 = .96$. See Figure 3.1 for pattern of mean weighted scores across each age group.

Figure 3.1

Mean human death understanding of weighted scores (maximum = 1) by age group (N = 171). Error bars are 95% confidence intervals



Year group differences by each subcomponent are reported below.

For irreversibility scores, no significant differences between year group were found ($p > .05$). See Table 2.5 for means. These results indicate that irreversibility scores were high for

each group. This finding suggests that children in each age group had a similar understanding of the irreversibility of human death to adults.

Cessation scores were significantly different between age groups, with a medium effect size, $F(3, 188) = 4.13, p = .007, \eta_p^2 = .062$. Tukey's pairwise comparisons indicated that adult scores were significantly higher than children's scores in Y1-2 ($p = .007$). Older children (Y5-6 and Y3-4) and adults had similar understanding of cessation ($p > .05$). See Table 2.5 for means. These findings suggest that Y3 to Y6 children understand cessation as well as adults.

For inevitability, a large effect of year group on scores was found, $F(3, 188) = 12.25, p = .000, \eta_p^2 = .16$. Tukey's pairwise comparisons indicated that children in Y1-2 scored significantly lower than children in Y3-4 ($p = .001$), Y5-6 ($p = .000$), and adults ($p = .000$). Scores did not differ significantly between these year groups ($ps > .05$). See Table 2.5 for means. These findings suggest that Y3 to Y6 children understand inevitability as well as adults.

Causality scores also differed significantly between age groups, with a medium effect size, $F(3, 188) = 4.91, p = .003, \eta_p^2 = .07$. Pairwise comparisons indicated that Y5-6 children scored significantly higher than Y1-2 children ($p = .001$). See Table 2.5 for means. These findings suggest that older children (Y5-6) have acquired an understanding of causality which younger children have yet to do. However, means indicated that adults and children in Y3-4 share a similar understanding of causality, and this appears to be poorer than among Y5-6 children.

Table 2.5

Means and standard deviations of child and adult death subcomponent scores (weighted) by age group, maximum score of 1.

	Y1-2 (n = 33)	Y3-4 (n = 32)	Y5-6 (n = 31)	Adult (N = 75)
Irreversibility, Mean (SD)	0.80 (0.37)	0.89 (0.30)	0.85 (0.32)	0.90 (0.28)
Cessation, Mean (SD)	0.79 (0.23)	0.83 (0.19)	0.87 (0.16)	0.88 (0.20)
Inevitability, Mean (SD)	0.68 (0.39)	0.90 (0.24)	0.97 (0.18)	0.96 (0.17)
Causality, Mean (SD)	0.44 (0.27)	0.57 (0.31)	0.69 (0.25)	0.57 (0.27)

(1.2) Response types

Analysis of response types to five “why/why not?” follow-up questions provided further insight into how children conceptualise death. Child participants’ response types were coded from cessation- and irreversibility-focused questions in which they were asked to elaborate on their answers. These questions included: “Does their stomach need food?”; “Do they grow older?”; “Does their mind work?”; “Can they come back to life?”; and “Will they be dead forever and ever?”. The former three questions refer to cessation, the latter two to irreversibility. Children’s responses were then coded into biological, metaphysical, non-biological or dualistic response types (see coding scheme). Overall response types refer to both irreversibility and cessation subcomponents combined.

Children’s responses give insight into how children use different types of reasoning for different subcomponents (cessation and irreversibility). For example, in response to one of the questions relating to irreversibility, “Will they be dead forever and ever?”, some children responded with metaphysical reasoning describing ideas around reincarnation, heaven, and being good versus bad. For example, “They turn into an animal” (Y1-2, female); “Come back to life as something else” (Y5-6, female); “If bad she will” (Y1-2, female); “No, because always be in the sky, forever, once dead” (Y1-2, male); “If good can turn into plant, baby animal or newborn baby” (Y5-6, male).

Metaphysical reasoning was also seen for questions relating to cessation, for example, “Does their stomach still need food?”: “Could still be a ghost [would] need food” (Y/2, male); “When she goes up to heaven, she might get food there” (Y3-4, female); “Because they [ghost] don't get hungry” (Y3-4, female). In response to, “Does their mind work?”, children again referred to heaven, “Because hasn't got a brain, it's in heaven” (Y1-2, female) and ghosts, “Because ghosts are really smart and doing stuff humans couldn't do” (Y5-6, female).

In response to the same questions, children who reasoned biologically often described bodily functions, decay, medical interventions, or death being the end. For example, responses to, “Will they be dead forever and ever?” included: “If she's stopped breathing and heart stopped beating for that long, can't get special treatment to get better so dead forever” (Y5-6, female); “Bones will be the only thing that's left” (Y3-4, male); “No way of bringing back to life” (Y1-2, female); “Dead people have to stay dead forever” (Y1-2, male).

For cessation, “Does their stomach still need food?”, children used biological reasoning to consider why people need food, biological processes, and movement after death. Examples also illustrate how children may use vitalistic thinking as described in previous research (e.g.,

Inagaki & Hatano, 2006; 2004): "She doesn't move, or anything so doesn't need energy. Eating is like filling up with fuel" (Y1-2, female); "Doesn't feel anything. When alive - food is energy which we don't need when dead" (Y3-4, male). Vitalistic thinking considers that bodily processes sustain life by taking in vital life force, through things such as food and water, and this vital life force maintains and enhances life, enabling things to grow and be active (Inagaki & Hatano, 2006; 2004). Others considered biological processes and the lack of movement as a result of death: "Because he has no use for the food inside his stomach, he can't burn the energy, his organs don't work inside him" (Y5-6, male); "Can't digest" (Y3-4, male); "Because dead, doesn't need it, can't breathe, anything, can't eat or chew" (Y3-4, female); "Body parts don't work" (Y1-2, male); "Because she is dead, she won't feel hungry, can't feel anything" (Y3-4, female).

In considering cessation of psychological processes, "Does their mind work?", children referred to biological processes shutting down. For example; "Her mind doesn't work because if everything stops in the body there can't just be like one thing that's working, it will be all of them working or all of them not, and no it won't be" (Y5-6, female); "Because brain doesn't function" (Y5-6, male); "Switched off" (Y3-4, female); "Head makes heart pump, doesn't pump then head doesn't work" (Y1-2, female); "Can't think of anything. If heart stops, brain stops as well" (Y5-6, female); "Entire body shut down, she can't feel anything" (Y5-6, female); "Because when you're dead your heart stops beating so nothing works when you're dead" (Y1-2, male).

Children also gave responses which included both metaphysical and biological reasoning. These were categorised as dualistic explanations and reflected co-existent thinking, often through the separation of spirit and body. For example, "[Will they be dead forever and ever?] If people dig him up again, he'll still be there. [He's] dead in real life but alive in heaven" (Y3-4, male); "[Do they still get older?] Spirit yes, body kind of. Age in decay but stays age that he died at" (Y5-6, male); "[Does their mind work?] Wouldn't in this world. Everything else isn't working, heart not working" (Y3-4, male).

Others referred to magic in comparison to the biological world, "[Do they still get older?] Heart stops need to be magic to stay alive. Everything else stops, they get smaller and smaller into dust" (Y1-2, female), and some referred to good and bad behaviour and how this may affect what happens after death, with those who are good going on to live in another world:

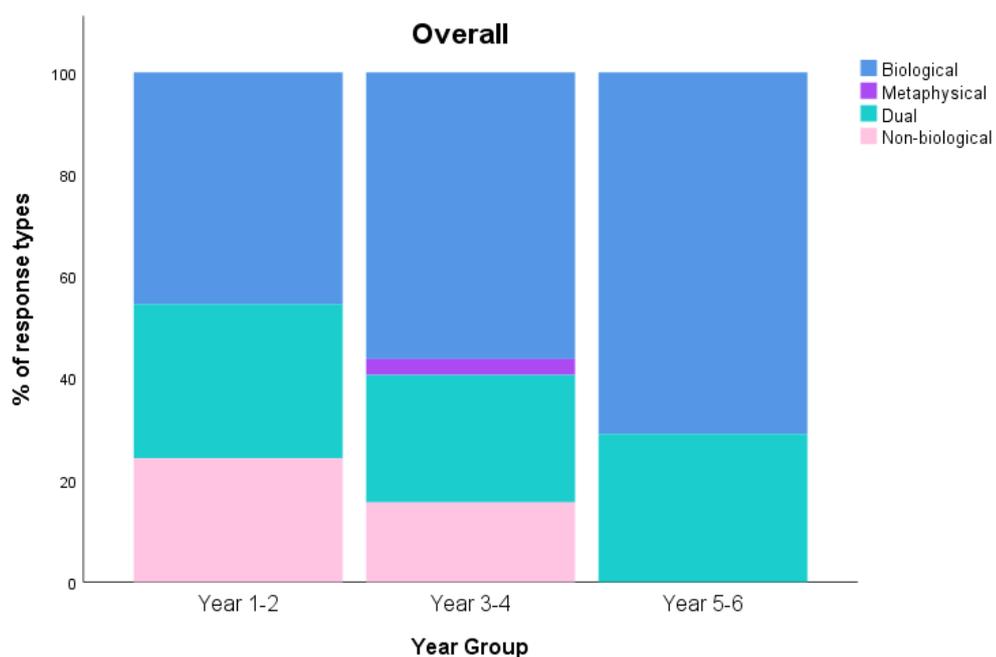
[Does their stomach still need food?] No, because every human once they're dead, they can't just come back to life and walk everywhere where they want to, they go to heaven, or hell, where they, where it depends on if they've been good or not, if they've been good there's another world they go into like afterlife (Y5-6, female)

Only children's response types are reported here, as parents were not asked any follow-up questions to justify their responses. For the analyses, chi-square tests were run first between overall response types (cessation and irreversibility) and age groups (Y1-2, Y3-4, Y5-6) and then by subcomponent response type (cessation or irreversibility) and age groups.

Figure 3.2 shows that Y5-6 children were more inclined than younger children to give biological (71.0%) or dual responses (29.0%) overall. In Y3-4 only one child gave consistently metaphysical responses (3.1%), whereas 56.3% gave biological, 15.6% non-biological and 25.0% dualistic. In the youngest age group 45.5% gave biological, 24.2% non-biological and 30.3% gave dualistic responses. Biological explanations appeared to increase with age, non-biological decreased and dualistic was seen across age groups. No significant associations between age groups and overall response types were, $\chi^2(6) = 11.09, p = .086, w = .34$. Sensitivity analyses (Perugini et al., 2018) using G*Power (Faul et al., 2007) indicated that, with power set at .80, the sample size ($N = 96$) was sufficient to detect only effect sizes of $w = .38$ and above. For $w = .34$ and N of 96, the test power is .70. A priori analyses indicated a sample size of 118 was needed for sufficient power (.80) to detect this effect size ($w = .34$). The power provided by the current sample size was close to sufficient meaning the chance of a Type II error is less likely and the hypothesis that older children would exhibit more metaphysical and co-existent reasoning than younger children was therefore not supported.

Figure 3.2

Percentages of response type categories by age group: irreversibility and cessation responses combined ($N = 96$)



Despite no significant association, Figure 3.2. suggests that Y5-6 children gave more biological explanations than younger children, and all age groups exhibited co-existent and metaphysical thinking, only one child showed consistent metaphysical reasoning (Y3-4).

To explore how particular subcomponents may elicit different response types, children's responses to questions about cessation and irreversibility were explored separately. Figures 3.3 and 3.4 show that children gave more metaphysical responses to irreversibility questions (11.5%) than to cessation questions (0%) and fewer biological responses to irreversibility questions than cessation questions (57.3% compared to 69.8%). Y1-2 participants demonstrated no dualistic thinking when asked to explain their irreversibility answers. Instead, nearly 60% of the youngest group gave either non-biological or metaphysical responses to explain their answers to irreversibility questions.

Figure 3.3

Percentages of response type categories by age group: Cessation (N = 96)

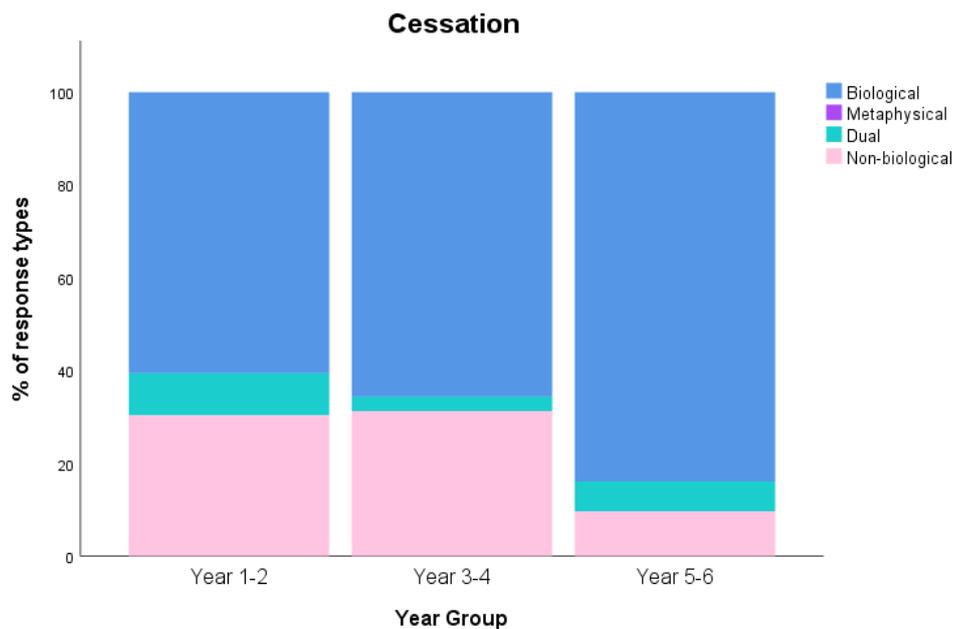
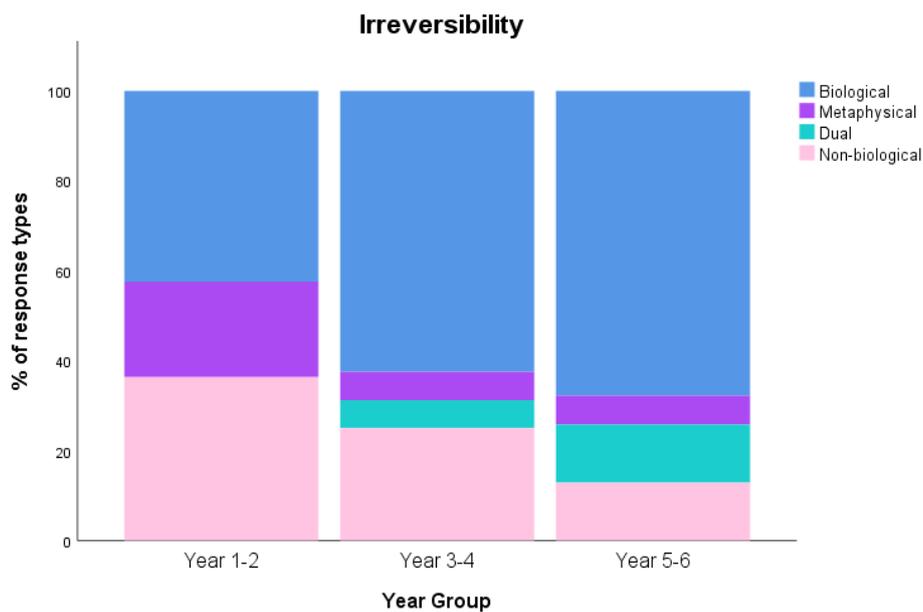


Figure 3.4

Percentages of response type categories by age group: Irreversibility (N = 96)



In summary, by exploring children's justifications of their answers to cessation and irreversibility questions, several key findings emerged. First, evidence of co-existent thinking was seen in children's dualistic responses, regardless of age and not limited to older children with more mature biological understandings of death. Next, different subcomponents may elicit different types of reasoning. For example, irreversibility questions elicited more metaphysical responses and fewer biological responses than cessation questions. For irreversibility, the youngest age group gave no dualistic responses, but did exhibit metaphysical only reasoning. These findings do not support the hypothesis that children in Y5-6 would be more likely to use metaphysical explanations and exhibit co-existent reasoning than younger children (1.2). These findings contrast with the previously reported developmental timelines which suggest that children do not begin to start using metaphysical reasoning until after they have acquired a mature, biological understanding of death (e.g., Astuti & Harris, 2008; Harris & Giménez, 2005; Legare et al., 2012).

(1.3) How do response types relate to subcomponent scores?

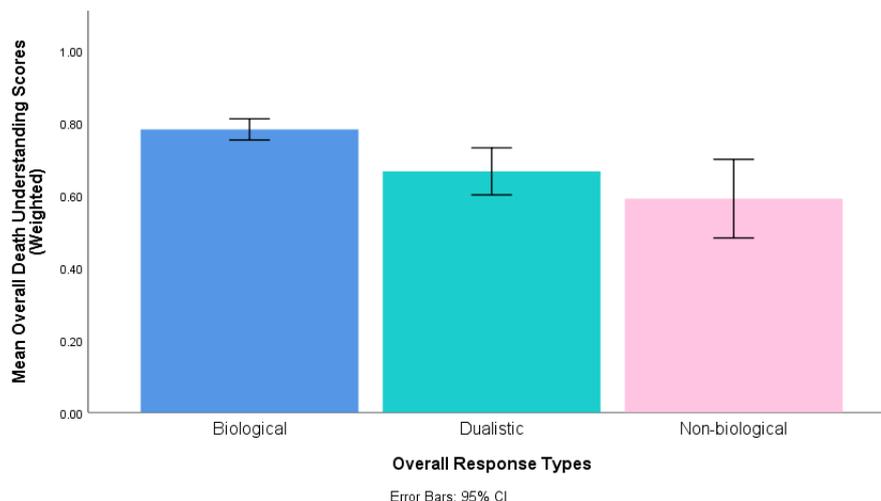
Next, the relationship between children's response types and biological death understanding scores was explored to investigate how children's conceptualisations of death may impact their understanding of biological death. Only one child consistently used metaphysical explanations, and so was excluded from these analyses to allow for post hoc tests.

A MANOVA was conducted with children's death understanding scores for each subcomponent as the dependent variable (DV; irreversibility, cessation, inevitability, and causation) and children's response types (IV; biological, non-biological, and dualistic) and year groups as the independent variables (IV; Y1-2, Y3-4, Y5-6). A large significant effect of children's response types on children's death understanding scores was found, $F(8, 168) = 3.47, p = .001, \eta_p^2 = .142$. A significant effect of age group on children's death understanding scores was also indicated, $F(8, 168) = 0.77, p = .009, \eta_p^2 = .112$. No significant interaction between children's response types and age group was found ($p = .26$).

As seen in Figure 3.5, children with biological response types scored highest overall, and non-biological response types lowest. Children's response types were found to have a significant effect on irreversibility, $F(2, 87) = 0.37, p = .032, \eta_p^2 = .08$, inevitability, $F(2, 87) = 8.39, p = .003, \eta_p^2 = .13$, and cessation, $F(2, 87) = 0.29, p = .001, \eta_p^2 = .14$. No significant effect of response type on causality scores was found ($p = .40$). Tukey's post hoc tests indicated that children with biological response types scored significantly higher than those with dualistic responses for irreversibility ($p = .020$). For cessation those with biological response types scored significantly higher than non-biological ($p = .001$) and dualistic ($p = .027$) children. Similarly, inevitability scores showed those with biological response types scored significantly higher than non-biological ($p = .000$) and dualistic ($p = .009$) children. For causality, children with biological response types scored significantly higher than those with non-biological response types ($p = .04$).

Figure 3.5

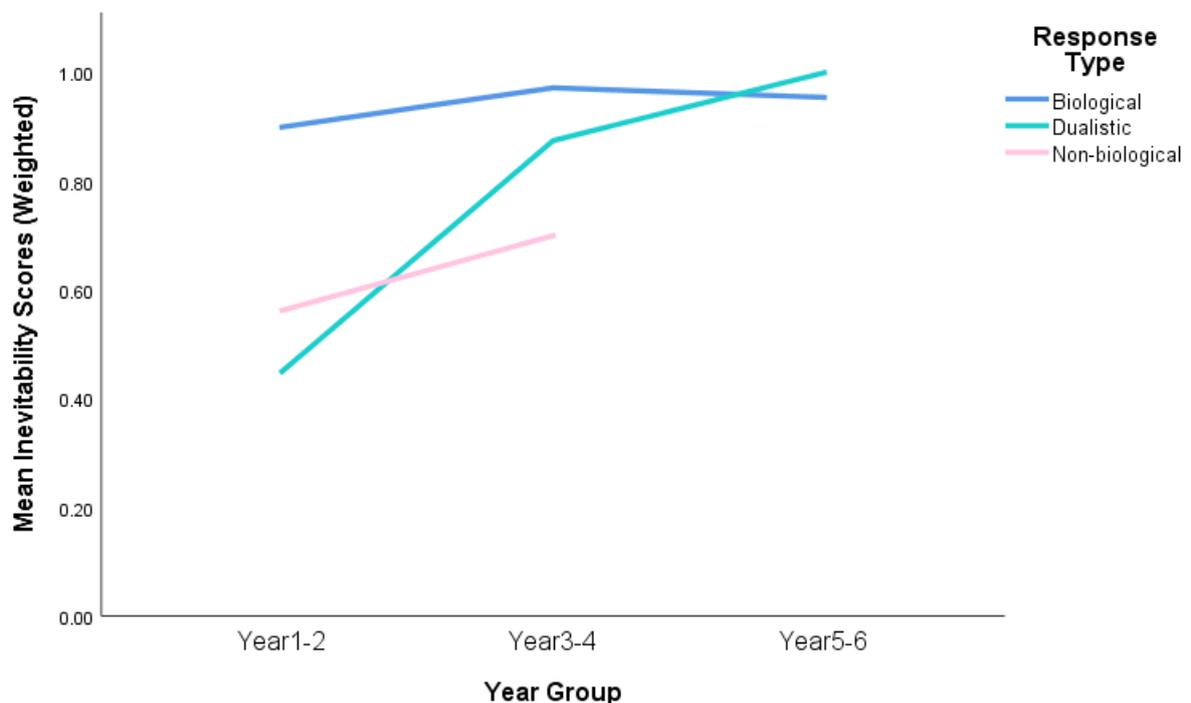
Mean biological death understanding scores (weighted, maximum = 1) by children's overall response types (biological, $n = 55$; dualistic, $n = 27$; and non-biological, $n = 13$). Error bars are 95% confidence intervals



Significant interactions between children’s response types and age were seen for inevitability, $F(3, 87) = 3.96, p = .011, \eta_p^2 = .12$. A one-way ANOVA split between year group indicated that for children in Y1-2, there was a significant difference in inevitability scores based on response type, $F(2, 29) = 5.779, p = .008, \eta_p^2 = .28$. Tukey’s post hoc tests indicate that for children in Y1-2, those with dualistic response types ($M = 0.45, SD = 0.44$) scored significantly lower than those with biological response types ($M = 0.90, SD = 0.21, p = .009$). No significant difference was found between non-biological ($M = 0.56, SD = 0.42$) and biological or dualistic response types ($p = .08$ and $p = .77$, respectively). As illustrated in Figure 3.6, those with biological response types scored similarly regardless of age, scoring higher than children with non-biological (non-significantly) and dualistic response types (except in Y5-6). For dualistic response types, scores can be seen to improve with age, especially between Y1-2 and 3-4.

Figure 3.6

Line plot representing weighted mean of inevitability scores (maximum = 1) by age (Y1-2, 3-4 and 5-6) and response type (biological, dualistic, and non-biological)*



*No participants in Y5-6 had non-biological response types

Following these findings, as predicted, it appears that those children who use biological reasoning in their explanations show higher understanding of biological death than other children. Further, those who gave dualistic responses to questions about these two

subcomponents, using both biological and metaphysical reasoning, appeared to show a worse understanding of biological death than those who gave biological responses alone. The prediction that children who gave biological and dualistic response types would exhibit better understanding of biological death than children who gave non-biological responses, is only somewhat supported. This finding was unexpected as co-existent (dualistic) reasoning is not thought to occur until children have a mature understanding of biological death (Harris & Giménez, 2005). Interactions between age and response types for inevitability scores suggest that worse understanding shown in children with dualistic response types may be related to age, with youngest children showing the worst understanding (Y1-2). Explanations for these findings will be considered during the discussion – for example, they may reflect the conflict between biological and metaphysical ideas.

(2) Association between death experience and children's death understanding

Next, the second research question was explored; how are children's experiences with death associated with their acquisition of the death subcomponents? Analyses were conducted separately for pet ownership and pet death experience (2.1) and human death experience (2.2). Analyses were separated in this way to investigate the influence of different types of death experience on children's understanding. For example, pet death may not be experienced in the same way as human death.

Only 8% of children were reported by parents to have had no direct experience of the death of someone they knew or a pet. Fifteen per cent of children had experienced a pet's death, and 33% a person's death. Forty-four per cent had experience of both pet and human death. To test the prediction that children with experience of death have greater understanding of biological death, a new variable was created to reflect the closeness of the relationship between the child and the deceased, pet or human, as reported by parents. For both pet death and human death experience, children were allocated to one of three 'closeness' categories: (1) no close death experience ($N = 31$); (2) some close death experience ($N = 41$); and (3) very close death experience ($N = 23$). One participant had missing data owing to a missing PBQ.

(2.1) Pet ownership and pet death experience

First, associations between children's death understanding and pet ownership and pet death experience findings are reported.

Subcomponent Scores. A 2 x 3 MANCOVA was conducted to explore the effect of pet ownership (yes, no) and pet death experience (no close experience, some close experience and very close experience) on subcomponent scores (irreversibility, cessation, inevitability and causality). Year group was treated as a covariate. There were no significant main effects of pet ownership, $F(4, 85) = 1.783, p = .140, \eta_p^2 = .077, f = .31$, or pet death experience $F(8, 172) = 1.30, p = .247, \eta_p^2 = .058, f = .25$, and no interaction effects between these two variables on children's overall human death scores ($p > .05$). Sensitivity analyses indicated the sample size ($N = 96$) was sufficient only to detect effect sizes of $f = .29$ and above for pet ownership and $f = .32$ for pet death experience. A priori analyses indicated a sample size of 158 was needed for sufficient power (.80) to detect a main effect of pet death experience at this effect size ($f = .25$).

A significant main effect of year group was seen on children's overall human death scores, $F(4, 85) = 4.354, p = .003, \eta_p^2 = .170$.

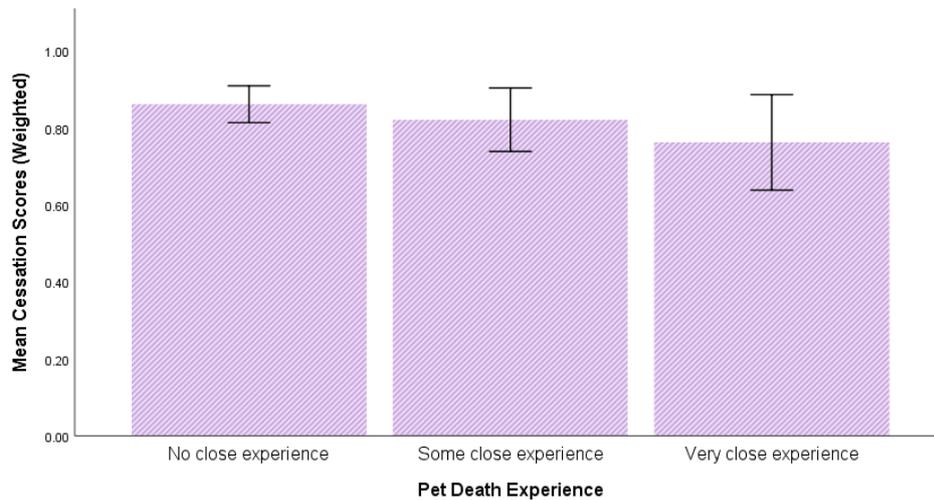
For individual subcomponent scores, no significant effects of pet death experience were seen for irreversibility or inevitability.

A medium significant effect of pet death experience on children's cessation scores was also found, $F(2, 86) = 3.404, p = .038, \eta_p^2 = .072$. Pairwise comparisons suggested a marginally significant difference between cessation scores of children with very close pet death experience and those with no experience ($p = .077$). Children with very close pet death experience had lower cessation scores than those without any experience ($M = 0.76, SD = 0.25$ and $M = 0.86, SD = 0.17$ respectively) as shown in Figure 3.7.

A small significant effect of pet ownership on children's causality scores was found, $F(1, 88) = 4.882, p = .030, \eta_p^2 = .053$. Children with pets ($M = 0.63, SD = 0.28$) had higher causality scores than those without ($M = 0.45, SD = 0.27, p = .030$).

Figure 3.7

Mean cessation scores (weighted, maximum = 1) by child's experience of close pet death (no close experience, some close experience, very close experience, N = 95). Error bars are 95% confidence intervals



Response Types. Chi-square tests were run to explore the relationship between pet ownership and experiences with pet death on children's responses to the follow-up questions about human cessation and irreversibility. Chi-squares were run between pet ownership and cessation response types; pet ownership and irreversibility response types; pet death experience and cessation response types; and pet death experience and irreversibility response types. Ages were collapsed for each test. A significant association was seen between children's type of responses about irreversibility and pet ownership ($\chi^2(3) = 8.872, p = .031, V = .30$) and pet death experience ($\chi^2(6) = 16.401, p = .012, V = .29$). Those children who owned pets were more likely to use biological explanations than those who did not. Those with no close experience of pet death were more likely to use biological, or non-biological explanations than those with some or very close experience. No significant associations were found between cessation responses and pet ownership and pet death experience ($ps > .05$). Owning a pet or having experienced the death of a pet appeared to contribute to the types of explanations used by children when discussing the irreversibility, but not cessation, of death.

(2.2) Human death experience

Next, the influence of human death experience on children's death understanding was explored.

Subcomponent Scores. A 3 x 4 MANCOVA with human death experience (no close, some close, very close; IV) and subcomponent scores (irreversibility, cessation, inevitability, and causality; DV) was conducted. Year group was included as a covariate. There were no significant main effects of human death experience on children's subcomponent scores (p s > .05). A significant main effect of year group was seen, $F(4, 88) = 6.846, p = .000, \eta_p^2 = .237$. No interactions were seen between human death experience and age. This finding suggests that having experienced the death of a human has no association with children's death understanding.

Response Types. Chi-squares were run for human death experience and overall response types for cessation and irreversibility subcomponents. Age-groups were again collapsed for each test. No significant associations were found between experience of the death of a human and cessation responses ($\chi^2(4) = 1.282, p = .864, w = .12$) or irreversibility responses ($\chi^2(6) = 4.618, p = .594, w = .22$). Sensitivity analyses indicated, with power set at .80, the sample size ($N = 96$) was sufficient to detect only effect sizes of .38 and above. For $w = .12$ and N of 96, the test power is .13; for $w = .32$ and N of 96, the test power is .31. A priori analyses indicated a sample size of 829 was needed for sufficient power (.80) to detect this effect size ($w = .12$) for cessation, and 282 to detect the effect size for irreversibility ($w = .22$). Consistent with children's subcomponent findings, having experienced the death of a human appeared to have no association with how children explained death – contrasting with predictions. However, the current sample size does not offer enough power to detect significant associations between children's response types and experiences with the death of a human.

(2.3) Pet and/or human death experience

Subcomponent Scores. Owing to the unexpected findings, the following analyses were run to further explore the relationship between experience with death and children's responses. Given that 44% of children had experienced both the death of a human and pet, the following analyses focused not on the type of the death (i.e., pet or human) but on how close the relationship between the child and the deceased was.

A 3 x 4 MANOVA with closeness of death experience (no close, some close and very close; DV) and subcomponent scores (irreversibility, cessation, inevitability, and causality; IV). No significant main effect of the closeness of death experience on children's overall death understanding scores was found, $F(8, 178) = 1.391, p = .203, \eta_p^2 = .059, f = .25$. Sensitivity analyses indicated the sample size ($N = 96$) was sufficient only to detect effect sizes of $f = .29$

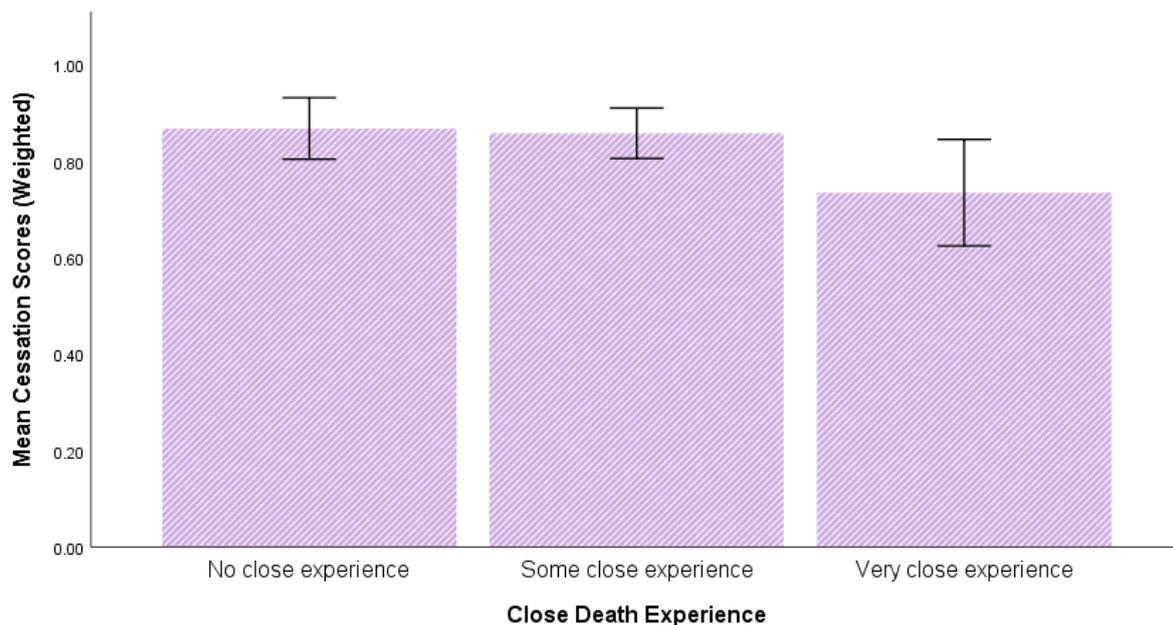
and above. A priori analyses indicated a sample size of 126 was needed for sufficient power (.80) to detect a main effect at this effect size ($f = .25$).

A significant medium main effect of the closeness of death experience on children's cessation scores, $F(2, 92) = 3.800$, $p = .026$, $\eta_p^2 = .076$ was indicated. Tukey's post hoc tests indicated that those with very close death experience ($M = 0.74$, $SD = 0.26$) had significantly lower cessation scores than those with some close experience ($M = 0.86$, $SD = 0.17$, $p = .041$) and those with no experience ($M = 0.87$, $SD = 0.17$, $p = .041$). No significant difference was found between no close experience and some close experience ($p = .975$).

No significant main effects were seen for irreversibility, inevitability, and causality.

Figure 3.8

Mean cessation scores (weighted, maximum = 1) by close death experience, human and/or pet (no close experience, some close death experience, very close death experience, $N = 95$). Error bars are 95% confidence intervals



The prediction that children's level of understanding of biological death would be associated with their experiences with death was partially supported. Experience with pet death and pet ownership appeared to be associated with children's understanding of cessation and causality, respectively. Closer experiences with pet death were associated with lower levels of cessation understanding. The direction of this finding was unexpected, as previous research suggest experience with pets and animal death would improve children's biological

knowledge (e.g., Inagaki, 1990; Panagiotaki et al., 2015). However, children who owned pets appeared to have a greater understanding of causality than those who did not, partially supporting predictions. Experiences with human death alone were not associated with any difference in children's biological death understanding, however when taken together, closer experiences with both human and pet death also showed a poorer understanding of cessation. Exploration of other potential influences on children's understanding, for example parental explanations, may further elucidate this finding.

Response Types. Chi-square tests were run to explore the relationship between experiences with death and children's response types. No significant association was found between the level of close death experience and irreversibility, $\chi^2(6) = 11.503$, $p = .074$, $w = .35$, or cessation response types, $\chi^2(4) = 3.895$, $p = .576$, $w = .20$. Sensitivity analyses indicated, with power set at .80, the sample size ($N = 96$) was sufficient to detect only effect sizes of .38 and above. For $w = .35$ and N of 96, the test power is .73; for $w = .32$ and N of 96, the test power is .31. A priori analyses indicated a sample size of 112 was needed for sufficient power (.80) to detect this effect size for irreversibility ($w = .35$), and 299 to detect the effect size for cessation ($w = .20$). This finding suggests closeness to the deceased is not associated with the type of responses about death irreversibility and cessation given by children. However, exploration with a larger sample size is needed to ensure ability to detect significant associations and increase confidence in these findings.

(3) Influence of parental afterlife beliefs and religiosity on children's understanding of death

Next, the influence of parental afterlife beliefs and religiosity on children's understanding of death was investigated. It was predicted that parental afterlife beliefs and religiosity would influence children's understanding of death, however, owing to inconsistent findings in previous research, the direction was not predicted. Forty-two per cent of parents described themselves as religious, and 52% as having afterlife beliefs. Five parents were unsure of their afterlife beliefs, these were taken to mean they had no afterlife beliefs for the purpose of these analyses. A 'spirituality' variable was created to reflect parents' level of spirituality (high = both religious and afterlife beliefs, medium = religious OR afterlife beliefs and low = no religion or afterlife beliefs). This variable was created to better reflect discrepancies between levels of spirituality among those who describe themselves as religious, and those who do not. For example, although 42% reported being religious, most Christians reported only attending church during big religious holiday, e.g., Christmas, and so may not necessarily be exposing their children to religious practices and beliefs.

To avoid duplicating parent data, data for siblings were removed for analyses involving parent data (the following two sets of analyses). All sibling participants consisted of two siblings; one sibling was removed per pair of siblings at random. For these analyses, 75 parent-child dyads are used, see Table 2.6 for relevant demographics.

Table 2.6

Characteristics of participants with siblings removed (N = 75)

	Year 1-2 (n = 28)	Year 3-4 (n = 26)	Year 5-6 (n = 21)	Total (N = 75)
Age (mean, SD)	6.40(0.56)	8.09(0.71)	10.05(0.66)	8.18(1.63)
Gender (%)				
<i>Female</i>	67.90	50.00	57.10	58.60
<i>Male</i>	32.10	50.00	42.90	41.30
Currently own pets? (%)				
<i>Yes</i>	57.10	76.90	85.70	72.00
<i>No</i>	42.90	23.10	14.30	28.00
Death experience* (%)				
<i>No death experience</i>	17.90	3.80	0.00	8.00
<i>Pet death</i>	14.30	11.50	23.80	16.00
<i>Human death</i>	39.30	34.60	19.00	32.00
<i>Both pet and human</i>	28.60	46.20	57.10	42.70
Close death experience* (%)				
<i>No close experience</i>	46.40	23.10	23.80	32.00
<i>Some close experience</i>	35.70	46.20	52.40	44.00
<i>Very close experience</i>	17.90	26.90	23.80	42.67
Parental Afterlife Beliefs? (%)				
<i>Yes</i>	46.40	61.50	38.10	49.33
<i>No</i>	53.60	38.50	61.90	50.67
Religious household? (%)				
<i>Yes</i>	46.40	26.90	47.60	40.00
<i>No</i>	53.60	73.10	52.40	60.00
Conversations around death?* (%)				
<i>Yes</i>	100.00	84.60	85.70	90.67
<i>No</i>	0.00	11.50	14.30	8.00

*indicates where data is missing for one participant in Year 3-4

(3.1) How do parental beliefs relate to children's subcomponent acquisition?

Subcomponent Scores. A MANCOVA was conducted with spirituality (high, medium, or low; IV) and children's subcomponent scores (irreversibility, inevitability, cessation and causality; DV). Year group was a covariate. A large significant effect of parents' spirituality level on children's subcomponent scores was found, $F(8, 136) = 3.34, p = .002$; Wilks' Lambda = .699, $\eta_p^2 = .164$. Higher spirituality predicted lower overall scores. Significant main effects of spirituality on cessation $F(2, 71) = 7.06, p = .002, \eta_p^2 = .166$, irreversibility $F(2, 71) = 6.03, p = .004, \eta_p^2 = .145$. No significant effect of spirituality on inevitability ($p = .093$) or causality ($p = .142$) was found.

Pairwise comparisons indicated that children of parents with religious and afterlife beliefs scored significantly lower than children whose parents had no religious or afterlife beliefs for cessation ($p = .004$), irreversibility ($p = .003$). For cessation, those parents who had either religious or afterlife beliefs also scored higher than those parents who had both religious and afterlife beliefs ($p = .003$). Overall, children of parents with high spirituality ($M = 0.60, SD = 0.19$) scored significantly lower than those whose parents had low ($M = 0.78, SD = 0.11$) and medium spirituality ($M = 0.74, SD = 0.14$), see Table 2.7 for scores by each subcomponent.

Table 2.7

Means and standard deviations of children's death subcomponent scores by parents' spirituality levels, (weighted, maximum score = 1 for each subcomponent)

	Spirituality Level	Mean (SD)
Cessation	High	0.69 (0.25)
	Medium	0.88 (0.15)
	Low	0.88 (0.16)
Irreversibility	High	0.63 (0.47)
	Medium	0.82 (0.36)
	Low	0.98 (0.10)
Inevitability	High	0.76 (0.39)
	Medium	0.82 (0.33)
	Low	0.94 (0.22)
Causality	High	0.50 (0.29)
	Medium	0.50 (0.29)
	Low	0.62 (0.29)

(3.2) How do children's beliefs relate to parental beliefs?

Response types. Chi-square tests were conducted to explore the relationship between parents' spirituality level and children's response types. No significant association was found between spirituality level and children's response types to cessation and irreversibility follow-up questions, $\chi^2(6) = 7.180, p = .31, w = .31$. Sensitivity analyses indicated that, with power set at .80, the sample size ($N = 75$) was sufficient to detect only effect sizes of $w = .43$ and above. For $w = .31$ and N of 75, the test power is .48. A priori analyses indicated a sample size of 142 was needed for sufficient power (.80) to detect this effect size ($w = .31$). This finding suggests that parent's spirituality level does not influence types of responses given by children. Parents' spiritual beliefs do not appear to be associated with how their children conceptualise death. However, the sample size does not offer enough power to detect significant associations between children's explanations and parents' spiritual beliefs so we cannot be confident there is no association. Significant differences in children's subcomponent scores may also be used to suggest that their reasoning is associated with their parents' beliefs.

(3.3) How do parent subcomponent scores compare to child subcomponent scores?

Next, parents' overall subcomponent scores were compared with their child's overall subcomponent scores. Parent subcomponent scores gathered using the PSQ may offer more insight into their beliefs around death. Two parent scores were missing. Using Pearson's correlation coefficient, no correlation was found between parental subcomponent scores and child subcomponent scores ($p = .59$). This finding further supports the suggestion that parental beliefs may not influence children's understanding of death. Other factors such as parental explanations, may instead play a larger role in children's developing conceptualisations of death.

(4) Parental explanations of death in conversations with their child

Lastly, the role of parental explanations on children's response types and biological understanding of death was explored. It was predicted that children whose parents share spiritual explanations with them, will have a less biologically based understanding of death than those who have discussions that are primarily biologically based – as shown by lower death understanding scores (4.1). Parental explanations were also predicted to correlate with their child's responses (4.2). Comparisons between parental explanations and parental beliefs were also made, following the prediction that what parents believe and what they say to their child will differ (4.3). To further explore how parents explain death to their child, associations

between parental explanations and their child's experience with death was also investigated (4.4).

The large majority (91%) of parents reported that they had had conversations about death with their children. These conversations may have occurred either through answering their child's questions about death or by explaining the death of a human or animal. Explanations may have already been given to their child or, if they had not, were reported by parents as how they would explain to their child in the future. Parent explanations were coded into four categories (biological, non-biological, metaphysical, and dualistic). These categories corresponded to children's response types. Parent explanations of human death were categorised as biological (43%) and metaphysical (44%), with 6% giving non-biological and 5% dual explanations (with 2% missing responses). Below are some examples of explanations that parents reported giving their children during their conversations about death – actual or hypothetical. Associations between these explanation types and their child's death understanding scores were explored.

Examples of biological parental explanations include: "They were ill, and the body wouldn't function anymore" (father of Y5-6 female); "We explain about someone being very poorly. Medicine can't make them better and they will die/have died. We say that people close to them will need extra hugs and we talk about happy memories." (mother of Y5-6 female).

Examples of metaphysical parental explanations include: "We would tell her the person has passed on. That they had a nice life. We would probably tell them that they have gone to heaven" (father of Y1-2 female); "I say they have gone to heaven, but we can see them if we look at the moon, which was very confusing in retrospect" (mother of Y1-2 female).

Examples of dualistic parental explanations include: "I have explained that people are normally very poorly before they die and that when you die your poorly body gets left behind, your soul goes up to the stars so it can watch over us and keep us safe." (mother of Y3-4 female); "They were very very old/ they were too poorly for the doctor or vet to make better. Their body is in the ground, they look after us and we can talk to them." (mother of Y1-2 male).

(4.1) Do parental explanations influence children's understanding of biological death?

Chi-square tests indicated that there was no significant association between parent explanations and child year group ($p = .08$), owing to this, the following analyses were collapsed across year groups.

A MANOVA was conducted with children's death understanding scores (DV) and parent's explanation types (biological, non-biological, metaphysical, and dualistic; IV). There was a medium significant effect of parent explanation types on children's death overall understanding scores, $F(12, 174.91) = 1.871$, $p = .041$; Wilks' Lambda = .727, $\eta_p^2 = .101$. Significant main effects of parent explanation types were seen for irreversibility $F(3, 69) = 3.53$, $p = .019$, $\eta_p^2 = .133$, and cessation, $F(3, 69) = 2.69$, $p = .053$, $\eta_p^2 = .105$.

For irreversibility, Tukey's post hoc tests showed parents' biological explanations ($M = 0.92$, $SD = 0.26$) predicted significantly higher scores than metaphysical explanations ($M = 0.68$, $SD = 0.43$), $p = .029$. The same pattern was seen for cessation scores, those with biological parental explanations ($M = 0.89$, $SD = 0.14$) scored significantly higher than those whose parents gave metaphysical explanations ($M = 0.77$, $SD = 0.24$), $p = .045$. See figures 3.9 and 3.10 for mean cessation and irreversibility scores by parent explanation type.

Figure 3.9

Children's mean cessation scores (weighted, maximum = 1) by parent explanation type (biological, non-biological, metaphysical, and dualistic, $N = 75$). Error bars are 95% confidence intervals

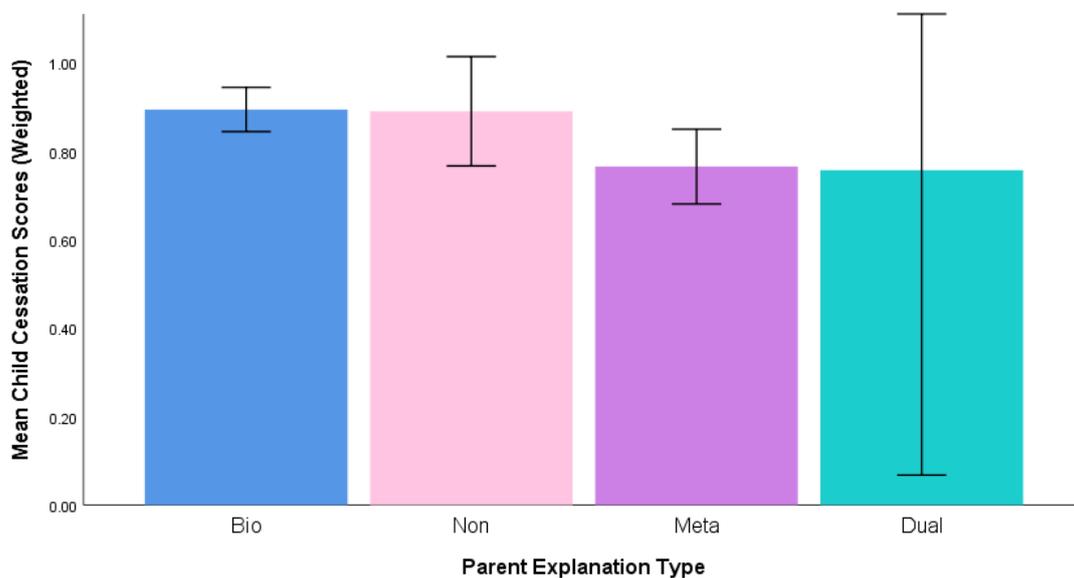
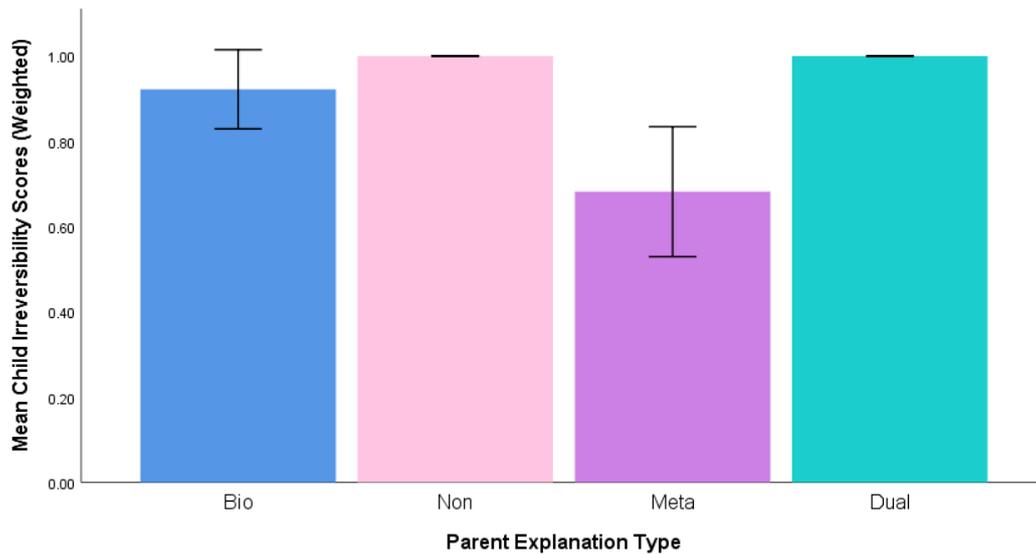


Figure 3.10

Children's mean irreversibility scores (weighted, maximum = 1) by parent explanation type (biological, non-biological, metaphysical, and dualistic, $N = 75$). Error bars are 95% confidence intervals



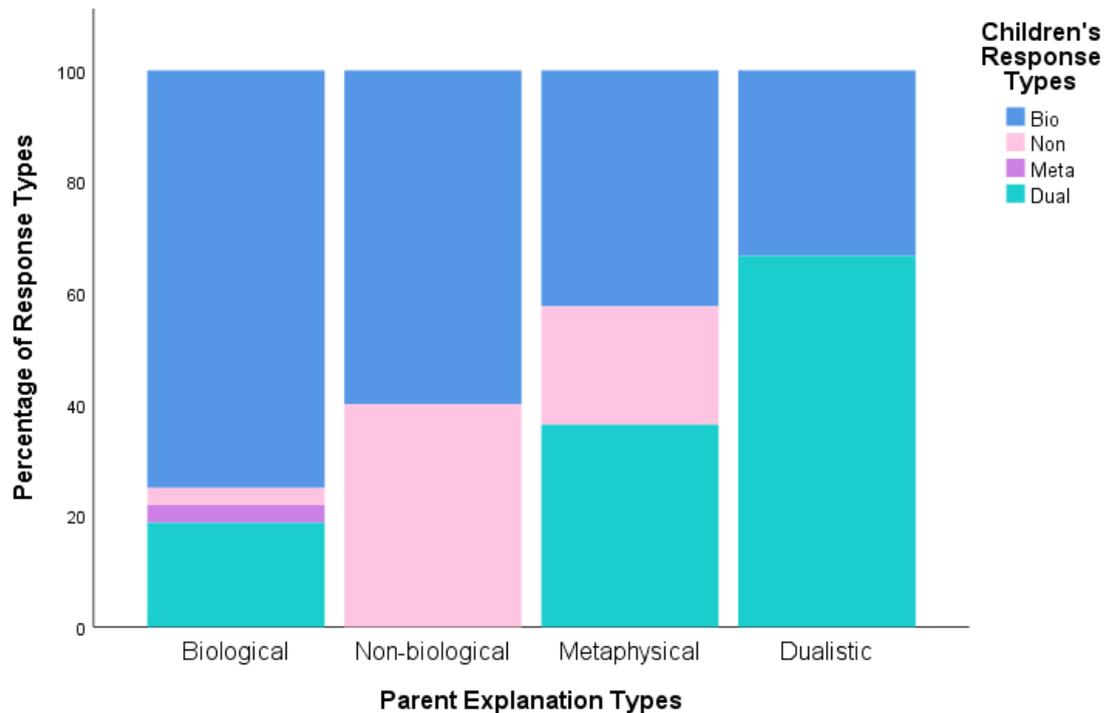
(4.2) Do parental explanations influence their child's response types?

Parental explanations were coded using the same coding scheme as children's response types to allow for direct comparison, see Table 2.4 for coding scheme. It was predicted that children's response types would be associated with their parents' explanation types. Chi-square tests were conducted to explore the relationship between parent explanation types and children's response type for human death. An approaching significant association was found between parent explanation types and child response types, $\chi^2(9) = 16.406$, $p = .059$, $w = .48$. Sensitivity analyses indicated that the sample size ($N = 75$) was sufficient to detect effects sizes of $w = .46$ and above, with power set at .80. For $w = .22$ and N of 75, the test power is .85.

For parents who gave biological explanations ($n = 32$), 75.0% of children had biological overall response types, 18.8% dualistic, 3.1% non-biological, and 3.1% metaphysical. Children whose parents gave metaphysical explanations ($n = 33$) had 42.4% biological response types, 36.4% dualistic, and 21.20% non-biological. Of parents who gave dualistic explanation types ($n = 3$), 33.30% biological and 66.70% dualistic. Figure 3.11 shows percentages of children's response type by parental explanation type.

Figure 3.11

Percentages of children's response type categories by parent explanation (N = 75)

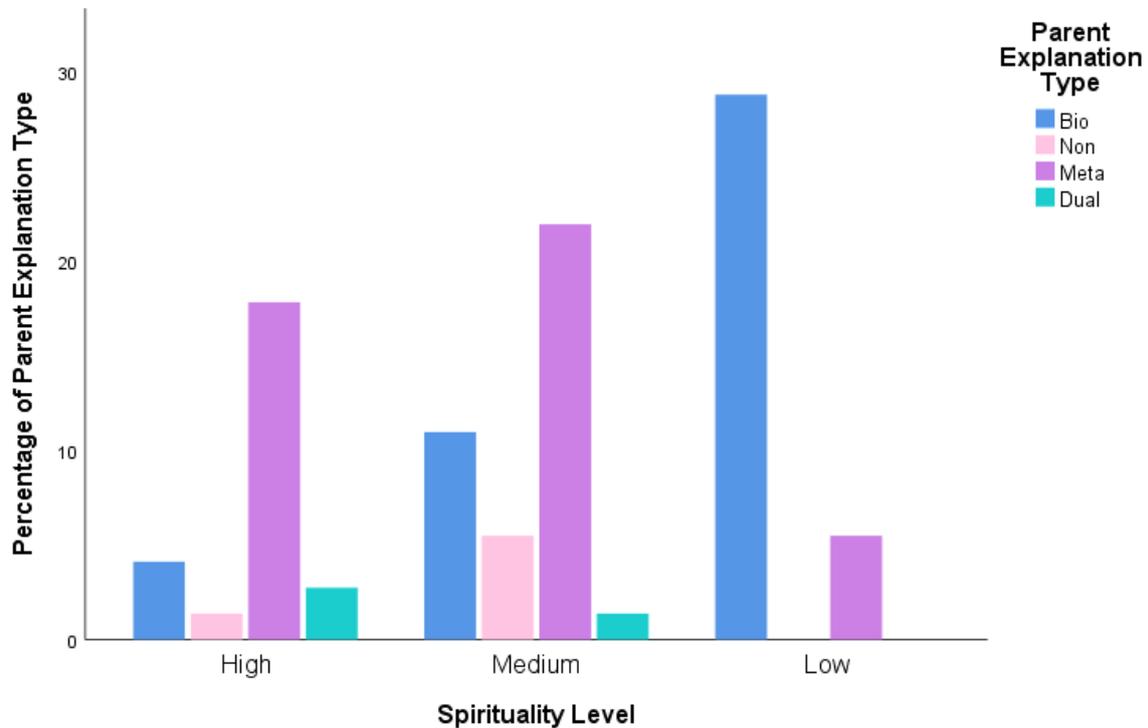


(4.3) How do parental explanations compare to parental beliefs?

To explore whether parents' explanations are associated with their beliefs, a chi-square was run between parent explanation types and parents' spirituality levels. A large significant association was found between parent explanation types and parental beliefs, $\chi^2(6) = 28.76, p = .000, V = .44$. Those parents who were high in spirituality were most likely to use metaphysical explanations and those of low spirituality most likely to use biological explanations, as seen in Figure 3.12. Parents with medium spirituality were more likely to use metaphysical explanations than biological explanations. These findings indicate that parental explanations are associated with their beliefs, contrasting with the prediction that they would differ. These findings also contrast with Study 1's suggestion that parental beliefs differ to explanations given to their child. As the direction cannot be assumed, it is also possible that parents' beliefs are influenced by the explanations they report to give to their child – a point which will be returned to in the discussion.

Figure 3.12

Percentage of parent explanation type (biological, non-biological, metaphysical, and dual) by parent spirituality (high, low, medium, N = 75)



(4.4) Are parental explanations associated with children’s experience with death?

A number of chi-square tests were run to explore the association between parental explanations and children’s experiences with death. Here, parents had two types of explanation types which were explored, those for human death and those for pet death. However, most parents reported ‘same as above’ for their pet explanations, suggesting they would discuss human and pet death in the same way. Only human death explanation types were used in the previous analyses of parent explanation types.

First, parental explanation types (biological, metaphysical, non-biological or dualistic) and children’s experience of any death (yes/no) were explored. No significant association was seen children who had experienced a death and parents’ human explanation types, $\chi^2(3) = 1.55, p = .67, w = .14$. or parents’ pet explanation types, $\chi^2(3) = 1.12, p = .77, w = .22$. Sensitivity analyses indicated the sample size ($N = 75$) was sufficient only to detect effect sizes $w > .38$, with power set at .80. For $w = .14$ and N of 75, the test power is .15; for $w = .22$, the test power is .33. A priori analyses indicated a sample size of 557 was needed for sufficient power (.80) to detect this effect size for human explanation types ($w = .14$) and 226 for pet

explanation types ($w = .22$). This finding suggests that parents' explanations are not influenced by the type of entity which has died – however there is a need for caution owing to the lack of power.

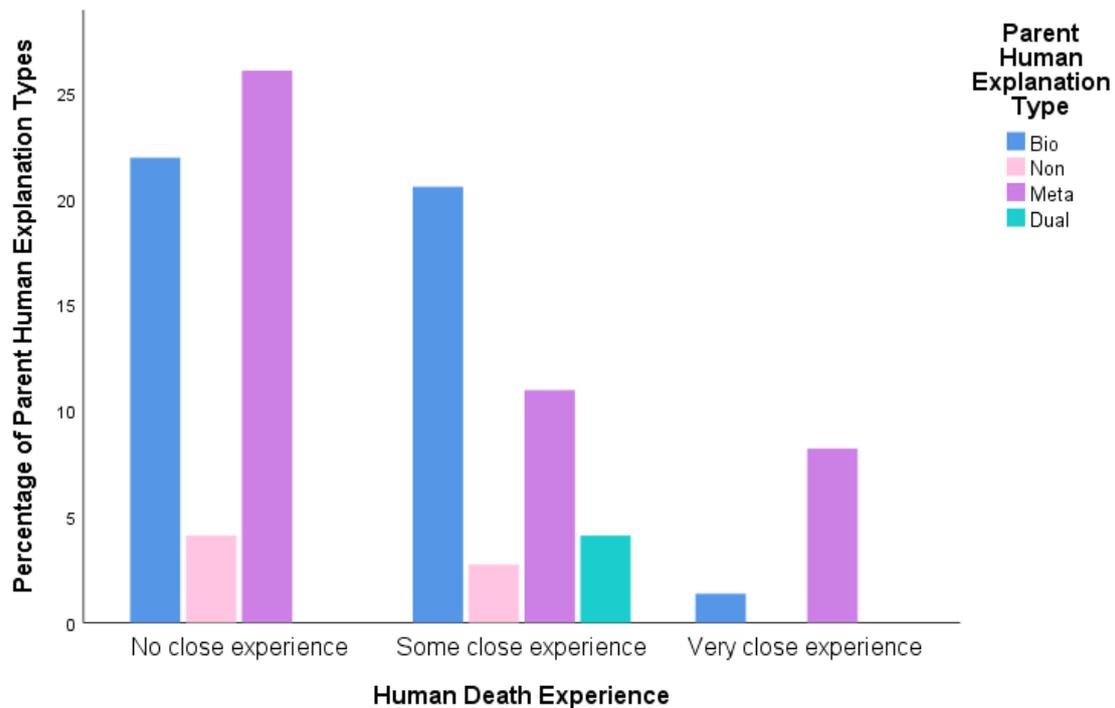
Next, the association between children's experience with close death (no close death experience, some close death experience, and very close death experience; human and/or pet) and parental explanation type was explored. No significant association was seen between children's close death experience and parent's human, $\chi^2(6) = 5.80, p = .45, w = .28$, or pet explanation types, $\chi^2(6) = 2.53, p = .719, w = .18$. This finding suggests parent explanations are not influenced by their child's relationship with the deceased. Sensitivity analyses indicated that, with power set at .80, the sample size ($N = 75$) was sufficient only to detect effects sizes of $w > .43$. For $w = .28$ and N of 75, the test power is .39; and for $w = .18$, the test power is .17. A priori analyses indicated a sample size of 174 was needed for sufficient power (.80) to detect this effect size for human explanations ($w = .22$), and 421 for pet explanations ($w = .18$). Owing to this, Type II errors are likely, and lack of association cannot be assumed.

Finally, the association between parent explanation types and the type of death experience was explored. For these analyses, children's close death experience was separated between pet and human death. No association was seen between parents' pet explanation types and close pet death experience, $\chi^2(6) = 3.87, p = .69, w = .23$. An approaching significant association was seen between parents' human explanation types and close human death experience, $\chi^2(6) = 11.839, p = .066, w = .40$. Sensitivity analyses indicated that, with power set at .80, $N = 75$ was sufficient only to detect effect sizes of $w = .43$ and above. For $w = .23$ and N of 75, the test power is .27; and for $w = .40$ the test power is .74. A priori analyses indicated a sample size of 258 was needed for sufficient power (.80) to detect this effect size in pet explanation types and close pet death experience ($w = .22$), and 86 for human explanation types and close human death experience ($w = .40$).

As illustrated in Figure 3.13, parents appear more likely to offer metaphysical explanations than biological to those children with very close human death experience. Dualistic explanations are only seen for those children with some close experience, with biological explanations most frequent for this group. Those children with no close experience are seen to be given biological explanations as often as metaphysical explanations. This finding suggests that not only are parents' explanations around death shaped by their child's relationship to the deceased, but also that pet and human death are treated differently. It is however worth noting that the number of children who had experienced very close human death was small ($n = 7$).

Figure 3.13

Percentage of parent explanation type (biological, non-biological, metaphysical, and dual) by child's close death experience (no close experience, some close experience, very close experience; N = 75)



Discussion

Study 2 aimed to build on from Study 1 of this thesis to further investigate when and how children's understanding of death develops. Study 2 chose to investigate how children's understanding develops through several experiential and parental factors. These factors included experience with death (including both human and pet bereavement), pet ownership, parental beliefs about death, and parent-child conversations. Study 2 also aimed to explore the relationship between parental beliefs and their explanations to their child to better understand the roles of each in children's developing conceptualisations of death.

To address these aims, 96 British primary school-aged children (4-11 years old) and their parents were recruited. Child data was collected through interviews with children, during which children were read a narrative about a dying person, and asked questions on what they thought that person could do now that they are dead. Children received both biological understanding scores, reflecting their number of biologically correct answers, and response types, reflecting the types of explanations used to explain their answers. Parent data was also

collected using questionnaires. Parents were asked to report how they had or would explain the death of a loved one, pet and wild animal to their child and were given the same narratives and questions as their child. Parent data consisted of explanation types, reflecting the types of explanations they would give to their child, and biological understanding scores which provided a developmental endpoint.

Four research questions were explored to address the aims of this study: (1) How does children's understanding of death differ across age groups, do children exhibit co-existent explanations of death; (2) How are children's experiences with death associated with their acquisition of the five death subcomponents; (3) How do parental afterlife and religious beliefs influence their child's understanding of death; (4) Do parental explanations around death influence their children's understanding? Findings from each research question are discussed below.

(1) Developmental trajectory of biological death understanding

Overall findings for children's developing understanding of death appeared to follow expected patterns of biological knowledge acquisition as highlighted by previous research (e.g., Panagiotaki et al., 2015; Poling & Evans, 2004; Slaughter & Lyons, 2003). Adults demonstrated the most mature understanding of death, with Y5-6 children showing similar levels of understanding for each of the subcomponents (irreversibility, inevitability, cessation, and causation) as adults. By the end of primary school, children's understanding of biological death appeared almost, if not as good as adults'. All year groups appeared to understand irreversibility as well as adults. Only those in Y1-2 appeared to have not yet acquired the inevitability or cessation subcomponent. For causality, Y5-6 children had significantly higher scores than Y1-2, with no other significant differences between the other age groups. Adults had similar causality scores to children in Y3-4 which were lower than those in Y5-6. This finding may be indicative of having only one interview question addressing causality, and/or the coding scheme chosen to score causality. Wording of the question may have been unclear and not prompted the consideration of the inner causes of death rather than events which may cause people die. For example, the question stated, "what causes people to die?" and the coding scheme scored those who discussed the inner workings, e.g., "heart stops" highest (2 out of 2), followed by external causes (1 out of 2), e.g., "accidents". However, in response to this question, accidents are also a valid answer. A second interview question addressing causality may have better clarified participants' understanding of causality.

Analysis of children's responses to the follow up "why?" questions about cessation and irreversibility indicated no age differences in preferences for certain response types over

others and dualistic thinking was evidenced across age groups. These findings contrasted with predictions and previously established developmental timelines. It was predicted that older children would show more spiritual thinking, with more co-existent reasoning than their younger counterparts. Previous research argues that belief in an afterlife is likely to emerge once children have grasped the irreversibility and inevitability of death (Astuti & Harris, 2008). For example, Astuti and Harris suggest that an understanding of the biological finality of death may make children more sensitive to ideas of a spiritual afterlife. In Study 2, all year groups were found to have a grasp of irreversibility. However, the youngest year group had yet to acquire an understanding of inevitability and showed as much (if not more) spiritual and dualistic thinking as older children. This finding of co-existent thinking across age groups illustrates an important implication for how children's conceptualisations of death are explored. Much of previous research has focused on children's acquisition of biological subcomponents and children's naïve biological knowledge. Study 2's evidence of pervasive co-existent thinking suggests a greater focus on children's acquisition of spiritual knowledge is required.

Study 2 also found that, in contrast to cessation, only irreversibility responses elicited any consistently metaphysical responses from children, a finding which was also unexpected. Panagiotaki et al. (2018) suggest that of all five subcomponents, both cessation and irreversibility are most likely to lend themselves to spiritual responses. To better explore the nature of the relationship between subcomponent knowledge and spiritual thinking, research with younger children who have yet to grasp any subcomponents may be worthwhile. Previous research suggests children as young 3 years old experience death in some way, e.g., through television or insect death (Renaud et al., 2015).

Children who used biological responses were seen to have a greater understanding of biological death than those who used non-biological or dualistic responses. For cessation and irreversibility, dualistic responses scored the lowest. This may again relate to cessation and irreversibility's susceptibility to spiritual ideas (Panagiotaki, et al., 2018). In contrast to Panagiotaki et al., metaphysical and dualistic reasoning was seen across age groups, and not just older children. Dualistic responses reflect co-existent reasoning in children's answers and so children who exhibited this reasoning were expected to also hold a mature understanding of biological death as suggested by previous research (e.g., Astuti & Harris, 2008; Harris & Giménez, 2005). Instead, this finding may reflect the conflict between biological and metaphysical ideas, resulting in misunderstandings around biological death in children whose biological conceptualisations of death are not yet well established. This suggestion is supported by the interaction between age and response type seen for inevitability scores whereby only dualistic children in the youngest year group scored significantly lower than

biological and non-biological children. Co-existent reasoning as defined by Legare et al. (2012) may not occur until children are able to draw from each type of reasoning during different contexts, ignore potential contradictions or by finding ways to combine and coordinate them. While younger children in our sample used both biological and metaphysical reasoning, they may not yet be able to consolidate their biological and spiritual ideas in a way that deals with potential conflicts, and instead conflicting ideas may encourage misunderstandings, resulting in the lower scores seen in Study 2. This pattern is reflective of Lane et al.'s (2016) finding that 4-year-old children were most likely to describe the persistence of both bodily and mental states rather than cessation of all capacities (seen in 5–6-year-olds). Alternatively, older children and adults have been shown to believe mental states are more likely to persist than bodily states (Watson-Jones et al., 2017). Rather than evidence of metaphysical reasoning, Lane et al.'s (2016) finding was thought to reflect a struggle to understand biological consequences of death – which may also reflect the current findings.

As highlighted by Legare et al. (2012) relatively little research has explored children's development of non-biological and supernatural beliefs around death. Study 2 adds to this limited body of research to illustrate how children's reasoning may impact their biological understanding, as well factors which may influence children's development of biological, non-biological and metaphysical reasoning about death.

It is worth noting that Study 2 explored only four of the five identified subcomponents expected to indicate a mature understanding of death – with universality having not been explored. Universality refers to the understanding that death is universal across all living things. In not exploring this subcomponent, conclusions on children's understanding of death are limited. Nguyen and Gelman (2002) suggest that a fully coherent and biological understanding of death is inclusive of biological entities, including plants – without a measure of all subcomponents, it cannot be claimed that older children in this study displayed a fully coherent understanding of death. During interviews, children were asked about the functions of different living entities, human, dog, and deer, exploration of children's responses to these questions became outside of the scope of this thesis, however, some responses give some insight into how children's understanding may differ across different living entities. For example, some children made clear distinctions between humans and other living things with dogs and deer going to a separate heaven from human heaven, some deer might have special horns which help them to live forever, or only huge animals like giraffes can live forever.

(2) Association between death experience and children's death understanding of death

Study 2 found some association between of children's experience with pets (both ownership and death of a pet) and human death on children's understanding of death. Children who owned pets appeared to have better causality understanding than those who did not have pets. This finding corresponds to previous research which suggests pets increase children's naïve biological knowledge (e.g., Inagaki, 1990). Greater understanding of causality may reflect the care taken to keep pets alive. Pet ownership also had an association with children's responses, with those owning pet more likely to use biological explanations than those who did not. However those with no close experience of pet death were more likely to use biological explanations than those with some and very close experience of pet death.

For both pet and human death experience, children were grouped by their closeness to the deceased: very close death experience, some close death experience, and no close death experience. Children who had very close experiences with pet death, appeared to have lower cessation understanding than those with some or no close death experience. This finding contrasts with the prediction that those who own pets and experience pet death, will have greater understanding of biological death. Alternatively, children's knowledge around pet death may be worse than their knowledge of human death, perhaps owing to the way in which conversations around pet death are framed compared to human death, or whether it is even discussed. However, experience with human death appeared to have no significant influence on children's understanding of death or their response types. This finding contrasted with the prediction that experience with human death will also have greater understanding of biological death. Owing to these unexpected findings, children were grouped by whether they had experienced any death (pet and/or human), and again split by level of closeness. Children with very close death experience had lower cessation scores than those with some or no death experience. To clarify, children who had experienced the death of someone very close them were more likely to state that bodily/mental functions continue after death. This finding again contrasts with the prediction that there will be greater levels of understanding for those close death experience. Again, experience with death was seen to have no influence on children's response types; regardless of their closeness to the deceased, children's responses were no more likely to be biological or metaphysical. However, sensitivity analyses indicated that the sample size lacked power to detect significant associations between children's response types and their closeness to a deceased human or pet.

These findings are comparable to those of Hunter and Smith (2008) who found that only experience of the death of extended family members or pets, as opposed to immediate family, showed any accelerated death understanding. These findings also suggest that the influence of death experiences is more complex than just having the experiences alone. This suggestion corresponds to Panagiotaki et al. (2018) who propose that experiences with death may instead create opportunities for parents to explain death to their child. Following this notion, experience with bereavement may require parents to take these opportunities in order to influence children's developing understanding. As highlighted in previous research exploring children's exposures to death, including in TV and films, parents may not always choose to take up these opportunities (e.g., Bridgewater et al., 2021; Renaud et al., 2015).

Study 2 expands upon previous research to better reflect the experiences of bereavement for children and provide context to these experiences. Longbottom and Slaughter (2018), for example, suggest that one of the reasons behind the variation in research findings around the role of death experience may lie in the different measures, which often do not consider variables such as closeness of the relationship or exposure to physical aspects of death, e.g., dead bodies. Given that Study 2's sample consisted of mostly urban British children, they are not expected to have the same exposure to the life cycle as seen in more rural, impoverished samples (e.g., Panagiotaki et al., 2015). Further research between urban and rural samples which provide contextual information around children's experiences with death is needed. Similarities and differences between these samples may further inform the role conversations about death play in children's developing conceptions of death.

(3) Influence of parental afterlife beliefs and religiosity on children's understanding of death

A new variable with three levels of spirituality was created to reflect parents' beliefs around death; high, those with both religious and afterlife beliefs; medium, those with either religious or afterlife beliefs; and low, those with neither religious nor afterlife beliefs. This variable was created to reflect the fact that religious beliefs did not equate to afterlife beliefs and vice versa.

For overall understanding of death, children whose parents reported high spirituality had lower biological understanding than children whose parents reported medium or low levels of spirituality. These differences were most prominent in children's answers about the irreversibility and cessation of death. For each of these subcomponents, children whose parents described high levels of spirituality scored significantly lower than those with low levels of spirituality. Children whose parents described medium levels of spirituality also scored

higher on cessation than those with high spirituality. Study 2's findings suggest that exposure to spiritual ideas and explanations may slow children's understanding of biological death. This may be owing to the conflicting information presented in biological and spiritual conceptualisations of death – which may be particularly prominent in irreversibility and cessation subcomponents. For example, irreversibility tells us that once someone is dead, they cannot come back. Spiritual explanations on the other hand may describe someone as going on to live in Heaven or a better place, which without an understanding of irreversibility may imply they could come back. Panagiotaki et al. (2018) suggest that irreversibility and cessation tend to elicit more religious or spiritual explanations than the more biologically focused facts about inevitability and causality. Findings from Study 2 support this suggestion and provide further evidence of how children may come by these explanations. Parents' spiritual beliefs may encourage spiritual explanations which may impact children's biological understanding of death, slowing their understanding of biological facts such as irreversibility and cessation.

There were no significant associations between parents' spirituality levels and children's response types. Having parents who have spiritual beliefs alone does not appear to mean children will share these beliefs. This finding may be owing to the sample size, and lack of power to detect significant associations and potential Type II error. This finding may also reflect children's lack of exposure to their parents' beliefs. For example, Study 1 of this thesis, found that the appropriateness of parents' beliefs was considered before discussions of death with children. Parents may choose to express more reassuring beliefs than their own. For example, Renaud et al. (2015) suggests parents found more satisfaction in reassuring explanations which describe a continued existence than describing never seeing the deceased again. To investigate this finding further, there is a need to consider how parents explain death to their children.

Further investigation of parental beliefs through their own subcomponent scores found no association with their child's subcomponent scores. This contrasts with the prediction that parents with higher scores would be associated with higher scores in their children. Again, what is expressed by parents during conversations around death need to be considered to better investigate the role of parental beliefs on their child's understanding of death.

(4) Parental explanations of death in conversations with their child

As predicted, children whose parents gave biological explanations in conversations were found to have a better understanding of biological death overall, than those whose parents gave metaphysical explanations. This influence was found to be most prominent in

understanding of cessation and irreversibility of death, with children scoring higher for these subcomponents when their parents gave biological explanations.

Examples of parental biological explanations included: “They were ill, and the body wouldn't function anymore” (father of Y5-6 female); “That they were very old, and their body stopped working” (mother of Y1-2 male and Y3-4 female); “We all die one day, usually when we are old or very poorly. We won't see that person anymore, but we can still talk about them and remember them” (mother of Y1-2 female).

Parental metaphysical explanations included: “We would tell her the person has passed on. That they had a nice life. We would probably tell them that they have gone to heaven.” (father of Y1-2 female); “Gone to live with God who is looking after them” (father of Y1-2 female); “If someone dies, I would say we will see him/her later in afterlife” (mother of Y5-6 female).

These findings suggest that biological explanations offered by parents encourage earlier acquisition of the biological facts of death than metaphysical explanations. Reasons for these findings can be seen in the examples above. To illustrate, biological explanations often addressed the cessation of bodily functions, whereas metaphysical explanations suggested that the deceased continues to function in an afterlife. It is expected that children whose parents offer metaphysical explanations would not show an increased understanding of biological death as the explanations they are given conflict with these. This finding also parallels research which suggests children whose parents are biological experts, show more sophisticated biological reasoning (Tarlowski, 2006).

An approaching significant association was also found between parent explanation types during conversations and children's response types. Children whose parents gave biological explanation types were more likely to have biological response types, metaphysical explanations with dualistic response types and dualistic explanations with dualistic response types. Alongside the finding that parents' spirituality level is not significantly associated with children's response types, further support is given to the suggestion that parent explanations have greater influence on children's understanding than their beliefs. Similarly, these findings support the impact of parent-child conversations evidenced in other research areas (e.g., Tenenbaum & Hohenstein, 2016).

To better clarify the role of parent-child conversations on children's developing death understanding, the extent to which parental explanations were associated with their own belief was also explored. Study 2 found that parents who had high levels of spirituality were

associated more with metaphysical explanations, low levels more with biological. Medium levels were more likely to use metaphysical than biological. The prediction that parental explanations and parental beliefs would not be associated was not supported. This finding suggests that parents are more inclined to reassure their child using spiritual explanations during discussions, when they believe and find comfort in those explanations themselves. This finding also supports that of previous research which suggest that parents' explanations fall into two categories; facts and explanations, and reassurance (e.g., Gutiérrez et al., 2014; Longbottom & Slaughter, 2018).

Parents often described to the researcher that this was the first time they had really thought about their own beliefs, a feeling which was also shared during Study 1. This not only reflects the apparent taboo and discomfort that comes with discussing death, but also suggests that parents' own beliefs are not at the forefront when considering how to discuss death with their children. Uncertainty around afterlife beliefs was an aspect of mothers' considering their own beliefs during Study 1 which may also be reflected here. For example, association between parental beliefs and parental explanations seen here may also be explained by parents being uncertain and wanting to appear consistent in their reasoning when filling out the PBQ. It is possible that in Study 2 parents' beliefs were influenced by the explanations they reported to give to their child, rather than their beliefs influencing the explanations they give.

It is important to remember that parent-child conversations are more likely to occur following a bereavement. Therefore, while the experience of death itself may not be an influential factor in children's understanding of death, it may be prerequisite to other factors, e.g., parental explanations. An approaching significant association was seen between parent explanation types and very close experience with the death of a person. This same association was not seen for close pet death or experience of close death in general (pet and/or person). For very close experiences with the death of a person, parents were more likely to explain death using metaphysical reasoning. This finding suggests that parents are more inclined to reassure their child during discussions of death when they have experienced the death of someone very close. This finding also highlights that pet and human death are approached differently by parents. More research is needed to better clarify the role of parent-child conversations on children's developing death understanding. For example, are parents discussing death with their child in the same way as they report?

Interpretation of findings

Study 2 aimed to better understand how children develop their understanding of death and how best to take this development into account during conversations with children. Four research questions were explored to address this aim. These research questions considered: children's understanding of death, children's experiences with death, parental beliefs around death, and parental explanations about death to their child. As discussed above, findings from the four research questions extend on previous research to give further insight into how children develop their understanding of death, both biological and spiritual understanding. Interactions between these factors may give further insight into how each may influence children's developing understanding of death.

For example, Study 2's findings suggest that parents' spirituality influences the explanations they give to their children. This finding contrasts with those of Study 1 which suggests parents' beliefs are side-lined in favour of 'child-friendly' talk. Parents who were highly spiritual were more likely to offer metaphysical explanations. While only one child held consistently metaphysical beliefs, the prominence of children's dualistic reasoning may illustrate children's attempts to consolidate spiritual ideas that they are given by their parents. However, parents' spirituality levels alone did not appear to influence their child's responses, instead parent explanations were seen to have a greater association with children's developing conceptualisations. This finding suggests that parent-child conversations around death may have a greater influence on children's developing conceptions of death than parental beliefs alone. Study 2 is the first to establish this finding within the context of death understanding.

Children's experiences with death may also prompt parent-child conversations about death. Only experience with close pet death was associated with children's understanding. This finding may be indicative of how different types of death are treated by parents, as well as socially. In Study 2, children's responses did not differ based on the type or level of experience with death. Parental explanations on the other hand, were seen to be more metaphysical only in association with very close human death. Study 2 suggests that the ways in which parents discuss pet and human death with their child differ, subsequently impacting children's developing understandings. One reason for these differences in explanations is that parents may not perceive pet death to be as significant as human death. Disenfranchised grief is often discussed in relation to pet death, whereby bereavement owing to pet loss is not recognised as a significant loss by society and so reactions of grief may be discouraged (Attig, 2004). Those experiencing strong grief reactions may minimise or mask the intensity of their grief as a result (Cordaro, 2012). Parents may not address pet death at all and so the

opportunity for parent-child conversation about death as a result of this bereavement may not be taken. If not acknowledged by their parent, children's lower understanding of cessation may reflect a form of self-comfort, or even denial, to minimise their grief. For example, the cessation of function that comes with death may be so contrasting to the energetic pet that they knew, that they may find comfort in the idea that their pet is still able to run around in heaven. This finding may be also indicative of differences between how children understand human versus non-human animal death – and warrants further research. Study 2 did collect data for other living entities (dog and deer); however, this data was not explored as part of this thesis. Future exploration of this data may give further insight into this finding.

Study 2 suggests that parental explanations may have a greater influence on children's developing understanding of death than parental beliefs and experiences with death. This finding may be explained by parent-child conversations' role in contextualising the experience of death. Parent-child conversations about death may help children to consolidate their knowledge and provide extra information where needed for children's understanding. Following Study 2's findings, biological explanations from parents may help to improve their child's biological understanding of death, and parents' metaphysical explanations may slow this understanding. Study 2's findings suggest that greater inclusion of the biological realities of death during parent-child discussions of death may help to improve children's biological understanding of death, and with this knowledge help to reduce their fear of death (e.g., Slaughter & Griffiths, 2007). Once children have acquired a mature understanding of death, they may then be better equipped to consolidate metaphysical reasoning within their conceptualisations. One method might be to encourage vitalistic thinking in children, whereby they learn the role bodily processes play in keeping animals/humans alive. Slaughter and Lyons (2003) found that training children to learn about life in this way, also improved their biological death understanding, without the need to acknowledge death itself. However, greater research is needed to better explore the role of parental explanations, and the extent to which they are led by parents or children during discussions – which is difficult to establish with self-report measures.

Limitations and Implications

Several limitations of Study 2 must be considered when reflecting upon its findings. Most unexpected of the current findings was the apparent lack of prominence of consistent metaphysical explanations in adults and older children, when compared to previous research. A possible explanation for the lack of prominence may lie in the context of created narratives and questions. While narratives were designed to be neutral so as to not illicit certain

explanations, a subtle secular, medical context may have been inferred. For example, although no reference to doctors or explicit medical treatment were made, each entity was described as growing old and getting ill before dying. This mention of illness itself may allow children to infer medical intervention and bias children to elicit biological explanations over metaphysical. It is also worth considering the religiosity of the sample. For example, only 41 of 96 parents reported being part of a religion, a stark contrast to previous research exploring the role of medical and religious narratives (e.g., 81%, Lane, et al., 2016). The same consideration is also noted by Panagiotaki et al. (2018) who found supernatural explanations to be less prevalent than expected and report similar religiosity rates in their British sample as Study 2. Further consideration is needed to acknowledge the differences in what religiosity means to individuals, as well as at a cultural level.

Study 2 was limited in its scope of chosen interview questions. For example, children were only asked to provide justifications for two questions per subcomponent, of which only two subcomponents were addressed (cessation and irreversibility). This choice was made owing to the length of interviews and limits Study 2's findings accordingly. A greater number of questions addressing a greater number of subcomponents would allow for a clearer picture of how children use biological and metaphysical explanations. Future research could give greater focus to the types of explanations given by children according to each subcomponent to better establish the nature of their conceptualisations around death.

Use of single interviews may also have limited Study 2's findings. This was made apparent by the observable change in children's ideas as interviews went on, becoming more established towards the end of interviews. Discrepancies between answers arose, and were addressed where possible during the interview, but highlighted a potential issue of using single measures to explore children's conceptions of death. To illustrate, some participants mentioned having learnt about the Ancient Egyptians at school during the same week as the interviews and went on to discuss Ancient Egyptian ideas in their reasoning. For some children, responses to the interview appeared to be dependent on what happened to be on their mind that day. For example, one child made repeated mentions to a book in which a lady died and turned into a cat. Given the complex nature of death understanding, it is worth considering increasing validity of these measures. Use of longitudinal methods with measures at several time points may prove valuable, for example. Data collected from more than one time point would allow follow-ups on children's reasoning and any changes which may occur to explore how their ideas develop and how established they are – a point which will be addressed in Study 4 of this thesis. These methods might also highlight where children source their information, for example at school (e.g., learning about Ancient Egyptians).

An important limitation, which is relevant to all studies within this research area (e.g., children's death understanding), is that findings may reflect the current sample rather than the general population. For example, parents in Renaud et al.'s (2015) study nearly all described themselves as at least somewhat comfortable in discussing death with their child. Therefore, we might expect parents in our study to be comfortable discussing death with their child and perhaps have had more conversations around death than the general population. Indeed, only 8% of our sample reported having not had conversations around death. This highlights the hurdles apparent within this research area in general; finding participants happy to be involved with their children. These hurdles serve to emphasise a societal need to confront the taboo of death and acknowledge its role as a natural part of life within everyday discourse. Increasing the literature available in this field and illuminating the role of parent-child conversations around may help to encourage future discourse. In relation to this hurdle, several analyses were found to have a lack of power because sample sizes were not large enough. Increasing discussion around death may also help to encourage participation in research studies around death understanding and allow exploration of patterns with large enough (and more diverse) samples.

Study 2 further elucidates the role of several factors, including parent-child conversations, on children's developing understanding of death. There are several important parental, clinical and educational implications for those working with primary school-aged children. These findings further help to inform what children believe and understand about death at different stages development, more specifically at which year group. These findings can be used to help to better inform caregivers on how children develop this understanding and how best to help children to make sense of death. For example, children in Y5-6 are able to understand the biological facts of death as well as adults, whereas children in Y1-2 may only understand irreversibility. In discussions of death with children in Y1-2, children may understand that the deceased will not come back but not that the deceased can no longer see or feel hungry. Study 2's findings also support the role of parent-child explanations in helping children to develop their conceptualisations. For example, greater use of biological explanations by parents may help children to develop their biological understanding of death.

Conclusion and Next Step

In conclusion, our findings from interviews with 4- to 11-year-old British children and their parents support previously established developmental patterns of subcomponent acquisition (irreversibility, inevitability, cessation, and causality), in which children develop more mature biological understandings of death as they age. However, no support for

differentiation between ages of those using spiritual responses rather than biological was found. Instead, co-existent thinking was seen across age groups. Our findings also indicate that experience with other living entities through pet ownership, can aid children's understanding of causality. The role of parental beliefs and explanations as influences on their child's developing conceptualisations of death are also highlighted. Further exploration of parental explanations through observations of parent-child conversations is needed.

Study 3 of this thesis aims to further explore parent-child conversations by observing actual parent-child discussions about death during a storybook task. As highlighted in Study 2, parent explanations during conversations with their child may be a more influential factor than experiences with bereavement or parental beliefs on children's developing death understanding. Study 3 will explore the structure and content of parent-child conversations to better understand how they may influence children's death understanding. For example, do parents dictate their beliefs to their child or are they led by their child's views?

**Chapter 5: Exploration of Parent-Child Discussions of Death during a Storybook Task
[Study 3]**

Introduction

Conversations around death are difficult to have; not only are we forced to face our own beliefs around death, but we also need to be able to verbalise these beliefs to others. Understandably, parents may find death difficult to discuss with their children. The current study, Study 3, is the third in a series of studies investigating children's understanding of death and parents' influence on this understanding as part of the current thesis. Study 3 builds upon the previous two studies of this thesis to explore actual parent-child discussions. Previous research investigating parent-child discussions have found that parents may avoid discussions of death and choose to shield their children from exposure to death in real life and in the media, be it media images of or negative emotions associated with death (Miller et al., 2014). This parental inclination to avoid discussion and exposure may also lead other significant figures (e.g., teachers) in children's lives to engage in the same shielding (Miller et al., 2014). However, shielding is not always possible, for example, children may ask direct questions or experience the death of a loved one. When shielding is not possible, parents have been shown to discuss death in a reassuring and/or factual manner (Gutiérrez et al., 2014). No previous research has focused on children's responses to these discussions, owing to a reliance on parental self-report data to study these conversations – which do little to reflect the reciprocal, bi-directional nature of parent-child conversations. Study 3 aims to build on previous research by exploring actual discussions of death between parent and child during a storybook task.

Children's understanding of death

Cognitive and emotional abilities in children, with respect to death understanding, have been relatively well researched. For example, Piagetian approaches focus on cognitive development. This approach explores cognitive milestones based around Piaget's developmental stages. Pre-operational children (2 to 7 years) believe death is temporary and reversible, and characterised by concrete behaviours (e.g., closed eyes), whereas concrete operational children (7 to 11 years) recognise that all living things die, and death is irreversible. It is not until the formal operational stage (adolescence to adulthood) that children have an adult-like (or mature), abstract understanding of death (Slaughter, 2005).

More recent studies have focused on children's understanding of death as a biological concept, in accordance with key biological facts. These usually consist of five facts, but this number can vary across studies. These biological facts, or subcomponents, are: (1) irreversibility, death is permanent; (2) universality, death happens to all living things; (3) inevitability, all living things will die one day; (4) cessation, at death all physical and

psychological functions stop; and (5) causality, death is caused by the breakdown of bodily processes (Panagiotaki et al., 2015; Poling & Evans, 2004; Slaughter & Griffiths, 2007). Irreversibility is first acquired by children at around the age of 5 years, followed by inevitability, universality, and cessation (around 7 years). Causality is the final subcomponent acquired, at around ages 10-11-years-old (Panagiotaki et al., 2015; Slaughter & Griffiths, 2007).

Conceptions of death, for both children and adults, are not solely biological. It has been suggested that only once all subcomponents are acquired do children reach a mature understanding of death and begin to include spiritual ideas within their conceptualisations of death (Astuti & Harris, 2008; Harris & Giménez, 2005). Spiritual ideas often describe a continued existence in an afterlife (Legare et al., 2012). Contrary to biological conceptions, continued existence usually describes the continuation of bodily and/or mental functions. Yet, both biological and spiritual ideas can coexist in individuals' explanations of death – known as explanatory coexistence (Legare et al., 2012).

Contexts in which conversations about death are made, may affect the form of children's explanations. For example, if discussed in a biological context – e.g., a focus on how doctors are unable to make someone better – children are more likely to describe the absence of functions using biological justifications. Alternatively, if discussed in a religious context – e.g., visits from priests, part of 'God's plan' – children describe a continuation of functions with religious justifications (Astuti & Harris, 2008; Harris & Giménez, 2005). When exploring children's conceptions of death, and parent-child conversations around it, it is important to consider the contexts in which death is spoken about and who initiates these discussions. Parents whose inclination is to reassure their child may be more likely to discuss death within a spiritual context. Renaud et al. (2015) found those parents who described the continuation of person either in spirit or through memory were more satisfied in their conversations around death with their child. Given that parental testimony is thought to influence children's conceptual development, especially regarding unobservable phenomena (Harris & Koenig, 2006), it is important to investigate whether parental explanations about death influence how their children conceptualise it. For example, will those children whose parents explain death within a spiritual context have more spiritual ideas within their subsequent conceptualisations?

Parent-child conversations around death

One way in which parent-child conversations around death may be initiated is through responding to children's questions. In a study of 3- to 6-year-olds and their parents, parents were asked to report their child's questions around death and their own responses (Gutiérrez

et al., 2014). Parents responded in two ways: (1) facts and explanations about death; and (2) reassuringly, to provide comfort or solace. Gutiérrez et al. found all parents incorporated facts and explanations of death into their responses, and two-thirds incorporated reassuring statements. Importantly, in considering how they would approach death with their child some mothers may take indirect and avoidant approaches on the basis that their children are too young to understand death or cope with the feelings that may arise (Miller et al., 2014). These mothers made judgements based upon Piagetian developmental approaches which suggest children are both cognitively and emotionally unable to handle death (Miller et al., 2014). To illustrate, Piagetian approaches suggest death is an abstract concept and understanding of it does not begin until children are around 7 years old (Longbottom & Slaughter, 2018). More recent research instead suggests children as young as 4- or 5-years-old begin to understand the biological facts of death (Panagiotaki et al., 2015; Slaughter & Griffiths, 2007).

Parents have been shown to underestimate their children's understanding of biological death (Gaab et al., 2013). Gaab et al. again highlight that caregivers may not talk about death with their children because they do not believe their children are as aware of the biological concept of death as they actually are. However, research in this area has yet to investigate real-time discussions to observe how parents' perceptions of their child's cognitive ability plays out in conversations, when avoidance is not possible. Instead, previous research has relied on self-report methods which have several relevant limitations. For example, parents who have not had conversations with their children, need to consider their responses to hypothesised scenarios which may not reflect the nature of actual conversations, and may instead reflect an underestimation in their child's capability. During actual conversations, children's capability may be observable and so change the direction of conversations from those hypothesised by parents.

Parent-child conversations influence on death understanding

Parental influence on children's understanding of death has been touched upon in previous research, namely by exploring the influence of parental beliefs. For example, parents with religious beliefs may be more likely to encourage religious beliefs in their children, and vice versa for parents with scientific beliefs (Braswell et al., 2012). However, stronger belief in a mental afterlife and stronger religiosity, as seen in Greek Orthodox Christians, has not been found to be significantly associated with children's own afterlife beliefs, despite parents describing this continued existence to their child (Misailidi & Kornilaki, 2015). The role which parental beliefs and parent-child conversations play on children's developing understanding of death remains unclear.

It is also important to note that when exploring the role of parent-child conversations, children are not passive in these discussions. Both parent and child might interact and contribute in conversations to create shared representations (Thompson, 2006). To illustrate, in parent-child discussions of emotions, Lagattuta and Wellman (2002) emphasize the “collaborative, mutually constructed nature of early conversations about emotions” (p. 577), in which parent and child are active social partners both initiating prompts and following prompts from the other. In considering the influence parental beliefs may have on children’s conceptualisations of death, more research is needed to clarify the nature of conversations about death both contextually and structurally (i.e., is one more active in discussion than the other) – which will be explored in the current study (Study 3).

Potential implications of having parent-child conversations around death

Conversations around death can have important implications both for children’s cognitive ability to comprehend death and for their ability to deal with death when they experience a loss. For example, a better understanding of death, as measured by their knowledge of the subcomponents, has been found to reduce children’s fear of death (Slaughter & Griffiths, 2007). Slaughter and Griffiths measured fear of death using an expanded version of The Death Anxiety Scale for Children, whereby children rate death-related words from not scared at all, a little scared, to very scared. Children’s understanding of death was inversely correlated with rating death-related words as scary, suggesting that a better understanding of biological death reduces children’s fear of death (Slaughter & Griffiths, 2007). Importantly, a normal fear of death and danger is likely across adulthood (Gullone, 2000), despite mature understandings of death.

To further illustrate the importance of having conversations around death with children, communication around death between parent and child can have important implications for children’s wellbeing. For example, warm, supportive and engaged communication can aid children’s wellbeing and adjustment when faced with the death of parent (Shapiro et al., 2014), or even their own terminal illness (see Bates & Kearney, 2015, for a review). Given these potential implications, more research is needed to explore the content and context of parent-child conversations and their influence on children’s understanding of death.

Study 3 Background

Study 3 is the third in a series of studies exploring the role of parents in their child’s developing understanding of death. Study 1 used semi-structured interviews with nine mothers and grounded theory analysis to explore how mothers experience discussions of death with

their child. This illustrated a process through which mothers consider their own beliefs, how they perceive their child's understanding, and how they communicate explanations about death in a child friendly way. Through this process, it was highlighted that what mothers believe and what they say to their child may not be the same. Study 1 also highlighted several factors which may influence how parents choose to discuss death with their child, including children's experiences with bereavement and questions they ask.

Study 2 investigated children's developing understandings of biological death using the parental and experiential factors identified in Study 1. Parents self-reported their explanations of death to their child through questionnaires. Interviews were then conducted with their 5- to 11-year-old children to measure their death understanding. It was found that children's understanding of death subcomponents (irreversibility, inevitability, cessation, and causality) follows a linear developmental pattern, developing a more mature biological understanding of death as they age. In contrast to previous research (e.g., Astuti & Harris, 2008; Harris & Giménez, 2005; Legare et al., 2012), no support was found for older children showing more spiritual explanations than younger children. Both younger and older children used spiritual explanations. Parents' spiritual beliefs and explanations appeared to influence their child's understanding of death. Study 2 highlighted the importance of observations of parent-child conversations to better understand how parents may influence their children's developing death understanding. For example, do parents communicate their own beliefs during conversations about death with their child, and if not, why not?

Study 3 built upon both previous studies by observing real-time discussions of death between parent and child, rather than self-report methods of interviews and questionnaires. From these observations both the content and structure of real-time parent-child discussions around death was explored to better understand the role parents play in their child's developing understanding of death. Content refers to the types of explanations expressed, e.g., biological or spiritual ideas, and structure refers to which roles are taken up by parent and child during discussions, e.g., leading conversations or following guidance.

Study 3 Aims

To observe parent-child discussions of death, a storybook was designed to prompt semi-structured discussions. Storybook designs provide an opportunity to incorporate everyday routines as interactive tools to prompt parent-child discourse, which could also prove useful in developing interventions (Leech et al., 2020). For example, storybooks using mechanistic explanations and discourse can be effective interventions for improving children's understanding of scientific concepts such as electricity (Leech et al., 2020) and natural

selection (Keleman et al., 2014). Storybook designs can be used to allow insight into both parent and child conceptions of scientific ideas, for example by exploring what explanations parents and/or children choose to include in discussions around evolution (Tenenbaum & Hohenstein, 2016). The current study used a storybook design to allow observations of conversations in real-time, to not only understand parent and child conceptualisations around death but also explore how their discussions of death are structured. Using a storybook design allowed for a naturalistic setting in which to observe semi-structured discussions of death between parent and child – a design which has not been previously used in this research area. This novel approach aimed to further explore the role of parent-child conversations play in children’s developing understanding of death. Previous studies in this thesis highlight the need to investigate both what is said and how it is said during discussions of death. For example, are spiritual ideas spoken about and do they stem from parent or child? To address this aim, Study 3 explored three main research questions:

1. How are discussions about death structured between parent and child, and does this vary with child age?
2. What content is discussed during real-time parent-child conversations, and does this vary with child age?
3. Is there an association between the content of parent and child talk about death and how these discussions are structured?

The first research question was addressed by investigating the roles that both parent and child take up during actual conversations and assigning parent and child conversational roles to reflect these (e.g., passive, active or neutral roles). Conversational roles were then compared with children’s age groups (5-6-years-old, younger; 9-11-years-old, older) to identify any patterns. To address the second research question, both parent and child were assigned explanation codes which reflect the types of reasoning used in their explanations (biological, metaphysical or dualistic). These explanation codes were then compared with children’s age groups. The final research question was explored by comparing participants’ conversational roles with their explanation types for both parent and child.

Through exploring these research questions, Study 3 aimed to shed light on the structure and content of parent-child discussions of death and clarify parents’ roles in children’s developing understanding of death.

Method

Participants

Participants were recruited through opportunistic sampling after having taken part in the previous study of the series. During Study 2, parents were asked if they would like to be contacted for follow-up studies, and if so, to supply their email or phone number. Parents who agreed to be contacted were then emailed by the researcher and arranged to take part, if available. Only parents of children aged 5-6 and 9-11-years-old were contacted, 29 parents were contacted in total. Nineteen parent and child dyads were recruited. For child participants, there were two age groups, 5-6-years-old (younger, $n = 9$) and 10-11-years-old (older, $n = 10$). Four fathers and 15 mothers (M age = 41.97 years, SD = 6.03) took part – however five parents did not disclose their age. See Table 3.1 for more detailed characteristics of the child sample and Table 3.2 for more detailed characteristics of the parent sample.

Table 3.1

Demographic information for children, by age group (N = 19)

	5-6-year-olds ($n = 9$)	10-11-year-olds ($n = 10$)	Total (N = 19)
Child age (mean, SD)	5.89 (0.38)	10.30 (0.48)	8.21 (2.30)
Child gender (%)			
Female	55.60	50.00	52.60
Male	44.40	50.00	47.40
Ethnicity (%)			
White British	88.90	100.00	94.70
British Mixed	11.10	0.00	5.30
Close death experience (%)			
No close experience	33.30	0.00	15.80
Some close experience	44.40	80.00	63.20
Very close experience	22.20	20.00	21.20
Human death experience (%)			
No close experience	66.70	30.00	47.40
Some close experience	33.30	70.00	52.60
Very close experience	0.00	0.00	0.00
Pet death experience (%)			
No close experience	44.40	30.00	36.80

Some close experience	33.30	50.00	42.10
Very close experience	22.20	20.00	21.10

Table 3.2

Demographic information for parents, by child's age group (N =19)

	5-6-year-olds (n = 9)	10-11-year-olds (n = 10)	Total (N = 19)
Parent Gender (%)			
Mother	77.80	80.00	78.90
Father	22.20	20.00	21.10
Currently own pets? (%)			
Yes	44.40	80.00	36.80
No	55.60	20.00	63.20
Parent Education (%)			
GCSE/O Levels/equivalent	22.20	0.00	10.50
A Levels/equivalent	22.20	10.00	15.80
Some university	0.00	10.00	5.30
Bachelor's Degree	33.30	50.00	42.10
Master's Degree	11.10	0.00	5.30
Doctorate/Professional Degree	11.10	0.00	5.30
Trade Apprenticeship	0.00	30.00	15.80
Household Income (%)			
£10,000-£30,000	22.20	10.00	15.80
£30,000-£50,000	44.40	50.00	47.40
£50,000-£70,000	11.10	10.00	10.50
Over £70,000	22.20	30.00	26.30
Parental Afterlife Beliefs? (%)			
Yes	55.60	30.00	42.10
No	44.40	70.00	57.90
Religious household? (%)			
Yes	44.40	40.00	42.10
No	55.60	60.00	57.90
Spirituality level (%)			
High	44.40	10.00	26.30
Medium	33.30	20.00	26.30

	Low	22.20	70.00	47.40
Religion (%)				
	None	55.60	60.00	57.90
	Christian (unspecified)	22.20	0.00	10.50
	Church of England	11.10	20.00	15.80
	Catholic	0.00	20.00	10.50
	Anglian	11.10	0.00	5.30
Conversations about death? (%)				
	Occurred	88.90	100.00	94.70
	Hypothesised	11.10	0.00	5.30

Recruitment for study 3 was limited to those who had already taken part in Study 2 and agreed to be contacted for future studies. Two age groups were chosen, with the expectation that the disparity between their death understanding would be greatest between them (5-to 6-years-old and 9- to 11-years-old). Owing to this limitation and mixed-method approach, we aimed to recruit 10 children per age group. Given the smaller sample size, Type II errors were not unlikely, and sensitivity and a priori power analyses were conducted to investigate these. Sensitivity analyses can be used to identify the minimum size of effect that can be reliably detected with the given alpha level (.05), sample size and desired effect size – effect sizes smaller than this value will not be significant (Perugini et al., 2018). A priori power analysis can then use the desired power level (.80), alpha level (.05) and effect size to calculate how many participants are needed to achieve the desired power (Perugini et al., 2018).

Materials

Storybook

A storybook titled “Ringo the alien learns about life on earth” was created to encourage discussions around life and death between parent and child. The storybook was designed to allow parent and child to assume the role of teacher to an alien who knew nothing about life on earth. In the story, an alien (Ringo) and a child (Timmy/Tammy) encounter different living entities (flower, human and deer) and discuss what these entities need to live and what death means for them. The storyline was designed to feel like a storybook, and a physical book was printed to try to provide a more natural situation, and prompt more natural discussions around death, than structured interviews and questionnaires. The book had nine different sets of discussion questions (e.g., “Can you list things that humans need to stay alive?”; “What does a flower need to live?”), and four activities (e.g., “What living things might you find in the garden?”; “How many animals with fewer than four legs can you list?”). The book was made

up of 25 pages, with 10 pages having an activity or discussion question. Each question/activity was printed in green font (see Appendix F for PDF proof of storybook).

Discussion questions of direct relevance to this study were “What happens when a person dies? What should Timmy say? Do they go anywhere else after they die?”. Answers to these questions were analysed. These questions were deemed as most relevant to the research question and focus of human death understanding in the current thesis. Discussion of questions regarding the death of a flower and deer were also used to develop the coding scheme, as they provided further context to discussions, however they were not analysed in the current study. Other questions were included in the storybook to disguise the focus on death and to encourage interactivity between parent and child.

Procedure

Participants were given the choice of taking part in their homes (with, $n = 5$, or without the researcher present, $n = 1$) or in the research lab at UEA ($n = 13$). Once parents had signed a consent form, and children had given verbal assent to participate, families were instructed to read through a storybook teaching an alien about life on earth. All participants were asked to read through the story and discuss each topic (indicated via green text/font). They were told to read through the story as they usually would, at their usual pace and to not worry if their conversations went off topic or they needed to take a break. They were informed that there was no preference as to how or who read the text or answered the questions. Parents were asked to spend 5 minutes getting acquainted with the book before reading with their child.

For participants who took part with the researcher present, the researcher set up participants in a room in the lab or in their home with two voice recording devices. When participants were ready to begin reading, the researcher turned on the recording devices before leaving the room and told participants they would return to turn them off once the task was finished. After participants finished reading through the storybook, they returned to the researcher who debriefed and thanked the family for their participation.

For participants who opted to take part at home without the researcher present, instructions were given over the phone and the researcher remained available should the participant need to contact them again. For recording their conversations, participants were instructed to set up a mobile phone or similar device with audio recording capabilities and to place it near them. They were told to start the recording device when they were ready begin and stop and save the recording once they had finished. These participants then emailed the researcher their audio files and were debriefed and thanked for their participation via email.

Coding and Analysis

All interviews were then transcribed by the researcher and coded. Content analysis explored the types of questions asked and responses given by parent and child during conversations. Codes emerged which pertained to the type of questions asked by participants and responses given. Each participant was categorised by the role they adopted in these conversations. Content of explanations used by parent and child were also coded according to the coding scheme used in Study 2. Participants' discussions were assigned a) conversational role codes and b) explanation codes for both parent and child. Coding schemes were developed using parent and child responses to "What happens when a flower/human/deer dies? What should Timmy say? Do flowers/humans/deer go anywhere else after they die?". Each participant had three separate codes pertaining to each entity meaning there were 57 pieces of data to code for each participant (parent and child). Only those extracts of parent-child discussions which were relevant to the discussion questions of "What happens when a person dies? What should Timmy say? Do they go anywhere else after they die?" were selected for analysis. Owing to the scope of the study, the researcher decided to focus on human death – data exploring death of different entities will be explored at a later date, beyond this thesis.

Conversational role codes

Conversational role codes emerged through content analysis of the data set. This was done separately for parents and for children. First the researcher went line by line through the transcripts of parent-child conversations and created a code for each section of dialogue. These initial codes referred to what the coder felt was the function of questions asked (e.g., to guide or to clarify), and the nature of responses made (e.g., following guidance, affirmative or corrective). These initial codes were then further developed into what role these questions and statements gave to the parent and child within the conversation. In cases where more than one role code was applicable, a decision was made as to which is more reflective of participants' roles in each conversation.

Parents' conversational role codes. For parent conversational roles, codes were further categorised into active, passive, or neutral participation within the discussion:

- (1) ***Passive.*** Parents were coded as taking on a passive role during conversations when they were seen to take a 'backseat'. This meant parents allowed their child to be active participants in the conversation, express their own ideas and ask parents for help when needed. Passive roles were further categorised into three more descriptive sub-categories:

clarify and understand; understand and inform; and support and affirm. Parents were categorised as 'clarify and understand' when they asked questions to further clarify their child's viewpoint, with the sole aim to understand their child's viewpoint. Those categorised as 'understand and inform' allowed their child to give their own viewpoint but gave factual answers to their child's questions – providing their child with information to continue to develop their own viewpoint. Parents categorised as 'support and affirm' supported their child's viewpoint with affirmations, as opposed to questions and/or answers. The following are examples of parental responses reflecting a passive conversational role:

[Child] Oh when other people forget them when they died in heaven, then they go to the land of the deadness

[Parent] So when people die they go up to heaven?

[Child] And then when people forget about them, they go to the land of the living

[Parent] Okay so people only go to heaven when people remember them, is that right?

[Child] Yeah

[Parent] So when people forget about them, they're no longer in heaven?

[Child] No, they're in a very bad place where they can never be seen again

[Parent] Oh

[Child] It happened in the Coco film

[Parent] Oh okay, oh that's okay – Dyad 2 (aged 5-6 years, answering "do they go anywhere else after they die?" coded as 'clarify and understand')

[Child] Yeah, so your ashes can be throwed into the sea

[Parent] Yes they can

[Child] and they, what are ashes?

[Parent] That's when someone gets, what they call cremated so they instead of burying their body, they um burn the body, because it's just a body and it's not, no heart beating or brain working anymore, so it's just our body so they burn the body into ashes, and then they can put the ashes in wherever they want, in peoples' favourite places

[Child] Or is it, so like in um a really hard box and it gets thrown, put into a fire

[Parent] Yeah basically

[Child] And then it takes out the dusk [sic]

[Parent] Dust, that's right, that's exactly what it is, and that's what I went into scatter the ashes at sea the other week

[Child] ooohh yes! – Dyad 5 (aged 5-6 years, answering “what happens when a person dies?” coded as ‘understand and inform’)

[Child] um humans break down into the soil when you bury them or if you sprinkle their ashes because they break down into the soil and make it nice soil

[Parent] yeah

[Child] um

[Parent] do you go anywhere else afterwards?

[Child] no, no

[Parent] no, is that it?

[Child] yeah – Dyad 8 (aged 9-11 years, answering “what happens when a person dies?” coded as ‘support and affirm’)

- (2) **Active.** Parents were coded as taking on an active role during conversations when they were seen to try and guide conversations and actively shape their child’s responses. Parents who took on a more active role were seen to use guiding questions and directive language during conversations around death with their child. Active conversational roles were further categorised into three descriptive sub-categories: guiding; directing; and sharing ideas. Parents who were classed as ‘guiding’ were seen to ask questions or make statements which guided their child to a certain viewpoint (usually to the parents’ viewpoint, but also others’). ‘Directing’ parents were those who used directive language to direct their child’s attention to the task or a topic. Parents classed as ‘sharing ideas’ did not use guiding or directive language, but instead created an active discussion of both parent and child ideas as separate, equally valid viewpoints. Owing to the use of the flower and deer discussion to develop the coding scheme, the code ‘directing’ was more prominent in these discussions and not human, and so was not used in subsequent analyses in this study. As some discussions reflected this code while not being assigned it overall, it remained in the coding scheme and an example is given below. Examples of active parental responses are:

[Child] we know that if they die, they can't go anywhere

[Parent] mhmm, but we know that their soul goes where? Who's up in heaven?

[Child] Jesus

[Parent] so where do you think their soul goes?

[Child] in their heart

[Parent] yeah, where do you think it goes? does it stay in the air or does it go up?
What do you think?

[Child] it goes up

[Parent] because in the bible, what does it say about us when we, what does it say about Jesus when he died

[Child] he went up to heaven

[Parent] he rose again and went up to heaven. And he said that that's our place when he comes down to judge, yeah?

[Child] so when we die, we go up to heaven?

[Parent] yeah if we want, yeah. Our bodies stay here, yeah?

[Child] yeah" – Dyad 13 (aged 5-6 years, answering "do they go anywhere else after they die? coded as 'guiding')

[Parent] Do they go anywhere else afterwards?

[Child] uhm well you could possibly eat cake once you're dead

[Parent] how?

[Child] because if you like, have a piece of cake and you have it, someone's holding it and then they open your mouth, and then they put it in and close it and like chew it for you

[Parent] right listen to the, that wasn't the question. What do you think happens when a person dies?

[Child] they get buried or cremated which means burnt into ash and then put in a pot for you to keep – Dyad 14 (aged 9-11 years, answering "do they go anywhere else after they die?" coded as 'directing')

[Parent] do you think they go anywhere else afterwards? like, do you think, like in the ground is X for example, and that's his body but do you think like his soul and his spirit goes anywhere else or do you think that stays in his body?

[Child] it stays in his body

[Parent] do you? see I think it comes out

[Child] where to?

[Parent] I just think it goes into the air and

[Child] what like heaven?

[Parent] yeah

[Child] I don't believe in heaven

[Parent] don't you? why not?

[Child] just because it makes me a bit sad

[Parent] but I think heaven is a happy place

[Child] okay, really? – Dyad 18 (aged 9-11 years, answering “do they go anywhere else after they die?” coded as ‘sharing ideas’)

- (3) **Neutral.** Parents were coded as neutral when they gave neutral responses to their child’s explanations. These parents did not ask questions, though they might repeat their child’s response back to them. For example:

[Child] one day and then they disappear somewhere, I don’t know where they disappear and they disappear into um, uh, a door like ghosts, yes, I am right

[Parent] okay – Dyad 17 (aged 9-11 years, answering “do they go anywhere else after they die?” coded as ‘neutral’)

Children’s conversational role codes. Because all children were asked by their parents to answer the storybook questions and took on active roles by default, they were coded into four different conversational roles. Again, owing to the use discussion of flower and deer discussion to develop the coding scheme, some codes were more prominent in these discussions and not human, and so were not used in the subsequent analysis. These were ‘directing conversation’ and ‘developing ideas’. However, as some discussions reflected these codes while not being assigned them overall, they remained in the coding scheme. Examples of which are given below:

- (1) **Explaining viewpoint.** Children were coded as ‘explaining viewpoint’ when their role within the conversation was to answer the story questions with their own ideas and to explain their viewpoint to the parent and listener. For example:

[Child] Do they go anywhere else afterwards? They go in like a coffin and sometimes they go in like a, what are they called like them stone houses – Dyad 9 (aged 9-11 years, answering “do they go anywhere else after they die?”)

[Parent] Do you think they go anywhere else afterwards?

[Child] They can, if another person tries to see them it wouldn’t make them live again because if they’re dead, they’re dead forever

[Parent] mhmm

[Child] Unless if you’re good you might come back down if you were like really nice – Dyad 11 (aged 5-6 years, answering “do they go anywhere else after they die?”)

- (2) **Follows guidance.** Children were coded as ‘follows guidance’ when they responded accordingly to guidance by parents.

[Child] well they stop, there's lots of different ways that you can die

[Parent] well yeah they can but ultimately your what

[Child] your body stops, your heart stops

[Parent] that's right

[Child] and then you can't breathe anymore and your blood isn't

[Parent] yeah because your heart, what does your heart do?

[Child] it helps you breathe and it pumps the blood around your body

[Parent] yeah well it pumps, so without your heart would you be able to live?

[Child] no

[Parent] so you've there's lots of other organs in your body that you could live without

[Child] yeah – Dyad 16 (aged 9-11 years, answering “what happens when a person dies?”)

- (3) **Directing conversation.** Children were coded as ‘directing conversation’ when they asked questions or made statements which directed the topic of conversation, for example asking to move on to the next topic.

[Child] Can you get on with the rest of the story? Please? – Dyad 3 (aged 5-6 years)

[Child] Right, your turn – Dyad 15 (aged 9-11 years)

- (4) **Developing ideas.** Children were coded as ‘developing ideas’ when their responses appeared to explicitly develop as the conversation continued. Developing ideas were reflected in the way in which they spoke during conversations, with some children’s ideas seeming to change from previous conversations with parents, for example:

[Parent] and you don't think they go anywhere else?

[Child] nope, stay on life and be a ghost

[Parent] oh do you believe in ghosts?

[Child] yeah

[Parent] do you?

[Child] just walk around like zombies

[Parent] [laugh] so what's a ghost?

[Child] the soul of someone

[Parent] oh so you think sometimes the soul of someone sticks around and haunts people?

[Child] no don't haunt, they're nice to people

[Parent] they're nice to people? you think ghosts are nice?

[Child] if you were nice to them, they were nice to you, if you were mean to them, they were bad [inaudible] you – Dyad 12 (aged 9-11 years, answering “do they go anywhere else after they die?”)

Explanation codes

Parent and child explanations of death were coded using the coding scheme used in Study 2 (adapted from Harris & Giménez, 2005 and Panagiotaki et al., 2015). This coding scheme was minimised to only relevant codes which reflected the dataset and research questions of the current study. Participants’ explanations were coded into biological, metaphysical, or dual explanations to reflect the nature of their reasoning around death.

- (1) **Biological explanations.** Any explanations which reflected biological reasoning. For example: reference to death or burial; specific internal organs and bodily functions; life cycle or end of life; and/or, decay of the body after death. For example:

[Child] your body stops, your heart stops – Dyad 16 (aged 9-11 years, answering “what happens when a person dies?”)

[Parent] so, what would happen is, if you were outside and you were buried, you would literally rot into the soil and the soil would take all your nutrients – Dyad 15 (aged 9-11 years, answering “do they go anywhere else after they die?”)

- (2) **Metaphysical explanations.** Any explanations which reflect metaphysical reasoning. For example: reference to religion or God; living on in heaven or hell; reincarnation; special parts (e.g., soul, spirit) continuing; supernatural beliefs such as ghosts; and/or rituals around death. For example, the quote from Dyad 12 given in ‘Developing Ideas’, refers to ghosts and was coded as metaphysical explanation for child and parent (as they did not explicitly disagree with their child). Further examples include:

[Child] yes, yeah, yeah into heaven!

[Parent] they go to heaven, do they?

[Child] Inside it, in the sky

[Parent] in the sky

[Child] they're like walking on the sky – Dyad 10 (aged 5-6 years, answering “do they go anywhere else after they die?”)

I believe that when we die, we come back as our spirit animal – Dyad 6 (aged 9-11 years, answering “do they go anywhere else after they die?”)

(3) **Dual explanations.** Any explanations which include both biological and metaphysical reasoning. For example:

[Parent] yeah if we want, yeah. Our bodies stay here, yeah? ... and go back into the earth and everything else, but our souls because that's why we have souls, go up to heaven – Dyad 13 (aged 5-6 years, answering “do they go anywhere else after they die?”)

[Child] They've just gone to heaven or dead – Dyad 1 (aged 5-6 years, answering “do they go anywhere else after they die?”)

For the final coding scheme of explanation types, see Appendix G. Both parent and child were given separate explanation codes to illustrate their individual views. However, where parents were not explicit in their own views, they were taken to agree with their child and given the same explanation code. For example, parents who were affirming their child's view and/or not taking the opportunity to correct/question their child's ideas.

All participants' discussions were coded by the first and a second, independent coder using the developed coding schemes. For parent conversational roles, there was substantial agreement, $k = 0.78$, (95% CI, .62 to .93). For child conversational roles, there was also substantial agreement, $k = 0.67$ (95% CI, .42 to .92). For parent explanation codes, there was near perfect agreement, $k = 0.87$ (95% CI, .73 to 1.01). Child explanation codes also had near perfect agreement, $k = 0.81$, (95% CI, .62 to .99). Disagreements between coding and suitability of the coding scheme were then discussed and resolved.

Once the coding process was complete each participant (parent and child) was assigned an explanation code and conversational role code for their discussions about human death. See Table 3.3 for an overview of the structure and content of parent-child observed conversations during the storybook task.

Table 3.3*Structure and content of parent-child conversations (N = 19)*

		5-6-Year-Olds (n = 9)	9-10-Year-Olds (n = 10)	Total (N = 19)
Structure	Who was reading? (n, %)			
	Parent	6 (66.70)	2 (20.00)	8 (42.10)
	Child	1 (11.10)	6 (60.00)	7 (36.80)
	Both	2 (22.20)	2 (20.00)	4 (21.10)
	Who asked the most questions?			
	Parent	9 (100.00)	8 (80.00)	17 (89.50)
	Child	0 (0.00)	1 (10.00)	1 (5.30)
	Equal	0 (0.00)	1 (10.00)	1 (5.30)
	Child Conversational Role			
	Explaining Viewpoint	9 (100.00)	9 (100.00)	18 (94.70)
Following Guidance	0 (0.00)	1 (10.00)	1 (5.30)	
Parent Conversation Role				
Passive	8 (88.90)	4 (40.00)	12 (63.20)	
Active	1 (11.10)	5 (50.00)	6 (31.60)	
Neutral	0 (0.00)	1 (10.00)	1 (5.30)	
Content	Child Human Explanation			
	Biological	4 (44.40)	8 (80.00)	10 (52.60)
	Metaphysical	3 (33.30)	1 (10.00)	6 (31.60)
	Dual	2 (22.20)	1 (10.00)	3 (15.80)
	Parent Human Explanation			
	Biological	3 (33.30)	7 (70.00)	12 (63.20)
	Metaphysical	4 (44.40)	2 (20.00)	4 (21.10)
	Dual	2 (22.20)	1 (10.00)	3 (15.80)

Findings and Discussion

A series of chi-square tests were conducted with significance levels (p values, at a .05 significance level) and effect sizes (Cramer's V values) reported. For Cramer's V values .05 were considered weak, those above .10 were considered moderate and those above .15 were considered strong (Akoglu, 2018). Several ANOVAs were also conducted with significance levels ($p = .05$) and effect sizes (partial eta squared, η_p^2 , values) reported. For η_p^2 effect size, magnitudes above .01 were considered small, those above .06 were considered medium and those above .14 were considered large (Cohen, 1988). Sensitivity analyses (Perugini et al., 2018) and a priori power analyses were also run using G*Power (Faul et al., 2007). G*Power uses Cohen's w as a measure of effect size with 0.10 considered small, 0.30 medium, and 0.50 large – this was calculated by dividing the chi-square value by the number of scores and taking the square root (Colman, 2009). Alpha was set at .05 and power was considered sufficient if above .80 (Cohen, 1988).

(1) How are discussions about death structured between parent and child, does this vary with age?

To explore the structure of parent-child conversations, several chi-squares were run. First, associations between parent conversational roles and child ages were explored. These were followed by associations between parent and child conversational roles, e.g., were conversational roles from one partner associated with conversational roles of the other partner.

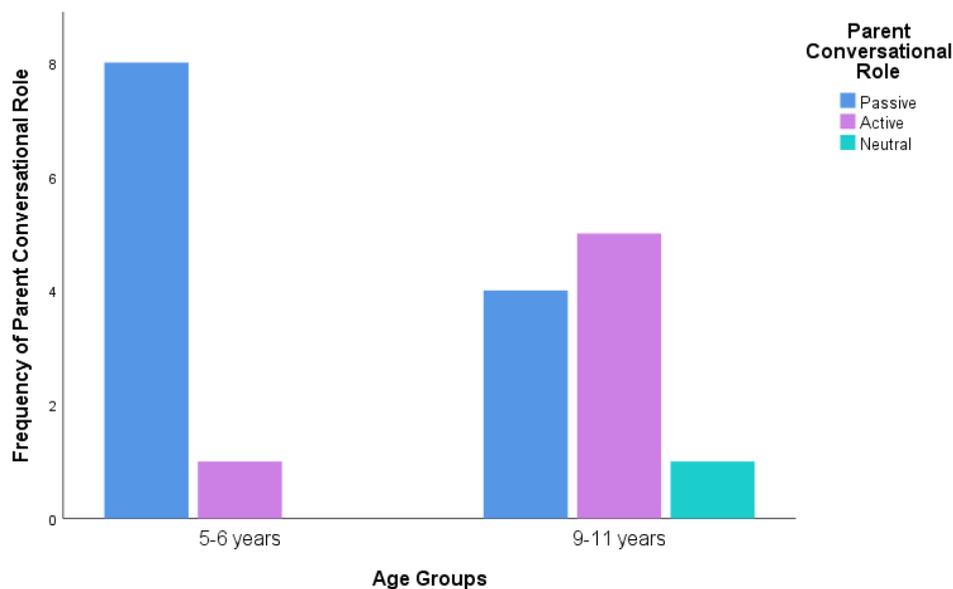
No significant association was found between age group and child conversational role, $\chi^2(1) = 0.95$, $p = .33$, $w = .22$. All but one child (older age group) took on the role of explaining their viewpoint – see Table 3.3. Sensitivity analyses (Perugini et al., 2018) using G*Power (Faul et al., 2007) indicated that, with power set at .80, the sample size ($N = 19$) was sufficient to detect only large effect sizes of $w = .82$ and above. For $w = .22$ and N of 19, the test power is .16. A priori analyses indicated a sample size of 163 was needed for sufficient power (.80) to detect this effect size ($w = .22$), and 32 to detect a medium effect size ($w < .50$).

Although not significant, $\chi^2(2) = 4.96$, $p = .08$, $w = .51$, there was a tendency for parents of younger children to take on passive roles during discussions than older children (Figure 4.1). Sensitivity analyses indicated that the sample size ($N = 19$) was not sufficient to detect even large effect sizes ($\chi^2 = 5.99$, $w = .71$), with power set at .80. For $w = .51$ and N of 19, the test power is .50. A priori analyses indicated a sample size of 38 was needed for sufficient power (.80) to detect this effect size ($w = .51$). Parents of older children were as likely to be

'active' or 'passive'. Despite being non-significant, the pattern emerging suggests that parents also have a tendency to agree more with younger children than older children.

Figure 4.1

Frequency of parent conversational codes (passive, active or neutral) by age group (5-6 and 10-11 years)



Qualitative analysis of the data extracts also offered support for this emerging pattern. Examples of passivity with a younger child are illustrated in Dyad 11. This parent had commented to the researcher that participation in Study 2 had led to hearing about beliefs that they had no idea their child held or where they had picked them up from. Instead of correcting or trying to change these beliefs, the parent tried to clarify and understand their child's viewpoint:

[Child] They can, if another person tries to see them it wouldn't make them live again because if they're dead, they're dead forever

[Parent] mhmm

[Child] Unless if you're good you might come back down if you were like really nice

[Parent] oohkay. umm do you mean, are you talking about like reincarnation? so where you go up to heaven you then come back down as another person or another animal or?

[Child] Yeah another person

[Parent] Okay because you've told me about this before haven't you, that you think that maybe if you've been good when you go up to heaven you come down as

another person

[Child] yeah

[Parent] and, so do you think...

[Child] and then you keep going up and down until you've been naughty and then you're fed to the snakes and then you can't be

[Parent] Okay how about if you're reincarnated so you're reborn lots and lots of times and you're just good every time, how about if you're never naughty so you never get fed to those snakes

[Child] um you just keep on going

[Parent] what forever and ever and ever?

[Child] uh yeah – (Dyad 11, aged 5-6 years, answering “do they go anywhere else after they die?”)

Part of the passive conversational role seen here also seemed to stem from wanting to understand how established their ideas were and where their child had gathered their information from, e.g., “from your book?” (Dyad 11). Parents may wish to assess how strong their child’s beliefs are and what their understanding of death is before they consider a more active role. This may allow parents to act more reassuringly and not upset their child with new ideas if they hold strong in their beliefs.

Alternatively, one parent of a younger child (Dyad 13) took on an active conversational role and guided their child towards their own, religious beliefs:

[Parent] Do they go anywhere else afterwards?

[Child] no, when...

[Parent] well we know we...

[Child] no

[Parent] we bel-, go on then you say it

[Child] we know that if they die they can't go anywhere

[Parent] mhm, but we know that their soul goes where? Who's up in heaven?

[Child] Jesus

[Parent] so where do you think their soul goes?

[Child] in their heart

[Parent] yeah, where do you think it goes? does it stay in the air or does it go up?

What do you think?

[Child] it goes up

[Parent] because in the bible, what does it say about us when we, what does it say

about Jesus when he died

[Child] he went up to heaven

[Parent] he rose again and went up to heaven. and he said that that's our place when he comes down to judge, yeah?

[Child] so when we die, we go up to heaven?

[Parent] yeah if we want, yeah. Our bodies stay here, yeah?

[Child] yeah – Dyad 13 (aged 5-6 years, answering “do they go anywhere else after they die?”)

Dyad 13 not only provides the only example of a parent of a younger child who took on an active role, but also showed an apparent difference between how parent and child understood death and how such conversations may be structured. Here the child appears to have more of a biological conception of death whereas the parent holds a metaphysical conception. This child was coded as using biological explanations as they did not appear to agree with their parent's explanations, and instead of following their guidance, asked for clarification to the explanations their parent guided them towards. This extract also gives insight into how children consolidate these different explanations and provides a clear demonstration of how parents may approach sharing their own beliefs with their child. For example, this parent uses guiding questions and information they know their child already knows to scaffold their understanding, e.g., the story of Jesus. This example illustrates the importance of comparisons between children's developing conceptions at different time points to better establish how they are conceptualising death. For example, would this child have had a consistently biological conception before this conversation, or would they also engage with spiritual ideas as expected by their parent in this conversation?

Chi-squared tests indicated no association between parent and child conversational roles, $\chi^2(2) = 2.89$, $p = .32$, $w = .39$. However, given the lack of variability in children's conversational roles, this was not unexpected. Sensitivity analyses indicated that the sample size ($N = 19$) was sufficient to detect only large effect sizes of .71 and above ($\chi^2 = 5.99$). For $w = .39$ and N of 19, the test power is .31. A priori analyses indicated a sample size of 64 was needed for sufficient power (.80) to detect this effect size ($w = .39$), and 32 to detect a medium effect size ($w < .50$).

Study 3's findings shed further light into the nature of parent-child discussions. Although expected given the study design, children were seen to lead conversations and express their ideas freely with differing levels of involvement from their parents. Parents were seen to be more active and involved in their conversations with older children, and more

passive in their conversations with younger children. This finding may reflect parents changing their explanations to agree with younger children, and so taking on a more passive role that allows children to freely express their viewpoints. For example, in Dyad 2, despite having no religious or afterlife beliefs (low spirituality) themselves, the parent listens to and asks their child to share more about their belief:

[Parent] Do they go anywhere else when they die? People?

[Child] Oh when other people forget them when they died in heaven, then they go to the land of the deadness

[Parent] So when people die, they go up to heaven? – Dyad 2 (aged 5-6 years, “do they go anywhere else after they die?”)

Alternatively, ‘passive’ parents may also agree with and share the same ideas as their child, but still wish for their child to make up their own mind, and so do not try to guide towards their own beliefs – at least as seen in these observed discussions. This type of passivity with younger children is most represented in the current sample. For example, in Dyad 1, the parent is reported to express both religious and afterlife beliefs (high spirituality) and responds to their child in a similar way as to Dyad 2:

[Child] They’ve just gone to heaven or dead

[Parent] They’re going to heaven?

[Child] Yeah

[Parent] Can they take their cake to heaven?

[Child] Noooo, unless the cake dies too

[Parent] Can cake die?

[Child] No! They’re [inaudible] you can’t take cake to heaven!

[Parent] What happens, do the, is that where you think everybody goes?

[Child] Umm, yeah – Dyad 1 (5-6 years, answering “do they go anywhere else after they die?”)

The approach taken by ‘passive’ parents in discussion with younger children also suggests a wish for discussions about death to be reassuring. Parents’ use of clarification to understand their child’s viewpoint may also allow them to understand how comforting their child finds these beliefs and how established they are within their child’s worldview.

For older children, parents appear to take on more active roles and guide them to consider different viewpoints. This finding suggests that as children’s cognitive ability and emotional maturity develops, parents are more open to debate or discussion of ideas that

might differ from their child's. This suggestion is nicely illustrated in Dyad 18's sharing of ideas during discussion of "do they go anywhere else after they die?":

[Parent] do you think they go anywhere else afterwards? like, do you think, like in the ground is X for example, and that's their body but do you think like their soul and their spirit goes anywhere else or do you think that stays in their body?

[Child] it stays in their body

[Parent] do you? see I think it comes out

[Child] where to?

[Parent] I just think it goes into the air and...

[Child] what like heaven?

[Parent] yeah

[Child] I don't believe in heaven

[Parent] don't you? why not?

[Child] just because it makes me a bit sad

[Parent] but I think heaven is a happy place

[Child] okay, really? – Dyad 18 (aged 9-11 years)

This extract also illustrates the subjectivity in what people find comforting, even between parent and child – which was also addressed in Study 1's findings. For example, the idea of heaven in this extract is not a source of comfort for the child but is for the parent. This finding demonstrates the importance of listening to and gaining an understanding of what children believe when discussing death with them. Although heaven may be a comforting thought to many people, it might not be to all and so may not be as reassuring as hoped. Instead, giving children a space to express their ideas and perceptions and talk through any worries they may have may help children come to terms with bereavement and develop their conceptualisations in a way that works for them, either in terms of comfort or greater understanding of death.

The finding that parents play more active roles with older children and more passive roles with younger children, is seemingly consistent with previous research which suggest that parents are reluctant to discuss death with their children when they perceive their child to be cognitively unable to understand or emotionally able to cope (Miller et al., 2014). As seen in Study 1, these perceptions appear to be guided by age and capabilities expected at this age (which may be guided by outdated research, Longbottom & Slaughter, 2018). Indeed, older children are expected to be better able to understand biological death – as explored in the next research question.

These findings also shed light on how parent-child conversations are structured between parent and child. Conversations were expected to demonstrate both parent and child as active social partners, as seen for conversations about emotions (Lagattuta & Wellman, 2002), and interactions between parent and child to create shared representations (Thompson, 2006). Study 3 instead suggests that in conversations about death, parents take their lead from their child, and respond either actively or passively to their child's prompts, or initiate prompts which encourage their child to express or elaborate on their own viewpoint. In conversations about death, interactivity between parent and child may be less reciprocal owing to the emotionally charged nature of discussing death and parents' desires to not upset their child. For example, those parents who took on active roles appeared more likely to do so with older children who are perceived as, or confirmed as during conversation, more capable of understanding death cognitively and emotionally.

Passivity of parents seen during actual parent-child conversations has important implications for research which relies upon parental self-reports to explore parent-child conversations. By having parents self-report their conversations, parents' explanations may appear to be the focus of conversations and children passive participants, which does not reflect what is seen for actual conversations here. Parental self-report methods, therefore, may not reflect how actual conversations about death occur between parent and child. However, these child-led conversations may also reflect the advertised focus of the research on children's understanding of death. This may also be reflected in all but one child taking on the conversational role of explaining their viewpoint.

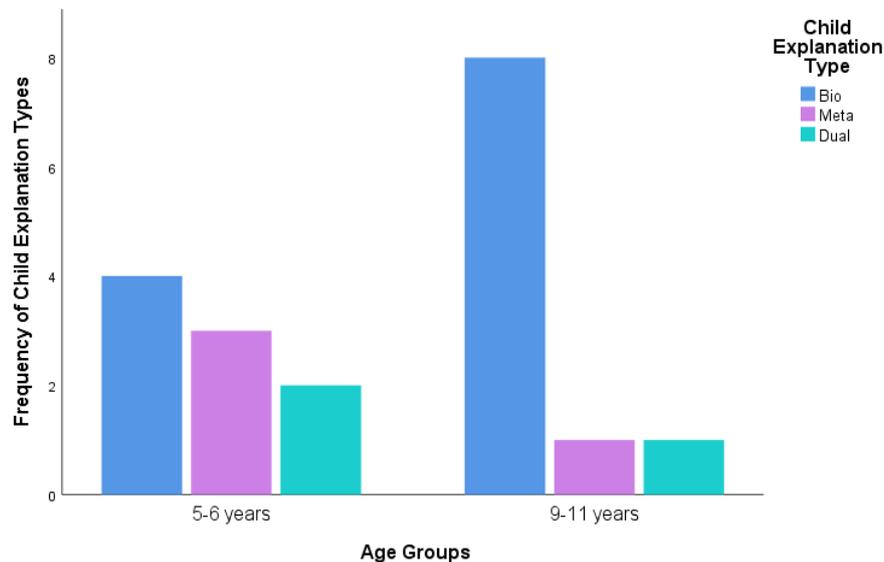
(2) What content is discussed during real-time parent-child conversations, does this vary with child age?

To explore the content of parent-child conversations through observed discussions, chi-square tests were used to explore the associations between parent explanation types, child explanation types, and age.

As illustrated in Figure 4.2, older children gave more biological explanations than younger children, and more than any other type of explanation. However, no significant association was found between age group and child explanation type, $\chi^2(2) = 2.62$, $p = .27$, $w = .37$. Sensitivity analyses indicated that the sample size ($N = 19$) was sufficient to detect only large effect sizes of $w > .71$ ($\chi^2 = 5.99$). For $w = .37$ and $N = 19$, the test power is .28. A priori analyses indicated a sample size of 71 was needed for sufficient power (.80) to detect this effect size ($w = .37$).

Figure 4.2

Frequency of child explanation types (biological, metaphysical or dualistic) by age group (5-6 and 10-11 years)



Qualitative analyses suggest that older children are better able to understand biological death, as interpreted from the matter-of-fact way in which they answer questions. One example which reflects this matter-of-fact nature in which several older children discussed biological explanations comes from Dyad 8:

[Parent] what do you think, what happens when humans die?

[Child] um humans break down into the soil when you bury them or if you sprinkle their ashes because they break down into the soil and make it nice soil

[Parent] yeah

[Child] um

[Parent] do you go anywhere else afterwards?

[Child] no, no

[Parent] no, is that it?

[Child] yeah – Dyad 8 (aged 9-11, answering “what happens when a person dies?”)

This example also illustrates the concise nature of conversations seen between those children who were confident in their knowledge and their parents, who either agreed with their child or did not feel the need to guide their child to other ideas.

While only seen in one older child, metaphysical thinking appeared to be less well established in children’s explanations. For example, they may be more likely to consider the

ideas of others and how these compare to their own beliefs. This consideration is well illustrated during Dyad 6's conversation, which demonstrated the only metaphysical explanation seen in older children:

[Parent] What do you think? What happens when a person dies? Do they go anywhere else afterwards?

[Child] mm depends on what you believe in

[Parent] yeah

[Child] some people believe that you just die and you start a new life, but completely forgetting your old one

[Parent] mhmm do you know what that's called?

...

[Parent] yeah ahh, so that is called reincarnation

[Child] reincarnation

[Parent] yep, so reincarnation if somebody believes that they came, they've lived before and come back as something else

[Child] well who do you think I would be

[Parent] what do you believe?"

[Child] I believe that when we die we come back as our spirit animal

[Parent] mhmm

[Child] or an animal that we'd be best at being – Dyad 6 (aged 9-11 years, answering "what happens when a person dies?").

These apparently less established ideas were also seen in younger children's metaphysical explanations, see Dyad 10, for example:

[Parent] What do you think? What happens when a person dies? Do they go anywhere else afterwards?

[Child] nooo

[Parent] no?

[Child] yes, yeah, yeah into heaven!

[Parent] they go to heaven, do they?

[Child] Inside it, in the sky

[Parent] in the sky

[Child] they're like walking on the sky

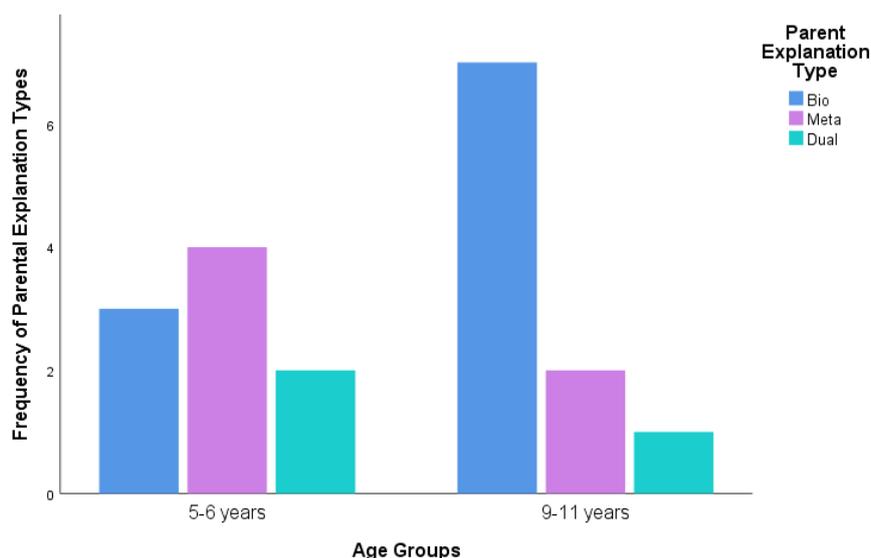
[Parent] they're walking on the sky are they, oh. I see... - Dyad 10 (aged 5-6 years, answering "what happens when a person dies?").

Demonstrated in a number of conversations, Dyad 10 illustrates how children can be seen to develop their ideas seemingly in response to their parents' questions. However, the reason for this apparent idea change is not easily clarified and highlights the importance of using observational and longitudinal methods when exploring children's developing understandings. For example, is the child picking up on a cue from their parent based on previous conversations or have they taken the time to process the question before responding with their actual conceptualisation of death. Exploration of children's understandings of death from two time points may help to clarify how established children's ideas are.

No significant association was found between age group and parent explanation type, $\chi^2(2) = 2.55, p = .28, w = .37$. While no significant findings were indicated, Figure 4.3 suggests parents are more likely to discuss biological explanations with older children than with younger children. Sensitivity analyses indicated that the sample size ($N = 19$) was not sufficient to detect even large effect sizes ($\chi^2 = 5.99, w = .71$), with power set at .80. For $w = .37$ and N of 19, the test power is .28. A priori analyses indicated a sample size of 71 was needed for sufficient power (.80) at this effect size ($w = .37$).

Figure 4.3

Frequency of parental explanation codes (biological, metaphysical or dualistic) by child age group (5-6 and 10-11 years, $N = 19$)

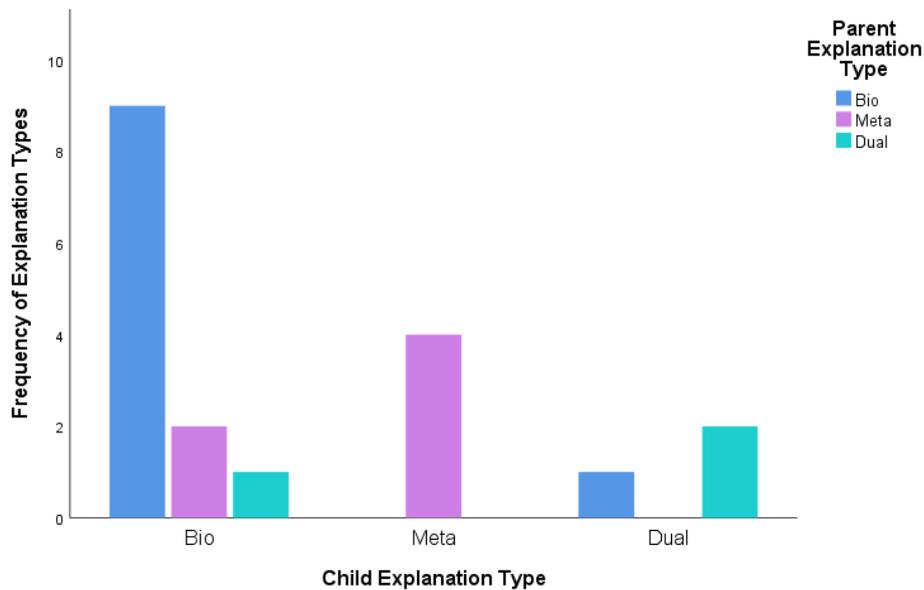


A large significant association was found between parent and child explanation types, $\chi^2(4) = 17.15, p = .002, V = .67$. This finding was expected as most children took on the role of explaining their view and parents appeared to support their ideas by explicitly agreeing or not arguing against. Parents appear to follow their child's ideas during conversations about

death. For example, children who give metaphysical explanations are more likely to have parents who also give metaphysical explanations during conversations (see Figure 4.4). However, this direction cannot be assumed and comparisons between parents' self-reported explanations and observed explanations would shed more light on this finding.

Figure 4.4

Frequency of child explanation types by parent explanation types (biological, metaphysical and dualistic)



Exploring the content of real-time parent-child discussions about death gave further insight into how children conceptualise death and the ways in which their parents choose to explain death. In contrast to the findings of previous research (e.g., Astuti & Harris, 2008; Harris & Giménez, 2005; Legare et al., 2012), older children were no more likely to discuss spiritual ideas than younger children. Older children tended to use more biological explanations than their younger counterparts. Younger children's explanations were instead more evenly split between biological, metaphysical, and dual explanations; spiritual ideas appeared more pervasive across younger children than evidenced in previous research. These spiritual ideas included: being reincarnated as a person if you're good or being fed to snakes if you're naughty (Dyad 11); going to heaven and walking on the sky (Dyad 10); and going to heaven while you're remembered or to the land of "deadness" when you are forgotten (Dyad 2). These findings suggest children do not need to have a mature biological understanding of death before they are able to conceptualise death in metaphysical terms, contrasting with previously established timelines around explanatory coexistence (e.g., Legare et al., 2012).

To better understand this finding, two explanations are considered. First, the presence of parents in Study 3. For example, in the presence of their parents, children may respond with what they feel their parents would wish to hear. Future research could explore whether children's own beliefs, or those expressed, differ according to who they are having discussions with. This idea will be partially explored in the following chapter, where comparisons can be made between children's ideas expressed in interviews with researchers and those expressed during conversations with parents. Second, while previous research may suggest that younger children are not incorporating spiritual ideas into their conceptualisations, arguably children are still exposed to these ideas regularly. For example, spiritual ideas appear in much of children's media, perhaps owing to their more reassuring nature. One prominent example which regularly appeared in discussions with parents and children during this series of studies is that of 'Coco' (Unkrich & Molina, 2017). 'Coco' is a 2017 Disney film in which the protagonist must navigate the Mexican afterlife or 'land of the dead'. This film portrays a continued existence in another place if the dead are remembered. Given the frequency with which this film was referred to by parents and children, it is not unlikely that this type of portrayal in children's media influences children's developing ideas. Films of this nature appear to be useful tools for creating opportunities for parents to discuss death with their children (e.g., Bridgewater et al., 2021; Renaud et al., 2015). For example, the death of television characters was reported by parents as the most frequent death-related experience for children at an early age (Renaud et al., 2015).

Parent and child explanations during the storybook task were found to be significantly associated. However, the direction of this relationship cannot be assumed. This association may be owing to parents following their child's lead, children being influenced by their parent's explanations in previous discussions, or a bi-directional relationship between the two. In Study 3, all but one child took on the role of answering the storybook questions. It is suggested that this association is owing to parents agreeing with, or at the very least, not challenging their child's explanations. To reiterate, corresponding with Miller et al. (2014), parents' perceptions of their child's cognitive ability may result in their choosing to reassure and agree with their child rather than guide and teach their child during conversations around death. Parents appeared to take the opportunity to teach and expand their child's biological understanding when children had already described biological ideas. Again, parents are perhaps hesitant to introduce new viewpoints to their children but are comfortable to guide their child based upon their child's explanations and existing understanding. Children's own ideas also appeared to develop throughout discussions, and from previous conversations with parents, as reflected in the developing ideas conversational role within the coding scheme (e.g., "oh do you believe in ghosts?", Dyad 12; "Okay because you've told me about this before haven't you", Dyad 11).

These findings can have important implications for how children's understanding of death is researched and will be further explored in the following chapter, Study 4.

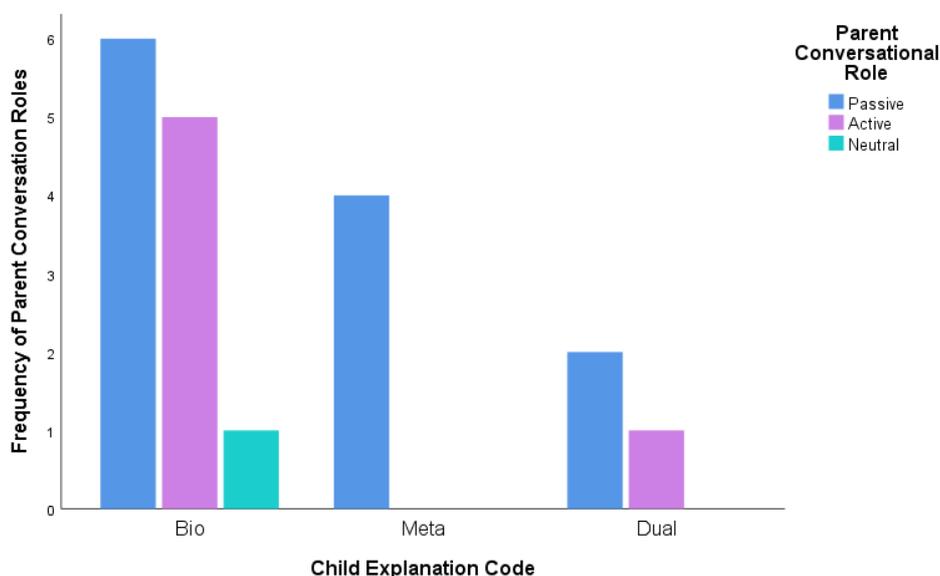
(3) Is there an association between the content of parent and child talk about death and how these discussions are structured?

A close to significant association was found between child conversational role and child explanation type, $\chi^2(2) = 5.63$, $p = .06$. However, only one child showed a different conversational role from explaining their viewpoint, by instead following guidance which led to a dualistic explanation type (Dyad 16, 9-11 years). All other children took on the same conversational role with differing explanation types.

Chi-square tests indicated no significant association between parent conversational role and child explanation type, $\chi^2(4) = 3.43$, $p = .49$, $w = .42$. Sensitivity analyses indicated that the sample size ($N = 19$) was not sufficient to detect even large effect sizes ($\chi^2 = 9.49$, $w = .79$), with power set at .80. For $w = .42$ and $N = 19$, the test power is .27. A priori analyses indicated a sample size of 68 was needed for sufficient power (.80) for this effect size ($w = .42$). However, Figure 4.5 shows that parents appear less likely to be 'active when their child gives metaphysical explanations than when their child gives biological or dualistic explanations (Figure 4.5).

Figure 4.5

Frequency of parental conversation roles (passive, active, and neutral) by child explanation types (biological, metaphysical, and dualistic)



This finding was seen to occur even when their child beliefs conflicted with their own. For example, parents who had no religious or afterlife beliefs (low spirituality), were seen to go along with their child's metaphysical ideas. This is best illustrated by Dyad 6's use of "mhmm" in response to their child's discussion of metaphysical ideas, and shows a typical response from 'passive' parents:

[Child] I believe that when we die we come back as our spirit animal

[Parent] mhmm

[Child] or an animal that we'd be best at being

[Parent] Yeah, what animal would you come back as?

[Child] Well I would like to come back as a something that lives long but doesn't die easily

[Parent] [gasp] tortoises live for a long time

[Child] yeah, but maybe too long because they live like 100 years

[Parent] yeah, so what if p-

[Child] I want to be a pet

[Parent] so what if people don't believe in reincarnation or spirits, where do they go afterwards?

[Child] ooh if you believe in reli-, if you're religious faith, um you believe god

[Parent] mhmm

[Child] you come back in heaven or hell

[Parent] mhmm, okay – Dyad 6 (9-11 years, answering do they go anywhere else after they die?).

There are several explanations as to why parents may choose to be more passive in response to metaphysical explanations. For example, metaphysical ideas may be perceived as more reassuring than biological and so parents may not wish to contradict their child's explanations if they are seen to provide comfort to their child. Another explanation might be the more subjective nature of metaphysical ideas, as opposed to the basis in fact that biological ideas have. This subjective nature may instead lead parents to want to understand their child's ideas and where they stem from rather than trying to correct them. In Dyad 2 for instance, another example of a parent trying to clarify and understand their child's metaphysical beliefs was seen:

[Parent] Do they go anywhere else when they die? People?

[Child] Oh when other people forget them when they died in heaven, then they go to the land of the deadness

[Parent] So when people die they go up to heaven?

[Child] And then when people forget about them, they go to the land of the living

[Parent] Okay so people only go to heaven when people remember them, is that right?

[Child] Yeah

[Parent] So when people forget about them, they're no longer in heaven?

[Child] No, they're in a very bad place where they can never be seen again

[Parent] oh

[Child] It happened in the Coco film – Dyad 2 (aged 5-6 years, answering “do they go anywhere else after they die?”)

This extract also explicitly demonstrates other sources of children knowledge, e.g., a Disney Pixar film, and how they are integrated into children’s understandings; illustrating the importance of exploring how individual children’s ideas develop. For example, how recently had this child watched the film, and how well integrated into their beliefs is it? Children developing their ideas based on what happened to be on their mind in the moment of interview, or storybook task, was apparent across Studies 2 and 3. This observation highlights a gap in previous literature which needs addressing to better establish how children develop their conceptualisations and how valid methods used to assess these conceptualisations are. One way to address this issue would be to measure children’s understanding of death at several time points.

The data indicates that parents are using biological explanations as teaching opportunities in which to better develop their child’s biological ideas. For example, one discussion in which parent and child discussed cremation as a possibility of what happens after death:

[Child] Yeah, so your ashes can be throwed into the sea

[Parent] Yes, they can

[Child] And they, what are ashes?

[Parent] That's when someone gets, what they call cremated so they instead of burying their body, they burn the body. Because it's just a body and it's not, no heart beating or brain working anymore, so it's just our body so they burn the body into ashes, and then they can put the ashes in wherever they want, in people’s favourite places – Dyad 5 (aged 5-6 years, answering “what happens when a person dies?”)

For children’s metaphysical ideas, parents appear more comfortable letting their child develop their own ideas:

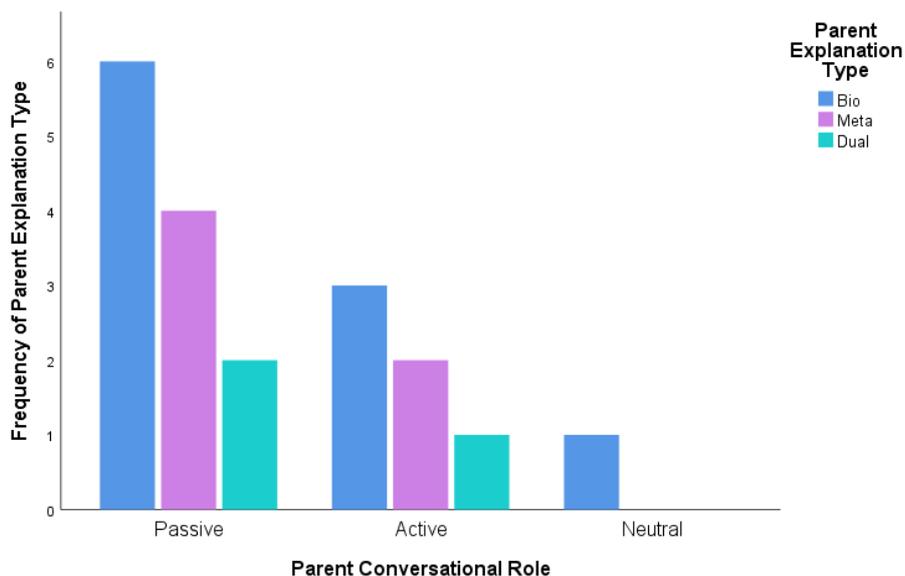
[Parent] So how do you go to heaven if you're buried underground?
 [Child] You just turn into a ghost
 [Parent] Oh your ghost goes to heaven
 [Child] Yeah, so heaven is invisible that's up in the clouds
 [Parent] Heaven is invisible up in the clouds. Okay. – Dyad 3 (aged 5-6 years, answering “what happens when a person dies?”).

Again, no significant association was found between child conversational role and parent explanation type, $\chi^2(2) = 0.95, p = .62$. The one child who followed guidance, was led by a biological explanation type.

For parent conversational role and parent explanation type, no significant association was found, $\chi^2(4) = 0.95, p = .92, w = .22$. Half as many parents had active conversational roles as passive, with frequencies of explanation types spread evenly across each role (see Figure 4.6). For example, six parents took on passive conversational roles with biological explanation types, compared with three parents with active roles and biological explanation types. Sensitivity analyses indicated that the sample size ($N = 19$) was not sufficient to detect even large effect sizes ($\chi^2 = 9.49, w = .79$), with power set at .80. For $w = .22$ and N of 19, the test power is .10. A priori analyses indicated a sample size of 247 was needed for sufficient power (.80) to detect this effect size ($w = .22$).

Figure 4.6

Frequency of parent explanation types (biological, metaphysical, dualistic) by parent conversational role (passive, active, neutral; $N = 19$)



While not significant, patterns in the current data suggest that parents who are active participants in conversations with their children are more likely to discuss biological explanations than metaphysical. In some respects, this is unexpected, for example, parents are thought to find more satisfaction in explanations which describe a continuation of life after death, perhaps as a more reassuring way to explain death to children (Renaud et al., 2015). Biological discussions may be easier to have. For example, when discussing death in a biological manner, parents are able to deal with facts and take on a more pedagogical role, than they would be able to in the discussions of metaphysical, afterlife ideas which can be much more subjective for each individual, as well as societally. Parents were also more likely to take on active roles with older children. This may reflect parents' perceptions of their child's capabilities, as discussed above. This finding may also demonstrate that parents of older children have had more conversations about death. Renaud et al. (2015) suggest that as children get older, more and more opportunities for discussing death arise. It may also be the case that parents with older children are more practised in talking to their child about death, and as such may feel more comfortable having open, two-way discussions around death and the biological facts around it.

Referring back to parents' perceptions of their child's capability to understand death cognitively and emotionally, these perceptions may affect both the parents' conversational role and chosen explanations. For example, Boyatzis and Janicki (2003) suggest that the reciprocal nature of conversations between parent and child may differ according to each other's goals. Based on the emerging patterns in Study 3, parents' goals during conversations appear to differ based their child's age or capabilities to understand demonstrated by their child during conversations. For example, parents may aim to reassure their young child through letting their child lead and not introducing new upsetting ideas. However, if their child expresses knowledge of or seeks information about biological facts, the parent's aim may change to instead inform their child (perhaps as a form of reassurance in itself). Again, children appear to lead conversations both explicitly by sharing their viewpoints, or implicitly through their parents' assessments of their capabilities and the resulting influence on parent conversational role and explanation types.

Summary of Findings

By exploring the structure and content of parent-child discussions, the influence parent-child conversations have on children's conceptualisations of death can be further elucidated. For example, investigating the structure of these discussions in real-time observations clarifies the roles parental beliefs about death and perceptions of their child's

ability to deal with death play in how conversations about death occur – a role which has not fully been explored using self-report methods. Though not significant, Study 3 suggests there is an emerging pattern in which parents were more likely to take on passive roles during conversations with younger children, agreeing with and clarifying their child's view. Parents of older children may instead be more active, taking opportunities to guide their child to different viewpoints. This pattern suggests that parents perceive older children as better able to understand death and take on new ideas to aid their understanding. Younger children on the other hand, may be seen as less able to understand the cognitive and emotional aspects of death, and so are instead encouraged to lead the discussions with their own ideas. Leading with their children's ideas, may give parents insight into their child's cognitive and emotional capabilities to make assessments of their child's understanding of death. Parental beliefs may therefore be more likely to be expressed by parents of older children, or those who have established their child's understanding through discussion. This variability in assessments of capabilities based on age or children's understanding as expressed through discussion may somewhat explain the mixed findings of previous research on parental beliefs on their child's death understanding (e.g., Misailidi & Kornilaki, 2015). Sensitivity and a priori analysis indicate that lack of significance for this finding may be owing to the lack of power provided by the small sample size. The association between parent conversational role and child's age group was approaching significance ($p = .08$); had the sample size been twice as large ($n = 38$, versus 19), it is reasonable to expect this association to be significant.

Investigating the content of these discussions also addresses the influence parental explanations about death may have on their children's conceptualisations of death. While again non-significant, content of younger children's ideas during discussions appeared to be more metaphysical than that of older children, who were more likely to discuss biological ideas. This may illustrate older children's more mature biological understanding of death but contrasts with previous research which expects greater metaphysical reasoning in older children and adults (e.g., Astuti & Harris, 2008; Harris & Giménez, 2005; Legare et al., 2012). Content of parent explanations during real-time conversations shared a similar pattern, but was again not significant. The sample size did not provide enough power to detect significant associations between age group and children's explanations or age group and parent explanations. Type II errors may be likely, and caution is needed when interpreting these patterns between child and parent explanations and child's age group. However, similarity between patterns of parent and child explanations was not unexpected owing to the significant association between parent and child explanation types and the passivity seen in parents who did not appear to disagree with their child – even when their beliefs may conflict. While no 'passive' parents were seen to disagree with their child, not all 'active' parents disagreed with

their child, instead some built on from their child's ideas to give them more information – only four parents were seen to disagree with their child during these conversations.

Finally, associations between content and structure were explored to gain further insight into the nature of parent-child discussions about death. A pattern appeared to emerge, while non-significant, which suggests parents who take on a more active role in conversations with their children are more likely to discuss biological explanations than metaphysical. Sensitivity analyses again indicated that the sample size was not sufficient to detect significant associations, meaning this lack of significance may be owing to Type II error and associations between parent conversational role and child explanation type. Only one parent appeared to take on an active role with guidance towards metaphysical ideas, when their child shared biological ideas. This finding may give some insight into the difference in motivations in discussing types of content. For example, biological explanations may be used to provide information and help their child's understanding of biological death, whereas metaphysical ideas may be used to provide reassurance and ease their child's emotional reaction to bereavement.

Limitations

The most prominent limitation of the current study is the small sample size. Owing to the qualitative nature of the data, the conclusions which can be drawn from quantitative analyses are limited. This is highlighted by the number of non-significant associations seen, despite visible emerging patterns. Sensitivity analyses using G*Power suggest that most of the chi-square tests run had insufficient power to detect even large effect sizes. Since the sample size of this study was not large enough to provide sufficient power, Type II errors were not unlikely, and so we cannot exclude the possibility that there were substantive associations but that the effect size and sample size were too small to detect them. The size and design of the study may also have limited the variability of conversational roles seen in the child sample. For example, as the study was advertised towards parents as research for their child to take part in, children were often given the role to lead the conversations, which may not be true for all conversations around death. However, the coding scheme developed in Study 3 did contribute further insight into parent-child dynamics during discussions about death and warrants use with a larger sample – which may give greater visibility to those codes which were not prominent in discussions of human death (e.g., 'developing ideas' and 'directing conversations').

Study 3 emphasises the need for more qualitative approaches to better understand how parents (and other caregivers) discuss death with their children, and what their children

may take from these conversations. For example, previous approaches which focus on quantitative, interview or questionnaire methods from only one time point, fail to encapsulate the changing nature of not only children's developing understandings of death, but also parents' reactions to these developments. The findings of Study 3 hold important implications for future research into children's developing understandings of death and parental responses and suggest that more longitudinal and/or follow-up methods are needed, as well as both quantitative and qualitative methods.

A further limitation of this study was in the need to somewhat disguise the subject matter. Death is often perceived as a taboo or 'morose' subject matter for children and so may put off potential participants. In research of this kind, public perceptions around death, and conversations around death cannot be avoided, and must be considered in research design to enable a wider reach for willing participants. In taking this into account, the validity of the current study should be considered. To avoid putting off or upsetting parents and children, the storybook was designed in a way that disguised the topic of death into a focus on *life* and death. Although the storybook attempted to keep the conceptual context neutral (e.g., neither religious nor medical), a focus on *life* and death may prime conversations for the biological context. This priming may account for the 62% of child participants using biological explanations, and unexpected lack of metaphysical explanations in older children. Nevertheless, storybook designs are a useful method to prompt discussions of topics in a more natural way than interviews, or self-report methods, as well as allowing observation of parent-child interactions which is lacking in previous literature.

Conclusion and Next Step

To conclude, Study 3 used an observational design with a storybook task involving parent-child dyads to explore the content and structure of parent-child conversations about death. Two age groups of children participated 5 to 6 years and 9 to 11 years. Use of these two age groups allowed exploration of age differences. These age groups were chosen owing to expected differences in understanding of biological death (e.g., Legare et al., 2012; Panagiotaki et al., 2018) and parental perceptions of children's cognitive ability (e.g., Gaab et al., 2013; Longbottom & Slaughter, 2018). Owing to the small sample size, most analyses lacked power to detect significant associations, however, several key patterns emerged and warrant further investigation. First, parents appear more likely to agree and be more passive during discussions of death with younger children than with older children, where they instead take on a more guiding, active role. Second, the content of these conversations differed from those reported in previous research (e.g., Astuti & Harris, 2008; Harris & Giménez, 2005;

Legare et al., 2012). Instead, younger children were more likely to display metaphysical reasoning than older children. Finally, in relation to content and structure of parent-child conversations about death, there was some evidence – despite being non-significant – that parents who take a more active role in conversations with their children are more likely to discuss biological explanations than metaphysical. An alternative explanation is that parents with biological beliefs tend to be more active and assertive in sharing these with their children during natural conversations about human death. Overall, while these findings cannot be generalised until replicated in other samples, they highlight a need for further research of this kind with larger samples to test emerging patterns between age, structure, and content of parent-child conversations of death. Use of storybook tasks to observe these discussions between parent-child is novel and appears to be an effective method which should be encouraged in future research.

Study 3 highlights a number of important areas which require further exploration and informed the focus of the following study, Study 4. First, Study 3 highlights the importance of measuring children's developing conceptions at more than one time point. Study 4 will compare children's understanding across two time points, using data from the current and previous studies, Study 2 and 3. Second, Study 3 suggests that further exploration of parents' self-report explanations and observed explanations may shed more light on the direction of findings seen between parental and child explanations. Study 4 will again use data from Study 2 and Study 3 to compare parents' self-reported explanations to those observed. Study 4 will also compare parents' beliefs to their observed explanations to further elucidate the role parents' beliefs play in shaping their child's understanding of death. By exploring these research areas, Study 4 will address important implications for future research methods used in studying children's developing understandings of death and parental factors which may influence this understanding.

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Chapter 6: Longitudinal study of children's developing understanding of death and the influence of actual versus self-reported parent-child conversations [Study 4]

Introduction

During parent-child discussions of emotion and religion, both parent and child are thought to be active participants, with conversations demonstrating collaborative, mutual, bi-directional, and reciprocal qualities (Boyatzis & Janicki, 2003; Lagattuta & Wellman, 2002). Both parent and child may initiate discussions, share ideas, and respond to ideas shared. Conversations about emotions and religion may parallel death conversations, e.g., death can be an emotionally charged topic and afterlife beliefs often reflect religious ideas. However, previous research exploring parent-child conversations about death have relied on parent self-report data to investigate these conversations. Researching parent-child data in this way may lead to a focus on parent explanations rather than parent-child collaboration, or even children's responses. To further clarify the role of parent-child conversations in children's developing understanding of death, more research is needed to explore how both parent and child contribute to conversations.

Children's development of death concepts

Much of the previous research exploring children's understanding of death has focused on their understanding of death as a biological concept, as evidenced by their acquisition of five key biological facts. However, research has also shown that children's understandings of death can include spiritual ideas (Astuti & Harris, 2008; Harris & Giménez, 2005; Panagiotaki et al., 2015). It is not until children have reached a mature biological understanding of death that they are thought to consider spiritual ideas within their explanations (Astuti & Harris, 2008; Harris & Giménez, 2005). Spiritual explanations are thought to be more prominent in older children and adults (Legare et al., 2012). Given these previous findings, children are thought to first begin to develop a biological understanding of death (at around 4/5 years old), and then a mature understanding of death as indicated by acquisition of all five subcomponents (around 11 years old), before going on to include spiritual explanations within their conceptualisations of death (older children and adults).

One method used to measure children's subcomponent acquisition is the "death concept" interview used in previous research (e.g., Panagiotaki et al., 2015; Panagiotaki et al., 2018; Slaughter & Griffiths, 2007; Slaughter & Lyons 2003). During this interview, children are asked questions which assess the five death subcomponents: inevitability; universality; irreversibility; cessation; and causality. Participants' answers are scored on whether their responses are correct, partially correct, or incorrect, with higher scores indicating better biological understanding of death. Responses may also be coded into response types which reflect the types of explanations used by participants and how they conceptualise death. For

example, spiritual responses reflect spiritual ideas, biological responses reflect biological ideas and dualistic responses reflect *both* biological and spiritual ideas. This method allows comparison of children's ideas across different ages and an understanding of how these develop and change as children get older. It also allows researchers to explore the impact of different factors such as religion or experience of death on the development of these ideas. However, these methods use a one-off measure of child understanding which may fail to capture individual differences in how understanding of death develops over time.

Parent-child conversations around death

Research exploring parental conversations about death is limited. Panagiotaki et al. (2018) found parents pointed out that their beliefs about death and the afterlife are not necessarily what they would tell their children during conversations. Instead, they would prefer to give their children spiritual explanations which imply the continuation of psychological processes after death which are seen as less threatening and more reassuring (e.g., "your granny can still see you now that she is in the sky", Panagiotaki et al., 2018, p.111). Renaud et al. (2015) found that parents provided a range of explanations, encompassing both biological and spiritual ideas. However, parents who referred to a continued existence were more likely to be completely satisfied in their explanation than those who described not seeing the deceased anymore (Renaud et al., 2015). Gutiérrez et al., (2014) found that in response to their children's questions, parents offered responses in the form of two broad categories: reassurance, and facts and explanations. Parents offered reassuring responses to provide comfort or solace. Reassurance could include several different types of ideas including biological, emotional, and religious, for example. Facts and explanations were instead offered to provide factual information and explanations about death, including associated rituals and representations – again, these could include biological and religious ideas (Gutiérrez et al., 2014).

Methods used to gather parent-child conversation data are also limited. Renaud et al. (2015), for example, used digital questionnaires to allow parents to report whether they had had conversations about death with their child, and follow-up questions investigated the circumstances and outcome of these conversations. Gutiérrez et al. (2014) asked parents to report how many questions their child had asked about death and reported their responses to these questions. Self-report methods have several limitations which should be considered in the current research area. For example, parents who have not had conversations with their children, need to consider their responses to hypothesised scenarios which may not reflect the nature of actual conversations. Parents' self-reported explanations and memory of these

explanations may reflect an ideal of how they hope conversations happened, which may not reflect the true nature of discussions owing to the expected bi-directional nature of parent-child discussions. In discussions of religion, Boyatzis and Janicki (2003) suggest that how reciprocal parent-child conversations are may depend on both parent and child's goals during conversations. Parent self-report measures may fail to reflect the goals that children bring to conversation, which may divert conversations away from parent goals. For example, parents may wish to emphasise the continuation of person in their explanations with a goal to reassure their child, but their child's questions may focus on seeking information about the biological realities of death which may divert from their parent's goal.

Parent-child conversations influence on children's death understanding

Previous research has yet to compare parent-child conversations, or self-reports of these conversations, with children's developing understanding. Instead, the role that parent-child conversations play in helping children to develop this understanding has been somewhat assumed by previous research. Factors which may interact with parent-child conversations have been explored in relation to children's understanding of death. For example, Panagiotaki et al. (2018) found children aged 6 to 9 years old whose parents were religious had lower universality scores (death applies to all living things) than those with non-religious parents. Misailidi and Kornilaki (2015) found no significant association between children's afterlife beliefs and their parent's religiosity.

As discussed above, previous research has relied on measuring parent beliefs, and parental reports of parent-child conversations to explore parental influences on children's understanding – however these may not be reflective of actual conversations. Zajac and Boyatzis (2020) found that parents perceive their religious and spiritual beliefs to shape their conversations about death with their child, and these go on to shape their child's religious and spiritual views. Again, these perceptions do not appear to reflect the reciprocal nature of parent-child conversations about death or children's active participation. For example, while parents may wish to express their own beliefs during conversations, this might not always be possible, limiting their potential influence. This may explain the limited influence of parents' religion and afterlife beliefs seen in previous research (e.g., Misailidi & Kornilaki, 2015; Panagiotaki et al., 2018). Comparatively, parents have been found to underestimate their children's biological understanding of death (Gaab et al., 2013). This underestimation may contribute to parents expecting certain conversations with their child, or less participation from their child, than actually occur during conversations about death.

Parental beliefs and parent-child conversations and their influence on children's developing understanding of death are not well understood. Research observing actual parent-child conversations is needed to better understand how these conversations may influence children's developing conceptualisations of death.

Current Study

Study 4 is the fourth and last in a series of studies exploring the role of parent-child conversations in children's developing understanding of death as part of the current thesis. Study 4 follows on directly from Studies 2 and 3, to investigate self-reported parental explanations of death, actual parent-child discussions about death, and their potential influence on children's conceptualisations of death. Study 4 uses data from both Studies 2 and 3, to make comparisons between children's conceptualisations and parents' explanations across two time points. A sub-section of Study 2's sample were recruited for Study 3 ($N = 19$) allowing Study 4 to make direct comparisons between the two studies and provide a longitudinal, multimethod approach to the exploration of children's developing understanding of death and the influence of parental factors.

Study 2 used parental questionnaires to measure parental beliefs, parent subcomponent scores, and parent explanations about death given to their child. Child interviews were used to measure children's death understanding through biological subcomponent scores and explanations used to justify their answers (e.g., non-biological, biological, metaphysical, dualistic). Study 3 investigated parent-child conversations about death using a storybook task to prompt discussions. Nineteen parent-child dyads, with children aged 5-6 and 9-11-years-old who had also taken part in Study 2 took part in Study 3. Through content analysis, both parent and child were given explanation codes (e.g., biological, metaphysical, dualistic) and conversational role codes (e.g., active, passive, or neutral, for parents). All children were seen to take up the same conversational role, which was to explain their viewpoint, with one exception who followed their parent's guidance. Parents playing active roles guided their children to certain ideas, whereas passive roles listened to and tried to understand children's ideas. 'Neutral' parents remained neutral and did not influence the conversation in any way.

Study 4 is the first non-intervention based longitudinal study to explore children's developing understanding of death. Using this novel approach, Study 4 aimed to address several issues which emerged during the previous two studies and were evident in previous research. First, Study 4 aimed to explore how children's conceptualisations of death develop at an individual level. During both Study 2 and 3, children were seen to change their ideas

during interviews and conversations, suggesting their beliefs were not well established and subject to change. Study 4 aims to address this changeability to explore how children's conceptualisations may have changed across the two studies, with time periods ranging from 3 to 10 months.

Second, Study 4 aimed to consider the reliability and validity of self-report methods to measure parent-child conversations and their influence on children's conceptualisations. To address this aim, comparisons were made between parents' self-reported explanations with children (Study 2) and actual explanations observed during discussions with children (Study 3). Parents' beliefs (Study 2) were similarly explored, to investigate the extent to which these beliefs are reflected in their explanations during actual discussions with their children.

Finally, Study 4 aimed to investigate associations between actual parent-child conversations (Study 3) and children's understanding of biological death (Study 2). To address this and examine how parent-child conversations may influence children's understanding, conversations were divided by content of explanations used by parent and child, and parents' conversational role. Study 4 aimed to extend on previous research to illustrate if and how parent-child conversations may shape children's developing conceptualisations of death using observations of these conversations.

To address these aims, five research questions were explored:

1. Do children's explanations change between Time 1 (Study 2) and Time 2 (Study 3)?
2. How do parents' self-reported and actual conversations about death with children compare?
3. How do parents' beliefs about death relate to their explanations during conversations with their children?
4. How do parental conversational roles (passive or active) relate to children's biological death understanding scores?
5. How does content of parents' explanations during actual discussions compare to their child's biological death understanding scores?

The first research question was addressed by comparing children's response types from Study 2 with their explanation types from Study 3. Both response and explanation types were categorised according to the type of reasoning shown in explanations used by children (e.g., biological, metaphysical, dualistic).

Second and third research questions were addressed by first comparing parents' explanation types from Study 2 with their explanation types from Study 3, and then their beliefs as described in Study 2 with their explanation types from Study 3. Beliefs were explored through religious, afterlife, and a combination of religious and afterlife beliefs which described parents' spirituality level. For example, those with religious and afterlife belief were classed as 'high', those with religious or afterlife beliefs 'medium' and those with no religious nor afterlife beliefs 'low'. This variable was thought to better encapsulate parents' beliefs about death.

Fourth and fifth research questions were addressed by comparing both parent conversational role codes (e.g., passive, or active) and parent explanation codes (e.g., biological, metaphysical, or dualistic) from Study 3 to children's subcomponent scores from Study 2.

Method

Study 2 – Child understanding scores, response types and parent explanation types

Participants

Study 2's sample consisted of 96 children and their parents ($N = 75$, owing to siblings). Children were aged from 4 to 11 years ($M = 8.28$, $SD = 1.70$), with 40 (42%) being male. Children were split into three age groups: Year 1-2, 4- to 7-years-old; Year 3-4, 7- to 9-years-old; and, Year 5-6, 9- to 11-years-old. Seventy percent of children owned pets, and 58% had experienced a pet's death. See Study 2 for more detailed participant characteristics.

Measures

Child Interview.

The interview schedule included a story about a human (named Gerald/Geraldine), who was described as having lived a long life with their children before becoming ill and dying (see Appendix C). Characters' genders matched the participants'. Interviews also included the same stories and questions for two other characters, a dog, and deer, however data from these are not explored here.

Each story was followed up by 16 close-ended and 5 open-ended questions that assessed children's understanding of cessation, inevitability, irreversibility, and causation of death. For example, "now that Gerald is dead, do his eyes still work?". Five of these questions

were followed up with a “why” question to allow children to explain why they thought the entity could or could not do something.

Parent Questionnaires.

Parents were asked to complete the parent belief questionnaire (PBQ) adapted from Panagiotaki et al. (2018). The PBQ gathered demographic information, parental beliefs around death (religiosity and afterlife beliefs), and how parents would speak or had spoken to their child about death. Parents were also asked to write about how they would explain or had already explained, the death of a friend or family member, a pet, and a wild or farm animal to their child (see Appendix D). Parents also completed the parent story questionnaire (PSQ) which featured the same stories and questions as the child interviews, however parents were not asked to elaborate on any of their answers (Appendix E). See Study 2 for more detailed description of measures.

Procedure

Children were interviewed individually, with each interview lasting around 15 minutes (ranging from ~10 to 30 minutes). All interviews were audio recorded after children gave their assent, and detailed notes were taken throughout the interview by the researcher.

Parents completed two questionnaires (PBQ and PSQ) either in their own time at home or in the lab while their child was interviewed. See Study 2 for a more detailed description of the procedure.

Coding

Quantitative Coding: Subcomponent scores.

For each question (except Q16), children provided “yes,” “no,” and “maybe,” “don’t know,” “sometimes” responses. “No” responses were coded as biological and received a score of 1. “Yes,” “maybe”, and “I don’t know” were coded as non-biological and received a score of 0, as they reflected lack of biological knowledge. For two questions (i.e., Q13 “Will he be dead for ever and ever?” and Q14 “Do all people die?”) scores were reversed: a “yes” response received a score of 1 and a “no” response received a score of 0. For Q16 (“What causes people to die?”), responses were coded to reflect children’s understanding of the causality of death through a score of 0, 1, or 2, with 2 reflecting biological explanations.

Following the scoring of responses to individual questions, participants were given an overall death understanding score for their responses to all 16 questions with a possible maximum score of 17 (maximum score 11 for cessation, 2 for irreversibility, 2 for inevitability and 2 for causality). Higher scores reflected a greater biological understanding of death. See Study 2 for more detailed explanations of quantitative coding.

Qualitative Coding: Response types.

For children's open-ended responses a coding scheme based on Harris and Giménez (2005) and Panagiotaki et al. (2018) was developed. Children's responses were allocated to four broad categories: biological; non-biological; metaphysical; and, dualistic (both biological and metaphysical). Biological category was applied to explanations which corresponded to a biological understanding of, or way of thinking about death. Metaphysical referred to explanations which reflected a metaphysical understanding of, or way of thinking about death. Dualistic was assigned to any explanations which contained elements of both biological thinking and metaphysical thinking. Non-biological referred to explanations which showed neither biological nor metaphysical thinking (e.g., "don't know").

Parent responses to the death concept questionnaires were coded according to the same coding scheme, to allow for comparisons with children's response types. However, many parents wrote "same as above" or similar for explanations succeeding human explanations. Both parent explanations and child responses were coded as either biological, metaphysical, dualistic or non-biological. See Study 2 for more detailed description of the qualitative coding process.

Study 3 – Parent and child conversational roles and explanation types

Participants

Nineteen parent-child dyads were recruited from Study 2. Child participants were made up of two age groups, 5-6-years-old (younger, $n = 9$; $M = 6.30$, $SD = 0.54$) and 10-11-years-old (older, $n = 10$; $M = 10.68$, $SD = 0.39$). Four fathers and 15 mothers (M age = 41.97 years, $SD = 6.03$) took part – five parents did not disclose their age. Sixty-three percent of participants had pets, and 21% experienced the death of a pet they were very close to. See Study 3 for more detailed information on participant characteristics.

Materials

A storybook titled “Ringo the alien learns about life on earth” was created to encourage discussions around life and death between parent and child. The storybook was designed to allow parent and child to teach an alien about life on earth. In the story, the child attempts to explain life on earth to the alien, including what humans need in order to live and what death means. Discussion questions relevant to this research were “What happens when a human dies? What should Timmy say? Do humans go anywhere else after they die?” For more details, see Study 3.

Procedure

Participants (parent and child dyads) were asked to read through the story together and discuss each topic (indicated via green text/font). Participants took part either in their own home or in the lab. Conversations were recorded and then transcribed by the researcher. See Study 3 for a more detailed description of the procedure.

Coding and Analysis

Participants’ conversations in response to discussion questions around human death were transcribed and coded. Conversations were coded into conversational roles and explanation codes for both parent and child. Conversational role codes were assigned to parent and child to reflect the *structure* of their conversations. Three parent conversational roles were identified: active, passive, and neutral. Two conversational role codes were identified for children; explaining viewpoint; and following guidance.

Explanation codes were assigned to parent and child to reflect the *content* of their conversations. These were coded into biological, metaphysical, and dualistic responses, using a shortened version of the coding scheme from Study 2. Parent and child were given separate explanation codes, that reflected their individual views. However, where parents were not explicit in their own views, they were taken to agree with their child and given the same explanation code. For example, parents who were affirming their child’s view and/or not taking the opportunity to correct/question their child’s ideas. See Study 3 for a more detailed description of codes.

Study 4 Data

Study 4’s sample comprised of 19 parent-child dyads who took part in both Study 2 and Study 3. From Study 3, each participant (parent and child) had an explanation code and

conversational role code for their human death discussions. These were then matched to their Study 2 data, so that each participant (parent and child) also had biological death understanding scores, and explanations codes from Study 2. Children's response types in Study 2 were renamed explanation types to correspond to Study 3 data. Study 2 and Study 3 followed the same coding scheme; however, no non-biological explanations were given in Study 3, allowing a shortened coding scheme to be used.

Results

A series of chi-square tests were conducted with significance levels (p values, at a .05 significance level) and effect sizes (Cramer's V values) reported. For Cramer's V values .05 were considered weak, those above .10 were considered moderate and those above .15 were considered strong (Akoglu, 2018). Sensitivity analyses (Perugini et al., 2018) and a priori power analyses were also run using G*Power (Faul et al., 2007). G*Power uses Cohen's w as a measure of effect size with 0.10 considered small, 0.30 medium, and 0.50 large – this was calculated by dividing the chi-square value by the number of scores and taking the square root (Colman, 2009). Independent t-tests and analyses of variance (ANOVAs) were also run, for these effect sizes (partial eta squared, η_p^2 , values) are also reported. For η_p^2 effect size, magnitudes above .01 were considered small, those above .06 were considered medium and those above .14 were considered large (Cohen, 1988). Alpha was set at .05 and power was considered sufficient if above .80 (Cohen, 1988).

(1) Do children's explanations change between Time 1 (Study 2) and Time 2 (Study 3)?

Time between each study varied for each participant, ranging from 3 to 10 months ($M = 6.79$, $SD = 2.04$). Children's explanation types from Study 2 were not significantly associated with their explanations in Study 3, $\chi^2(4) = 1.18$, $p = .88$, $w = .25$. Sensitivity analyses (Perugini et al., 2018) using G*Power (Faul et al., 2007) indicated that the sample size ($N = 19$) was sufficient only to detect large effect sizes of $w > .78$ ($\chi^2 = 9.49$), and the effect size of $w = .25$ provided test power of only .12. A priori analyses indicated a sample size of 191 was needed for sufficient power (.80) to detect this effect size ($w = .25$), and 48 to detect medium effect sizes ($w < .50$).

This finding suggests that children's conceptualisations of death differed between Study 2 and Study 3, however there was not sufficient power to be confident that there was no significant association between children's explanation types, and that any association was only weak. See Figure 5.1 for how children's explanation types compared between Study 2 and 3.

Figure 5.1

Frequency of child explanation types from Study 3 (biological, metaphysical, dual) by explanation types from Study 2 (biological, non-biological, metaphysical, dual), N = 19

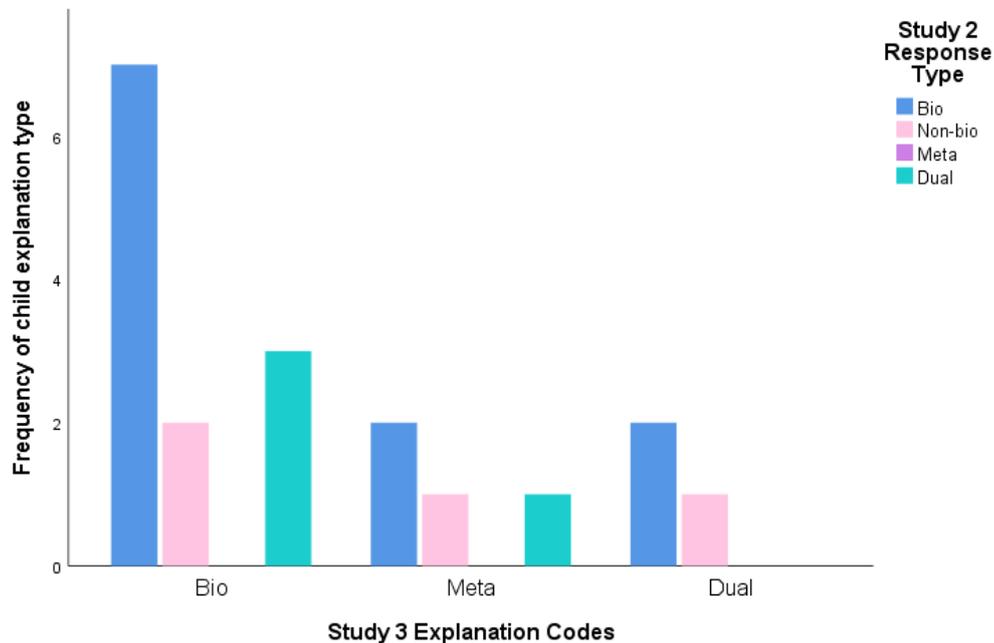


Table 4.1 gives more insight into the pattern of change seen between explanations used in Studies 2 and 3. For example, of those whose explanations differed ($n = 12$) no pattern of change is indicated, with children as likely to go from biological explanations to spiritual (metaphysical and dualistic), as spiritual to biological. Changes in explanations between Study 2 and 3 may therefore be owing to inconsistencies between studies, such as the two different measures used, rather than developmental change. All children who remained consistent in their explanations were shown to use biological explanations which suggests biological explanations are more stable than spiritual or non-biological explanations.

Table 4.1

Matrix table of Dyad IDs (1-19) by children's explanation types (non-biological, biological, metaphysical, and dualistic) during each study, with indicators for age group (younger, 5-6, or older, 9-11 years).

		Study 3				*Total	Total
		Non-bio	Bio	Meta	Dual		
Study 2	Non-bio		4*, 19*	10*	3*	4	4
	Bio		5*, 7, 12, 13*, 14, 17, 18	2*, 6	1*, 16	4	11
	Meta					0	0
	Dual		8, 9, 15	11*		1	4
	*Total	0	4	3	2	9	
Total		0	12	4	3		19

*Indicates those in younger age group

To better understand whether these changes indicate a systematic pattern of development or inconsistencies between studies, age and time difference between studies were also explored. First, if these changes reflect a systematic development, older children may be thought to show more changes in their reasoning owing to the change in reasoning expected with a mature understanding of death (e.g., Harris & Giménez, 2005). Direction of changes for children of different age groups may also suggest if these differences are systematic or not. For older children, a systematic development would likely show changes from biological reasoning to spiritual reasoning, e.g., metaphysical, or dualistic. For younger children, a systematic development may be reflected in non-biological to biological reasoning.

When split by age group, children's explanation types from Study 2 were not significantly associated with their explanations in Study 3 for either 5-6-year-olds, $\chi^2(4) = 2.25$, $p = .69$, $w = .50$, or 9-11-year-olds, $\chi^2(2) = 1.07$, $p = .59$, $w = .33$. Sensitivity analyses indicated that the sample size for each age group ($n = 9$ and 10 , respectively) was sufficient only to detect very large effect sizes ($\chi^2 = 9.48$, $w = 1.15$ and $\chi^2 = 5.99$, $w = .98$, respectively). For $w = .50$ and n of 9 , the test power is $.19$, and for $w = .33$ and n of 10 , the test power is $.14$. A priori analyses indicated a sample size of 48 was needed for sufficient power ($.80$) to detect

this effect size ($w = .50$) across 5-6-year-olds' explanations, and a sample size 89 for 9-11-year-olds for the effect size of $w = .33$.

Using the matrix table given in Table 4.1, younger children can be shown to be less consistent in their explanations across studies ($n = 2$) than older children ($n = 5$). However, no younger children stayed consistent in their non-biological reasoning, instead changing to biological or dualistic in their explanations during Study 3 which may indicate a developmental change to more sophisticated reasoning about death. Both older and younger children showed changes from biological to spiritual reasoning (metaphysical and dualistic; $n = 4$). Younger participants were seen to show less consistency in their explanations, and the direction of their changes most followed that of the expected developmental pattern (e.g., non-biological to biological, biological to metaphysical or dualistic). Two younger children were seen to go from non-biological to spiritual explanations, which may suggest younger children are able to reason spiritually without understanding the biological facts of death. Patterns in older children's changes were more inconsistent than younger children's, with three older children going from dualistic to biological explanations. This pattern was unexpected and may reflect the difference in methods across Study 2 and 3, a point which will be returned to in the discussion. No changes between explanation types were seen to occur exclusively for either age group. This lack of distinct pattern of changes between younger and older participants suggests that these changes are not a result of developmental change.

To further explore the nature of changes between children's explanation types and whether these differences indicate a systematic development in children's understanding of death, time difference between each study was also explored. If children's explanations are seen to develop with time, it is expected that the greater the time difference, the greater the change in explanations. Participants were grouped according to the length of time between their Study 2 and Study 3 participation. Two groups were created: short time period (3 to 6 months, $n = 8$) and long time period (7 to 10 months, $n = 11$). No significant associations between children's Study 2 and 3 explanation types were seen for either short time periods, $\chi^2(4) = 4.00$, $p = .41$, $w = .70$, or long time periods, $\chi^2(2) = 0.91$, $p = .63$, $w = .29$. Sensitivity analyses indicated that the sample size for each time period ($n = 8$ and 11, respectively) was sufficient only to detect very large effect sizes ($\chi^2 = 9.49$, $w = 1.22$ and $\chi^2 = 5.99$, $w = .94$, respectively). For $w = .70$ and n of 8, the test power is .31, and for $w = .29$ and n of 11, the test power is .13. A priori analyses indicated a sample size of 25 was needed for sufficient power (.80) to detect this effect size ($w = .70$) for short time periods, and a sample size 115 for long time periods for the effect size of $w = .29$.

This finding suggests that length of time between measures did not affect the likelihood of children’s ideas changing, however patterns of change can shed more light on this finding. As seen in Table 4.2, of children who were consistent, more belonged to the long time period group ($n = 5$) than the short time period group ($n = 2$). This finding suggests that it may not be children’s ideas developing with time but with different measures. Those in the shorter time period group appeared to follow the expected developmental pattern more closely than those in the longer time period group. For example, either being consistent in their biological beliefs or changing to include spiritual reasoning. However, this may also reflect more changeability in the shorter age group overall. Changes in explanations for those with a longer time period between studies may reflect a development in their biological reasoning about death as opposed to spiritual reasoning, with greater consistency for those using biological explanations. For those with a shorter time period between studies, these changes may instead reflect the different contexts and methods used in each study – to which less established beliefs may be more susceptible.

Table 4.2

Matrix table of Dyad IDs (1-19) by children’s explanation types (non-biological, biological, metaphysical, and dualistic) during each study, with indicators for length between studies (short or long).

		Study 3				*Total	Total
		Non-bio	Bio	Meta	Dual		
Study 2	Non-bio		4, 19	10	3*	1	4
	Bio		5, 7*, 12*,13, 14, 17, 18	2, 6*	1*, 16*	5	11
	Meta					0	0
	Dual		8*, 9*, 15	11		2	4
	*Total	0	4	1	3	8	
Total		0	12	4	3		19

*Indicates those in the short time period

Owing to the small sample size, the lack of significant findings is not unexpected; sensitivity analyses indicated this sample size does not have sufficient power to detect even

large effect sizes. Greater insight into the patterns of children's changing explanations, including potential reasons for these changes, can be gained by exploring the qualitative data. For example, what did children say and how did they say it during interviews and in conversation with their parents.

For example, one child's explanations appeared to change from believing that people cannot come back to life during interviews (female, aged 10):

After a couple of hours, can't come back

to stating their beliefs in reincarnations during discussion with their parent:

I believe that when we die, we come back as our spirit animal

In Study 2, this participant took into consideration the medical possibilities of bringing people back to life, for example "heart attack and stuff that can still be brought back", within their conceptualisation of death. In Study 3 however, their parent-child conversation focused on metaphysical beliefs of their own and of others, despite their mother describing herself as having no afterlife beliefs.

Another child's explanation appeared to follow the opposite direction, considering dualistic explanations in Study 2 and biological in Study 3 (also female, aged 10). For example, explaining that "ghosts are really smart and doing stuff human couldn't do" in Study 2 to discussing decomposition and preservation of bodies with her mother in Study 3:

[Parent] so if you think about it, you've got, not thinking of a human but if you've got your human and you've died, you're decomposing, the meat and the flesh of your muscles all decompose first, your bones

[Child] sometimes they go in the medical place and they get put away and that's where they melt the fat, I saw that on Baywatch

[Parent] oh [laugh] did you?

[Child] yeah and it went in his mouth

[Parent] that's formaldehyde, darling. You can use chemicals

[Child] mhm

[Parent] and you can freeze bodies so that it slows it down. Your bones are made of a different material from the muscle isn't it, from your flesh, so your bones will last a bit longer, but yeah, if it's the right conditions, you can have your body preserved for

a long time, which is why you have bones from the dinosaurs, mummies and whatnot from the Egyptians, it's all about preserving it

This child also provides a good example of being influenced by what they have seen in the media, in this case from watching “ghost shows”, Baywatch, and seeing someone on YouTube bring a mouse back to life. This child illustrates the susceptibility for change in children’s explanations based on what they have seen, read, or heard about these ideas close to the time of testing.

Another example of a child’s conceptualisation of death changing between Study 2 and 3 came from a 6-year-old boy whose responses in Study 2 included “because he’s dead”, “because he’s gone” and “can’t remember”. These responses did not exhibit an established form of reasoning around death and so were coded as non-biological. In Study 3 however, they appeared to be more consistent in what they believed happened after death:

[Child] yes, yeah, yeah into heaven!

[Parent] they go to heaven, do they?

[Child] inside it, in the sky

[Parent] in the sky

[Child] they're like walking on the sky

[Parent] they're walking on the sky are they, oh. “I see...”

Those who were consistent in their explanations appeared most established in their understanding of death, all of which showed biological conceptualisations of death. This was reinforced by children’s use of similar references within both studies. For example, one child (female, aged 11) showed a particular focus on biological processes and ceasing of biological functions. In response to ‘Why doesn’t her mind still work?’, she explained “without heart beating can’t get circulation”. This was also observed when she explained “I think body shuts down” in response to ‘what happens when a person dies?’ in Study 3. A second child (female, aged 11) focused on time and its effect on the body in both studies. For example, when discussing whether a person grows older after death, the child acknowledged the continual movement of time, despite someone’s death, “she can keep getting older but won't know it because she's dead, others won't know it either”. This reference to others was taken to mean that others would be unable to see her grow older owing to burial (or other funeral traditions which keep the dead out of sight). Then in Study 3, when asked what happens when a person dies, she responded with “they get buried and mould”.

(2) How do parents' self-reported and actual conversations about death with children compare?

To investigate whether parents' self-reported explanations about death were the same as their actual explanations during discussions with their children, chi-square tests were conducted with parents' matched explanation codes from Study 2 and Study 3. No significant association was found between parents' explanations given at these two separate points, $\chi^2(6) = 5.22$, $p = .52$, $w = .52$. Sensitivity analyses indicated that the sample size ($N = 19$) was sufficient only to detect large effect sizes of $w > .85$ ($\chi^2 = 12.59$), and the effect size ($w = .52$) provided test power of only .35. A priori analyses indicated a sample size of 51 was needed for sufficient power (.80) to detect this effect size ($w = .52$).

This finding suggests that parents' self-reported explanations were not the same as explanations given during observed discussions – however the sample size did not provide sufficient power to detect any significant associations. Roughly half of parents used the same explanation types in Study 2 as Study 3 ($n = 9$). Given this finding, there appears to be some inconsistency between what parents say they will say and what they actually say during discussions about death with their child.

Table 4.3 suggests there is no observable pattern of change between parents' explanations. For example, parents seem to be as likely to go from biological explanations in Study 2 to spiritual explanations in Study 3, as to go from spiritual explanations in Study 2 to biological in Study 3. No parents changed their explanations to non-biological or continued to use non-biological explanations in actual conversations.

Table 4.3 does however suggest that there may be a pattern of what explanations parents continue to use across studies based on their child's age. No significant association was seen between parents' explanations for Study 2 and 3 for younger, $\chi^2(6) = 8.85$, $p = .18$, $w = .99$, or older children, $\chi^2(4) = 2.38$, $p = .66$, $w = .49$. Sensitivity analyses indicated that the sample size for each age group ($n = 9$ and 10, respectively) was sufficient only to detect very large effect sizes ($\chi^2 = 12.59$, $w = 1.23$ and $\chi^2 = 9.48$, $w = 1.09$, respectively). For $w = .99$ and n of 9, the test power is .58, and for $w = .49$ and n of 10, the test power is .20. A priori analyses indicated a sample size of 14 was needed for sufficient power (.80) to detect significant associations across explanations in younger children at this effect size ($w = .99$), and 50 for older children's explanations ($w = .49$).

Parents were as likely to change their explanations regardless of children's age. However, as illustrated in Table 4.3, parents who continued to use biological explanations

were more likely to do so with older children, and parents who continued to use metaphysical explanations were more likely to do so with younger children.

Table 4.3

Matrix table of Dyad IDs (1-19) by parents' explanation types (non-biological, biological, metaphysical, and dualistic) during each study, with indicators for child age group (younger, 5-6 years, or older, 9-11 years).

		Study 3				Total*	Total
		Non-bio	Bio	Meta	Dual		
Study 2	Non-bio		14, 19*	18			3
	Bio		5*, 8, 15 16, 17	6,	1*,7		8
	Meta		9, 12	2*, 10*, 11*, 13*	3*		7
	Dual		4*				1
	Total*	0					
Total	0	10	6	3		19	

*Indicates parent of younger child

To illustrate changeability of parents' explanations in any direction, a few examples of conversations are given. One mother reported they would give a metaphysical explanation in discussions with their child (female, aged 10): "haven't had to yet but I'd stick to the idea that they have souls and are at rest and going to a better place. That in heaven we will all meet up with friends and family who have already died". However, during actual conversations, parent and child focused on biological explanations, considering how the body decomposes after death:

[Child] They turn into a skeleton

[Parent] Well yeah, your body decomposes, and your bones last the longest

[Child] and they eventually rot and die, no they don't because, no they don't but people say they rot and die but like they rot and...

[Parent] they're already dead

[Child] decay

This example illustrates how conversations with children may not go as expected. This child's focus on the idea of decomposition was likely unexpected by the mother owing to explanations she expected to give her child. In self-reported explanations, this parent may have felt their child would need reassurance during discussions about death but found this was not needed during actual conversations. It is worth noting the difference in context of how parents might expect to need to discuss with their child during self-reports, e.g., as a result of bereavement, rather than explaining death to an alien.

In contrast, one mother reported that they were more likely to offer a biological explanation to their child (female, aged 11), sticking to the "known aspects of death" and avoiding metaphysical explanations, "we tend not to touch on the metaphysical as, not following a religion, we'd probably be quite bad at it". Instead, this dyad's conversation focused on metaphysical beliefs of others, and her child's own belief in reincarnation.

[Parent] what do you believe?

[Child] I believe that when we die, we come back as our spirit animal

[Parent] mhmm

[Child] or an animal that we'd be best at being

Again, having their child lead the conversations can be seen to take the pressure off parents to discuss things a certain way, and instead allows them to listen to their child's ideas and build from them as they wish.

Another example of an unexpected conversation with their child came from a mother who described herself as being truthful about why people die and would prepare her child (female, aged 6) were someone close to her to become terminally ill. This mother reported that, "I would explain what would physically happen when they die then that their soul goes to heaven". However, during their conversations, it became clear that her child had established her own thoughts around death, which led her mother to clarify her ideas and gain an understanding without forcing her own beliefs or explanations.

[Parent] Okay because you've told me about this before haven't you, that you think that maybe if you've been good when you go up to heaven you come down as another person

[Child] yeah

[Parent] and, so do you think

[Child] and then you keep going up and down until you've been naughty and then you're fed to the snakes and then you can't be

[Parent] Okay how about if you're reincarnated so you're reborn lots and lots of times and you're just good every time, how about if you're never naughty so you never get fed to those snakes

[Child] um you just keep on going

[Parent] what forever and ever and ever?

[Child] uh yeah

Those parents who were consistent in their types of explanations used between Study 2 and 3, most often appeared consistent owing to their child sharing the same beliefs and leading with these. In these cases, parent and child were agreed in their explanations of death. However, one mother and child (female, aged 6) were seen to disagree in their explanations. In this dyad, the mother took on an active role to share their beliefs and explanations in the same way they had previously reported in Study 2, "gone to live with God who is looking after them". This mother took a metaphysical approach to explaining death, which differed from their child's initial biological explanation.

[Parent] What do you think? What happens when a person dies? Do they go anywhere else afterwards?

[Child] no, when...

[Parent] well we know we...

[Child] no

[Parent] we bel-, go on then you say it

[Child] we know that if they die, they can't go anywhere

[Parent] mhm, but we know that their soul goes where? Who's up in heaven?

[Child] Jesus

[Parent] so where do you think their soul goes?

[Child] in their heart

[Parent] yeah, where do you think it goes? does it stay in the air or does it go up? What do you think?

[Child] it goes up

[Parent] because in the bible, what does it say about us when we, what does it say about Jesus when he died

[Child] he went up to heaven

This dyad's interaction was the only one in which a parent directed their child towards their own beliefs, despite their child's differing beliefs. Four parents were seen to disagree with their child. Despite disagreeing, other parents chose to express their own beliefs (and how they

would have explained) as a way of sharing how different people share different beliefs, opening up the discussion rather than directing it as above. This meant parents were consistent in their explanations across Study 2 and 3, without enforcing their explanations on their child. For example, one mother reported she would explain death in a way which differed from explanations her child (male, aged 10) would receive from school, “given that they go to a Church of England school, they already have quite a knowledge of the Christian beliefs around death and so I try and temper this with scientific facts and figures”. As expected, their child shared Christian beliefs of heaven, however, rather than ‘tempering’ these beliefs with alternative information, this mother expressed their own uncertainty around what happens after death:

[Parent] well you're right, lots of people have different opinions don't they

[Child] I think they do go to heaven

[Parent] you think they go somewhere else, because you have a belief in God whereas some people don't, I'm not sure where I stand in regard to that

To further explore how parents’ explanations may change across self-reported and actual conversations with their child, parents’ beliefs in relation to their observed explanations were next investigated.

(3) How do parents’ beliefs about death relate to their explanations during conversations with their children?

Owing to the small number of participants, parents’ metaphysical and dualistic explanations were combined into a single ‘alternative’ category to create more meaningful numbers for statistical analyses (Table 4.4). To explore the association between parental explanations about death during conversations with their children (Study 3), and their beliefs about death (Study 2) chi-square tests were conducted between: 1) explanation types (biological, and alternative) and parental afterlife beliefs; 2) explanation types and parental religious beliefs; and 3) explanation types and parents’ spirituality.

Table 4.4

Types of parental explanations in Study 3 (biological, alternative) by afterlife beliefs (yes, no), religious beliefs (yes, no) and spirituality (high, medium, low) assessed in Study 2 (N = 19)

Parent Explanations in Study 3	Biological	Alternative	Total
Parent afterlife beliefs? (n, %)			
Yes	3 (30.00)	5 (55.60)	8 (42.10)
No	7 (70.00)	4 (44.40)	11 (57.90)
Parental religious beliefs? (n, %)			
Yes	5 (50.00)	3 (33.30)	8 (42.10)
No	5 (50.00)	6 (66.7)	11 (57.90)
Parent Spirituality Level (n, %)			
High	2 (20.00)	3 (33.30)	5 (26.30)
Medium	4 (40.00)	2 (22.20)	6 (31.60)
Low	4 (40.00)	4 (44.40)	8 (42.10)

First, no significant association was found between parental afterlife beliefs (yes, no) and actual explanations, $\chi^2(1) = 1.29$, $p = .26$, $w = .26$. Second, no significant association was found between parental religiosity (yes, no) and actual explanations, $\chi^2(1) = 0.54$, $p = .46$, $w = .17$. There was no evidence that religious parents or parents who held afterlife beliefs used more metaphysical/dualistic explanations than those who were not religious. However, sensitivity analyses indicated that the sample size ($N = 19$) was sufficient only to detect large effect sizes for afterlife beliefs or parental religiosity ($\chi^2 = 3.84$, $w > .64$). For $w = .26$ and $N = 19$, the test power is .21, and for $w = .46$ the test power is .52. A priori analyses indicated a sample size of 117 was needed for sufficient power (.80) to detect associations between afterlife beliefs and actual explanations ($w = .26$), and 272 for parental religiosity and actual explanations ($w = .17$).

Next, associations between parental spirituality (high, medium, low) and parents' actual explanations were explored. Parental spirituality was a variable which considered both parental afterlife beliefs and religiosity; high spirituality captured parents who were both religious and had afterlife beliefs, medium spirituality captured parents who were either religious or had afterlife beliefs, and low captured parents who had neither. No significant association was found between parents' spirituality and actual explanations, $\chi^2(2) = 0.82$, $p = .67$, $w = .21$. Sensitivity analyses indicated that the sample size ($N = 19$) was sufficient only to detect large effect sizes ($\chi^2 = 5.99$, $w > .71$), and the effect size of $w = .21$ provided test power

of only .12. A priori analyses indicated a sample size of 219 was needed for sufficient power (.80) to detect this effect size ($w = .21$).

Table 4.4 illustrates that parents were as likely to use biological or alternative (metaphysical or dualistic) explanations regardless of their own beliefs during discussions with their child. These findings suggest that parents may not always share their own beliefs with their child during actual discussions.

Parents were varied in the level of detail they gave in their afterlife beliefs with some reporting they had 'none' or were unsure in their beliefs, for example:

I'm unsure on what happens after death. So, I am open to either an afterlife or it being the end. I would like to hope that there is an afterlife (father of 6-year-old daughter, low spirituality)

Others made references to heaven and an afterlife:

Believe in life after death in heaven (mother of 6-year-old daughter, high spirituality)

I believe in an afterlife and being reunited with loved ones (mother of 6-year-old daughter, high spirituality)

I believe in God and heaven, but sometimes struggle to rationalise this in my scientific, logical brain (mother of 10-year-old son, high spirituality)

The struggle described in this latter quote is perhaps highlighted by their focus on biological explanations during actual conversations with their child, despite their child's own dualistic explanations and consideration of heaven. For example:

[Parent] what happens when you die?

[Child] you go to God, you go to heaven but then something...

[Parent] what happens to your body when you die?

[Child] you get buried in the ground

[Parent] well you can get buried, yeah but what happens to...

[Child] or Viking sent them off in a fire

[Parent] yeah if you're a Viking, we're not Vikings [child laughs] so there will be no sending off in boats and setting fire to arrows so let's just put that one out there [child laughs] um but what happens to the body so if you die, what happens to like your body? like why do you die, what happens to the parts of you that keep you alive?

[Child] well they stop, there's lots of different ways that you can die

[Parent] well yeah they can but ultimately you're what?

[Child] your body stops, your heart stops"

[Parent] that's right

This interaction also gives a good example of children considering ideas that they have acquired from the media or school, e.g., when learning about the Vikings, and an illustration of how biological subcomponents can arise during conversations with children. For example, in this interaction we can see the mother wanting to make sure her child understands the causality and cessation of death, rather than focusing on Viking burial traditions.

Other parents referred to heaven but avoided discussing hell (as the opposite to heaven):

We follow the Catholic belief that when you die you go to heaven. The children are aware of hell and that this is where evil people go but we don't really speak on that (mother of 10-year-old daughter, high spirituality)

Again, conversation between this parent and child was biological in nature and focused on what happens to the body after death despite the mother's spiritual beliefs and self-reported metaphysical explanations. For example, in discussing decomposition of bodies after death, their conversation turned to preservation of bodies:

[Child] but we still have like skeletons from the Egyptian time...

[Parent] things are preserved

One parent described a belief in an afterlife but clarified that these were not beliefs based in religion, "we don't talk about 'heaven' as we're not Christian. We say someone's body has died but if you whisper in the wind, they might hear you. I don't believe in an afterlife as such, more of a 'spirit', e.g., our friend may be with us 'in spirit'" (mother of 6-year-old son, medium spirituality). However, these beliefs were not disclosed during their parent-child conversation. Instead, their conversation explored funeral traditions, and more specifically the process of scattering ashes and what these are. In response to their child asking what ashes were, this parent replied with facts:

That's when someone gets, what they call cremated. So, they, instead of burying their body, they um burn the body, because it's just a body and it's not, no heart beating or

brain working anymore, so it's just our body so they burn the body into ashes, and then they can put the ashes in wherever they want, in people's favourite places

As with the previous examples, this interaction illustrates how conversations with children may not invite opportunity to discuss parents' beliefs, and how children may seek more facts than reassurance during these conversations. These conversations may allow parents to observe how well their child understands death, and how they react to it, giving them confidence to talk about biological death in more detail than they would previously have expected their child to be able to understand or cope with emotionally. On the other hand, these conversations may show parents that their child reasons more spiritually about death than they do themselves and so they may choose to support their views to avoid upsetting their child.

Children's questions and the types of information they seek and discuss, may explain why there is no observable pattern between parents' beliefs and explanations they give their children during actual discussions. For example, parents may not be able to provide metaphysical explanations based on their child's questions. Alternatively, parents who hold no spiritual beliefs about death, may find that their child's questions indicate a need to reassure their child, perhaps through clarification of their child's own beliefs rather than their own.

Parents also referred to not having afterlife beliefs, for example:

I don't think that there is an afterlife. Once you die that is it (father of 11-year-old daughter, medium spirituality)

Others considered the continuation of life through memories and the life cycle:

Once you have died that is it. But also circle of life - your body nurtures the ground and new life happens. Death is part of life (mother of 10-year-old daughter, low spirituality)

I believe the person lives on in our memories and our love for them" (father of 10-year-old son, low spirituality)

I believe people live on through people's memories of them, and the good they have done in the world. I believe humans are part of nature and body decomposition also feeds other plants which in turn supports the circle of life, another way we live on – (mother of 11-year-old son, low spirituality)

In relation to how parental beliefs are related to their observed explanations of death, neither afterlife nor religious beliefs appear to be related to how parents actually discuss death

with their child. Further, no association between parental spirituality levels in our sample and how parents discussed death with their child during actual conversations were found. Insight into what is shared by parents and how it is shared during conversations with their child may shed further light on this finding.

(4) How do parental conversational roles (passive or active) relate to children's biological death understanding scores?

An independent samples t-test was run to explore the relationship between parental conversational roles (passive, active) and child overall death understanding scores from Study 2. As only one participant adopted a neutral conversational role, they were excluded from the analyses ($N = 18$). There was a significant difference in child understanding scores (Study 2) between 'passive' and 'active' parents in Study 3, $t(15.94) = -1.49$, $p = .04$. Children with 'passive' parents scored lower ($M = 12.83$, $SD = 2.62$) than those with 'active' parents ($M = 14.17$, $SD = 1.17$).

To better explore this difference, an independent samples t-test was run between age groups (5-6 years and 9-11 years, Study 3, $N = 19$) and children's overall biological death understanding scores (Study 2). A significant difference was found between age groups and death understanding scores, $t(17) = -2.17$, $p = .045$. Older children scored significantly higher ($M = 14.50$, $SD = 1.72$) than younger children ($M = 12.33$, $SD = 2.60$).

Chi-square tests also indicated a large significant association between children's age and parent conversational role, $\chi^2(1) = 4.00$, $p = .046$, $V = .47$. Younger children (5-6 years) were more likely to have parents who took a passive conversational role, whereas older (9-11 years) children were equally likely to have 'passive' or 'active' parents. Given that children with 'active' parents had better death concept scores, it is possible that parents' conversational roles interact with children's age to affect understanding of death.

A two-way ANOVA was run to explore the interaction between age groups and parental conversational roles (DVs) on children's overall death understanding scores (IV). Again, the 'neutral' participant was removed for these analyses ($N = 18$). No significant main effects of age group or parent conversational role were found ($p = .29$, $\eta_p^2 = .080$, $f = .29$, and $p = .69$, $\eta_p^2 = .011$, $f = .11$, respectively). No significant interaction between age group or parent conversational role was found ($p = .90$, $\eta_p^2 = .001$, $f = .03$). Sensitivity analyses indicated the sample size ($N = 18$) was sufficient only to detect large main effect sizes ($f = 0.70$). A priori analyses indicated a sample size of 96 was needed for sufficient power (.80) to detect a main effect of age group ($f = .29$) and 651 for parent conversational role ($f = .11$). For interaction

effects, sensitivity analyses indicated the sample size ($N = 18$) was also only sufficient to detect large main effect sizes ($f = .70$). A priori analyses indicated the sample size of 8723 was needed to provide sufficient power (.80) for this effect size ($f = .03$).

These analyses suggest this sample size is too small for meaningful interaction analyses and may indicate Type II errors. Owing to this, interaction between age groups and parent conversational roles cannot be assumed, but they should also not be ruled out.

(5) How does the content of parents' explanations during actual discussions compare to children's understanding scores?

A one-way ANOVA was run to explore the relationship between parents' actual explanations (biological, metaphysical, dualistic) identified in Study 3 and children's overall death understanding scores from Study 2. No significant difference between children's understanding scores based on parent's actual explanations was found, $F(2, 16) = 0.488$, $p = .62$, $\eta_p^2 = .057$, $f = .25$. Sensitivity analyses indicated the sample size ($N = 18$) was sufficient only to detect large main effect sizes ($f = .78$). A priori analyses indicated the sample size of 158 was needed to provide sufficient power (.80) for this effect size ($f = .25$).

Means indicated that children whose parents gave biological explanations scored higher ($M = 14.00$, $SD = 2.40$) than children whose parents gave metaphysical or dualistic explanations ($M = 12.83$, $SD = 1.17$; $M = 13.00$, $SD = 4.36$, respectively).

No significant association was found between explanation type used by parents and child's age group, $\chi^2(2) = 2.55$, $p = .28$, $w = .37$, however parents appeared to use more biological explanations with older children ($n = 7$) than with younger children ($n = 3$). Sensitivity analyses indicated the sample size ($N = 19$) was sufficient only to detect large effect sizes ($\chi^2 = 5.99$, $w = .71$), and the effect size of $w = .37$ provided test power of only .28. A priori analyses indicated a sample size of 71 was needed for sufficient power (.80) at this effect size ($w = .37$).

As seen above, while not significant, parents' greater use of biological explanation with older children may again reflect an interaction effect between children's age and parents' explanations on children's biological understanding. Parents of older children may be more likely to actively discuss biological ideas with their child which may in turn encourage their child's biological reasoning. Parents of younger children may instead passively listen to their child's ideas and follow their lead in how they discuss death (e.g., metaphysical or biological) which may reassure their child but not encourage them to develop their biological reasoning.

Despite this emerging pattern, no significant associations were seen between content of parent explanations and their children's understanding of biological death. Several reasons for this are considered. First, children's understanding scores were collected during Study 2, and before parent-child conversations took place in Study 3. Given the finding that parents' self-reported explanations differed from those seen in Study 3, it may be that children had not had conversations like those seen in Study 3 before. Children's own explanations around death also appeared to differ between Study 2 and Study 3. This difference in children's explanations suggests that children's biological understanding scores may also have changed between the two studies – highlighting a limitation of the current study which will be discussed below.

Second, parental explanations may not be associated with their child's biological understanding because most parents shared the same beliefs with their child during these conversations. In cases where parents' explanations did not differ with those shared by their child, parents are unlikely to present new information which might change children's biological understanding. Of all 19 dyads, only four were seen to disagree with each other. The agreement seen between parent-child dyads may again reflect parental perceptions of their child's ability to understand and emotional deal with death.

Discussion

Study 4 used data from Studies 2 and 3 to further explore how children's conceptualisations of death develop, and how parent-child discussions may influence this development. Using a multimethod approach across two time points, Study 4 allowed exploration of five research questions which explored gaps in the current literature, and gaps identified in the previous studies of this thesis. These research questions explored: (1) differences between children's understanding across two time points; (2) the difference between parents' self-reported and actual explanations about death with their child; (3) associations between parents' beliefs and how they explain death to their child during actual conversations; (4) associations between parent conversational roles and children's understanding scores; and (5) associations between content of parental explanations during conversations and children's understanding scores.

To answer the first research question, children's explanations appeared to change between Study 2 and Study 3. Children who displayed biological thinking during Study 2 went on to consider metaphysical and dualistic ideas in Study 3. These findings alone correspond to the suggestion that once children have grasped the biological facts of death, they may then go on to consider more abstract ideas including metaphysical reasoning (e.g., Harris &

Giménez, 2005; Legare et al., 2012). This interpretation may also suggest that changes between Study 2 and 3 indicated systematic developmental changes in children's understanding of death across these time points. However, there was not sufficient power to be confident there was no significant association between children's explanation types between Study 2 and Study 3. Both younger and older children used both biological and dualistic explanations across studies. Older children appeared more consistent in their use of biological explanations than younger children, as were those with more time between studies than those with less. There was also not sufficient power to detect associations between explanation types in each age group or time between the two studies. For those in the shorter time period, the sample size was closer to sufficient to detect the large effect size than either age group or the longer time period group ($n = 8$, 25 needed). This finding suggests the chance of Type II error was lower, and there was likely no association between explanations from Study 2 to Study 3, despite the shorter time period between the two. Patterns in these changes, or lack of, instead suggest children's explanations changed owing to inconsistencies between the two studies, rather than following a developmental pattern.

Use of metaphysical and dualistic explanations by both younger and older children contrasts with developmental patterns suggested by previous research (Astuti & Harris, 2008; Harris & Giménez, 2005; Legare et al., 2012). These developmental patterns suggest that children's biological knowledge of death increases with age, and that only once a mature biological understanding of death is acquired will children begin to reason spiritually about death. Given this difference, developmental patterns as informed by previous research may also be inaccurate (e.g., non-biological to biological to metaphysical/dualistic). For example, spiritual reasoning may be apparent throughout children's acquisition of biological facts, and not only once they have mastered them. Future research needs to address this prominence of spiritual reasoning alongside children's biological development. For example, the "death concept" interview used in previous research may be adapted to include questions that may more effectively investigate this spiritual reasoning. Questions used by previous research such as "do you think a special part of the person stayed after they died?" (Rosengren et al., 2014a) may help to touch upon this type of reasoning.

Greater frequency of metaphysical and dualistic reasoning used in Study 3 than Study 2 may reflect children's changing conceptualisations of death, or the presence of parents. As discussed in Study 3, this finding may reflect a social desirability bias in child participants between having a researcher or parent present. For example, children have no previous experience with researchers and no expectations of what a researcher may want to hear, perhaps allowing them to express themselves more freely. With parents, children may wish to

answer in a way that is consistent with their previous conversations with their parents (about death or otherwise). The finding that children's explanations changed regardless of length of time between these studies supports the suggestion that the presence of parents may change children's explanations, rather than developing conceptions.

Children's understanding of death, and expression of this understanding, has also been shown to be influenced by different contexts in which the discussion of death might be framed (e.g., Astuti & Harris, 2008; Harris & Giménez, 2005). For example, religious contexts may prompt metaphysical explanations, and secular contexts may prompt biological explanations. This sensitivity to context may explain the changeability in children's explanations seen in Study 4. For example, the two different measures in Study 2 and Study 3 may have primed children's reasoning for different contexts. Study 2 may have prompted biological explanations through describing the person getting ill and dying, whereas Study 3 may have prompted more spiritual explanations through asking if people go anywhere else after they die. This sensitivity to contexts highlights an issue in exploring children's understanding of death using only one measure. For example, using a one-off measure of children's understanding of death may not reflect the complexity of their conceptualisations of death and may miss important facets of these conceptions. One measure may prompt biological explanations from children and lead to the assumption that they show less metaphysical reasoning, or vice versa. Study 4's use of two different measures may explain the changeability in children's explanations and emphasised the need to use the same measures more than once. To better establish how children's understanding of death develops, more research is needed to explore children's understanding of death using more than one measure, and at several time points. This approach may help to address how established children's understanding is and what it consists of before going on to explore how it develops. Study 4 has made steps towards this by illustrating that children's explanations are susceptible to change across two different time points with different measures.

Further research is needed to explore the types of contexts which may affect children's use of explanations (e.g., presence of parents or narrative contexts used in research). Future research might measure children's explanations during conversations with parents, researchers, and teachers, for example. Exploration of how conversations with different people may influence what is said and how it is said has important implications for how children's understanding of death is assessed, and in turn, thought to develop. For example, given their different roles, children may seek different types of information from a teacher than a parent, shaping conversations and demonstrating their understanding in different ways.

To answer the second research question, parents' self-reported explanations about death in Study 2 differed from those used during actual conversations in Study 3 for approximately half of the parents. However, the sample size did not provide sufficient power to detect significant associations between explanations used in Study 2 and 3 and so we cannot be confident that there were no associations between these explanations. Parents whose explanations were seen to differ were as likely to change from biological to spiritual, or spiritual to biological. Of those parents whose self-reported explanations were consistent with their discussions with their child, those who used biological explanations were more likely to do so with older children, and those who used metaphysical explanations were more likely to do so with younger children. This finding may reflect parents' perceptions of their child's capabilities and highlight different approaches to discussions with children of different ages. It also suggests that parents who were consistent in how they said they would talk to their child and how they actually did, were likely better at judging their child's capabilities than those who were inconsistent and so did not need to change their explanations. The sample size for both younger and older children did not provide sufficient power to detect significant associations, however, for younger children the sample size was close to sufficient ($n = 9$, with 14 needed) which suggests a lower chance of Type II error, and greater confidence that there were no significant associations between explanations across Study 2 and 3 with younger children than for explanations with older children.

In line with Gaab et al.'s (2013) view that parents underestimate their child's biological understanding of death, we suggest that this underestimation is reflected in the difference between parents' self-reported explanations and what they say in actual conversations with their children. Parents may report an idealised version of how they would explain death to their child which focuses on their role as information provider and does not take into account the interactions with their child during actual conversations. Asking parents "how have/would you explain the death of a loved one to your child?" (Study 2) puts the focus on parent explanations and not on their child's responses, which may result in important nuances of these conversations getting lost and inaccurate reports. This finding has important implications for research methods exploring the role of parents in their child's developing conceptions of death, and perhaps other areas.

Most previous research has relied upon self-report measures. This reliance may mean the assumed role of parental explanations and parent-child conversations on children's developing understanding of death may be overstated. For example, Miller et al. (2014) used both questionnaires and interviews with parents and found parents reported their young children to not have the cognitive capacity or emotional coping skills to understand and deal

with death. Parents felt the need to prevent their child's exposure to difficult conversations about death. When children actually encountered death, parents thought it best to downplay or sidestep the topic, using euphemisms or volunteering little information (Miller et al., 2014). The present findings suggest that these parents may be reporting a simplified view of how conversations with children actually occur, downplaying their child's role in responding during these discussions. Future researchers are encouraged to use observational methods to assess the accuracy and reliability of parental reports, before aligning these with children's understanding of death. For example, parents may take on a more passive role during conversations than they might expect.

As with children's changing ideas, the use of two different methods to measure parents' explanations may also explain the present findings. In Study 2, parents were asked to report how they had explained or would explain the death of a loved one, pet, or wild animal to their child. In Study 3, parent and child had an actual conversation about death and discussed how they would explain what happens after a person dies to an alien. These two methods are contextually different, which may be reflected in the differences observed in some parents' explanations between our two studies. For example, when asking if the deceased go anywhere else after they die, a spiritual context may be implied, and this might reflect why some parents who originally gave biologically explanations in Study 2, gave metaphysical or dualistic explanations in Study 3. However, as illustrated in Table 4.3, parents' changing explanations did not follow a clear pattern from biological to metaphysical or vice versa and no significant association was found between responses. The same number of parents shifted from biological explanations to spiritual (metaphysical or dualistic) explanations ($n = 3$) as from spiritual to biological ($n = 3$). This finding suggests that differences between methods do not explain differences between parents' explanation more persuasively than the context of self-report on a questionnaire versus actual conversations with their child.

To answer the third research question, no significant associations were found between how parents discussed death with their children and their own beliefs. However, the sample size did not provide sufficient power to detect significant associations for parental afterlife beliefs, religiosity, or spirituality, and Type II errors cannot be ruled out. Despite the lack of significant associations, a trend was observed which indicated that parents with no afterlife beliefs gave more biological explanations during conversations with their children than those believing in the afterlife. In addition, parents with medium levels of or no spirituality, gave more biological explanations than those who were highly spiritual.

Study 4's findings partly support research suggesting that parents' religion and afterlife beliefs do not have a strong influence on their children's reasoning about death and the afterlife (e.g., Misailidi & Kornilaki, 2015; Panagiotaki et al., 2018). These findings may also give some insight into the mixed findings on parental beliefs' influence on conversations about death (e.g., Misailidi & Kornilaki, 2015; Zajac & Boyatzis, 2020). For example, Zajac and Boyatzis (2020) found that mothers reported that their religious and spiritual views shaped their conversations about death with their child. In contrast, Study 4 suggests that parental beliefs are not always expressed during their conversations with children. Zajac and Boyatzis suggest that mothers' religiosity related to the amount they felt their views shaped their conversations. In Study 4, even those parents who were high in spirituality did not appear to share these beliefs during actual explanations. Several of these parents went on to have highly biological discussions with their children about decay and cessation. Only one parent was seen to guide their child towards a religious conception of what happens after death. Study 4's sample, therefore, may not be high enough in religiosity to want to use their religious and spiritual views to shape their actual conversations with their child.

Misailidi and Kornilaki (2015) found that parents' strength in beliefs in a psychological afterlife affected how they spoke to their child about death. Parents who more strongly believed in an afterlife were more likely to describe a continued existence after death. Yet, no significant association was seen between parents' religiosity and their child's biological death understanding. Both Zajac and Boyatzis (2020) and Misailidi and Kornilaki (2015) used self-report measures to explore parental discourse about death with their child. Study 4 suggests that parents' beliefs, while expressed in self-reported explanations, may not always be expressed during parent-child conversations and so are limited in their influence. Given the bi-directional nature of parent-child conversations about death, measures are needed which acknowledge both parent and child contributions during conversations. Misailidi and Kornilaki recognise this by acknowledging that they were unable to collect observational data from parent-child conversations at home owing to the infrequency of spontaneous discussion about the afterlife between parent and child. Study 4 reinforces the need for future research to consider different measures of parental factors, and how these factors may influence their interactions with their child, and their child's subsequent understanding. As with measures of children's death understanding, measuring conversations at more than one time point may be worthwhile. Measures of single parent-child conversations about death may not be reflective of all their conversations, especially given research contexts.

To answer the fourth research question, roles taken up by parents during conversations were associated with children's biological understanding scores. Children with

'passive' parents scored lower in biological death understanding than those with 'active' parents. Passive conversational roles were more likely for parents of younger children (5-6 years) than parents of older children (9-11 years) who were as likely to take on passive as active roles. These findings suggest that children whose parents are active in conversations are more likely to have a better understanding of biological death than those whose parents play a passive role. This finding may indicate that 'active' parents encourage their children to understand death by using discussions about death as teaching opportunities. However, as parents were found to be more likely to take on a passive role with younger children, this direction cannot be assumed – younger children may score lower owing to age. A significant association was found between children's age and understanding scores, with older children having higher scores. This finding may reflect children's age rather than parents' conversational role. Given the variability of scores across both age groups, age does not appear to be the only factor relating to children's biological death understanding, instead an interaction between parent conversational role and child's age is suggested. No significant interaction was seen, however owing to the small sample size in Study 4, type II errors are likely. Parents' conversational role and child's age may interact to shape children's subsequent understanding of death. Using this interpretation, these findings may illustrate how parents' goals during conversations may differ according to their child's age.

Death conversations may parallel those of religion, the reciprocity of which is argued to depend on both the parent's and child's goals during conversations (Boyatzis & Janicki, 2003). Parents may use children's age to make a judgement on their cognitive capability and emotional maturity, leading to different goals in conversations. For example, parents may aim to reassure or educate their children using facts and explanations during conversations about death (Gutiérrez et al., 2014). Parents of younger children may be more likely to aim to reassure their child, and so seek to understand their child's beliefs as a way to appropriately reassure them, rather than imposing new, confusing, or upsetting information. As children's cognitive ability develops, or is perceived to be well developed by parents, parents may be more open to debating or discussing differing ideas with their child – and so, may be more active in conversations with older children.

Finally, and in relation to our fifth research question, no significant association was found between children's death understanding scores (in Study 2) and parents' actual explanations (in Study 3). One reason for this finding may be the tendency to agree with children's ideas, as displayed during actual conversations. All but four parents were seen to agree with their children's explanations, with these four taking on active roles. In agreeing with their child, parents did not share new information which may challenge children's ideas (e.g.,

spiritual versus biological). As with parent conversational roles, this tendency to agree may reflect parents' assessments of their child's capabilities. While not significant, parents appear more likely to discuss biological explanations with older children than younger children – the sample size did not provide sufficient power to detect significant associations between parent explanations and child's age so an association should not be ruled out. This finding may suggest that biological facts are perceived as harder to grasp or more upsetting for children than metaphysical ideas. For example, the idea of never seeing someone again is arguably more upsetting than the idea of that person enjoying heaven. Parents who perceive their child as less cognitively or emotionally able to handle death, may be more likely to offer reassurance in the form of metaphysical ideas or by agreeing with and trying to understand their child's beliefs.

As discussed above, Gaab et al. (2013) found that caregivers often underestimated their child's understanding of biological death. The passivity with younger children as seen by most parents during this study, may be unwarranted and underestimating their child's ability. Instead, parents' passivity may contribute to children's lower biological understanding in comparison to those whose parents take on a more active role and use conversations as a teaching opportunity. For example, children need to consolidate new information into their existing knowledge in order to develop their conceptions further. Parental beliefs and explanations do seem to play a role in their children's developing conceptions, but for this to occur parents need to share their knowledge with their child.

This finding may also reflect methodological issues owing to parent-child conversations being observed after children's understanding of biological death was measured. All but one parent reported having had conversations about death with their child during Study 2. However, these conversations are likely to differ based on several factors, for example, context of conversations. Conversations prompted by responding to children's specific questions are likely to differ from discussions on how to teach an alien what happens after someone dies. As with measures of children's understanding of death, measures of parent-child conversations at more than one point would allow a better understanding of changes in content of these discussions and in the conversational roles participants adopt.

Study 4's findings highlight the need to use observational methods to further explore how parents and parent-child conversations may influence children's developing understandings. For example, is this pattern of agreement consistent within larger samples or within different contexts (e.g., with a different task that requires 'correct' answers)?

Implications

Study 4's findings have a number of important implications for parents, educational contexts, and developmental research. Study 4's finding that children's explanations also changed between Study 2 and 3 has implications for how parents, clinicians and teachers may discuss death with children. For example, it appears to be that children's explanations may differ owing to a change in context between talking to a parent as opposed to a researcher. This finding suggests that children's understanding of death may come across differently depending on who they are expressing this understanding to. Teachers and clinicians should focus on children's understanding of death as it is expressed to them and have this expression guide conversations rather than preconceptions which may be guided by discussions with parents about their child's understanding.

Study 4 also suggests that what parents believe about death, and how they would like to communicate information about death, is not always what is conveyed during these discussions. As an implication of this finding, parents may wish to make sure their communications are more effective during conversations around death. Similarly, educational implications include being aware that parents may not be providing information as much as they are following their child's lead during these conversations. This finding may mean that teachers, or clinicians, may want to educate children more directly around the topic of death. For example, by focusing on vitalism to help children to improve their knowledge of the biological impact of death (e.g., Slaughter & Lyons, 2003).

Study 4's findings also have substantial implications for developmental research, more specifically that which explores knowledge acquisition and children's sources of this knowledge. For example, much of previous research exploring children's knowledge acquisition, suggests that parental testimony is an influential source of knowledge – especially for information which is unobservable (Harris & Koenig, 2006). Study 4 suggests that parents follow their child's lead during discussions, listening to their ideas and clarifying their child's viewpoint, and answering any questions their child may have. Often parent and child were seen to share in the same knowledge, with few parents introducing new ideas or information during death conversations. Parents may therefore be less influential in helping children to consolidate new knowledge, and instead help children to reason with their existing knowledge. This may have implications for how children's conceptual change is thought to occur, with sources of knowledge being more expansive than acknowledged in previous research (e.g., not only parents, but also school, media, etc.).

Findings from Study 4 also implicates the use of observational methods to explore parent-child conversations about death, and parental influence in other areas of children's knowledge development. For example, self-report data may not be reliable enough to capture the full extent of what is expressed by both parent and child during conversations. Use of observational methods in other research areas (e.g., origins of life, Tenenbaum & Hohenstein, 2016; scientific thinking, Crowley et al., 2001) also highlight their importance and universality to other areas of children's developing knowledge. Greater use of naturalistic and observational methods is needed to avoid the potential bias of parents self-reporting how they would ideally explain death to their child as opposed to how actual conversations take place.

A final implication for developmental research as highlighted by Study 4's findings is the use of longitudinal methods in investigating children's developing understanding. Study 4 illustrates that using one measure at one time point may not be reflective of children's actual understanding of death, or any phenomena. Longitudinal studies using self-report or observational methods are worthwhile and may help to highlight inconsistencies in previous research, as well as track children's development at an individual level. Study 4 goes some way to show how longitudinal methods can be used to highlight inconsistencies which may occur at different times or in different contexts.

Limitations

Given Study 4's use of Study 2 and 3's data, many of the limitations discussed previously apply to Study 4 too. The key limitation of the current study is the small sample size ($N = 19$). While efforts were made to quantify qualitative aspects of Study 3, the conclusions which can be drawn from Study 4's analyses are limited. Sensitivity analyses indicate that our analyses had sufficient power to detect only large effect sizes. A priori analyses suggested our sample size was well below what was required to detect medium effect sizes in most cases. Owing to this, we cannot rule out Type II errors, and cannot exclude the possibility that there were significant associations but that the effect and sample size were too small for us to detect them. Patterns of findings seen in Study 4 warrant further investigation with larger study samples.

Limitations of using data collected with two different methods and at two different time points also need to be acknowledged. For example, the differences in children's and parents' explanations between Study 2 and Study 3 may reflect the difference in methods used rather than changes in children's conceptualisations. Limitations of the coding scheme used may also explain these findings. For example, no children from this sample in Study 2 were coded as metaphysical response types. These children may have considered metaphysical ideas,

but unless they were consistent in this reasoning, they would not be coded as such. Future research may consider coding schemes which are more sensitive to different ideas used by children as opposed to looking for consistency in their explanations.

Changes in children's explanations also bring into question whether children's biological understanding, as seen in their understanding scores, may have changed between Study 2 and 3. As a result, Study 4 is limited in its exploration of children's developing understanding of death by not measuring children's biological death understanding at each point. As discussed above, future longitudinal research should use the same measures at each time point to better establish how children's understanding may change across time. Further, the time between the two studies in Study 4 was not consistent, meaning time between studies ranged between 3 and 10 months for participants. Although Study 4 found no difference in change between those who had 3 to 6 months between studies, and 7 to 10 months, future research should consider the time taken between each data collection and use fixed time points to explore how children's understanding of death develops. A greater range of time points may also elucidate how children's ideas may change over time, and whether these changes reflect developing conceptions, recent influences, or inconsistency across studies.

Conclusion and Next Step

To conclude, Study 4 highlights the changeability of children's ideas across two studies, which could reflect the development of their ideas, the differences between measures used in each study, or lack of power in statistical analyses. Owing to the small sample size, analyses lacked power to detect significant associations, however several patterns of finding emerged. Parents' self-reported explanations and beliefs were also seen to differ with those shared with children during conversations. Roughly half of parents were found to differ in what they report they will say to their children and what they actually say during discussions about death. Parents of younger children were also more likely to take on a passive role in conversations, with passive roles being associated with lower understanding scores in children. These lower scores were argued to reflect an interaction between parents' passivity and child's age – with parents of younger children less likely to use discussions of death as teaching opportunities. Types of explanations used by parents were not seen to interact with children's biological death understanding – however, parents were more likely to use biological explanations with older children and metaphysical with younger.

These findings give insight into how children's understanding of death may develop, how this development may be influenced by parent-child conversations, and into future

measures which should be used to explore this development. For example, use of both longitudinal and observational data is encouraged in future research. The next step in this series of research is to explore findings from all four studies together to consider how each study works together to build our understanding of how children's understanding of death develops and factors which play a role in this development, including parent-child discussions.

Chapter 7: General Discussion

Aims of Thesis

Developing an understanding of biological death can have important implications for children's wellbeing. For example, better understanding of the biological subcomponents of death have been shown to reduce fear of death (Slaughter & Griffiths, 2007). Discussions about death can also have important implications for children's wellbeing by allowing children to address their fears and misconceptions around death and illness (Beale et al., 2005; Hurwitz et al., 2004). Exploration of how children understand death, how this understanding develops, and factors which influence this development is important.

One factor thought to influence children's developing conceptions of unobservable phenomena is parental testimony (Harris & Koenig, 2006). From the limited research investigating the role of parent-child discussions on children's developing understanding of death, it is understood that some parents avoid discussions about death with their child and make efforts to shield them from portrayals of death in the media (Matalon, 1998; Miller & Rosengren, 2014). Those who are unable to avoid conversations about death may use euphemisms (Matalon, 1998) and/or respond to children using reassurance (Gutiérrez et al., 2014). Different ways of explaining death to children during conversations may have different implications for children's developing understanding.

Existing research has used parents' self-reported descriptions of their explanations and conversations with their children to explore parent-child conversations. The limitation of using parental self-report measures in this way is that they can underestimate the role played by children during parent-child discussions. For example, in discussions of religion and emotions, both parent and child are active participants and bring their own ideas, prompts, and goals to conversations (Boyatzis & Janicki, 2003; Lagattuta & Wellman, 2002). Parent self-report data gives little insight into children's roles within conversations, for example how they respond to parents' explanations.

This thesis addressed several sets of aims. First, it aimed to investigate both how children conceptualise death and factors which may influence these conceptualisations. To address these aims, both biological and spiritual understandings of death were considered. Age was explored as a factor in children's developing understandings, with comparisons to previously suggested developmental timelines being made (e.g., Harris & Giménez, 2005; Panagiotaki et al., 2015; Slaughter & Lyons, 2003). Children's experiences with pet ownership, and human and pet bereavement, including closeness to the deceased, were also explored.

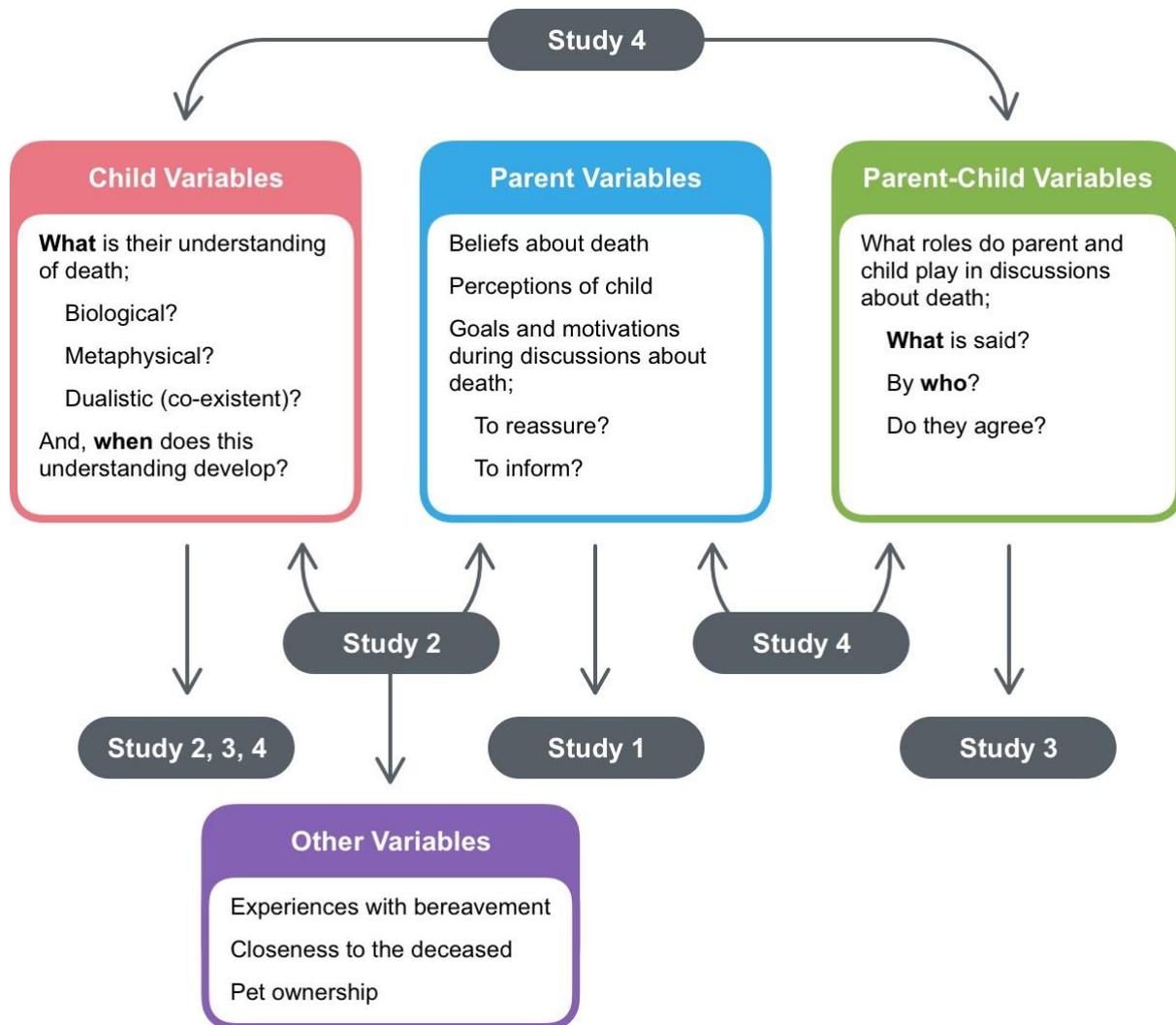
In its second set of aims, this thesis investigated: how parents understand death; how they perceive their children to understand death; and how they choose to discuss death with their child. To explore parents' understanding of death, parental religiosity and afterlife beliefs were also investigated. By investigating these aims, this thesis intended to develop a basis from which to consider how parental variables may affect their child's understanding of death. For example, do these variables impact how they explain death to their child?

Finally, the current thesis also aimed to investigate the role of parent-child conversations about death in children's developing conceptualisations. This thesis aimed to elucidate what occurs between parent and child during conversations about death. To address this aim, we chose to approach conversations about death by exploring both *what* is spoken about during conversations and *how* it is spoken about between parent and child. Regarding what is spoken about, content of conversations in terms of what types of explanations are used by both parent and child were investigated (e.g., biological, metaphysical, or dualistic). Roles taken up by both parent and child during these conversations were explored to investigate how death is spoken about; for example, did parents take on an active role to teach their child or did they passively listen to their child's ideas?

This thesis builds on previous research exploring parent-child conversations by using both self-report and observational measures. Influences of both child and parent variables on these conversations were also explored. Figure 1.1 illustrates how each study explored child, parent, and parent-child variables to address our aims. A brief summary of each study and their findings is given below, before going on to interpret the findings and how they worked together to address the aims of this thesis. Contributions to the research area, limitations of the current studies, and directions for future research are also discussed.

Figure 1.1

Illustration of how each study in this thesis explored child, parent and parent-child influences on children's developing understanding of death.



Summary of findings

Study 1

Study 1 was an exploratory study which aimed to identify how parents understand death, how they believe their child understands death, and how they choose to discuss death with their children. A grounded theory approach was used to analyse data from semi-structured interviews with nine mothers of children aged between 9 and 11 years. The main finding of Study 1 was that parental beliefs were not always shared during discussions with their child. Instead, mothers explored their own beliefs and how reassuring their honest beliefs might be. Mothers considered a number of child factors to work out how reassuring or honest

they would like their explanations to be. Mothers then went on to describe 'child-friendly' explanations, in which themes across explanations emerged. Three categories emerged that reflected the process mothers go through before discussing death with their child: a) honesty versus reassurance b) finding the balance; and c) child-friendly talk during parent-child discussions about death.

These categories offer insight into the factors mothers take into account before deciding how to discuss death with their child – for example, what do they themselves fear, what might their child find comforting, and how capable is their child of understanding different aspects of death. In taking these factors into account, mothers often described explanations which did not match their own beliefs. For example, many mothers used their explanations to counteract aspects of death which they find upsetting and may also upset their child. Death being the end was seen as an uncomfortable thought by most mothers and was often balanced by describing the continued existence of the deceased either in spirit or in memory.

Study 1's findings informed the focus of the following three studies. First, Study 1 highlighted several child factors which may influence parent-child conversations, including experiences with bereavement and children's questions. Second, the findings of Study 1 suggested that mothers' beliefs about death are not always expressed in their explanations to their children. This finding has numerous implications for the influence of parental beliefs and parental testimony on children's developing conceptions of death. For example, parental beliefs alone should not be taken as a measure of parental testimony in discussions of death with their child, as they may not always be discussed with their child.

Study 2

Study 2 explored how children's understanding of death develops and what influence parental and experiential factors have on this development. To explore this, interviews with children aged 4-11 years assessed their understanding of biological subcomponents of death and the types of responses they gave to explain their answers. In addition, children's parents completed questionnaires that measured their own understanding of biological death, beliefs around death, how they would explain death to their child, and their child's experiences with death. Extending previous research, factors explored in relation to children's understanding of death were: pet ownership; experience with human and pet death, and their closeness to the deceased; parental religious and afterlife beliefs; and parental explanations of death to their child. Four main research questions were addressed:

1. How does children's understanding of death differ across age groups? Do children exhibit co-existent explanations of death?
2. How are children's experiences with death associated with their acquisition of the five death subcomponents?
3. How do parental afterlife and religious beliefs influence their child's understanding of death?
4. Do parental explanations around death influence their children's understanding?

Children's biological understanding was investigated through biological death understanding scores, which pertained to their understanding of biological subcomponents. Higher scores indicated better biological understanding of death. Children's conceptualisations of death were also explored through their justifications to some questions referring to irreversibility and cessation subcomponents – these were known as response types in Study 2, and explanation types in Study 4. These justifications were coded by the types of reasoning shown, i.e., biological or metaphysical. Parents' explanations were coded in the same way.

Study 2 indicated that children's understanding of biological death develops in line with previously established timelines (e.g., Panagiotaki et al., 2015; Slaughter & Lyons, 2003), with younger children showing a less biologically based understanding than older children, and oldest children showing signs of mature understandings of death. Children's responses reflected co-existent thinking at all ages, with their explanations combining biological and spiritual reasoning. This finding is not consistent with previous research which suggests that children start to consider spiritual ideas only once they have a biological basis to their death understanding; leading older children to use more metaphysical reasoning than younger children (Astuti & Harris, 2008; Harris & Giménez, 2005; Legare et al., 2012).

Experiential factors that were associated with children's understanding of death were experiences with pet death and ownership, but not experience with human death. Analysis of children's biological understanding scores indicated that pet ownership was associated with better understanding of causality, and experience with the death of a very close pet was associated with poorer understanding of cessation. Regardless of type of death experienced (pet or human), those with very close experiences appeared to have poorer understanding of cessation than those with no experience of death. However, children's response types (e.g., non-biological, biological, metaphysical or dualistic) were not associated with differing levels of experience. These findings suggest that the influence of experiential factors is not clear cut and may instead be elucidated through exploration of parent factors.

In Study 2, children whose parents showed high spirituality, having both religious and afterlife beliefs, had poorer understanding of irreversibility and cessation – as shown by their scores – than those whose parents showed medium spirituality (religious or afterlife beliefs) or low spirituality (no religious or afterlife beliefs). Those with parents of low spirituality had the greatest understanding of biological death, followed by those whose parents had medium spirituality. However, parental spiritual beliefs were not seen to influence types of explanations used by children. This meant that although parents may be highly spiritual or not spiritual at all, this does not mean their child will share these same beliefs. This finding may also be owing to a lack of statistical power provided by the sample size.

Parental explanations about death, as self-reported by parents and also categorised by type, appeared to influence both children's biological understanding of death (assessed by scores) and how they explained death (assessed by response types). Children whose parents gave biological explanations scored significantly higher on cessation and irreversibility than children whose parents gave metaphysical explanations. Children's response types were also weakly associated with their parents' explanation types. Children whose parents gave biological explanations were more likely to give biological responses, and those whose parents gave dualistic or metaphysical explanations had greater frequency of dualistic responses.

Assessment of the relationship between parents' own beliefs about death and their explanations about death to their child indicated that parents with high and medium levels of spirituality offered more metaphysical explanations than non-spiritual parents, who instead offered more biological explanations. Parental explanation types were also associated with how close their child's relationship to the deceased person (but not pet) was. Children who had experienced the death of a person very close to them were more likely to be given metaphysical explanations by their parents than those with no close experience. This finding suggests that parents may choose reassurance over biological facts when their child has experienced the death of a close person, possibly to reduce the negative emotional impact of this experience.

Study 3

Study 3 explored the role of parent-child conversations in children's developing understanding of death, by investigating both what is said and how it is said during discussions of death. A storybook design with nineteen parent-child dyads was used. Dyads were made up of younger children (aged 5-6 years old, $n = 9$) and their parents, and older children (aged 9-10 years old, $n = 10$) and their parents. Participants were asked to read through a storybook designed to encourage discussions of death through teaching an alien about life on earth.

Conversations between parent and child were transcribed and coded. To capture the nature of these conversations, transcripts were content analysed and different conversational roles between parent and child were identified. This offered insight into the structure of these conversations. The content of discussions was also explored with parent and child explanations being coded into types of explanation (e.g., biological, metaphysical, or dualistic). Three research questions were explored:

1. How are discussions about death structured between parent and child, and does this vary with child age?
2. What content is discussed during real-time parent-child conversations, and does this vary with child age?
3. Is there an association between the content of parent and child talk about death and how these discussions are structured?

Though not significant, Study 3's findings suggest that parents are more likely to take on passive roles during conversations with younger children, agreeing with and clarifying their child's view. Parents of older children may instead be more active, taking opportunities to guide their child to different viewpoints.

Despite being no significant association, content of younger children's ideas during discussions appeared to reflect the existence of more metaphysical views than older children's, who were more likely to discuss biological facts. Content of parent explanations during actual conversations indicated a similar pattern, again no significant association was found. This finding would correspond to the above pattern that parents took on a more passive role – and disagreed less – with younger children's ideas than with older children's. Owing to this agreement between parent and child during conversations, parents appeared more likely to discuss metaphysical ideas with younger children and biological ideas with older children.

All parents who disagreed with their child took on active roles ($n = 4$), however one parent was active in agreeing with their child. This parent built on their child's ideas to provide more information. While non-significant, a pattern emerged which suggested that parents who are active in conversations with their children are more likely to discuss biological explanations than metaphysical. Only one parent appeared to take on an active role with guidance towards metaphysical ideas, when their child shared biological ideas.

While each of these findings were not significant, sensitivity analyses indicated that the sample size did not provide enough power to detect significant associations, meaning

caution should be paid to the significance of these patterns and Type II error cannot be ruled out. The patterns identified warrant further study with larger samples.

Study 4

Using data from Study 2 and Study 3, Study 4 used a multimethod approach across two time points to explore children's understanding of death and the potential influence of parent-child conversations on this understanding. Study 4's sample consisted of nineteen participants (who took part in Study 2 and 3). Using data from each of these studies allowed us to take a novel approach of comparing data from the same sample at two different time points. Five research questions were addressed:

1. Do children's explanations change between Time 1 (Study 2) and Time 2 (Study 3)?
2. How do parents' self-reported and actual conversations about death with children compare?
3. How do parents' beliefs around death relate to their explanations during conversations with their children?
4. How do parental conversational roles (passive or active) relate to children's biological death understanding scores?
5. How does the content of parents' explanations during actual discussions compare to their child's biological death understanding scores?

In answer to the first two research questions, both children's and parents' explanations were seen to differ between Study 2 and Study 3. Explanations that parents said they offer or would offer to their child (self-reported, Study 2) appeared to differ from those seen during actual conversations with their child in Study 3 for roughly half of parents. However, sensitivity analyses indicated that there was not sufficient power to detect significant associations, and so we cannot be confident there was no significant association between children and parents' explanations from Study 2 and 3.

Parents' actual explanations were not associated with their religious or afterlife beliefs when explored separately, nor when taken together as measure of spirituality. Again, sensitivity analyses indicated that the sample size did not provide sufficient power to detect significant associations and associations between explanations and religious, afterlife or spirituality cannot be ruled out. While not significant, those with high spirituality appeared more likely to discuss metaphysical explanations, and those with medium or low spirituality more likely to discuss biological.

Passive conversational roles were more likely for parents of younger children (5-6 years) than for parents of older (9-11 years), who were as likely to take on passive as active roles. Children with 'passive' parents during Study 3 were found to have scored lower in their biological death understanding in Study 2 than those with 'active' parents. Age was seen to be associated with understanding scores, with increased age predicting increased biological understanding. Owing to this finding, further analysis was conducted to explore the interaction between age and parents' conversational role on children's understanding scores. No significant interaction was seen (however, this was not unexpected owing to the small sample size).

No significant association was seen between types of explanations used by parents in actual conversations and children's biological death understanding scores.

Interpretation of Findings

As discussed earlier in this chapter (see Figure 1.1), three overarching research areas were explored: 1) children's understanding of death (child variables); 2) parental beliefs and understandings of death (parent variables); and 3) parent-child conversations about death (parent-child variables). Findings from each of the four studies in this thesis are considered in relation to these three broader areas, to address the aims of this thesis. First, children's understandings of death are discussed, followed by parental beliefs, and then parent-child conversations about death.

Children's understanding of death

Findings concerning children's biological understanding of death were seen to be consistent with previously established developmental timelines (e.g., Panagiotaki et al., 2015; Poling & Evans, 2004; Slaughter & Lyons, 2003), with children showing more mature and adult-like understanding of the death subcomponents as they grow older. Previous research suggests children understand irreversibility first, at around 4 to 5 years old. Next, at around 7 to 10 years old, inevitability, universality and cessation are thought to be acquired. Causality is the last subcomponent to be understood, at around 10-11 years old (Panagiotaki et al., 2015; Poling & Evans, 2004; Slaughter & Lyons, 2003; Slaughter & Griffiths, 2007; Speece & Brent, 1984). This same order of acquisition was found in Study 2 of this thesis. All children in Study 2, aged 4 to 11 years old, had acquired an understanding of irreversibility. Children aged 7 to 11 (Y3-6) understood the inevitability and cessation of death, and only those in the oldest age group, aged 9 to 11 (Y5-6) had acquired an understanding of all four subcomponents, including causality. However, as universality was not explored in this thesis,

a fully mature understanding of death cannot be claimed, as children may not share the same understanding for different biological entities.

In contrast to previous research (e.g., Astuti & Harris, 2008; Harris & Giménez, 2005; Legare et al., 2012), metaphysical reasoning was present across all age groups and did not appear to increase with age. In Study 3, the content of younger children's explanations during discussions reflected more metaphysical ideas than those of older children, who were more likely to discuss biological facts. This inconsistency between the current findings and previous research may reflect a focus on cognitive, biological understanding of death at the cost of spiritual conceptualisations in previous research. Rosengren et al. (2014a) suggest that previous research has mostly ignored afterlife beliefs, or labelled afterlife beliefs as misconceptions (e.g., Nguyen & Rosengren, 2004). Nguyen and Rosengren (2004) found that misconceptions reflected in religious teachings were common in children's ideas, with most misconceptions concerning the finality of death. Labelling spiritual beliefs as misconceptions not only underestimates children's ability to understand death but fails to acknowledge how different types of information influence children's developing ideas.

This thesis highlights that spiritual reasoning around death is prominent in children as young as 4-years-old. These same children follow the same pattern of subcomponent knowledge acquisition as found in previous research – e.g., children in all age groups showed an understanding of irreversibility. While children who used metaphysical or dualistic explanations had poorer understanding of biological death, it is not expected that their understanding will remain poor. One explanation for this poorer understanding may be the discussion of metaphysical ideas before certain biological facts are understood. For example, discussing ideas of continuation in another place, e.g., 'heaven', may be less confusing when children understand that death is irreversible, and the deceased cannot come back from this place. Children might then use metaphysical reasoning seen in previous research to explain this irreversibility, e.g., heaven is too far away to come back (Slaughter, 2005), or they might exhibit coexistent reasoning, e.g., "soul goes to heaven, body stays on earth" (child from Study 2). Rather than biological misconceptions, spiritual ideas may play an important role in children's developing death conceptions, resulting in the co-existent conceptions of death seen in older children and adults (e.g., Astuti & Harris, 2008; Harris & Giménez, 2005; Legare et al., 2012).

These findings highlight the importance of looking into the source of these ideas and how these are incorporated into their conceptualisations. For example, children are exposed to spiritual ideas around death relatively frequently through parental explanations, religious

education at school, and children's media. Studies 1, 2 and 3 show that parents often use metaphysical explanations when discussing death with their child. Parents were seen to use metaphysical explanations both when reassuring their child about death, and, when presented by religious parents, to inform their child. Parents' use of explanations is further discussed below. However, it is worth noting that, while parents may be a source of ideas for children, their own ideas must be sourced from somewhere. For example, mothers' use of family-specific explanations in Study 1 highlighted similarities between stories passed down within families, suggesting commonalities in sources of parents' child-friendly ideas. These might include family stories, religious teachings or books about death (e.g., Miller et al., 2014).

Study 4 illustrated that children's ideas appeared to change between Study 2 and 3, with 3 to 10 months between studies. The pattern of these changes did not indicate a systematic developmental change, as children were as likely to go from biological to spiritual explanations as spiritual to biological. However, this finding may be explained by the limited sample size which did not have enough power to detect significant associations increasing the likelihood of Type II error. This likelihood appeared lower for younger children whose sample size was close to sufficient according to a priori power analyses, suggesting that even with a larger sample size, no significant association would be found.

Another explanation for this finding is that children's understanding of death may be susceptible to several context changes. For example, in both Study 2 and 3, stories were designed to keep the narrative context neutral, yet, they may still have introduced biological or metaphysical context cues which may then influence children's chosen explanations (e.g., Astuti & Harris, 2008; Harris & Giménez, 2005; Watson-Jones et al., 2017). In Study 2, subjects in the story were described to have become ill before dying, which may introduce a medical, more biological context, whereas in Study 3 we asked if people went anywhere else after they died, introducing a more spiritual context.

Alternatively, differences in who children are talking to may change the context of conversations (i.e., a parent or a researcher). For example, having a researcher present with whom the child had no prior experience may reduce the social pressures to give certain answers, which parental presence might increase. Children may be aware of how their parent has explained death to them in the past and may respond in a way that is consistent with those explanations. It is also worth considering that children may be more aware of their parents' emotional response to discussions about death than other adults (i.e., clinicians, teachers) and how this may shape the context of discussions. In focus groups with teachers and individual interviews with clinicians, Miller et al. (2014) found that both clinicians and teachers

acknowledged that adults had to manage their own emotional responses to death, making helping young children to deal with death more challenging. Children's awareness of their parents' emotional reactions to death were highlighted by several mothers during Study 1, who described their children as hesitant to initiate discussions about death with their parent because they did not want to upset them.

Influences of children's experiences with both human and pet death, and pet ownership on their developing understanding of death were also explored. Children's experiences with death were categorised depending on their closeness of relationship to the deceased; very close, somewhat close, and no close experience. Those with experience of very close pet death had lower cessation scores than those with no close experience. Experience with human death was not associated with children's understanding scores. However, when pet and human death were explored together, those with very close experiences with death had lower cessation scores than those with some and no close experience. However, experience with death of a person or pet close to the child was not associated with how children explained irreversibility and cessation. Children did not offer more spiritual explanations if they had experienced the death of a close loved one.

Given these findings, experiences with death were not seen to greatly influence children's understanding of death. Children's understanding of cessation was seen to be lower when children had experienced the death of a close loved one (person or pet) than when they had little experience of bereavement. These findings correspond somewhat to Panagiotaki et al.'s (2018) suggestion that irreversibility and cessation questions are more likely to elicit spiritual reasoning, and in turn, lower cessation scores. Study 2 builds upon this suggestion to illustrate contexts in which spiritual reasoning may be more likely elicited during discussions with children, e.g., during discussions about the death of a loved one with whom their child shared a close relationship. Children's relationship to the deceased may affect how they are spoken to about it. For example, lower cessation scores often reflect a belief in the continuation of certain functions in an afterlife, which may stem from parents' attempts to offer reassurance when a child experiences the loss of a close relationship. This interpretation is supported by Study 2's finding that parents were more likely to offer metaphysical explanations than biological ones to those children who had experienced the death of someone very close to them.

Parent-child conversations about death are more likely to occur following a bereavement. Experiencing the death of a person often leads children to ask questions and therefore creates opportunities for discussions between children and their parent(s).

Therefore, while the experience of death itself may not directly influence children's understanding of death, it may indirectly through prompting parental explanations during parent-child conversations about death.

Study 2 also found that children who owned pets had a better understanding of causality than those without pets. This finding supports the notion that pet ownership and experience with animals can improve children's biological knowledge (e.g., Atran et al., 2001; Inagaki, 1990; Geerds et al., 2015; Ross et al., 2003). One explanation for earlier acquisition of causality may be in learning how to keep their pet alive. The opportunities that pets present for teaching children about how to keep a living thing alive, may in turn teach them the causes of death, or what it means to not be alive anymore. As shown by Slaughter and Lyons (2003), children do not need to be directly taught about death, instead they can make inferences based on processes needed to keep the body alive. Discussions on vitalism or the life cycle may prove useful for adults who wish to teach children about death but are uncomfortable discussing it directly.

To summarise, children's understanding of biological death appeared to follow a linear timeline in which children's understanding improved with age and was evidenced in their acquisition of four biological subcomponents (irreversibility, inevitability, cessation and causality). Children of all ages were also seen to conceptualise death using both biological and spiritual ideas. Children's conceptualisations appeared to change across Study 2 and Study 3. Experience with pet death and pet ownership was seen to be somewhat associated with children's biological understanding of cessation and causality, respectively. Human death experience alone was not associated with children's biological death understanding, but when explored alongside pet death, very close experiences with death were associated with lower cessation scores.

Parents' beliefs and understandings of death

In its exploration of mothers' experiences around discussing death with their child, Study 1 gave insights into how parents themselves may understand death, and how this may come across in conversations with their child. First, Study 1 showed that mothers vary in the certainty of their beliefs, which influences whether the information they communicate is perceived by them as reassuring or honest, and in turn biological or spiritual. For mothers who were certain in their beliefs, reassuring and honest explanations were often the same. Mothers who felt less certain about their own beliefs saw a conflict between the two types of information. This conflict led to a discomfort around the biological facts of death, which was explicitly described during interviews. Some mothers described the idea of death being the

end as a “horrible” thought. For others, the idea of souls continuing after death was a more uncomfortable thought. This discomfort was reflected in mothers’ overall avoidance of both thinking about death and having relevant conversations with their child. Sources of this discomfort varied for each mother.

These findings are consistent with previous research and does not appear limited to parent-child conversations, extending to conversations involving teachers and clinicians (e.g., Gutiérrez et al., 2014; Holland, 2008; McGovern & Barry, 2000). Despite their positive views of death education, Irish parents and teachers report feeling uncomfortable discussing the topic of death with children (McGovern & Barry, 2000). Holland (2008) found that people’s difficulty in knowing how to respond to the bereaved may result in them doing nothing and in doing nothing adding to the negative emotional impact on the bereaved. For example, being unable to facilitate their grief through discussion of death and feelings.

Findings of Study 1 and those of previous literature into parent-child and clinical conversations around death highlight the social taboo around death seen in Britain, and other modern societies. Beit-Hallahmi (2011) suggests that modern societies have a reduced awareness of death as opposed to traditional ones. Modern society is seen to distance itself from the realities of death and even hide these realities from children and adults. For example, death is passed on to outside agencies, e.g., funeral homes, to handle their dead, away from the rituals seen in more traditional societies (Beit-Hallahmi, 2011). Arguably however, even cultures with a greater openness around death and death rituals, for example Ireland, where open coffins at wakes are common, also find discomfort in discussing death with children (e.g., McGovern & Barry, 2000). As such, not only a greater awareness of death itself, but an awareness on how to talk about it with children, and others, may help to change this taboo.

Further evidence of parents’ discomfort with death comes from parents across our studies often acknowledging that this was the first time they had really thought about their own beliefs about death. This not only reflects the apparent taboo and discomfort that comes with both discussing and thinking about death, but also suggests that parents’ own beliefs are not at the forefront when considering how to discuss death with their child. Instead, parents focus on their child’s emotional needs and cognitive ability to understand death during these conversations. Parents’ beliefs may instead be used to anticipate their child’s needs. For example, if a parent believes that death is the end of existence but also finds this an uncomfortable thought, they might anticipate that their child would also find this uncomfortable and attempt to counteract it in their explanations (i.e., emphasising continuation of deceased in spirit or memory). Parents’ beliefs may inform their explanations in this way, but also leave

explanations open to change depending on their child's responses during these conversations. This interpretation may explain why parental beliefs were not strongly associated with their actual explanations in Study 4. Another point to consider is that parental beliefs may not be expressed to children during conversations because parents do not think they are important. However, this explanation seems unlikely owing to parents' self-reports of explanations which often included reference to their own beliefs.

Parental beliefs and understandings of death were further explored in Study 2. Parents reported whether they held afterlife beliefs or considered themselves religious. Study 2 found that holding afterlife beliefs did not mean parents were religious and being religious did not mean they held afterlife beliefs. To better represent the nature of parental beliefs around death, parents were assigned to groups according to their spirituality level. Those who were both religious and held afterlife beliefs were categorised as highly spiritual, those with religious or afterlife beliefs were medium, and those with neither were low. In doing so, this thesis extends the work of previous research to consider the complexity of parental beliefs around death using a more integrative measure of both religious and afterlife beliefs. Study 2 indicated that parents who were high or medium in spirituality reported they gave more metaphysical explanations, whereas low spirituality parents gave more biological explanations. In contrast, Study 4's comparisons between parents' spiritual beliefs and their actual explanations during discussions with their children found no significant association between parent spirituality and their actual explanation types. However, sensitivity analyses indicated that Study 4's sample size was too limited to detect significant associations, meaning an association between parent's religious, afterlife, and spiritual beliefs cannot be ruled out.

Given the findings of Study 4, this association between parents' spiritual beliefs and reported explanations may reflect parents' desire to be consistent when self-reporting their beliefs and explanations during the parental belief questionnaire. Parents do not appear dogmatic in their beliefs when talking to their children and may use different explanation types depending on the perceived cognitive abilities and emotional needs of their child. Parents may feel more inclined to reassure their child during discussions of death than present them with the biological reality which reflects their own beliefs, as seen in previous research (e.g., Miller et al., 2014). For example, several mothers described waiting until their child experiences a bereavement before discussing death with them (in particular, in Study 1), in this context parents may prefer to provide comfort to their child rather than provide biological facts when their child may be upset.

However, it is important to bear in mind that reassurance may not always take the form of metaphysical reasoning and is informed by parents' own beliefs about death and the needs of their child. For example, some parents may perceive their child to need more information about biological death in order to answer their questions and provide reassurance in this way. This finding may be reflected in two streams of explanations acknowledged in previous research; reassurance, and facts and explanations (e.g., Gutiérrez et al., 2014; Longbottom & Slaughter, 2018). This suggestion is further supported by Talwar (2011) who found that adults in educational settings (teachers and psychologists) stated they discussed death with children using explanations grounded in spiritual beliefs about an afterlife, with additional biological explanations. Those who held strong spiritual or religious beliefs expressed feeling prepared and comfortable discussing death but were no less likely to give biological explanations than those without spiritual beliefs.

Influences of parental and others' beliefs on children's conceptual understanding of death is often assumed in previous literature, as well as by parents – an assumption which is not supported in the current thesis. For example, while previous studies agree that parents who share highly spiritual/religious beliefs are more likely to discuss spiritual ideas with their children (e.g., Misailidi & Kornilaki, 2015; Talwar, 2011; Tenenbaum & Hohenstein, 2016; Zajac & Boyatzis, 2020), the influence these beliefs may have on children's developing conceptions is less well established in the literature. Zajac and Boyatzis' (2020) qualitative investigation found that 78% of mothers in their sample ($N = 21$) perceived their religiosity and spirituality to shape conversations about death and parent-child conversations to shape their child's religious and spiritual views. Misailidi and Kornilaki (2015) found that parents' afterlife beliefs and explanations about death and the afterlife were not associated with their child's reasoning about death.

In Study 2, parents' spiritual beliefs (both religious and afterlife beliefs) were found to be associated with children's biological understanding scores, but not the types of reasoning children used to explain their answers. Those whose parents were high in spirituality scored lower than those whose parents displayed medium or low levels of spirituality. Mixed findings between current and previous research may be explained through variability in which parents expressed their beliefs during discussions. For example, the bi-directional nature of parent-child conversations means that parents cannot predict the direction of conversations. Parents may have fewer opportunities or less desire to express their own beliefs than they might predict.

For parents' beliefs to influence their children's developing conceptions, they need to be shared with their child which is not always possible or seen as appropriate (based on assessments of their child's understanding). Findings from Studies 3 and 4 illustrate that children take on an active role in these discussions and use their own explanations to shape conversations with their parents – as will be further discussed in the next section. Regarding Zajac and Boyatzi's (2020) finding, this suggests that parents are unable to accurately predict conversations, and that parental beliefs may have less influence on their child's understanding than expected by parents themselves. The findings of this thesis suggest that parental beliefs are less influential than parent-child conversations, as parents do not always express these beliefs during discussions. This suggestion also highlights issues around asking parents to predict how they would explain death to their child. While parents' beliefs likely influence how they would choose to discuss death with their child, they may not be reflected during actual explanations.

To summarise, parental beliefs were seen to influence the types of explanations they gave their children, with highly spiritual parents offering more spiritual explanations, and non-spiritual parents offering more biological explanations. Parents shared biological, metaphysical, and dualistic ideas about death with their children. Sharing these alternative ideas with children may take pressure off parents in terms of not wanting to shape their child's ideas or give them a fear of death. Sharing different ideas and encouraging understanding of different beliefs gives children freedom to choose which explanations make the most sense to them, be it spiritual, biological or both. Parents' own beliefs may not be directly expressed to children but are an important precursor to parent-child discussions and may influence the dynamic between parent and child during these discussions. For example, if parents have a specific goal in mind for these discussions, discussions may be less reciprocal between parent and child (Boyatzis & Janicki, 2003). This thesis adds to the body of research exploring the role of parental beliefs in children's developing understandings by going beyond self-reported measures to observe how parents' spiritual beliefs come across during actual conversations with their child.

Parent-child conversations about death

Research exploring the influence of parent-child conversations on children's conceptualisations of death is limited, and much of it relies on self-reports from parents. This thesis took a novel approach to explore parent-child conversations about death by investigating both parental self-reports and actual conversations between parents and children. Conversations were self-reported by parents through interviews and questionnaires

(Studies 1 and 2) and actual parent-child conversations were recorded during a storybook task (Study 3). There are numerous benefits to using self-report method. For example, self-report methods are quickly and easily conducted which allow for greater sample sizes. However, findings throughout this thesis highlighted important limitations in their ability to measure the content of parent-child conversations about death. The main limitation is that parents may not accurately report the content of their explanations and conversations about death with their child since they are thinking about it retrospectively (or even prospectively when asked what they would say if someone had died). This retrospection may mean that self-reports do not accurately reflect the content of spontaneous conversations as they rely on participants remembering or re-constructing them to respond to a questionnaire or interview. Parents may also be inclined to report an idealised version of what they would like to say, or wish they had said, rather than what is actually said in real discussions. By exploring both self-reported and actual conversations, insight into the nature of parent-child conversations and decisions made by parents in approaching these conversations was gained.

In Study 1, mothers described how they would explain or had explained death to their child. These explanations stemmed from their own beliefs around death and their perceptions of their child's cognitive abilities and emotional needs during such conversations. Several themes emerged that described mothers' 'child-friendly' explanations about death. Mothers reported a focus on explaining death as a natural part of life, which happens to all living things and usually after a long and happy life, as well as looking for the positives, for example the end to any suffering. Mothers also emphasised the continuation of the deceased through spirit or in memory. Family-specific stories were also shared with their children and provided reassurance for the family as a whole. These stories were usually spiritual in nature and described, for example, loved ones sitting on the stars and looking down or dropping white feathers to show they are watching over them. Not all mothers used spiritual explanations. Some focused on the biological facts around death to try and avoid alternative explanations that could create confusion.

These findings are consistent with previous research investigating parents' self-reported approaches to discussing death with their child. Gutiérrez et al. (2014) reported that parents used reassurance to provide comfort and solace to their child, and this reassurance could be biological, emotional/psychological, or religious in nature. In their study, two-thirds of parents used reassuring statements, and all parents included facts in their explanations. 'Facts and explanations' referred to factual information and explanations about death as well as associated rituals and representations (Gutiérrez et al., 2014). This information was divided into biological, customs, religious and other. Importantly, Gutiérrez et al.'s data came from

parents' self-reported responses to how they replied to their children's questions about death. Parents were responding to specific questions from their children which may require specific answers. This specificity may explain parents' greater reliance on facts and explanations than was seen in Studies 1 and 2 of this thesis. This difference in findings may also further highlight inaccuracies in self-report data; parents may have reported using more facts and explanations than they do in actual conversations perhaps owing to trouble remembering or idealising conversations. However, Gutiérrez et al.'s findings also illustrate the role that biological and spiritual explanations can play in providing both reassurance and information, again suggesting the two are not mutually exclusive.

Previous research has suggested that co-existent thinking is representative of two streams of explanation, biological and spiritual, which can be elicited in different contexts (Astuti & Harris, 2008; Harris & Giménez, 2005; Legare et al., 2012). More recently, research has suggested that parents combine biological and spiritual information about death in a way that means children are not learning two opposing views on death. Instead, children learn a unifying view that combines two belief systems (Bridgewater et al., 2021). For example, children may learn biologically accurate information about the death and spiritual information about what happens afterwards. Taken together with the prominence of spiritual thinking present across age groups in Studies 2 and 3, spiritual and biological explanations may work together to explain death, rather than present contrasting viewpoints. Future research needs to further explore when and how parents and children use each type of explanation and their motivations for doing so. For example, dualistic responses may reflect parents 'softening the blow' of biological information by introducing spiritual ideas as reassurance. Other adults may also use both explanations in this way. Talwar (2011) found that teachers and school psychologists reported grounding their explanations within spiritual ideas, with additions of biological information.

Renaud et al.'s (2015) exploration of parental satisfaction in their explanations of death to their child give some insight into how parents choose to explain death. Parents were more likely to report feeling completely satisfied in their explanations when they referred to continued existence after death, in memory or spirit, than those who did not. Parents who referred to not seeing the deceased again were only partially satisfied in comparison (Renaud et al., 2015). The findings of Study 1 of this thesis suggest that this satisfaction comes from a sense of addressing their children's questions by giving them the information they need, while also reassuring and not upsetting them with this information. For example, parents may find less satisfaction in explaining to children that they will not see the deceased again because this can be an upsetting thought or may open up the conversation to more upsetting detail to

explain why. Overall, as seen in this thesis, and supported by previous research, parents' self-reported conversations with children appear to focus on providing children with enough information to answer their questions, while also aiming to be reassuring and not foster any feelings of fear. However, self-reported explanations give little insight into the bi-directional nature of parent-child discussions and how children respond to these explanations, meaning they may not reflect how actual conversations about death play out.

Studies 3 and 4 addressed this gap in the literature and explored actual parent-child conversations about death. Study 3 indicated a mixture of metaphysical, biological, and dualistic explanations in the content of parent-child conversations. Most of these conversations were led by children rather than by parents. This may explain the finding that parental explanations during actual parent-child conversations in Study 3 did not fully match their explanations reported in Study 2, nor did they fully reflect their actual beliefs about death. Most parents gave children the space to share their own ideas and supported these views with further information. These findings suggest that parent self-report measures alone do not accurately reflect parent-child discussions, or the role children play in these discussions. One reason for this may be owing to the limitations discussed above (e.g., trouble remembering, or idealising conversations).

Very few parents disagreed with their child by guiding their child towards their own beliefs or sharing opposing views ($n = 4$). Comparably, Bridgewater et al. (2021) found that during conversations prompted through watching animated films, as reported by parents, few parents attempted to correct misconceptions presented in films. Parents who were religious or thought representations of death were important were more likely to rectify misconceptions. Bridgewater et al. suggest that religious parents were more motivated to rectify misconceptions that contrasted with the parents' beliefs. Religious parents may also use religion to comfort their child after correcting misconceptions or when describing biological ideas. This finding contrasts with Nguyen and Rosengren (2004) who categorised religious afterlife beliefs as misconceptions within biological death understanding, which may be maintained through parents avoiding discussing death with their child. Bridgewater et al. instead suggest that religious ideas can be used alongside biological facts to rectify misconceptions. This contrast between studies may illustrate a difference in how misconceptions are defined and highlights the need to address this issue in future research by exploring both biological and metaphysical conceptualisations of death. Given the finding that children's biological understanding of death develops alongside metaphysical reasoning in all age groups, the findings of this thesis support the view of Bridgewater et al. that both

biological and metaphysical ideas make up a unifying view of death rather than two opposing viewpoints.

For death conversations throughout the thesis, self-reported and actual, parents' beliefs did not always match up with the explanations they gave their children. In relation to conversations with their child about the origins of living things, Tenenbaum and Hohenstein (2016) also found that parents sometimes used explanations that were inconsistent with their own beliefs. For example, they discussed creationism with their child while endorsing evolutionary views. Parents described wanting to avoid confusion which may be caused by disagreeing with their child's teacher's viewpoint, and so deferred to the child's viewpoint rather than giving their own during conversations. This thesis builds on Tenenbaum and Hohenstein's (2016) explanation by highlighting factors which parents consider when wanting to avoid confusing their child, such as child's age and experiences with bereavement.

Study 3 also offered insights into how and when parental beliefs were expressed during parent-child conversations by exploring parents' roles during these conversations. Owing to the nature of this study, all but one child took on the role of expressing their views from the standpoint of explaining life on earth to an alien. This design allowed parents to have as much or as little involvement in these explanations as they wanted or felt was necessary. Parents took on passive, active, or neutral conversational roles. Although not significant, parents appeared more likely to take on passive roles during conversations with younger children, agreeing with and clarifying their child's view. In contrast, parents of older children were as likely to be 'active' as 'passive', taking opportunities to guide their child to different viewpoints. However, parents taking on active roles ($n = 6$) did not mean they disagreed with their child's ideas. Two 'active' parents agreed with their child's ideas and built upon them to provide their child with more information. A non-significant pattern emerged which suggested that parents who are active in conversations with their children are more likely to discuss biological than metaphysical explanations. Children with 'passive' parents during Study 3 were found to have scored lower in their biological death understanding in Study 2 than those with 'active' parents. These findings suggest that parents are more likely to take the opportunities to teach, guide or challenge misconceptions when their child is older. This may be owing to the perceptions that their child's capabilities were increasing, with parents feeling more confident that their child will be able to understand new or challenging information and handle their emotions as they get older. This is consistent with findings from Study 1 and previous research which suggest that parents make assessments of their child's cognitive capabilities and emotional needs (e.g., Gutiérrez et al., 2014). However, research into these patterns is needed with larger samples to identify significant associations.

Study 1 indicated that parents' perceptions of their child's understanding of death influenced how they went on to discuss death with their child. Interviews with mothers showed that they assessed their child's emotional needs and cognitive ability to handle discussions about death, based on their child's questions and experiences with bereavement. These assessments then guided parents away from information which may confuse or upset their child, including their own beliefs. This desire to talk to children at the right level for their child's understanding was also reflected in parents' passive conversational role during actual conversations with their child as observed in Study 3. 'Passive' parents were seen to allow their child to explain and elaborate on their own viewpoint rather trying to actively guide their child to their own beliefs. Passive conversational roles can be taken to illustrate parents deferring to their child's viewpoint, as seen in origins of life conversations (Tenenbaum & Hohenstein, 2016). Through these assessments parents may also either decide to discuss death with their child or shield their child from death until they are older (e.g., Gutiérrez et al., 2014; Longbottom & Slaughter, 2018; Nguyen & Rosengren, 2004).

In making assessments of their child's cognitive abilities and emotional needs, parents may underestimate their children. In Study 1, a mother illustrated this possibility with her descriptions of surprised reactions to their children's insightful question; "I think their understanding is a lot more sometimes than we give them credit for". This suggestion is consistent with Gaab et al.'s (2013) findings that parents often underestimated their child's biological understanding of death. Mothers in Study 1 chose to discuss death with their children in ways that acknowledged these – often incorrect – assessments. For example, a mother in Study 1 described only going into enough detail to satisfy their child's needs/questions; "I'd give a sort of fairly short but accurate answer and then if they're happy with that then fine".

Findings from Study 1 also suggest that biological facts around death may be the source of discomfort for a lot of parents, i.e., that it is inevitable and irreversible, and so mothers may feel less comfortable sharing these with their child. In Study 1, mothers actively tried to avoid giving their child a fear of death, which often meant counteracting the biological realities of death, by referring to, for example, the continuation of person through memory or an afterlife. This finding parallels Renaud et al.'s (2015) finding that parents found more satisfaction in descriptions of continuations after death owing to their reassuring nature. Renaud et al.'s findings may explain why parents' self-reported explanations, more specifically those parents with medium spirituality level, were more metaphysical in their self-reported explanations than in their actual explanations, as seen in Study 4. During actual conversations with their child, parents may be able to observe how their child understands death, and where

any discomfort with death may lie. This interpretation again corresponds with Gaab et al.'s (2013) finding that parents underestimate their child's ability to understand the biological facts about death, which may not be apparent until actual conversations take place. Parents' self-reported explanations may be based on underestimations of their child's understanding and so aim to provide reassurance, whereas actual conversations allow insight into their child's understanding which may go above their parents' expectations and encourage more sophisticated discussion of biological facts.

Parental activity during conversations offers insight into how their explanations are expressed during parent-child discussions. Study 3 suggests that parents offer explanations when needed, in response to their child's questions or to rectify misconceptions. Previous research which uses parents' self-reports of how they answer their children's questions (e.g., Bridgewater et al. 2021; Gutiérrez et al., 2014), may imply a greater role for parental explanations during parent-child conversations than is evident during parent-child conversations in this thesis. Day-to-day conversations about death may be prompted by children's questions which require specific explanations from parents, rather than more general explanations about death which are observed in this thesis. Therefore, parental explanations may play a larger role during parent-child conversations in response to specific questions, as opposed to experiences of bereavement in which more general explanations of death are expected.

Study 2 also found that parents were more likely to explain the death of a person using metaphysical/spiritual reasoning when their child was very close to them, rather than biological explanations. However, parents were not more likely to explain death in a certain way in response to the death of a pet their child was very close to. This finding suggests that parents may feel their child needs more reassurance in response to human death than in response to pet death, despite their child's closeness to the deceased pet. This difference in reaction by parents may have important implications for both children's understanding of animal death and their grief reactions. For example, if human and non-human animal death are spoken about and treated differently, children's understanding of death for each entity may differ. Study 2 found that children with very close pet death experience had lower cessation scores, which may imply children's understanding of non-human animal death occurs more slowly than their understanding of human death. Children may also learn different ideas around non-human animal and human biology through other sources commonly used by parents, such as storybooks. Geerdts et al. (2016) found that storybooks which anthropomorphised animals in stories of adoption and illness, focused on social-emotional experiences rather than biological explanations. This lack of biological explanation in anthropomorphised animals may

encourage anthropocentric reasoning by discouraging children's biological understanding of non-human living entities (Geerds et al., 2016).

Regarding children's grief reactions, failure to recognise pet death as a significant loss may result in disenfranchised grief which has important implications for children's wellbeing. Pet owners are often believed to experience disenfranchised grief, and this inability to express their grief or have it acknowledged can have several adverse psychological outcomes including inhibition of posttraumatic growth in areas of interpersonal relationships and opportunities (Spain et al., 2019), and high levels of anxiety, depression, grief severity and difficulty resolving their grief (Adrian & Stitt, 2017). Alternatively, for bereaved dog owners, the loss of the dog was associated with stress and reduced quality of life, but social support was positively associated with better quality of life (Tzivian, 2015). This finding suggests that social support during pet bereavement can help to reduce adverse psychological effects of grief; and parents are likely to be a large part of this social support for children.

To summarise, self-reported parental explanations about death focused on informing and reassuring children. Self-reports of explanations differed from how parents actually explained death in actual parent-child conversations, perhaps owing to the bi-directional nature of parent-child interactions, which is somewhat lost in self-report measures. This thesis' novel approach to explore not only the content of these conversations but also their structure, through parental conversational roles, offers some insight into how and why actual conversations and self-reports may differ from reality. The structure of conversations suggested that different parents took on different roles during conversations with their child. All parents were led by their child's initial explanations, with 'active' parents using this as a starting point to teach their child more or to challenge their misconceptions, and 'passive' parents using this to listen and better understand their child's viewpoint. Parents were more likely to be passive in conversations with younger children than with older children. This was thought to reflect parents' perceptions of their child's cognitive and emotional ability – with those who perceived their child as less capable wanting to avoid upsetting or confusing their child with more information.

Younger children were more likely to discuss metaphysical ideas and older children more likely to discuss biological ideas. This finding may reflect better biological understanding of death in older children, confirming parental perceptions that they may be cognitively more able to understand the biological facts of death than younger children. Parents being more active during actual conversations which focused on biological explanations, suggests that parents may find it easier to have open discussions with children when they show a better

understanding of biological death. Encouraging children to develop their biological understanding of death may also help to facilitate frank discussions around death with their parents, and in turn help them to develop their knowledge further. Again, this prominence of metaphysical explanations seen across age groups contrasts with previous research which suggests biological and metaphysical explanations are two separate streams of information which are used at different times depending on context (Astuti & Harris, 2008; Harris & Giménez, 2005). This thesis extends previous research to suggest that exploration of parental explanations as two separate streams may be reductive, and instead the relationship between the two streams needs greater integration within the research.

Implications

Parental

Findings from this thesis have several implications for parents and how they may choose to discuss death with their child. First, parental explanations do not appear to be the sole influence on their children's understanding of death. Studies 2 and 3 illustrated that biological ideas around death are persistent despite metaphysical explanations from parents. Development of children's understanding of biological death appears to follow much the same pattern regardless of what they are told by parents. Metaphysical explanations around death may slow the development of understanding, as shown by lower biological understanding scores in children whose parents gave metaphysical explanations than those whose parents gave biological explanations – but it does not stop it. This lower understanding may occur through contrasts between metaphysical ideas and biological subcomponents. For example, biological subcomponents may not yet be understood, and children's reasoning may not yet be sophisticated enough to consolidate these two types of knowledge.

Findings of this thesis suggest that parents should try to discuss death with children at a level that they will understand. However, they should also be cautious to avoid underestimating their child's ability and avoiding discussions as a result. One way to do this, which was shown by many parents as documented throughout this thesis, is to listen to children's questions and answer them honestly. Sometimes these answers may be upsetting to children, but misconceptions can also be upsetting once children learn the truth. Study 1 illustrated that what parents perceive as honest information was subjective and dependent on their own beliefs, therefore answering honestly does not necessarily mean only providing the biological facts of death but may also mean sharing spiritual beliefs. Spiritual explanations can also be informative to children and help them to develop their conceptualisations, which are unlikely to be purely biological once fully developed.

Another point worth considering is that parents' approach to explaining very close human death differed from that of very close pet death. This finding is important because it suggests that parents may approach human and non-human animal death differently. This can have implications for both children's developing knowledge of the death of all living things, but also for their grief reaction (i.e., disenfranchisement). Owing to the differences seen between understanding of biological death of children who had experienced pet death and of those who had not, an implication of the findings of this thesis is that parents should be more consistent in the discussion of death across different living things. Again, listening to children's questions and allowing them to be open with their emotions, may help parents to navigate these conversations in an appropriate way, without dismissing any feelings of grief their child may have at the loss of a pet.

Educational and Clinical

It is also worth considering that how children choose to talk about death may be sensitive to who they are talking to. For example, differences in children's explanations when talking to the researcher and when talking to parents. When talking to parents, children might express views consistent with what they have been told or following family-specific beliefs (Study 1). Children may express different beliefs to researchers, owing to the different relationship between the child and the researcher who have no prior interactions with each other. This contextual difference between who they are talking may result in children expressing different ideas with different people or asking different types of questions with different people (e.g., parents, teachers, clinicians).

This contextual sensitivity may have implications for both educators and clinicians. The findings of this thesis suggest that when considering discussions about death with children, adults should consider the context of their relationship to the child, and the different roles they take up in these contexts. With different roles come different expectations of information and different questions from children. For example, children are aware that their teacher's role is to educate them and answer their questions as well as they can. Although teachers and clinicians may wish to reassure children, that may not be what children need or want within the context of these conversations. Away from parents, children may be more open with their ideas and seek more information which is not provided to them by their parents. Teachers and clinicians should consider themselves as different sources of information to children and talk to children in ways that take this into account, e.g., offer children factual answers to their questions.

Theoretical

Several theoretical implications arose during this thesis – most important is the need to consider both children’s biological and spiritual understandings of death. Much previous research has focused on children’s understanding of death using a theoretical approach which considers understanding of death as indicative of their biological knowledge and as part of their naïve biological knowledge system. In this thesis, spiritual reasoning was prominent in children’s conceptualisations of death regardless of age. The prominence of spiritual reasoning alongside biological reasoning suggests that the theoretical approach of studying children’s understanding of death as an aspect of their naïve biology knowledge alone is perhaps inappropriate. To elaborate, while death itself is a biological phenomenon that occurs only to living things, it is intertwined with metaphysical reasoning owing to no one alive being able to experience what happens afterwards. This is what makes understanding of death so unique and complex to study.

A new theoretical approach to exploring children’s understanding of death, inclusive of the relationship between spiritual and biological ideas, may help to further clarify how children conceptualise death and how this conceptualisation develops. Previous research has made some steps towards this (e.g., Rosengren et al., 2014a), but as this thesis demonstrates, development of children’s spiritual reasoning and interactions between children’s spiritual and biological knowledge are under-researched. More research is needed to explore how biological and spiritual ideas about death may work together to develop understandings of death.

This thesis supports Legare et al.’s (2012) suggestion that the theoretical assumption that biological and spiritual explanations compete needs re-assessing. In previous research biological and spiritual ideas are treated as theoretically different streams of knowledge, with some research going as far as to categorise spiritual thinking as misconceptions of biological reasoning (e.g., Nguyen & Rosengren, 2004). For example, Harris and Giménez’s (2005) findings suggest that biological and spiritual conceptions are employed separately in response to narrative contexts (e.g., biological and secular, religious and spiritual). This thesis adds to the growing body of evidence (e.g., Bridgewater et al., 2021; Legare et al., 2012) which suggests that spiritual reasoning should not be seen to compete with and replace biological reasoning, but to co-exist with each other as two complementary belief systems. These two types of explanations may be seen to work together to help children construct their conceptualisations and beliefs about death, including distinctions between what happens to body and spirit after death (Talwar, 2011).

Throughout this thesis, both parents and children were shown to combine biological and spiritual reasoning in dualistic explanations. Bridgewater et al. (2021) suggest that dualistic thinking does not reflect two conflicting explanations, but instead one explanation that unifies two belief systems. Evidence from this thesis supports this view and suggests that these two streams of explanations may unify to provide different forms of reassurance. One form of reassurance may be felt through feeling more informed, and another through comforting thoughts about the afterlife. This thesis further highlights the need to adjust theoretical assumptions to address prominence of both biological and spiritual explanations in children's developing conceptualisation of death, and in influences on this development, such as parental explanations.

Another theoretical implication of the current findings is that it is important to recognise children as active participants in developing their own knowledge. Theoretical approaches exploring children's developing death understanding often fail to acknowledge the role of children in this development. Instead, they imply children are passive recipients of knowledge from various sources including, parents, books and television (e.g., Renaud et al., 2015). Influences of these sources on children's understanding of death are then explored without consideration of how children may respond to this information.

Findings from this thesis contrast with this approach and highlight the importance of child-centred approaches. For example, in Study 3, both children and their parents were seen as demonstrably active participants during discussions about death. Both were able to bring their own ideas and goals to conversations and can and do respond to each other's contributions to the discussion. For example, one parent-child dyad discussed their differing beliefs in an afterlife, with the child (9-11 years old) responding to their parents' belief in heaven by expressing their own lack of belief in it. Study 4 found that parental beliefs and self-reported explanations were not associated with explanations they gave during actual discussions. This finding indicates that conversations about death between parent and child are not unidirectional from parent to child. For example, parents may not be able to express their beliefs during discussions owing to their child's questions and types of information they are seeking. To illustrate, one parent felt they would share spiritual explanations with their child, as discussed in their self-reported explanations, however during actual discussions with their child the notion of body decomposition was instead discussed. Parents throughout this thesis described being surprised by their child's questions and the types of belief their child held.

These findings are consistent with and complement those of previous research which highlight children's ability to develop their own knowledge by seeking information through asking questions and responding to information given during conversations. Harris (2012) illustrates that children are able to ask questions aimed at gathering information, and when offered answers they may consider to what extent their question has been answered. Children may then ask follow-up questions in response to the replies they received. Other previous research also illustrates the bi-directional nature of conversations between parent and child (Boyatzis & Janicki, 2003; Lagattuta & Wellman, 2002). For example, conversations about religion are not unidirectional from parent to child, but instead balanced between parent and child, with parent and child playing active roles (Boyatzis & Janicki, 2003).

Future researchers are encouraged to acknowledge the role of children in developing their own knowledge, including how they respond to information they are given and types of information they seek. Research exploring children's questions around death make some steps toward this (e.g., Gutiérrez et al., 2014). However, these studies often focus on parents' responses to these questions which may continue to exacerbate the issue. In taking a more child-centred approach to exploring children's developing conceptual knowledge, several methodological implications are also highlighted, and further discussed below. For example, the need for more observational research.

Methodological

Children's developing ideas across Studies 2 and 3, as evidenced in Study 4, also illustrate a need for future research to repeat measures across a short time period (i.e., conduct the same interview twice across a few days). In doing so, test-retest reliability of these measures would be assessed, and validity of these measures as measures of children's understanding of death tested. Using this type of method may then better clarify what children's understanding actually is, assuming children's understandings of death are able to appear stable over time.

Longitudinal measures may then be used to track this development at an individual level to give insight into how children's knowledge develops. Tracking children's understanding across different time points using the same measures may allow insight into how their ideas develop, and where their ideas may stem from. For example, several children appeared to develop their ideas from things they had learnt in school recently during Study 2, e.g., Ancient Egyptians. While this thesis focused on children's death understanding, these are important considerations across measures which aim to explore children's conceptual development.

Study 3 was the first study in this research area to record and observe actual conversations between parent and child about death. Differences were found between how parents report their conversations with children and how these conversations were seen to occur, suggesting self-report methods alone are not valid measures of parent-child conversations. This reduced validity may be owing to parents' poor memories of conversations, their underestimation of children's roles, or simply the unpredictability of conversations with children. For example, children's questions were not investigated during Study 2 because too few parents could recall them, despite stating their child had definitely asked questions. Greater use of observational methods may help to address these issues, for example, by allowing the role and contributions of both parent and child during discussions to be observed.

A combined approach of using both self-report and observational methods is also suggested. Self-report methods are important tools for data collection, offering both easier and quicker data collection, and allowing for larger sample sizes. Self-reports also offer valuable insight into parents' perceptions and interpretations of events and experiences, even if they are not always accurate. For example, in conversations about death, they offer insight into what information parents perceive as important to share with their child, even if they may not always get this across during actual conversations. Observational methods should be used to complement self-reports, and to address these issues of validity and accuracy. The need for greater use of observational methods in developmental psychology more generally is also highlighted by its use in other research areas, including parent-child conversations about origins of life and relational analogies during science topics (Tenenbaum & Hohenstein, 2016; Valle & Callanan, 2006).

Societal and Child Development

Greater understanding of biological death in children can have several benefits which parents may wish to foster. For example, it can help to reduce children's fear of death (Slaughter & Griffiths, 2007) and may also help to facilitate discussions of death between parent and child, with parents able to express information more freely without fear of upset or confusion. As Holland (2008) argues, views of death as a topic to be avoided may change with greater awareness of how death can impact bereaved children and knowing how to react to children following a loss. This thesis adds to the growing awareness of the positive impact of discussions around death on children's cognitive and emotional wellbeing.

Limitations and Future Research

Several limitations were seen across each of the studies and were considered limitations of the thesis itself. First was the difficulty in finding participants who were happy not only to participate in a study focused on death themselves, but to also have their children participate. As was seen in this thesis, British society sees death as a taboo and is reluctant to discuss it in general, nor is it seen as an appropriate topic for children. Owing to this, findings of this thesis are reflective of those who are already somewhat comfortable talking about death. In Study 2, out of 96 participants, 91% of parents had already had conversations about death with their child. Given the taboo around death, this number is likely much smaller for the general British population. Discussing death can still be difficult even for those who feel relatively comfortable talking about it. In Study 1, for example, several mothers had recently experienced grief. Their emotional expressions were acknowledged during the interviews and the researcher chose not to explore these further for ethical and personal reasons. Research with larger samples is needed to better capture the views of those who are less comfortable talking about death and with greater variability in experiences with death. Larger sample sizes would also allow emerging patterns to be addressed, such as those seen in Studies 3 and 4 (e.g., parents' greater use of biological explanations with older children). Sensitivity analyses suggest that Type II errors cannot be ruled out owing to lack of power and sample size.

Ethical considerations taken into account during these may also have led to limitations of each study and influenced findings. For example, in approaching participants, informed consent was essential considering the involvement of children in a study on a sensitive topic. This meant that this research was advertised to lead with our focus on children's understanding of death so as to be upfront. Given this advertised focus on children, findings in Study 3 may reflect the approach to recruitment. For example, parents may have chosen to take on a more passive approach than they would usually do during discussions to allow their child to share their understanding. Our findings may reflect a more passive parental role during conversations than would occur in actual day-to-day conversations. For example, parents likely take on a more active, informative role when discussions are prompted by children's questions about death.

As highlighted in Study 4, there are also limitations in using self-report methods to capture parent-child conversations which were used in Studies 1 and 2 of this thesis. Although during this thesis parents were able to report whether they had had conversations, there was difficulty in getting parents to divulge specifics of these conversations, often owing to poor memory. As discussed above, very few parents were able to report specific questions their

child had asked or how they had responded, instead reporting their child had asked questions without elaborating on what these were. Some parents reported the general gist of conversations where they could remember. Owing to this, the frequency and level of detail during conversations was difficult to measure. Different methods may help to increase accuracy of self-report measures. For example, use of diaries or online questionnaires which can be completed at any time. Use of diaries might allow parents to note down their child's questions and their own answers while they are still able to accurately remember them. Similarly, online questionnaires may give parents a chance to reflect on their conversations without the pressure of remembering exact conversations while in a lab environment. However, in Study 2, parents who took part through schools were given questionnaires to take home and fill out at their own convenience. Online questionnaires would have the added advantage of gaining larger samples more quickly.

More efficient methods of data collection may prove crucial in trying to capture parent-child conversations about death. Renaud et al. (2015) illustrate that death experiences were most often of a television character, individual in the media or a family member, and that these experiences were related to the likelihood of parent-child conversations. The death of television character may not appear significant enough for parents to reflect on during self-report questionnaires which ask about the death of pets and loved ones. Other methods which are designed for parents to reflect on all conversations around death may better capture parent-child conversations, and even parent and child's first conversations about death. Bridgewater et al. (2021) also highlight the ability of animated films which feature death to promote parent-child conversations, and the frequency of death seen in animated films over books. Observation of parent-child discussions while watching animated films together, as opposed to reading storybooks, may be a focus for future research. Asking parents to record conversations with their phones when sitting down to watch a film with their child may be one such way to observe these discussions with minimal disruption to normal routines.

Future research investigating the amount of understanding that lies behind children's use of certain vocabulary may also be worthwhile. For example, in the current research, it might be argued that children's understanding of the *word* 'death' or 'died' is being explored. Children may say words such as 'heaven' only as a word associated with death, rather than believing or understanding the meaning behind the word. To better illustrate the point, if a parent were to explain to a child that something had died, and that child made a sad face, it might be assumed that the child understands a sad event has happened and so somewhat understands death and so might be satisfied in the conversation. However, from this thesis and previous research, we know this is not necessarily the case and instead their response

could be a learned behaviour associated with the word 'death'. Similarly, in response to discussions around death, a child may learn to say words such as 'heaven' to satisfy their parent's reactions, without necessarily understanding the meaning behind the word. In their thematic analysis of 101 children's books focused on death, dying, grief and bereavement, Malcom (2010) suggests a generic image of heaven is portrayed in most books aimed at children aged 4 to 8 years old. Generic portrayals are considered to describe heaven and a spiritual afterlife as a simple and more widely shared cultural belief, as opposed to precise religious portrayals. These shared beliefs then lead to a notion of heaven as a place that exists above us, bathed in light and filled with angels. These portrayals suggest death is not the end of life, but a continuation (Malcom, 2010). Children may conceptualise heaven in this way, or they may only know heaven as a death-related word with no real meaning behind it. It might be argued that children's understanding of 'heaven' develops with age, as it does with death. It is important to consider how children may understand heaven itself, and the important implications this may have for their developing conceptions of death. Better understanding of how children conceptualise 'heaven' would add greater validation to research which explores the content of children's conceptualisations, for example, whether they are biological or spiritual in nature.

The prominence of metaphysical and co-existent reasoning displayed by children throughout this thesis highlights a need to consider both biological and spiritual types of reasoning to a greater extent in future research. Numerous references to supernatural entities were made by children during this thesis, including references to ghosts and zombies. This link to supernatural entities during their discussions of death highlights the importance of considering how supernatural beliefs or magical thinking might be incorporated into their death concepts. Piaget (1929) referred to a type of magical thinking which is made up of culturally supported beliefs, thought to include beliefs in Santa Claus, the Tooth Fairy, ghosts, etc. Both religious and magical thinking are thought to be influenced by cultural support (Rosengren & French, 2013). Recent research has shown that children's conceptual knowledge may impact their belief in these culturally supported magical figures. Shtulman and Yoo (2015) found that children began to question the feasibility of Santa's activities when they were better at differentiating possible from impossible physical events.

In relation to children's conceptualisations of death, children may begin to question the feasibility of supernatural entities as they learn biological realities of death. For example, as children begin to learn that at death all bodily processes cease, they may be less likely to believe that zombies exist to eat brains. Alternatively, Norenzayan and Hansen (2006) found that awareness of mortality led to stronger beliefs in supernatural agency, i.e., belief in God

and other supernatural agents such as Shamanic spirits. These contrasting findings highlight the importance for future research exploring the relationship between children's magical thinking and conceptualisations of death. Norenzayan and Hansen primed one group of participants to think about death (and increase their awareness of mortality) using an open-ended question asking, 'what will happen to you when you die?' before asking them how religious they were and how strongly they believed in God (and other supernatural agents). Research of this kind could be adapted for children to shed further light on how spiritual ideas are used, and how biological and spiritual ideas may co-exist. For example, do children reason more spiritually before they understand the biological realities of death, or does knowing the biological realities of death lead to more spiritual thinking?

It is worth noting that less spiritual reasoning was exhibited than expected based on findings from previous research, for example only one child in Study 2 ($N = 96$) showed consistently metaphysical reasoning. This finding may reflect the sample, with all participants living in Norwich, UK – a region in the UK in which 42.3% of people identify as no religious (ONS, 2019). Comparatively, only 23% of Americans do not affiliate themselves with any religion (PRRI, 2021). Findings of this thesis may therefore be representative of British or more secular samples, than those used in previous research (e.g., North and South America, Spain, Madagascar, etc.). The sample were also primarily white and those who identified as religious all belonged to a denomination of Christianity reducing the generalisability of these findings. Future research is needed to explore death understanding across more diverse samples, including those with different afterlife beliefs and death rituals to those seen in Christian and non-religious samples. Despite the lower levels of consistently spiritual reasoning, children's understanding of biological death still appeared to follow the same developmental pattern established previously. While British participants may be more likely to explain death using biological or dualistic reasoning, as opposed to spiritual alone, children's development of their biological knowledge of death may be universal. Further research into children's development of spiritual reasoning about death may shed more insight into the cultural differences in how children conceptualise death.

Conclusion

To conclude, the four studies reported in this thesis took a novel approach to explore children's understanding of death by considering the role of parents and parent-child conversations on this understanding. Quantitative and qualitative methods were used, including observational methods to record actual conversations about death between parent

and child which have not been used in previous research. This research was also the first to explore parental influences on children's understanding of death in a British sample.

The findings of this thesis add to the body of literature suggesting that children's understanding of biological death improves with age as they acquire understanding of biological facts of death (irreversibility, inevitability, cessation, and causality). This thesis also extends previous literature by evidencing spiritual reasoning in children's explanations of death at an earlier age than previously thought, i.e., from 4 to 5 years old rather than 7 to 11 years old (e.g., Harris & Giménez, 2005).

Parental beliefs were found to be associated with explanations they gave to their children about death. For example, highly spiritual parents were more likely to share metaphysical ideas with their child, and those with low spirituality more likely to share biological ideas. Children whose parents used metaphysical explanations and were highly spiritual had lower biological understanding scores than those whose parents used biological explanations and were less spiritual. Parental beliefs had no influence on the types of explanations children used themselves, whereas parental explanations did.

Parents' self-report explanations also differed from the explanations they gave during actual conversations with their children. Parent-child conversations were mostly led by children. Parents listened to their child's beliefs and either chose to clarify and support their child's view or to offer more information. Parents of younger children were more likely to let their child lead with their own ideas, whereas parents of older children were more likely to take on an active role within conversations to provide their child with more information. This finding is in line with the view that parents take their child's cognitive abilities and emotional needs into account before trying to share new, potentially confusing, or frightening information with them. Older children were more likely to share biological ideas, and younger children metaphysical, suggesting older children have a better grasp of the biological facts around death. This better understanding may facilitate discussions about death between parent and child, highlighting the importance of encouraging children's biological understanding of death.

The findings of this thesis have several implications for those likely to have conversations about death with children (e.g., parents, teachers, clinicians) as well as theoretical and methodological implications for future research on how children understand and conceptualise death. This thesis takes advantage of novel approaches to extend work of previous researchers, shed light on assumptions made in the literature, and add to the growing body of work exploring how children understand death and how parents may influence this understanding. Future research should seek to better understand the relationship between

biological and metaphysical reasoning in children's conceptualisations of death, both in how they are presented to children and how they help to construct children's conceptualisations.

Appendices

Appendix A

Interview schedule used with mothers in Study 1

Interview schedule

Opening

Hi, my name is Carys, and I'm a PhD student at the University of East Anglia. Thank you for agreeing to meet with me. I invited you to this interview because as the parent of a 9–11-year-old child, you can help me understand how children think about death and how parents talk to their children about death.

I would like to ask you some questions about you and your family, and your child's ideas about and experiences of death. I would also like to explore what questions your child/children have about death and how you discuss these issues at home. I hope to use this information to further understand how children's ideas and beliefs about death develop.

Do you have any questions before we begin? Please don't hesitate to ask any questions during the interview. Please remember too that you don't have to answer questions you'd prefer not to, and that you can stop the interview at any time. Finally, everything we discuss is confidential and your anonymity will be maintained.

Are you happy to begin the interview?

[Yes]

Let me begin by asking you some general questions about you and your child/children:

1. How old are you? _____
2. What is your occupation? _____
3. How many children do you have? _____
4. How old is/are your child/children?

name	gender	age

--	--	--

5. For this interview could you please focus on your 9/10/11 year-old child? Thank you.

6. Does someone else live with you at home?

7. Do you have or have you had any pets?

8. Has X experienced the death of a pet that he/she can remember? _____

9. Do you regard yourself as belonging to any particular religion? Yes____ No____

10. If yes: which religion? _____

How often do you and your child attend services connected with your religion?

Now I would like to ask you some questions about the way you think and talk to your children about death:

11. What particular beliefs do you hold around death?

Prompts – What do you think happens after death? Do you believe in an afterlife?

What do you believe the afterlife is?

12. Do you discuss these beliefs with your child?

13. Is death a topic you feel comfortable discussing with your child?

14. Who else does X see regularly outside school that they might talk to about these issues (for example: another parent, grandparent, relative, friend)

15. Has your child asked you any questions about death?

Prompts – What questions do you remember him/her asking?

How did you respond? (If more than one questions ensure that you get an idea of how they responded to each of the questions their child asked)

16. Has your child known anyone who died? YES _____ NO _____ (go to Q20)

17. If YES: What was their relationship to your child? _____

18. How close were they to your child? _____

19. How long ago did it happen? _____

Can I ask how you explained their death to X?

Prompts – what did you tell them? Did they ask any questions? If so, how did you answer them? [if they don't refer to afterlife, ask directly e.g. did you talk to them about what happens after death? Did you mention some form of afterlife or existence after death?]

20. If child hasn't experienced someone dying OR if you haven't got enough answers from the previous questions --- How would you explain the death of someone dearly loved to X?

21. Would you offer the same or a different explanation if you talked to X about the death of someone less close to her/him?

22. Have you ever talked about the death of a pet with your child?

23. How did you explain their death to X?

Prompts – what did you tell them? Did they ask any questions? Did you mention some form of afterlife or existence after death? _____

24. If you had a pet that died how do you think you would explain their death to X?

Now, if you don't mind, I'd like to ask you a few more questions about how you think X thinks about the death of people. Ask:

25. What do you think X believes happens after death?

26. Do you think X believes that people can come back to life?

27. Do you think X knows that all living things die?

28. Does that include people very close to him/her?

29. Does that include herself/himself?

30. Do you think X believes that dead people need things like food, air or water?

31. Do you think X believes that dead people can feel hunger or cold?

32. Do you think X believes that dead people can feel love?

33. Do you think X believes that dead people can miss someone they love?

34. Do you think X believes that dead people are watching over us?

35. What do you think shapes these ideas? Where is X likely to get these ideas from?

Prompt – from you, siblings, school, media, church etc.?

We are approaching the end of the interview now, I just have a final couple of general questions for you:

36. Do you have something else you would like to discuss in relation to what we've just been talking about?

Prompts:

- is there something you feel I've missed which is important to you?

- [if have other children] Do you feel any of your answers would be different had you been talking about your other children?

Prompts – refer to specifics questions (e.g. Q15, Q20, Q21)

Closing

Thank you for taking the time to go through this interview with me, your help is very much appreciated. I appreciate that some of the questions may have been sensitive or upsetting, are you feeling ok? We have some links to support services here which may be helpful to you. This sheet has some more information about the study I'm conducting. Please don't hesitate to contact me if you have any questions, my contact details are also on this sheet. Do you have any questions or worries? Were there any questions you did not like?

Are you happy to receive a follow-up phone call in a week or so? This is to check in on how you are feeling since the interview, how you felt during the interview and for any feedback/questions. *[if so, check I have their phone number]*. _____

If you're happy to receive it, I will also send you a copy of the transcription from this interview for you to review and correct or add any extra information – would that be alright? Thank you again for all your help.

Appendix C

Example of interview schedule used with children in Study 2

Child Interview Schedule (Boy)

Story 1

Once there was a man named Gerald. Gerald was a very old man. Gerald was so old that his children had children. One day Gerald felt very ill and nothing could make him better. A few days later, he died.

Now that Gerald is dead ...

1. Do his eyes work or not? Y N
2. Do his legs move or not? Y N
3. Does his heart beat or not? Y N
4. Does his stomach need food or not? Y N
 - a. Why?.....
.....
.....
5. Will he keep getting older or not? Y N
 - a. Why?.....
.....
.....
2. Does he see things around or not? Y N
3. Does he feel hungry or not? Y N
4. Does he feel cold or not? Y N
5. Does he remember where his house is or not? Y N
6. Does he miss his children or not? Y N
7. Does his mind work or not? Y N
 - a. Why?.....
.....
.....
8. Can he come back to life or not? Y N

a. Why?.....
.....
.....

9. Will he be dead for ever and ever? Y N

a. Why?.....
.....
.....

14. Do all people die? Y N

If yes, why?

.....
.....

15. Can some people live forever? Y N

If yes, why?

.....
.....

16. What are some other things that cause people to die?

.....
.....
.....

Story 2

Once there was a dog named Spot. Spot was very old, so old that his puppies had puppies. One day, Spot felt very ill and nothing could make him better. A few days later, Spot died.

Now that Spot is dead...

1. Do his eyes work or not? Y N

2. Do his legs move or not? Y N

3. Does his heart beat or not? Y N

4. Does his stomach need food or not? Y N

a. Why?.....
.....
.....

5. Will he keep getting older or not? Y N

a. Why?.....
.....
.....

6. Does he see things around or not? Y N

7. Does he feel hungry or not? Y N

8. Does he feel cold or not? Y N

9. Does he remember where his home is or not? Y N

10. Does he miss his puppies or not? Y N

11. Does his mind work or not? Y N

a. Why?.....
.....
.....

12. Can he come back to life or not? Y N

a. Why?.....
.....
.....

13. Will he be dead for ever and ever? Y N

a. Why?.....
.....
.....

14. Do all dogs die? Y N

If yes, why?

.....
.....

15. Can some dogs live forever? Y N

If yes, why?

.....
.....

16. What are some other things that cause dogs to die?

.....
.....
.....

Story 3

Once there was a deer. The deer was very old, and so old that its fawns had fawns. One day, the deer felt very ill and nothing could make it better. A few days later, the deer died.

Now that the deer is dead...

1. Do its eyes work or not? Y N

2. Do its legs move or not? Y N

3. Does its heart beat or not? Y N

4. Does its stomach need food or not? Y N

a. Why?.....
.....
.....

5. Will it keep getting older or not? Y N

a. Why?.....
.....
.....

6. Does it see things around or not? Y N

7. Does it feel hungry or not? Y N

8. Does it feel cold or not? Y N

9. Does it remember where home is or not? Y N

10. Does it miss its fawns or not? Y N

11. Does its mind work or not? Y N

a. Why?.....
.....
.....

12. Can it come back to life or not? Y N

a. Why?.....
.....
.....

13. Will it be dead for ever and ever? Y N

a. Why?.....
.....
.....

14. Do all deer die? Y N

If yes, why?

.....
.....

15. Can some deer live forever? Y N

If yes, why?

.....
.....

16. What are some other things that cause deer to die?

.....
.....
.....

Appendix D

Parent Belief Questionnaire (PBQ) used in Study 2

Parent/Guardian Belief Questionnaire

Participant Identification Number:

Please answer the following questions:

Gender of your child:	Your child's date of birth:
Your child's ethnicity:	
Your relationship to your child: Mother <input type="checkbox"/> Father <input type="checkbox"/>	
Other (please specify) <input type="checkbox"/> _____	
Your child's school year:	Your child's school:
Does your child have any pets? Yes No	
If yes, what type of animal is their pet? _____	
Your level of education (please tick all that apply): Left school <input type="checkbox"/> If so, what age _____ GCSE/O Levels or equivalent <input type="checkbox"/> A Levels or equivalent <input type="checkbox"/> Trade Apprenticeship <input type="checkbox"/> Some University <input type="checkbox"/> Bachelor's Degree <input type="checkbox"/> Master's Degree <input type="checkbox"/> Doctorate or Professional Degree <input type="checkbox"/>	Your occupation: What is your annual household pre-tax income? Please tick one only. <i>Up to £10,000</i> _____ <i>Over £10,000 to £30,000</i> _____ <i>Over £30,000 to £50,000</i> _____ <i>Over £50,000 to 70,000</i> _____ <i>Over £70,000 to £90,000</i> _____ <i>Over £90,000</i> _____ <i>I do not wish to share this information</i> _____

1. Do you regard yourself as belonging to any particular religion? Yes No

If yes:

- a) Which religion? _____
b) Apart from special occasions such as weddings, funerals or other ceremonies, how often do you and your child attend services connected with your religion?

Weekly Twice a month Once a month A few times a year Other _____

2. What particular beliefs do you hold around death (e.g. do you believe in an afterlife, or have any traditions around death)?

3. Has your child experienced the death of someone they know? Yes No

If yes:

- a) What was their relationship to your child? _____
b) How close was the person to your child?

Very close Quite close Somewhat close Not at all close

- c) How long ago did it happen? _____
d) Did your child attend the funeral or other ceremony? Yes No

4. Has your child experienced the death of a pet? Yes No

If yes:

a) What type of animal was their pet? _____

b) How close was your child to their pet?

Very close Quite close Somewhat close Not at all close

c) How long ago did it happen? _____

5. **Has your child ever asked questions about death?** Yes No Can't remember

If yes: What did he/she ask?

6. **How have you explained, or how would you explain, the death of a friend or family member to your child (e.g., why they died, what happens after they die etc.)?**

7. How have you explained, or how would you explain, the death of a pet to your child (e.g., why they die, what happens after they die etc.)?

8. How have you explained, or how would you explain, the death of a wild animal to your child (e.g., what they die, what happens after they die etc.)?

Thank you very much for completing this questionnaire.

Please return the completed questionnaires to reception at school in the sealed envelope.

Appendix E

Parent Story Questionnaire (PSQ) used in Study 2

Parent/Guardian Story Questionnaire Version 1

Below are three brief stories about a person and two animals that die. Please read each story and answer **all** the questions that follow. There are no right or wrong answers and all responses are confidential.

Please do not discuss the stories or questions with your child either before or after completing the questionnaires. I will be asking children similar questions during my interviews with them at school. It is important that they express their own views without any previous discussion or preparation.

Story 1: Once there was a man named Gerald. Gerald was a very old man. Gerald was so old that his children had children. One day Gerald felt very ill and nothing could make him better. A few days later, he died.

Now that Gerald is dead ...

1. Do his eyes work? Yes No
2. Do his legs move? Yes No
3. Does his heart beat? Yes No
4. Does his stomach need food? Yes No
5. Will he keep getting older? Yes No
6. Does he see things around him? Yes No
7. Does he feel hungry? Yes No
8. Does he feel cold? Yes No
9. Does he remember where his house is? Yes No
10. Does he miss his children? Yes No
11. Does his mind work? Yes No
12. Can he come back to life? Yes No
13. Will he be dead for ever and ever? Yes No
14. Do all people die? Yes No
15. Can some people live forever? Yes No

16. What causes people to die?

.....
.....

Story 2: Once there was a dog named Spot. Spot was very old, so old that her puppies had puppies. One day, Spot felt very ill and nothing could make her better. A few days later, Spot died.

Now that Spot is dead...

1. Do her eyes work? Yes No
2. Do her legs move? Yes No
3. Does her heart beat? Yes No
4. Does her stomach need food? Yes No
5. Will she keep getting older? Yes No
6. Does she see things around her? Yes No
7. Does she feel hungry? Yes No
8. Does she feel cold? Yes No
9. Does she remember where her home is? Yes No
10. Does she miss her puppies? Yes No
11. Does her mind work? Yes No
12. Can she come back to life? Yes No
13. Will she be dead for ever and ever? Yes No
14. Do all dogs die? Yes No
15. Can some dogs live forever? Yes No
16. What causes dogs to die?

.....
.....

Story 3: Once there was a deer. The deer was very old, so old that its fawns had fawns. One day, the deer felt very ill and nothing could make it better. A few days later, the deer died.

Now that the deer is dead...

1. Do its eyes work? Yes No

2. Do its legs move? Yes No
3. Does its heart beat? Yes No
4. Does its stomach need food? Yes No
5. Will it keep getting older? Yes No
6. Does it see things around? Yes No
7. Does it feel hungry? Yes No
8. Does it feel cold? Yes No
9. Does it remember where home is? Yes No
10. Does it miss its fawns? Yes No
11. Does its mind work? Yes No
12. Can it come back to life? Yes No
13. Will it be dead for ever and ever? Yes No
14. Do all deer die? Yes No
15. Can some deer live forever? Yes No
16. What causes deer to die?

.....
.....

Appendix F

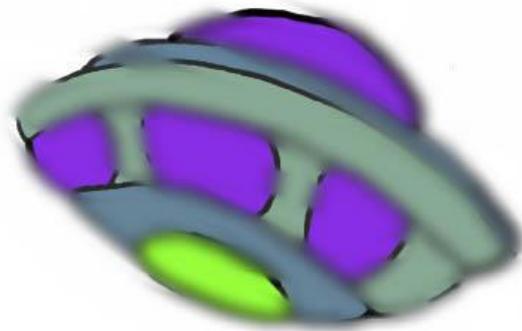
PDF copy of book designed for Study 3

Tammy was watching rain fall from the sky
and **splish splash** onto the ground
outside her window. She was wondering
what she was going to have for dinner, when
suddenly ...



1

KA-ZWOOM!



2

A SPACESHIP CRASH LANDED OUTSIDE!

“I best go out and investigate” said Tammy. She pulled on her brightest raincoat and shiniest wellies and ran outside.



3

Tammy tiptoed up to the spaceship, and gently knocked on what appeared to be a door...

ratta-tat-tat

Almost instantly the door began to open, and not one..., not two..., but **THREE** eyes peaked out from behind the door!



4

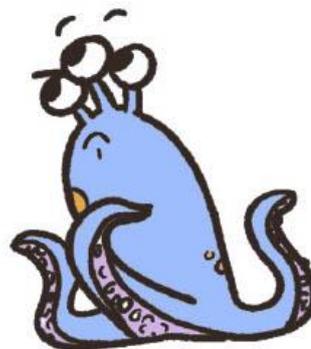
“Oh my” thought Tammy, “my first time meeting an alien, I must put on my best speaking voice”

Tammy cleared her throat “Excuse me, but you appear to have parked on my trampoline, are you lost?”

5

“Greetings, earthling. Have I reached the land known as ‘Area 51’?”

“Uhh, no. Sorry.” Tammy replied “You’ve landed in my back garden”



6

“Oh dear, my leader will not be pleased. I had an appointment to learn all about life here on Earth, whatever will I do now?”

“Uhh, I can teach you, if you like? I know pretty much almost everything about life on Earth”
Tammy replied politely.

“YES PLEASE! Ahem, I mean that would be acceptable”

7

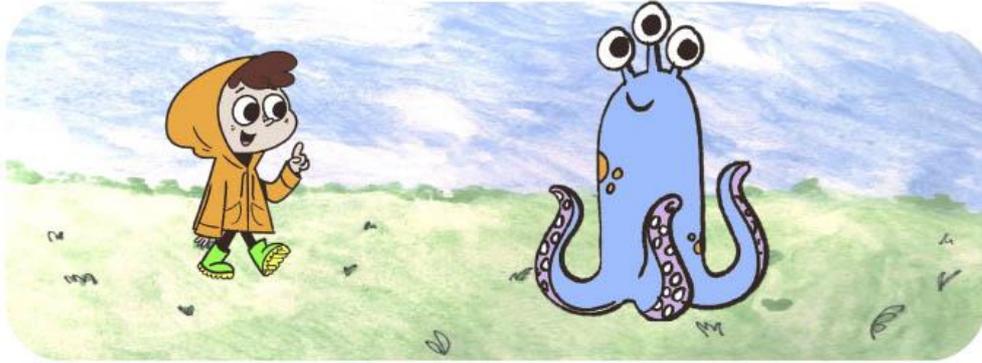
“Great! My name is Tammy, what’s yours?”

The alien made some strange gurgling noises from what Tammy thought was its throat,
“Pkkkheellllbbburghlm”

“But you can call me Ringo” it said, stifling a laugh.

8

“Okay Ringo, let’s start by exploring my garden!”
exclaimed Tammy.



*What living things do you think they
might find in the garden?*

9

Ringo and Tammy began walking around the
garden, looking under stones and in pots for
living things as they went.

“What is this green thing, with bright sprouts?”
Ringo said, prodding the plant.



10

“Well done, you found a flower! The green part is its stem and the bright sprouts are its petals”
Tammy informed Ringo.

“Is a flower a living thing?” asked Ringo.

“It is!” boasted Tammy.



11

“What does it do, how does it... live?” Ringo
asked shyly.

“Well...it grows and helps to give out oxygen
into the air and it needs certain conditions to
live, like to be in soil and...”

*Can you help Tammy? What does a flower need
to live?*

12

“And if they don’t have these things, they die”
Tammy informed Ringo.

“What happens when a flower dies?” asked
Ringo.

*What should Tammy say? Do flowers go
anywhere else after they die?*

13

Suddenly Ringo grabbed Tammy and began
frantically running around.

“QUICK!” you’ve been out of your soil too long”
said Ringo, dropping Tammy into the closest pot
it could find.



14

Tammy giggled “That’s not how it works for humans, different living things live in different ways, humans need different things to live and have a different life cycle to plants”



15

“Hooooman” wondered Ringo, “How do hoooomans live?”

“Oh this is an easy question” thought Tammy.

“Humans need lots of cake to stay alive!”
Tammy replied, giggling to herself.

Is Tammy right? What do you think? Can you list things that humans need to stay alive?

16

“Do hooooomans die?” asked Ringo thoughtfully.

“Yes they do, like all living things” Tammy replied quietly.

“What happens when a hoooooman dies?” Ringo asked, “Can they still eat cake?”

What do you think? What happens when a person dies? Do you they go anywhere else afterwards?

17

“I see...” replied Ringo, reaching to grab a doll which had been lying on the ground.

“This hoooooman is very small, does she need more food?”

“Umm... I’m not sure” replied Tammy honestly.



What do you think, do you think the doll will grow if you feed it?

18

“Wooooow” said Ringo, dropping the doll and pointing into the forest behind Tammy’s house,
“What is that?”



What animal do you think this is?

19

“That’s a deer!” exclaimed Tammy proudly.

Ringo looked at the deer, back at Tammy, back at the deer,
back at Tammy, back at the deer, back at Tammy, until...

“BUT, WAIT!” shouted Ringo urgently, “Where are the rest
of your legs? Have you lost them?”

Tammy giggled, “I’m only meant to have two, silly. Lots of
different animals have different types of bodies and
different numbers of legs”

*How many animals with fewer than 4 legs can
you think of?*

20

Looking back at the deer, Ringo asked “How do deer live?”



Tammy’s eyes widened as she replied “I don’t know much about deer, I think they eat grass, umm...”

Can you help Tammy? How do deer live? Can you list things that deer need to stay alive?

21

“And do deer die too?” asked Ringo.

Tammy nodded.

“What happens when deer die, can they still eat grass?” asked Ringo in response to Tammy’s nod.

What do you think? What happens when a deer dies? Do they go anywhere else afterwards?

22

“I think that’s all I know about *life* on earth, do you have any more questions?” Tammy asked.

“Could you show me how your trampoline works?” Ringo replied cheekily.

“OF COURSE!” Tammy shouted in excitement.

Ringo moved its spaceship and fixed the squashed trampoline.

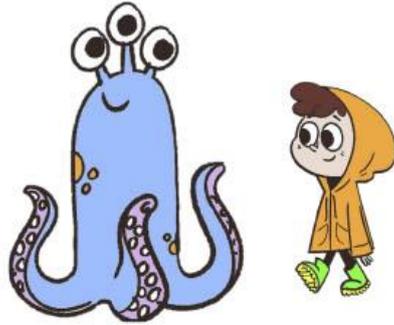
23

Tammy and Ringo **bounced** and **bounced** until finally Ringo had to say goodbye.



24

“Thank you for all your help little
hooooman, let’s meet up again if
you’re ever on my side of the
galaxy!”



The End.

Appendix G

Coding table for explanation types used in Study 2 and 3

Full coding scheme for child response types and parent explanation types.

Broad Categories	Sub-categories	Description	Example
(1) Biological	a) DEAD/BURIED/BURNED*	Explanations that only referred to death or burial with no further elaboration	“Once you’re dead you can’t come alive”
			“Because he is dead”
			“He’s not alive”
			“He is ashes”
	b) NO MOVEMENT	Explanations referring to a lack of movement or action	“Because he is dead, and he can’t move” “Because if he is dead his legs can’t move.” “doesn’t move, doesn’t need energy”
			“If you’re dead, your whole body would stop working”
			“stop breathing and body shuts down”
c) BODY PARTS/FUNCTIONS	Explanations referring to specific internal organs and bodily functions	“body shuts down and stops”	

			<p>“Because his heart doesn’t work, his muscles don’t work”</p> <p>“His brain and heart aren’t working, and they control his legs”</p> <p>“No blood flow around body”</p> <p>“body doesn’t function anymore”</p>
	d) LIFE CYCLE/END OF LIFE	Explanations asserting that death is a part of the life cycle, the end of life or the end of functioning, but not the end of time	<p>“when you’re alive it [your mind] will keep on going until you die”</p> <p>“Because he is dead and so none of his body parts work” “Because he’s not alive”</p> <p>“His body is switched off” “it’s a part of life”</p> <p>“his body gets old because it’s still there, but he doesn’t grow older”</p> <p>“in the end” “way of life, everyone dies and can’t come back”</p>
	e) DECAY	Explanations referring to the decay of the body after death	<p>“He’ll dissolve and get preserved”</p> <p>“He’s decaying.” “His skin disintegrates, and he turns into bones” “bugs eating his brain”</p> <p>“gets mouldy and moulds away”</p>

	f) INCORRECT	Attempts at biological justification which were incorrect and show a misunderstanding of biological processes but a biological way of thinking.	“They can live forever if you keep electrocuting them” “Can come back to life if only dead for a few hours”
(2) Non-Biological	a) UNINFORMATIVE	Unclassifiable or “don’t know” answers	“Possibly”
			“Maybe”
			“Don’t know”
	b) NON-METAPHYSICAL	Explanations reflect belief in the continuation of functions, or non-biological explanation without reference to metaphysical	“Deer’s that are special stay alive”
			“special kind of person”
	c) UNNECESSARY	Explanations which describe lack of function owing to no need to for	“don’t have anything to think about”
			“nothing to learn”
			“can’t grow old because doesn’t need do”
	d) SELECTIVE	Descriptions of continued function of select processes	“it’s mind stops working but it can still think”
			“can remember a few things” “still think a lot about family”
	e) ASLEEP	Comparisons to death and being asleep	“they’re asleep forever”
			“don’t eat because they’re asleep”
“can’t wake up”			

	f) MEMORY	Continuation of person through others' memories	"it's something to remember if he has died"
			"they live on through their children"
			"we remember them"
	g) PERSONAL	Explanations which draw from personal experience	"my uncle didn't have any medicine and that's how he died"
			"my grandpa's dead and he hasn't come back yet".
	h) MEDIA	Explanations inferred from things seen in books, television and other popular culture	"only in horror movies"
			"She came back as a cat in my book"
			"I saw that happen on YouTube"
	i) TECHNOLOGY	Explanations which consider existing technology and abilities of people, e.g., doctors	"the technology doesn't exist yet"
			"nobody has invented a bring back to life machine yet"
			"if there was a cure to bring them alive again then they would do that"
			"people haven't discovered how to bring dead back alive"
(3) Metaphysical	a) RELIGIOUS GOD/HEAVEN/HELL	"Only God could bring back"	
		"In heaven, they can float."	

		Explanations asserting that living things continue to live on after death with God or in heaven or hell.	"If they're naughty they will go to hell"
b)	REINCARNATION	Explanations which describe turning into something or someone else after death, including reincarnation beliefs	"When they die, they turn into another person" "they turn into a robin" "they can pick what they turn into next".
c)	PARTS	Explanations asserting that there is a part of the mind or the body—or some special entity such as a spirit, soul — that continues on after death	"He's dead, his spirit goes up and works." "He's walking as a spirit." "Spirit can stay for rest of time":
d)	SUPERNATURAL	Any reference to a belief in supernatural beings or belief in magic, e.g., ghosts, zombies, vampires	"could be a ghost" "ghosts don't get older" "if they came back to life, they would be a zombie" "giants can live forever if healthy" "Santa knows if you're dead" "there are no magic potions to bring back" "only witches or wizards can"
e)	DEATH RITUAL	Explanation of a ritual surrounding death	"we leave flowers at their grave on their birthday" "body rests in the coffin"
f)	WORLDS	Explanations which describe going to another world after death, without religious references	"gone to live in the sky/stars", "live in another world but can't come back to this world"

	g) OTHERS	Explanations which consider the beliefs of others, e.g., Egyptians, or those with different beliefs to themselves	"Would need food if Egyptian, mummified and given food to travel"
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