Reminiscing and future talk: Early childhood educators, young children and their mothers in conversation.

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Abstract

A rich body of sociocultural memory research has considered how mothers reminisce with their young children. Likewise, research into mother-child future talk conversations has examined children's understanding for future events. This thesis extends the contemporary research with mothers and children to consider how early childhood educators interact with young children in reminiscing and future talk conversations. Twenty-one educators from seven long daycare centres in Sydney, Australia were recruited and each paired with up to six younger (27–36 months) or older (48–60 months) children in their care. A subset of mothers also engaged in conversations with their children. Over two counterbalanced sessions, each educator-child (N = 85) and mother-child dyad (n = 42) separately discussed four past and four future self-nominated events. All conversations were coded for elaboration (total elaborations, elaborative style) and content (temporal language, mental state language). Findings were fourfold. First, educators' total elaborations were significantly associated with child elaboration across all event conversations, whereas educator elaborative style was associated with child elaboration for past novel conversations only. Second, educators varied in the way they talked about events; elaboration and temporal language differed by temporal focus (past/future) while mental state language differed by event type (novel/familiar). Third, educators and mothers talked differently about events. Consequently, children received different support from different conversational partners. Finally, educator qualifications were found to make a difference. Educators with degree qualifications were generally more elaborative than educators with diploma qualifications, though educators varied within each qualification level. Taken together, the findings highlight that educators serve an important role scaffolding children in reminiscing and future talk conversations. Future longitudinal and intervention studies will inform further understanding of high quality educator-child

reminiscing and future talk conversations and should indicate how these conversations can potentially offer an ameliorating benefit for children not engaged in high quality conversations in other contexts.

Statement of Originality

I, Rebecca Andrews, certify that the work in this thesis entitled *Reminiscing and future talk: Early childhood educators, young children and their mothers in conversation* has not previously been submitted for a higher degree to any other university or institution. I also certify that this thesis is an original piece of research that has been written by me and in accordance with Macquarie University policies and procedures. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Ethics Committee Approval

Ethics Committee approval, Protocol number 5201300756, was granted for the data collection undertaken in this thesis (see Appendix A). The research was conducted in accordance with the approved protocol.

_____

Rebecca Andrews

9 November 2017

Contributors and Contributions

I am thankful for the guidance of my supervisors: Dr Shirley Wyver (Principal Supervisor) and Dr Penny Van Bergen (Associate Supervisor). I completed the design of the study with their assistance. All participant recruitment and data collection was completed by me. I used a professional transcription company to transcribe the conversations. I was the primary coder of the data. I used a research assistant to complete additional coding for reliability purposes. I met with a statistician, Dr Peter Petocz, at Macquarie University on three occasions to ensure that my data file was set up correctly in SPSS. I conducted the statistical analyses and received guidance from my supervisors on some of the processes. I wrote the entire thesis and received feedback from my supervisors on each chapter.

Editing Assistance

Professional editor, Kim Woodland, provided copyediting services, according to the guidelines laid out in the university-endorsed national ‘Guidelines for editing research theses’.

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Conference Presentations

Andrews, R., Wyver, S., & Van Bergen, P. (2015, July). "*Remember when we …*" *Educators' conversations with young children: Reminiscing and talking about the future*. Paper presented at the Pacific Early Childhood Education Research Conference, Sydney, Australia.

Andrews, R., Wyver, S., & Van Bergen, P. (2016, April). "*Remember the magic show?*" *Educators and young children reminiscing and talking about the future*. Paper presented at the American Educational Research Association Annual Meeting, Washington, DC.

Andrews, R., Wyver, S., & Van Bergen, P. (2017, January). *Educator-child reminiscing presents new memory scaffolding opportunities in long day care centres*. Paper presented at the Society for Applied Research in Memory and Cognition Conference, Sydney, Australia.

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Chapter 1: Overview

> "What's a memory?" asked Wilfred Gordon …
>
> Wilfred called on Mrs. Jordan who played the organ. "What's a memory?" he asked. "Something warm, my child, something warm." …
>
> Wilfred called on Mr. Hoskin who told him scary stories. "What's a memory?" he asked? "Something from long ago, me lad, something from long ago." …
>
> Wilfred called on Miss Mitchell who walked with a wooden stick. "What's a memory?" he asked? "Something that makes you laugh, my darling, something that makes you laugh."
>
> Wilfred called on Mr. Drysdale who had a voice like a giant. "What's a memory?" he asked? "Something as precious as gold, young man, something as precious as gold."
>
> (Excerpt taken from *Wilfred Gordon McDonald Partridge* by Mem Fox, 1989)

Like parents, early childhood educators frequently reminisce with young children about the past and talk together about the future. This opportunity occurs because the majority of children in Western countries attend formal early childhood education centres in their years prior to school (McCartney, 2007). Early childhood educators can be either tertiary degree qualified, as early childhood teachers, or have a non-degree qualification such as a diploma in children's services. Collectively, these staff are usually referred to as educators. Educators in early childhood education are typically aware of the importance of engaging in conversations that are meaningful to children (Dickinson, Darrow, & Tinubu, 2008; Huntsman, 2008; Jovanovic, Brebner, Lawless, & Young, 2016; Kingston, Gates & Sammons, 2013; Sylva, Melhuish, Sammons, Siraj-Blatchford & Taggart, 2004). Despite the acknowledged importance of these educator conversations, research into how educators and children reminisce and talk about the future has lagged behind the extensive work on mother-child conversations. This thesis contributes to understanding of educator conversations with children by presenting the first empirical study of educator-child reminiscing and future talk.

The study presented in this thesis was conducted in seven early childhood long day care centres in Greater Metropolitan Sydney, Australia. Eighty-five educator-child dyads engaged in counterbalanced reminiscing and future talk conversations at two time points (time point 1 and time point 2). Each dyad discussed in total four events about the past and four events about the future. To determine how discussion style and content might vary according to the event itself, event temporal focus (past/future) and event type focus (novel/familiar) were each manipulated. Finally, to enable a comparison with mothers, a subsample of mother-child dyads (n = 42) also completed the same tasks. The children were recruited in two age groups: the younger age group (27–36 months) and the older age group (48–60 months).

1.1 The Importance of Reminiscing and Future Talk Conversations for Young Children

During the preschool years, young children develop the ability to reminisce with conversational partners about the past and to engage in talk about the future. For young children these conversations are facilitated by a more knowledgeable adult partner, typically the mother, who scaffolds both the structure and the content of the unfolding narrative (Fivush, 2011; Nelson & Fivush, 2004; Reese & Fivush, 1993). Nelson and Fivush's (2004) Sociocultural Developmental Model of Autobiographical Memory offers a lens through which these varied mother-child conversations can be analysed. The sociocultural theory accounts for a gradual emergence of autobiographical memories across the preschool years and explains individual differences in the understanding of *self*, as the young child learns to construct a timeline for personally experienced events (Haden, Ornstein, Rudek, & Cameron, 2009; Nelson & Fivush, 2004; Reese, 2009).

Together, conversational recall of the past and verbalisation of future intentions and possibilities with a parent, typically the mother, has been shown across 30 years of psychological research to facilitate cognitive and socioemotional development in young children (Fivush, 2011; Fivush & Fromhoff, 1998; Hudson, 2002; Nelson & Fivush, 2004; Reese, Haden, & Fivush, 1993). Furthermore, the research has established that reminiscing conversations with mothers are integral to the development of autobiographical memory in young children (Nelson & Fivush, 2004; Reese et al., 1993). Similarly, future talk conversations with mothers have been found to contribute to young children's abilities to plan for the future and to facilitate their understanding of temporal concepts (Hudson, 2002, 2006).

A strong body of research considering mother-child reminiscing (Farrant & Reese, 2000; Fivush & Fromhoff, 1998; Reese & Fivush, 1993; Reese et al., 1993; Taumoepeau & Reese, 2013; Van Bergen & Salmon, 2010) and a smaller body of work on future talk (Hayne, Gross, McNamee, Fitzgibbon, & Tustin, 2011; Hudson, 2002, 2004, 2006) shows individual differences in the level of support offered to children, and in the style and content of the support offered. These differences are associated with a number of differences in developmental outcomes.

In the case of reminiscing, particularly mother-child reminiscing, multiple positive outcomes emerge. For example, by discussing personally or culturally salient events that occurred in their past, young children become able to establish culturally relevant understandings that contribute to a development of self (Conway & Pleydell-Pearce, 2000; Fivush, Habermas, Waters, & Zaman, 2011; Fivush & Merrill, 2014; Reese, 2009). Reminiscing conversations also strengthen both the development of language skills and the development of autobiographical memory (Fivush, 2011; Hudson, 1990; Nelson & Fivush, 2004). Children not only have the opportunity to practice re-encoding the specific event;

they also learn to organise their subjective experiences in a coherent narrative form (Bauer & Fivush, 2010; Wareham & Salmon, 2006). In addition, by discussing the salient emotional aspects of the event, together with the mental states (for example, beliefs, desires, thoughts and memories) of those involved, benefits emerge for children's theory of mind (Kleinknecht & Beike, 2004; Taumoepeau & Reese, 2013). Use of mental state language (Rudek & Haden, 2005) and emotional competence (Bird & Reese, 2006; Van Bergen & Salmon, 2010; Van Bergen, Salmon, Dadds, & Allen, 2009) are also realised.

Concurrently, mental representations of future events, incorporating episodic foresight together with understandings of past events (Friedman, 2004; Hudson, Mayhew, & Prabhaker, 2011; Klein, 2013; Richmond & Pan, 2013) inform conversations about the future. Mother-child talk about the future has also been shown to offer children several developmental benefits. Such talk is associated with young children's elaboration and temporal judgment (Hudson, 2004) and understanding and use of future time concepts (Hudson, 2006). For example, with maternal talk that uses conventional time references and references to explicit event sequences, four-year-old children were able to provide more information responses in the future talk conversations (Hudson, 2004). Mother-child talk about the future also supports children's abilities to anticipate and plan for future possibilities (Hudson, 2002). Child talk about the future has also shown that young children are able to give accurate accounts of anticipated future events (Hayne et al., 2011). Finally, as children engage in opportunities to talk about the future, they develop more sophisticated underlying representations of future events (Hudson, Mayhew, & Prabhaker, 2011).

1.2 Early Childhood Educators Are Potential Reminiscing and Future Talk Conversational Partners

I note above that sociocultural research examining children's development of autobiographical memory focuses predominantly on how parents, especially mothers, scaffold children's contributions when discussing the past. Similar claims are made about the role of mothers in supporting children's discussions of the future (Hudson, 2006). However, sociocultural theory simply assumes a more competent partner, not necessarily a mother. Thus, there are multiple key adults within children's lives who can scaffold children's conversational contributions, including fathers (Reese & Fivush, 1993; Reese, Haden, & Fivush, 1996), grandparents (Gray, Mission, & Hayes, 2005) and educators (Brebner et al., 2015; Elicker & Fortner-Wood, 1995). For children enrolled in early childhood education centres, educators are significant adult figures with whom they have regular ongoing contact and share close emotional bonds (King & La Paro, 2015). Educators are also recognised as having a substantial influence on the learning and socioemotional development of young children (Huntsman, 2008; Sylva et al., 2004). Thus, there is a potential role that educators could play a role in facilitating autobiographical memory, reminiscing and future talk abilities in young children. Yet to date little research has examined this phenomenon.

The importance of quality conversations between educators and children has been established at national and international levels (Bateman; 2013; Burchinal et al., 2008; Carr, 2011; Siraj-Blatchford, Sylva, Muttock, Gilden, & Bell, 2002; Sylva, et al., 2004). Within Australia, the national Early Years Learning Framework (EYLF) document, *Belonging, Being and Becoming* (Australian Government Department of Education, Employment and Workplace Relations [DEEWR], 2009), actively encourages educators to extend and enrich children's learning through provision of high quality education and care.

The EYLF suggests that educators' curriculum decisions encompass, amongst other foci, communication, language, social and emotional development (Australian Government DEEWR, 2009). Thus, early childhood educators are directed through this mandated framework document to pay particular attention to children's developing socioemotional development. While it is not known how educators engage young children in conversations about the past and future specifically, educators, often in higher quality centres, nonetheless engage children in conversations and experiences that require planning, that extend across time and that benefit from reflection (Sylva, Taggart, Siraj-Blatchford, Totsika, Ereky-Stevens, Gildena, & Bell, 2007). Therefore, I conceive of a potential role for early childhood educators as influential reminiscing and future talk conversational partners.

There is nascent interest in the role of early childhood educators and young children's autobiographical memory development via reminiscing conversations (see Neale & Pino-Pasternak, 2016). However, there has been no research that has empirically investigated the role of early childhood educators in reminiscing and future talk conversations. In their review article, Neale and Pino-Pasternak (2016, para. 1) also propose that an "investigation into the role of reminiscing in early childhood settings is currently absent and potentially invaluable in furthering our understanding of early childhood practice and its impact on children's outcomes".

1.3 The Present Study

In this thesis, I extend the well-known sociocultural memory and reminiscing work with mothers and children by examining the way in which educators discuss past and future events with the young children in their care. I focus both on the extent to which each educator uses an elaborative style of speech, together with their inclusion of two kinds of content: temporal language and mental state language. Elaboration is the measure by which

successful reminiscing is determined (Fivush & Fromhoff, 1988; Reese & Fivush, 1993). A highly elaborative style is one in which the adult provides rich and detailed event information, focusing on meaningful topics and providing contextual statements and evaluations (Farrant & Reese, 2000; Fivush & Fromhoff, 1988). In contrast, a less elaborative style involves probing for specific information, providing little contextual information to support the child's knowledge for the event, and demonstrating a propensity to not follow the child's interest but rather to switch event topics (Fivush & Fromhoff, 1988; Reese et al., 1996). The small body of research into use of temporal language indicates the importance of this language in assisting the child to locate personally experienced events in the past, present or future, and to use and understand temporal concepts (Hudson, 2002, 2006; Wang et al., 2011). Use of temporal language also supports the child's abilities to plan for future possibilities (Hudson, 2002, 2006). Mental state language contributes to the conversational content in the form of references to remembering, thinking and knowing amongst other mental state terms and is integral to reminiscing and future talk conversations (Rudek & Haden, 2005), for example, "Do you remember…", "What do you think…?"

Figure 1.1 depicts the key components of the thesis. In particular, it indicates sociocultural theory as the overarching theoretical framework for the present study. It shows (with solid lines) the already established connections between sociocultural theory and autobiographical memory, reminiscing and future talk. It also suggests connections (with dashes) between sociocultural theory and episodic foresight and between episodic foresight and autobiographical memory. Finally, the style and content features—elaboration, temporal language and mental state language—are represented as linking to reminiscing and future talk.

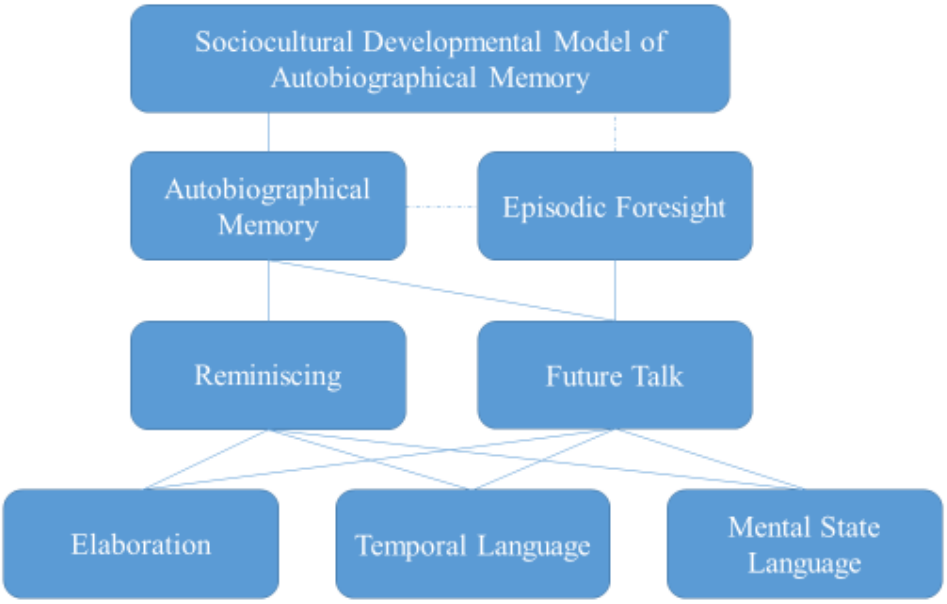


Figure 1.1. Overview of key components in the present study.

Key to the rationale for this study is the opportunity and pedagogical inclination that educators have to influence children's socioemotional and cognitive development in a number of ways via reminiscing and future talk conversations. This research into the role of educators will build upon the current developmental psychology research and extend into the discipline of early childhood, where it has the potential to advance knowledge and enhance practice in early childhood education. Consequently, the main aim for this research study was:

> To examine how educators interact with young children in reminiscing and future talk conversations.

Specifically, to fulfil this aim I examined conversations across events varying in event temporal focus (past/future) and event type focus (novel/familiar). I focused on educator elaboration, use of temporal language and use of mental state language. I also considered children's contributions of the same elements: elaboration, use of temporal language and use of mental state language. Finally, I compared educator and mother use of elaboration, temporal language and mental state language with the same child partners.

1.4 Structure of the Thesis

This thesis comprises seven chapters. In this chapter, the Overview, I have provided a brief rationale for the study. I described the importance of reminiscing and future talk conversations for young children and explained how early childhood educators have the opportunity to influence these conversations. I also stated the main aim for the thesis.

In Chapter 2, I present a detailed literature review. I describe the theoretical framework—the Sociocultural Developmental Model of Autobiographical Memory (Nelson & Fivush, 2004)—in greater detail; establish theoretical and empirical connections between reminiscing and future talk; and justify the focus in the thesis on educator elaboration, and use of temporal language and mental state language. Throughout these sections, I review the findings of reminiscing and future talk research conducted with young children and their parents. I present a more detailed account of the relevance of reminiscing and future talk research to the early childhood sector and the potential role of early childhood educators. I conclude with the research questions for the thesis.

In Chapter 3, I describe the study's method. This project involved one major study, and this chapter details the processes used to identify potential long day care centres, the recruitment strategies for participants, the demographic and other details of participants, and the measures used to assess children's language. All procedures, from nominating event topics for the educator-child and mother-child conversations, to the processes pertaining to the conversation recordings, are described in detail. The coding process and decisions for covariates are described and justified.

In Chapters 4, 5 and 6, I present the results of the study. Findings related to elaboration (Chapter 4), temporal language (Chapter 5) and mental state language (Chapter 6), are presented. Note that the research questions were purposely written with a generic stem. Then questions appearing at the beginning of each results chapter are framed so that

they are relevant to that chapter specifically. Each results chapter then presents the findings relating to the relationship between educator and child use of the relevant content (elaboration or temporal language or mental state language), educator use of the relevant content and a comparison between educator-child and mother-child use of the content.

The final chapter (Chapter 7) presents the discussion. This chapter integrates results from all three results chapters to characterise at a broader level the ways in which educators discuss past and future events with young children in their care. Implications for sociocultural theory and practical implications for educators are discussed. Finally, limitations to the study are addressed and conclusions drawn.

Chapter 2: Literature Review

2.1 Introduction

Research investigating the role of early childhood educators as reminiscing and future talk conversational partners with young children has the potential to advance sociocultural notions of memory scaffolding, to expand knowledge of children's developmental capabilities in the early childhood sector, and to enhance practice in early childhood education. Both reminiscing and future talk are conceptualised in this thesis as drawing on and strengthening autobiographical memory. Autobiographical memory comprises memories for personally experienced events that hold significance or importance (Bluck & Alea, 2009; Nelson & Fivush, 2004). Furthermore, autobiographical memory is recognised as developing through social interaction processes and cognitive developments that occur gradually over the preschool years (Fivush et al., 2006; Nelson & Fivush, 2004).

Contemporary research into autobiographical memory, reminiscing and future talk has investigated the role of parents, predominantly the influence of mothers as the social interaction partners (Fivush & Fromhoff, 1988; Kulkofsky, 2011; Reese et al. 1993; Taumoepeau & Reese; 2013). The social interaction of reminiscing involves the mother and child engaging in a conversation about a shared past event, whereas future talk involves the mother and child conversing about their prospective involvement in a future shared event. Thus, reminiscing and future talk are similar, in that both draw on autobiographical memory and both discuss events in time. Where they differ is in the timing of the event. For reminiscing, the event is already experienced, therefore drawing directly on autobiographical memory, whereas for future talk the event is yet-to-be-

experienced, hence partially using autobiographical memory or current knowledge as resources from which to speculate.

In this literature review, I analyse seminal and other relevant studies pertaining to maternal reminiscing and future talk. Integral to this discussion is an elucidation of Nelson and Fivush's (2004) Sociocultural Developmental Model of Autobiographical Memory. The theory posits sociocultural influences from parents as being integral in shaping young children's reminiscing abilities.

Central to a discussion of reminiscing and future talk is an understanding of what makes a conversation successful. I examine this in two ways: in terms of style, focusing on elaboration; and in terms of content, focusing on temporal language and mental state language. I justify why these components are likely to be relevant to high-quality conversations about the past and future; stating what is already known from the mother-child research.

Finally, I introduce the discipline of early childhood. Using sociocultural theory, I make an argument for the role of educators as potentially influential reminiscing and future talk partners. I explain educator pedagogies relating to young children's socioemotional and cognitive development, and discuss the importance of quality conversations between educators and children (Brebner et al., 2015; Dickinson et al., 2008), focusing in particular on *sustained shared thinking* (Siraj-Blatchford, 2009; Siraj-Blatchford et al., 2002; Sylva et al., 2004). Sustained shared thinking is a key process whereby educators work with children to engage in and construct enriched, meaningful conversations, and is widely recognised within the early childhood discipline as being of pedagogical importance (Siraj & Asani, 2015; Siraj-Blatchford & Sylva, 2004; Siraj-Blatchford et al., 2002; Sylva, Melhuish, Siraj-Blatchford, & Taggart, 2010). Despite this recognised importance of educator conversations, research into how educators and children reminisce and talk about

the future has not yet been explored, thus it is prudent to examine how educators interact with young children in reminiscing and future talk conversations.

2.2 Defining Autobiographical Memory and Episodic Foresight

Memory is not a singular phenomenon. Rather, it is made up of multiple systems with multiple components that operate both independently and in conjunction with each other (Baddeley, Eynensck, & Anderson, 2009; Gathercole, 1998; Tulving, 2002). Within long-term memory, different kinds of information are stored. Declarative memory is knowledge of facts or events that are stored and able to be consciously recalled or declared (Baddeley et al., 2009; Nelson & Fivush, 2004; Tulving, 2002), whereas non-declarative memory refers to processes, procedures and implicit influences that do not require conscious thought or recall but rather allows one to do things by rote (Baddeley et al., 2009). Of relevance to understanding autobiographical memory is declarative memory, in particular, both semantic memory and episodic memory. Semantic memory is an individual's established "knowledge-of-the-world", whereas episodic memory allows an individual, via mental time travel, to consciously re-experience their own previous experiences (Baddeley et al., 2009; Tulving, 2002, p. 5).

According to Tulving (2002), the mental time travel underpinning episodic memory is characterised by three features: "self, autonoetic awareness, and subjectively sensed time" (p. 5). Self refers to an individual's awareness of agency, uniqueness and continuity across time (Keller, Yovsi, Borke, Kärtner, Jensen, & Papaigoura, 2004; Miell, 1995). Autonoetic awareness (or autonoesis) is the sense that "I" or "myself" was present during the event, while subjectively sensed time is the process whereby an individual is active in recalling the past experience, together with the knowledge that "I" or "myself" participated in the past experience. Together, these elements are integral to autobiographical memory (Fivush et al., 2011; Nelson & Fivush, 2004). Autobiographical memory therefore includes

both episodic elements, in that experiences from the past are recalled with a sense of time and place, together with understandings of the self within those memories, and with specific semantic elements from an individual's "knowledge-of-the-world". As such, autobiographical memory encompasses more than single episodic memory moments; rather, it links subjectively created past events together into a personal life history narrative (Bluck & Alea, 2009; Fivush, 2011; Fivush et al., 2011; Fivush, et al., 2006). Additionally, the memories an individual recalls provide information about their preferences, interests and abilities and are, therefore, self-involved and personal. Due to the personalised nature of reminiscing, the theory accounts for individual variation in the development of autobiographical memory (Fivush et al., 2011; Nelson & Fivush, 2004).

2.3 Sociocultural Theory for the Development of Autobiographical Memory

Vygotsky's seminal theory of development designates that children's cognitive development occurs through interaction with other more learned societal members who utilise the intellectual, linguistic and cultural tools and practices within their culture (Vygotsky, 1930-1934/1978). Vygotsky further argued that children's cultural context facilitates the mastery of signs and tools. He determined that the most important of these is language, as language underpins the organisation and development of thinking and is therefore central in children's developing cognitive maturity. Rogoff (2003), a post-Vygotskian theorist, noted that as children participate in verbal social exchanges with a more learned partner they become able to internalise and adopt the skills that are being cultivated. Furthermore, Rogoff (2003) suggests that children learn like apprentices: gradually assuming higher levels of responsibility and functioning through participation in culturally specific activities.

Nelson and Fivush's (2004) sociocultural theory for the emergence of autobiographical memory draws upon post-Vygotskian philosophies. The theory recognises that a child develops gradually within a specific sociocultural context and suggests a dynamic process that incorporates personal histories and experiences, contextual influences, chronology of development and other temporal variations (Nelson, 2007; Nelson & Fivush, 2004). The theory suggests that as a child's linguistic and conversational skills develop they become able to engage in conversations with their caregivers, typically parents. These conversations subsequently facilitate the child's ability to compose an organised narrative. An organised narrative is a standard or accepted "linguistic form that specifies a sequence of actions and provides an explanatory framework for understanding an event" (Fivush, 2011, p. 561). So while specific events may already be retained in memory (encoded and consolidated at the time the event occurred), the theory further proposes that reminiscing (the narrative exchange with others) helps children to structure the event memories. Therefore, the child actually learns how to remember. This occurs through a process of re-encoding or reconstruction, with benefits for recall of that event and in the longer term, for recall of other events (Nelson & Fivush, 2004).

According to sociocultural theory, there are key developments that underpin and shape autobiographical memory. First is the development of self. Consistent with the notion that autobiographical memory is personally salient, this emergence evolves in part from a bourgeoning awareness of self where through social interactions and influences from the cultural context: the infant → child develops a sense of agency, uniqueness, self-continuity (an understanding that one exists across time and context) and reflexiveness (an awareness of one's own awareness) (Fivush et al., 2011; Nelson, 2007; Nelson & Fivush, 2004). This self function ensures the rememberer is able to develop and maintain a coherent sense of self by establishing a personal timeline (Bluck & Alea, 2009).

Second is development of language, which enables participation in reminiscing conversations about personally experienced past events. Language is a fundamental sociocultural tool in the development of an autobiographical memory system. The Vygotskian notion of development suggests that parent-child linguistic interactions facilitate in children an understanding of the forms and functions of talking about one's past (Fivush et al., 2006; Vygotsky, 1930-1934/1978). This skill of reminiscing is an integral component in the development of autobiographical memory. Furthermore, according to the theory, language does not just permit interactions, it also underpins the representations of memory and thought itself (Fivush et al., 2011; Nelson, 2007; Nelson & Fivush, 2004).

Third is the role of one's environment and experiences interacting with oneself. There are complex and diverse cultural, gender and individual differences in autobiographical memory across the preschool years and indeed the lifespan (Nelson & Fivush, 2004; Fivush, 2007). According to Bluck and Alea (2009), there too is an integral social function that enables one to share stories, develop intimacy and maintain social bonds. The theory also advocates that as the child reminisces about their personally experienced events, they adopt the practices of their conversational partner and learn to conform to the valued social norms within their environmental context (Fivush, 2011).

Figure 2.1 details the sociocultural theory for autobiographical memory. It depicts the links between reminiscing narratives and language development, cognition, understandings of representations of self, and semantic and episodic memory as integral components in the formation of an autobiographical memory. The figure also offers a key indicator in the role that future talk plays in the development of autobiographical memory. Conversations about the past and future clearly sit together as part of the exogenous process that involves young children using social interaction to create shared narratives

that focus on both past and prospective dimensions of time (see Figure 2.1). The sections that are highlighted indicate parts of the model that are important in my thesis.

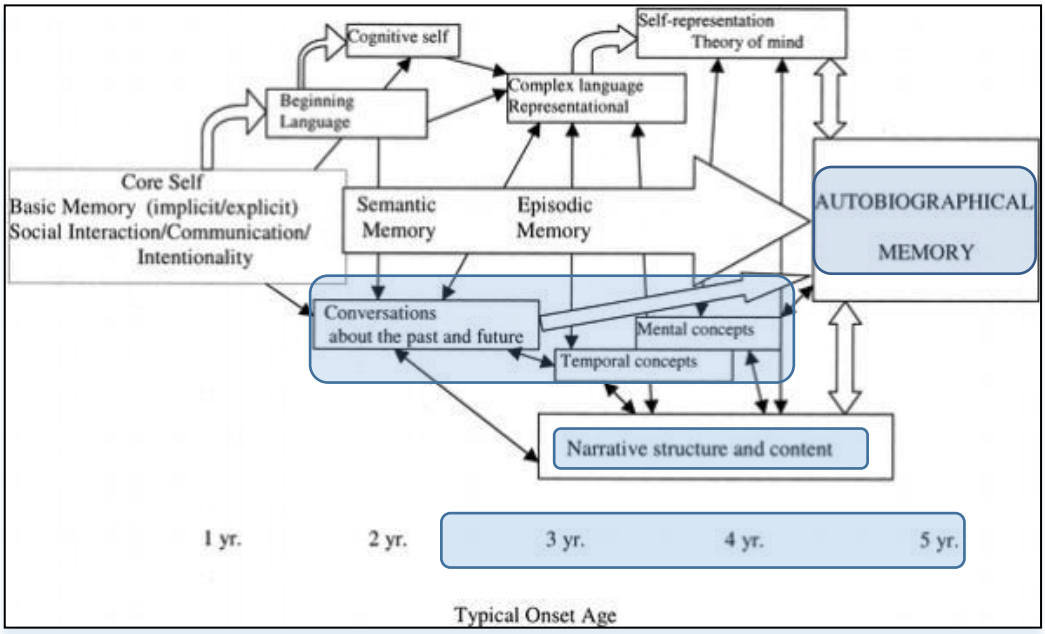


Figure 2.1. "Hypothetical relations in developments from 1 to 5 years of age leading to the emergence of autobiographical memory. Larger arrows indicate more direct influences; double-headed arrows indicate reciprocal influences. Years (yr.) in the bottom scale indicate approximate ages when influences come into play on average in normal development. Areas above the center are presumed to be more endogenous and those below more exogenous as sources of development" (Nelson & Fivush, 2004, p. 490). Reprint permission not required.

2.4 Episodic Foresight Aligned to Sociocultural Theory for Autobiographical Memory

While memory is largely attributed to the past, there is in contemporary research a recognition that humans also use information from the present and our prospective future to construct anticipated future autobiographical events that add to one's developing personal timeline (Hudson & Mayhew, 2011; Klein, 2013; Schacter, Addis, & Buckner, 2007). Hudson et al. (2011) define future thinking or episodic foresight as "the ability to project oneself into the future and mentally simulate situations and outcomes" (p. 95). Hudson et al. (2011) further explain that episodic foresight operates similarly to episodic memory in that it relates to thought about an event. Recall that episodic memory refers to

memory for past events, whereas episodic foresight is the ability to mentally anticipate future events (Hudson et al., 2011). Similar to the processes for memory for past events, when mentally time travelling forward to a specific anticipated event, there is some incorporation of semantic or general event knowledge or knowledge-of-the-world, but it is the understanding of the personalised nature of the events and the mental time travel that is key.

Although less research has been conducted on future talk there are similarities between autobiographical memory and future talk which suggest that similar scaffolding processes may occur for both. Thinking and reminiscing about the past, and thinking and talking about the future, first requires an individual to be aware of their own agency, uniqueness and continuity across time, and second, to also understand that the "I" or "myself" active in projecting into the future will be the same person who acts or participates in the future event (Howe, 2014; Hudson, 1990; Hudson et al., 2011). Thus, self, autonoetic awareness and subjectively sensed time are key components of autobiographical memory and episodic foresight.

Furthermore, according to Bluck and Alea (2009), there is a directive function in autobiographical memory in which memories of the past act as working models to guide future action. These memories then act as working models for what an individual self would do in the future (Fivush, 2007). Research into future thinking and future talk has determined that similar processes apply when mentally recalling past experiences and when thinking about future experiences (Hudson et al., 2011) because both utilise the episodic memory system (Tulving, 2002). Hence, there is support for an argument that emphasises continuity between autobiographical memory and episodic foresight expressed as future talk.

2.5 Language in Autobiographical Memory and Episodic Foresight

Remembering and knowing or thinking about the future are specific capabilities; the ability to talk about these thoughts via reminiscing and future talk incorporates additional skills. Autobiographical memory in the form of reminiscing and episodic foresight in the form of future talk both have their basis in language. Language, particularly, is important as it is implicit in the development of reminiscing and future talk conversations. In fact, Nelson and Fivush (2004) have identified that language is the key contributor to the way autobiographical memories are organised, evaluated and expressed. Their research, which focuses on very young children (at 18 months of age) reveals that for these toddlers, early recollections tend to focus on the immediate past and are "fleeting and fragmentary" (Nelson & Fivush, 2004, p. 492). However, as children develop and experience the language explosion at approximately 2 to 3 years of age, they become better equipped to provide verbal recollections, initially in response to specific questions or prompts and then in conversational exchange with an adult. They also learn to use language to evaluate and compose the key aspects of the event into a coherent narrative (Nelson & Fivush, 2004; Reese 1999; Reese, Haden, Baker-Ward, Bauer, Fivush, & Ornstein, 2011).

Studies that have considered the abilities of children to use their early verbal skills to narrate a memory that was created in the nonverbal period have noted that, even if the early experiences are remembered in behaviour, they do not become accessible for verbal recall as children develop more sophisticated language skills (Simcock & Hayne, 2003). It does not seem to be the case that language simply allows children to express what they remember. Rather, language itself actually supports the development of a verbally accessible autobiographical memory (Nelson & Fivush, 2004; Simcock & Hayne, 2002, 2003). In turn, language is implicit in talking about a personal future. Naturalistic, adult-child future talk conversations are likely to relate to the individuals talking, hence, they

refer to specific events in which the child will likely participate and require the child to respond to adult questions and contextual statements that orients the child's thinking to that of their own future intentions and personal timeline (Hudson et al., 2011).

Talking about the future requires young children to utilise their understanding of self and to draw on either their existing knowledge base or their imagination for events that they have not yet experienced and to develop knowledge of concepts of time (Friedman, 2004; Hudson, 2006; Hudson & Mayhew, 2011; Nelson & Fivush, 2004; Richmond & Pan, 2013; Suddendorf & Moore, 2011). Discourse about the future with a more learned conversational partner provides support for understanding of temporal concepts and enculturates children into pertinent understandings of self and cultural practice. These future talk social interactions, therefore, also support autobiographical memory.

2.6 Mother-Child Reminiscing

I have established that autobiographical memory in young children is facilitated via reminiscing with a more skilled and knowledgeable adult conversational partner who assists the child to organise their memories and to represent these in a cohesive narrative (Fivush, 2011; Fivush et al., 2011). I now build on this, drawing on sociocultural theory to discuss the elements of style and content of reminiscing conversations that best scaffold children's contributions. Maternal reminiscing begins with the social interaction—it is a bidirectional process whereby mother and child work together to mutually influence and accommodate each other as they talk about a shared past event (Fivush et al., 2006). Through the mother-child reminiscing conversations, a child learns to construct in their own words, a coherent, culturally relevant narrative that adopts and follows appropriate social norms (Fivush & Merrill, 2014). The child learns to recognise that the event is significantly interesting to recall, to express the salient points of the event and to include emotions, self-agency and the actions of others (Bird & Reese, 2006; Reese, Bird, & Tripp,

2007; Van Bergen & Salmon, 2010). Extensive research conducted over the last three decades has also analysed mother-child interactions, conversation and questioning styles to determine the impact on their children's development of autobiographical memories, particularly narrative elaboration style and content including mental state language and emotion knowledge (Coppola, Ponzetti, & Vaughn, 2014; Farrant & Reese, 2000; Fivush, 2011; Fivush & Fromhoff, 1988; Fivush, et al., 2006; Fivush & Nelson, 2006; Kulkofsky & Koh, 2009; Larkina & Bauer, 2010; Leyva, Reese, Grolnick, & Price, 2009; McDonald & Hayne, 1996; Peterson & McCabe, 1992; Reese & Fivush, 1993; Reese & Newcombe, 2007, Van Bergen & Salmon, 2010).

2.6.1 Elaboration in mother-child reminiscing conversations.

Mothers' narrative elaboration style or reminiscing style is measured on the dimension of elaboration. Styles can be measured either as a high elaborative style or as a low elaborative style. While mothers can, at various times, use elements of both the high and low elaborative styles, generally mothers show a predilection for predominantly using one style (Kulkofsky, 2011; Nelson & Fivush, 2004; Reese & Fivush, 1993). Mothers who use a high elaborative reminiscing style talk frequently about the past; providing rich and detailed event information and incorporate into their discussion elements about the event that are personally meaningful for their child. Furthermore, to provide this rich and embellished information they utilise open-ended questions, contextual statements that add new information and evaluative feedback to actively encourage their child to co-construct a coherent narrative about the past (Fivush et al., 2006). Elaborative mothers not only encourage their child to participate in the conversation, they overtly scaffold the child to co-construct the narrative (Fivush, 2011; Fivush et al., 2006; Reese & Fivush, 1993). Highly elaborative mothers are not simply more talkative across various contexts; rather,

the kinds of information they offer and the opportunities they present to children are also different (Fivush et al., 2011; Fivush et al., 2006; Kulkofsky, 2011).

In contrast, mothers who utilise a low elaborative style tend to include less detail in their own contribution and they tend to structure the narrative in a way that is not easily accessible for the child, for example, they provide fewer contextual details and fewer invitations for the child to contribute. Frequently, when the child does not respond correctly or appears to not remember, low elaborative mothers tend to ask the same question repeatedly in a bid to force the child to remember a particular detail. Overall, low elaborative mothers tend to not talk about the past as frequently as highly elaborative mothers (Fivush et al., 2011; Fivush et al., 2006; Kulkofsky, 2011; Reese & Fivush, 1993).

The following transcripts, from an early study by Fivush and Fromhoff (1988), show examples of the high and low elaboration styles of two mothers and their 2.5-year-old children. Note that at the time of research, Fivush and Fromhoff (1998) referred to a high information group now identified as having a high elaborative style and a low information group now known as having a low elaboration style. First, the low elaboration style:

Mother: *Do you remember last Christmas?*

Child: *Last Christmas.*

Mother: *What did you get for Christmas? Do you remember?*

Child: *What?*

Mother: *You can't remember anything. How about a dump truck? Do you remember the dump truck?*

Child: *Yeah.*

Mother: *What else did you get?*

Child: *What did I get?*

Mother: *Do you remember going to the circus?* (p. 346)

In this example, note that the mother asks a number of questions and when the child fails to contribute to the content of the conversation, rather than try to scaffold the child's memory for the event she switches topic.

This second example is of the high elaborative style, again from the work of Fivush and Fromhoff (1988), and similarly is of a mother and her 2.5-year-old child:

Mother: *Do you remember what Auntie Elizabeth brought you that day when you saw brother for the very first time? Do you remember what she brought you?*

Child: *Yeah.*

Mother: *Your most favorite thing in the whole world? Your favorite friend. Who is it?*

Child: *Baby Dillon* (her brother).

Mother: *Baby Dillon? Is that who your most favorite friend is?*

Child: *Yeah.*

Mother: *That's real special. I was talking about something that's furry and brown and real soft.*

Child: *Yeah.*

Mother: *It was the first time you got your…?*

Child: *Yeah.*

Mother: *Who do you sleep with every night?*

Child: *Teddy bear*.

Mother: *That's right.* (p. 346)

In this example, the mother actively works to support the child's memory for the event by asking questions, and providing contextual statements and additional salient information to assist the child to remember.

Some research has also found tentative links between mothers who use an elaborative style and the tendency to also include more talk about emotions when reminiscing (Van Bergen & Salmon, 2010). This type of talk also inherently contains

references to mental state language. This example from the work of Salmon and Reese (2016) shows this elaborative emotion-laden reminiscing style of a mother when in conversation with her 3.5-year-old child:

Mother: *What was the first thing he* (the barber) *did?*

Child: *Bzzzz* (running his hand over his head).

Mother: *He used the clippers, and I think you liked the clippers. And you know how I know? Because you were smiling.*

Child: *Because they were tickling.*

Mother: *They were tickling, is that how they felt? Did they feel scratchy?*

Child: *No.*

Mother: *And after the clippers, what did he use then?*

Child: *The spray.*

Mother: *Yes. Why did he use the spray?*

Child: (silent)

Mother: *He used the spray to tidy your hair. And I noticed that you closed your eyes, and I thought "Jesse's feeling a little bit scared," but you didn't move or cry and I thought you were being very brave.* (pp. 233-234)

This mother has both scaffolded her child's contributions to the memory conversation and she has used emotion labels to describe her child's reaction to having his haircut. In doing so, her talk contains references to mental state language: "I think", "you know how I know" and "I thought" as she skilfully orientates the child. Salmon and Reese (2016) suggest that as children are exposed to their mother's reminiscing style over time, children will also learn to construct personalised narratives of their memories in this elaborative, affect-ladened way. Research indicates that children come to adopt the culturally relevant and personalised styles of their mothers (Fivush, 2011; Fivush & Merrill, 2014).

2.6.2 First understandings of mother-child reminiscing conversations.

The maternal elaboration style that a child is exposed to is believed to have a strong influence on their autobiographical memory skills (Fivush et al., 2011; Fivush et al., 2006; Fivush & Fromhoff, 1988; Reese & Fivush, 1993). The following key studies highlight the first understandings of elaboration and the pervasive influence it has on autobiographical memory.

In the early study introduced previously, Fivush and Fromhoff (1988) investigated how 10 mothers structured conversations about the past with their 30–35 month old children. The nature and number of topics for the memory conversations were determined by each mother. All but one dyad participated in a home based mother–child interview, with the interview of the other dyad occurring at a university laboratory. The conversations between each mother and child were audio recorded for later transcribing and coding, while nonverbal behaviours were noted by a female researcher. Utilising two coding schemes, Fivush and Fromhoff (1988) determined a number of differences in the way the mothers structured their conversations. Initially, they allocated the conversational questions and statements made by the mother into one of four categories: memory questions, yes/no questions, contextual statements and evaluations. Subsequently, in a second wave of coding, they determined the relationships between the mothers' questions and the children's utterances. Mothers' questions were allocated another code that was determined by whether they asked the question as a repetition, an elaboration or a follow-on. In addition, the mothers' questions were coded as no response, response or memory response against the child's previous utterance. A final coding scheme focused on the remaining mother and child utterances allocating these to one of five categories: location, person, object, activity or descriptives.

The findings revealed a distribution between two reminiscing styles. The researchers, using a median split, created two groups: a high information group and a low information group. Fivush and Fromhoff (1988) subsequently came to identify these groups as utilising two different conversational styles when discussing past events. The high information group, identified as using an elaborative reminiscing style, comprised mothers who were more likely to ask more questions, to persist in asking varied questions, and by way of their own contribution, to provide a high level of detail in their description of the event. Conversely, the low information group, identified as having a repetitive reminiscing style, were mothers who asked less questions, were either likely to repeat previous questions, and/or were less likely to persist in questioning on a particular topic and therefore tended to provide "correct" answers for their child and to switch topics. Overall, the repetitive style group included less detail in their reminiscing.

When examining children's recall, Fivush and Fromhoff (1988) noted that the children with mothers who were more elaborative in their reminiscing style showed better autobiographical memory skills as these children recalled significantly more detail about each topic when compared to the other children. In conclusion, the researchers suggested that the descriptive information offered by the elaborative mothers provided their child with reasons as to why the event was worthwhile to remember, in addition to the detailed memory cues (Fivush & Fromhoff, 1988).

With the benefit of hindsight from three decades of research on this topic, some limitations of this early study by Fivush and Fromhoff (1988) can be reported. There was evident disparity between the number and type of events discussed in the memory conversations as this aspect of the study was determined by the participants. Subsequent studies have controlled for the number of events discussed. Also, there was no assessment made of children's language, thus there is no measure by which to examine the extent to

which individual children's language skills contributed to their capacity to engage in conversation or recall information. Regardless, this early investigation into maternal reminiscing style has had a foundational influence on subsequent research in this field.

Peterson and McCabe (1992), and Reese and Fivush (1993), also conducted early research into parent conversational styles, with the later study being one of the few to date that has investigated the influence of fathers. Reese and Fivush (1993) examined the conversational styles of 24 children (aged 40 months) and their parents—both mothers and fathers—across two home visits. The researchers assisted the parents to select as topics, events in which they had participated with their child. Parameters were set around appropriate onetime events that lasted no longer than a day. Those not considered appropriate and therefore discouraged as topics, were events lasting more than one day such as family holidays and activities involving a storyline such as going to the movies. The parent and child were encouraged to discuss the events freely and their conversations were audio recorded, without the presence of the researcher. Parents, independent of gender and of the reminiscing style of their spouse, were found to display two distinct styles when talking about the past; identified in this study as elaborative and repetitive (Reese & Fivush, 1993). Consistent with previous research, the elaborative parents engaged children in longer conversations about events and actively extended topics to assist the children to develop a cohesive narrative. The repetitive parents engaged their children in shorter conversations and provided less narrative structure. This early study further helped to establish clear definitions for high and low elaboration.

The research of Peterson and McCabe (1992) contributed to the understanding of the importance of the mother's questioning style. They purposely selected two mothers who exemplified the elaborative style to participate in their research. The focus of their study was on the effect of maternal question style on children's narrative structure and content.

One mother focused on context, through the use of *wh*- questions, which ask who, what, when, where and why, and the other mother reinforced event elaboration. The findings of Peterson and McCabe (1992) show that the mother who focused on event elaboration facilitated in her child an ability to competently structure a narrative that is "rich in elaborative detail and contextual description", whereas the child whose mother focused on contextual information developed the ability to embed specific detail within her narratives (p. 318).

Following on from this, a correlational study by Reese and Brown (2000) investigated the differences in memory information provided by children aged 40 months (n = 20) and 58 months (n = 20) when engaged in different conversational styles. The styles were identified as reminiscing or the discussion of shared experiences and recounting which involved discussion of unshared experiences between the mother and child dyad. The overall findings showed that regardless of age, both groups of children provided more unique memory information when recounting than when reminiscing. Closer evaluation of the Reese and Brown findings shows that when reminiscing, maternal elaborations and evaluations, and repetitions (to a smaller degree), were associated with children recalling more unique memory information. When recounting, those mothers who asked more elaborative questions and evaluated their children's responses, also had children who contributed more new memory information to the narrative.

The conversational coding used by Reese and Brown (2000) was adapted from previous studies and utilised seven categories: maternal elaborations, maternal repetitions, maternal evaluations, children's memory, children's evaluations, children's off topic talk and other utterances. Maternal elaborations had sub-categories for memory-question elaborations, yes-no elaborations and statement elaborations, and children's memory was also sub-categorised into memory responses and memory placeholders. This coding system

breaks down the mother–child narrative into multiple units for analysis; interestingly, later research (Van Bergen et al., 2009) has noted variation is needed in the application of some sub-categories such as yes-no questions and whether these should be categorised as high or low elaborative utterances.

Farrant and Reese (2000) longitudinally investigated mother and child dyads, when the children were aged 19, 25, 32 and 40 months, for verbal memory and maternal reminiscing style. They determined that both variables were correlated to the children's language abilities. They further determined that mothers, through their engagement in memory conversations and because they tended to direct these conversations by mediating both their own and their children's contributions, play an important role in the development of children's autobiographical memory. A second aspect of the research involved the researchers conversing with the children at ages 25, 32 and 40 months on topics pre-selected by the mothers so as to determine (once researcher prompts were accounted for) how much unique memory information the children contributed.

Regarding event selection—that is, the topics to be discussed as part of the memory conversations—mothers were instructed to nominate and then use events that they had participated in with their child, events that were limited to one day, events that were not routine, and to not use events such as movies that have an inherent storyline (Farrant & Reese, 2000). In the separate session when the researcher engaged in conversation with the child, mothers again nominated events and also four cues for events that the researcher could use to prompt the child. In addition, the researcher used generic conversation fillers to facilitate the memory conversation.

The coding used in this study is similar to that of Reese and Brown (2000). Farrant and Reese (2000) used maternal memory conversation codes for elaborations, repetitions and confirmations, with elaborations sub-categorised as memory question elaborations,

yes-no question elaborations and statement elaborations. Child memory conversation codes used were: memory elaboration, memory repetitions, memory placeholders and off-topic talk. Other aspects of the conversations, while coded, were not used in analyses. The analysis revealed that children mediated their mothers' responses, insofar as their participation in conversations with age appropriate verbal comments, and attention to the mothers' comments at an earlier age (19 months), encouraged those mothers to be more elaborative in their questioning across time. In alignment with mothers' memory question elaborations increasing across time from when the children were 19 months to 40 months, so too did the children's memory elaborations, particularly for girls, who provided more memory elaborations than did the boys (notably so at 25 months) (Farrant & Reese, 2000). In conjunction with this, children from 32 months of age were noted to establish a "shared memory style" with their mothers and to later use this reminiscing style in their independent memory conversations (Farrant & Reese, 2000, p. 218). This raises questions as to whether children will use their established shared memory style with their educator or whether they will extend upon this style or perhaps even use a different style when participating in memory conversations with their educators.

One criticism of the work on elaboration as scaffolding children's narrative and memory skills might be that elaboration is described as being child sensitive, yet it is really the child sensitiveness and support for the child's autonomy that is important, rather than the specific linguistic techniques used. Nevertheless, in studies where elaboration techniques have been considered independently of autonomy support, elaboration remains a significant predictor of children's contributions. Larkina and Bauer (2010) assessed the nonverbal affective and behavioural support given by 30 mothers to their 4-year-old children during reminiscing conversations. Specifically, they considered emotional attunement, enthusiasm and timing of maternal responsiveness. Over two sessions the

children participated in reminiscing conversations with their mother, a language assessment, and a memory conversation with a researcher. Maternal affirmations were determined to be strongly associated with children's narrative contributions. The findings for the affective and behavioural qualities of maternal support were determined via a regression analysis. The researchers entered affirmations, supportive presence, respect for autonomy, structure and limit, quality of instruction entered as predictors and maternal support as dependent variables. While only autonomy support, that is, "the degree to which the mother's actions acknowledge the validity of the child's perspective and individuality", was a significant predictor of children's contributions during prompted recall, both autonomy support and elaboration were independent predictors of children's contributions during free recall (Larkina & Bauer, 2010, p. 315). Thus, independent of child sensitivity, elaboration style itself still predicts children's contributions during reminiscing.

2.6.3 Intervention programs for mothers.

While the majority of parent-child reminiscing research is focused on associations between mothers' elaborative reminiscing styles and children's skills for narrating autobiographical memories, a handful of researchers have also investigated the efficiency of intervention programs for mothers (Reese & Newcombe, 2007; Van Bergen et al, 2009). This is important because such studies provide evidence of a causal relationship. There have also been a small number of experimental studies aimed at establishing causal links between elaboration and children's memory (McGuigan & Salmon, 2004; Salmon, Mewton, Pipe, & McDonald, 2011; Van Bergen & Salmon, 2010). These experimental studies complement the intervention studies.

In the first intervention study of its kind, Reese and Newcombe (2007) investigated the conversational memory skills of 100 children and their parents. Reese and Newcombe ascertained a baseline for maternal reminiscing style, children's language and children's

self-awareness at the pre-test at 19 months of age. Allocation to the experimental group was done at random after controlling for the education levels of mothers. The experimental group of mothers received training in elaborative reminiscing, and later Reese and Newcombe assessed the children's memory abilities at 30 months of age and their memory and narrative skills at 42 months of age. The training instruction sheet requested mothers talk about the past with their children, offered advice on topics and suggested techniques for facilitating the memory conversations. The findings show that trained mothers, when compared to the untrained mothers, became more elaborative in their reminiscing style (Reese & Newcombe, 2007), and similarly to the findings of Farrant and Reese (2000), that the children with the more elaborative mothers offered more memory information and were more responsive during the memory conversations than the children in the control group. The authors noted that using maternal judgments to ascertain children's accuracy in recall was a constraint as adults too have limitations in their memory capacity. Therefore maternal judgements should be considered "as "converging perspectives" on an event instead of objective accuracy (cf. Fivush & Schwarzmueller, 1998)" (Reese and Newcombe, 2007, p.1168). This constraint could be overcome by using a mother-child recall event and an educator-child recall event, which will be described later.

Extending the findings of Reese and Newcombe (2007), Van Bergen et al. (2009) also researched the potential benefits to young children of training their mothers in elaborative reminiscing. Their focus was twofold: first, to train mothers to increase their high-elaborative utterances by asking *wh*- questions, using detailed descriptions and emotion content during reminiscing; and second, to assess the effects of training on the children's conversational style, memory reports and emotion knowledge (Van Bergen et al., 2009). The instructional tools for the first session consisted of a training video, a training booklet and feedback from the researcher on the mother's interactional style.

Mothers were also asked to practice and record their interactional style between the three follow up sessions. The control group also participated in a form of training that enabled the same sensitivity to child directed play but did not focus on talk at all.

Forty-four mother–child dyads with children aged 3–5 years completed the training and follow up components of the study. Mothers who participated in the elaboration and emotion content training component of the study increased their high elaborative utterances and emotion references and noted this effect to continue for six months post training. Van Bergen at al. (2009) specifically instructed mothers when reminiscing not to repeat questions but rather to add additional information by building on the children's descriptions. This seems to have been a valuable component as the training did not result in increased maternal repetitions which, as Van Bergen et al. (2009) noted, can have a negative impact on children's memory recall. Consequently, children in the reminiscing group were also noted to include more high elaborative utterances and emotion references in the memory conversations and to also perform highly when tested on emotion cause knowledge. One constraint noted by the researchers was the requirement for parents and children to attend a university based laboratory. Conducting research in the participant's homes or the early childhood centres that parents regularly access for their children would overcome this constraint.

2.6.4 Temporal language in mother-child reminiscing conversations.

In addition to reminiscing style, reminiscing content is also important when talking about the past. Two key content components relevant to the current study are temporal language and mental state language. The present study is investigating both reminiscing and future talk, and so consideration of use of temporal language will develop understanding of the use of temporal language in conversations about both past and future events (Hudson, 2002). Furthermore, use of mental state language is also important in the

development of metacognition (Rudek & Haden, 2005; Taumoepeau & Ruffman, 2006, 2008; Wang, Doan, & Song, 2010). First though, I consider temporal language as part of reminiscing conversations.

Temporal language with reminiscing conversations has been given somewhat negligible attention. By nature of the fact that reminiscing is about a past event, it is expected that the language used in reminiscing conversations will include past references. A review of the reminiscing literature revealed no dedicated focus on temporal language. Fivush et al. (2006), in their review article, discuss event talk and propose that event talk that occurs prior to and during the event may facilitate the children's memory for that event. However, the few studies (McGuigan & Salmon, 2004) that have considered this have not examined temporal language but rather focused on the detail of the timing of the event talk and children's associated recall and elaborative talk about the event. There has not been a focus on the temporality of the language used by mothers or children. The findings regarding whether pre-event, during event and post-event talk enhances children's memory for the event, show that children benefit from immediate post-event talk as this aides in confirming memory of the event (McGuigan & Salmon, 2004). Furthermore, Fivush (2011) comments in her later review, "we know remarkably little about the development of children's concept of time" (p. 573). Consequently, understanding of temporal language use in reminiscing conversations is an area of research that should be pursued.

From a different perspective (and not about reminiscing conversations per se), Busby-Grant and Suddendorf (2011) investigated 3-, 4-, and 5-year-old Australian children's production of temporal terms. They asked parents to complete a questionnaire titled *Children's talk about time: A questionnaire for parents*. Parents were to record their children's use of a supplied list of 18 temporal terms. Parents reported that children used *now, today, later* and *soon* and the *when I was little* and *when I get bigger* correctly at 3

years of age. The use of these phrases is relevant to this review as this indicates that at 3 years children are able to demonstrate some understanding of a mental timeline that they existed in the past *when they were little* and that they will exist in the future *when they are bigger*. Other terms such as *before* and *after* were used from 3 years of age but not always with accuracy. This was the same for *yesterday, tomorrow, minutes, hours* and *days of the week* and *months of the year*. Busby-Grant and Suddendorf (2011) report a gradual increase in proficiency across the preschool years in children's use of temporal terms.

2.6.5 Mental state language in mother-child reminiscing conversations.

Mental state language references are intrinsic to mother-child reminiscing conversations, as reminiscing is memory for personally experienced events (Fivush et al., 2006; Nelson & Fivush, 2004, Taumoepeau & Reese, 2013). Recall Nelson and Fivush's (2004) account of the development of autobiographical memory, in particular Figure 2.1, introduced earlier. The figure suggests that mental concepts are connected to children's narrative structure and content stemming from the reminiscing conversations as well as from the more endogenous areas of complex representational language including self-representation and theory of mind. A part of self-representation is to form evaluations of the self (Nelson & Fivush, 2004). Initially, these self-representations focus on observable features including physical (e.g., "I am tall"), social (e.g., "I'm kind") and psychological attributes (e.g., "I'm happy") (Wang et al., 2010). However, as reminiscing conversations begin to include discussions on what the child feels and why, this naturally leads to mental state language. The concepts of remembering, knowing, thinking, guessing, believing, wondering, wishing and hoping are all mental state capacities (Rudek & Haden, 2005).

Rudek and Haden (2005) investigated both mother and child use of mental state language in mother-child reminiscing conversations as part of a larger longitudinal study. Twenty-one dyads from middle class European American two-parent families participated.

The children were, on average, 30 months of age at the first session and 42 months of age at the second session. During the first session, the mothers talked to their children about three past events that the mothers had previously nominated as being recent experiences that had occurred once only. Examples included trips to the zoo or park or visiting grandparents. Transcripts were coded for mental state language and elaboration. Examples of mental state terms included: *know, think, remember, mean, forget, guess, pretend, want, hope, wonder, wish, bet, might, figure, believe, understand, suppose* and *mind*. If an utterance was both elaborative and a mental state term, it was coded as such. The children also completed a language assessment using the MacArthur Communicative Developmental Inventory (Rudek & Haden 2005).

At the second session, the object memory task was administered individually to elicit the children's memory for 12 objects. The 12 objects were familiar and unfamiliar such as a block, crayon and a toy watch. Each child was asked to remember the objects and allocated two minutes in which to do so. The objects were hidden and the researcher elicited the children's recall for the objects by asking for the names of the items under the cloth and by using prompts such as "what else?" to encourage more responses.

Mothers were noted to be consistent in their mental state language use at both sessions. Mothers also referred to their child's mental state more often than their own. Children, however, increased in their use of mental state language from the first to the second session, and tended to refer to their own mental states before that of others. Correlations showed that children whose mothers used more mental state terms tended to use more mental state terms when reminiscing. In terms of the object memory task, those children exposed to maternal mental state language at 30 months of age employed more sophisticated memory strategies than their counterparts. Rudek and Haden (2005) suggest that a potential limitation from using a unified sample might actually be a benefit, as

socioeconomic status and culture are useful variables to control. Extending this style of research to other cultural and socioeconomic backgrounds would enhance generalisability.

There is also evidence for links between mother-child conversations about mental states and emotions (Goodvin & Romdall; 2013; Laible; 2011; Van Bergen et al., 2009). The work of Laible (2011) and Goodvin and Romdall (2013) focused on the relationship between reminiscing and a range of emotion attributes. As the early studies had effectively established a solid knowledge base on the importance of maternal reminiscing and its beneficial association to children's developing autobiographical memory, these studies are typical of the areas where contemporary autobiographical memory researchers have extended their focus.

Laible (2011) investigated the impact of mother-child reminiscing about positive and negative events and how the reminiscing conversations were associated with mother reported attachment, the overall family emotional climate, and the child's socioemotional development. Fifty mother-child dyads participated in the study, with the majority being white middle class North American (84%) and the remaining 16% being minority groups. The participants attended a laboratory to engage in the reminiscing conversations, and at a later time, mothers were supported to complete questionnaires to determine attachment status and the emotional climate of each family. Each dyad reminisced about two past experiences: one emotionally positive and the other emotionally negative. Mothers were given the choice to nominate which event they spoke about first and 86% elected to discuss the positive event before the negative event. Generally, the dyad made more conversational contributions to the discussion about the positive event. However, mothers were more likely to discuss emotion causes and to confirm their child's negative emotions in the negative event conversation when, conversely, children discussed emotion causes more frequently in positive event conversations. Attachment security and family warmth were

associated with high levels of maternal elaboration and greater affective quality in the discussion across both event types.

While Laible (2011) focused on reminiscing about both positive and negative events, Goodvin and Romdall (2013) focused on reminiscing that incorporated solely negative emotions. They used mother-child reminiscing conversations to consider negative emotion regulation, coping and self-concept in 60 young children aged 4 to 5 years. The demographic status of participants was largely white (approximately 84%), with minorities again comprising the remainder. Researchers visited children in their own homes, where mother-child reminiscing conversations were recorded. At this time, mothers were asked to complete a questionnaire related to child coping at a later time point and to return this to the laboratory. Each child also completed a self-coping questionnaire supported by a researcher, and teachers at the child's preschool completed the same measure as the mothers' reporting on their children's coping skills. Reminiscing conversations were each coded for emotion references and the context of emotion talk. Overall, Goodvin and Romdall (2013) concluded that reminiscing conversations reflect child self-concept and emotion coping strategies, particularly venting and support seeking.

The development of theory of mind and references to metal state language in reminiscing conversations has also been investigated (Taumoepeau & Reese, 2013; Taumoepeau & Ruffman, 2006, 2008). Following 102 mother-child participants, who had originally participated in a maternal elaborative reminiscing training program, Taumoepeau and Reese (2013) found that maternal mental state language use was positively correlated with children's performance on the post-test 2 theory of mind assessment. There was an ameliorating effect from the training of mothers in elaborative reminiscing. Children with initially lower scores on the theory of mind assessments at post-test 1 were found to improve their performance at post-test 2—if their mothers received

training to improve their performance—to a level equal to that of their initially better performing peers. Taumoepeau and Reese (2013) found that maternal mental state language did not contribute to children's theory of mind within the context of reminiscing after accounting for maternal elaborations; they suggest this is because they did not examine mental state language separately for elaborative and non-elaborative phrases. However, findings for mental state language and children's theory of mind are equivocal—other researchers such as Ontai and Thompson (2008) have found elaborative questioning to be effective, and as discussed earlier, Van Bergen et al. (2009) and Taumpeomeau and Reese (2006), while not specifically examining theory of mind, found that elaborative reminiscing facilitated children's emotional understanding.

Mental state language plays an important role in mother-child reminiscing conversations as it builds other capacities including emotion knowledge. While there has been research into teacher use of mental state language in early childhood education and care services (King & La Paro, 2010; Misailidi, Papoudi & Brouzos, 2013), this thesis will specifically investigate educator use of mental state language in reminiscing and future talk conversations.

2.7 Mother-Child Future Talk

Just as reminiscing has been shown to have benefits for children's understanding of the past, it is possible that future talk will benefit children's understanding of the future. The focus thus far has been on reminiscing, for which there is an abundance of research. Now the attention turns to future talk which is an emerging area of investigation.

Maternal-child conversations are multifaceted, incorporating not just reminiscing about the past but talk about the present and into the future as well. As suggested previously, this skill of talking about the future is an essential part of development, as by nature, humans do not live solely in the present or past. Rather, they need to be able to

project themselves forward in time, and to consider, think about and plan for future events, states and needs (Friedman, 2004). This process is identified as a form of mental time travel and requires the specific ability of "episodic foresight" (Hudson et al., 2011, p. 96). Episodic foresight, like episodic memory, involves autonoetic awareness, that is, the feeling and knowledge that oneself is mentally travelling or forecasting into the future (Atance & Jackson, 2009; Atance & O'Neill, 2001; Klein, 2013). In order to be able to undertake mental time travel, children need to draw on their existing knowledge base of events or they must be able to utilise their imagination for events that they have not yet experienced (Atance & Meltzoff, 2005; Klein, 2013). They also need to use their understanding of self and to develop temporal judgment (Hudson & Mayhew, 2011; Suddendorf, 2010), and to gain knowledge of future time concepts (Hudson, 2006).

The skills of mental time travel—understanding of a self that exists in the past, present and future—temporal judgement and talking using temporal concepts, are not attained in isolation but rather through a sociocultural social communicative process whereby children are enculturated into relevant practices, beliefs and understandings by a more learned conversational partner—nominally in the research, the mother (Fivush, 2011; Hudson, 2002, 2004, 2006; Hudson & Mayhew, 2011; Nelson & Fivush, 2004). This is the same sociocultural process as in reminiscing research. There is a considerable volume of research that has considered children's knowledge of the future but fewer studies have specifically focused on future talk (see Hudson, 2002, 2004, 2006 for exceptions). Below I review what is known about mother-child conversations about the future, drawing connections between reminiscing and future talk where relevant. However, I begin with an introduction to episodic future thinking, otherwise labelled as episodic foresight.

2.7.1 Episodic future thinking or episodic foresight.

Episodic future thinking or episodic foresight is enmeshed with future talk. The reasoning for this is that when a sociocultural perspective is applied, language underpins the organisation and development of thinking (Vygotsky,1930-1934/1978). Thus, future talk and future thinking or episodic foresight are mutually accommodating—they emerge and coexist together.

A number of studies have investigated episodic future thinking and its relationship to episodic memory, temporal order and reasoning (Hayne et al., 2011; Hudson & Mayhew, 2011; McCormack & Handley, 2011; Prabhakar & Hudson, 2014; Richmond & Pan, 2013). In one such study, Hayne et al. (2011) interviewed 24 New Zealander mothers of predominantly European descent to gather information about past, imminent and future events that an experimenter could discuss with their respective children. Mothers also supplied a number of photographs of their child—one for each year of their life; for example, the parents of 5-year-old children supplied five photographs of their child (one at birth, at one year and so on until their fifth year). Mothers also completed demographic questionnaires. The 3-year-old (n = 12) and 5-year-old (n = 12) children were required to place the photographs of themselves in a timeline, and to discuss with the researcher the relevant past and future events nominated by their mother. All children were able to recount the past events and to talk about the future events. Furthermore, for all children, almost half of conversational contributions were spoken in the first person. According to Hayne et al. (2011), this demonstrates episodic memory and foresight. Evidently, use of the first person suggested understanding of a personalised timeline and Hayne et al. (2011) further contend that the task is similar to tasks used to successfully elicit episodic memory and episodic foresight in adults. Hayne and colleagues' study has utilised child future talk

as a measure for determining episodic future thinking and its relationship to children's episodic memory, temporal order and reasoning abilities.

Furthermore, not only is talk about the future useful for future thinking, there is also evidence that reminiscing about the past might also inform future thinking. Richmond and Pan (2013) investigated how memory from past experiences informed episodic future thinking in young children aged 3–5 years. Seventy-two children participated in the tasks across two sessions in a quiet space in their preschool or long day care service in New South Wales, Australia. In the first session, the children were interviewed about two events: a past and a future event. First, parents were shown three sets of cue cards. The cards, which were categorised in sets, each related to a place (kitchen/park/zoo/plus others), a person (Grandma/friend/Mum/plus others) and an object (cookies/ball/hat/plus others). The parents were asked to select cue cards that represented an event their child had experienced. There were multiple possible scenarios that could be nominated, as any combination of cue cards could be used, for example, one parent might select the cards representing kitchen, grandma and cookies to represent a recent time their child baked cookies with grandma, or the cards for park, friend and ball to represent a recent trip to a park where the child played ball with a friend. Parents were also asked to select cue cards that represented future possible events for their child.

During the experiment, based on an earlier parent report, an experimenter showed each child three cue cards that related to the event they had participated in. This was to assist the children to remember the relevant story or event. The child was then asked to recall as much as they could about the event. After the child recalled the first event, the experimenter asked the child to tell a story about a prospective future event. The experimenter selected randomly from the three sets of selected cue cards previously nominated by the parent. The children were scaffolded with examples and non-directive

prompts to elicit as much talk as possible about each event. The children were able to describe both past and future events using the cue cards. Richmond and Pan (2013) concluded that the children were able to generate more episodic details when talking about past events compared to future events, and more non episodic details when talking about future events when compared to past events.

The relational memory task involved training children to learn sets of animals and the animals' preferred places—in a storybook and as animal and place cards, for example, sheep and playground. Once children were able to correctly link the animal with its preferred place (at a score of 70% correct), they were tested on a similar book. The children were asked questions that required them to remember directly but also to make inferences about animals and associated places. Correlations examining children's future talk and the relational memory tasks were positively correlated, indicating that the ability to utilise relational information, or in reality, the ability to "represent event memories as a networked set of representations that can be used flexibly is a key process involved in our ability to use past experiences to imagine possible future events" (Richmond & Pan, 2013, p. 519).

These studies and others indicated above, while not directly investigating future talk conversations, still contribute knowledge of connections between memory and episodic future thinking. As Atance (2008) and Hudson et al. (2011) highlight, many of the studies that investigate children's future thinking purposely rely as little as possible on verbal abilities; with researchers instead devising studies that utilise children's behaviours to show mental time travel or future thought.

One study that did explicitly consider future thinking in light of mother-child future talk was Hudson (2004). Her study involved 56 mother-child dyads who engaged in conversations about the past and the future. One aspect of her research was to consider the

development of future thinking in the children. The children represented a cross-section of ages, with half being aged 28–31 months and the remaining children aged 46–49 months. Across two sessions, within a two-week period, mothers were requested to initiate conversations with their children about past and future events. Mothers discussed two novel events (experienced once or never) and two familiar events (experienced two or more times) during each session. Hudson coded the maternal speech for type of utterance, temporal point of reference and temporal terms. She coded the children's conversational contributions across ten categories, including questions, yes-or-no responses, repetitions, open-ended responses, spontaneous info statements, placeholders, evaluations, associative talk, off-topic talk and unintelligible utterances. (The coding scheme used in this thesis is drawn from Hudson's work: for more detail see Section 3.5).

Hudson (2004) determined that younger children had more difficulty accessing a mental timeline when compared to older children. This was evidenced by the fewer contributions younger children made in comparison to the older children. She also reported that the children were able to think and subsequently talk about the familiar future more easily than the novel future, and they used their general event knowledge or accessed past experiences to predict what would happen in the future (Hudson, 2004). Thus, future thinking in young children is facilitated by mother-child future talk conversations.

Other research has examined child talk about the past and future by testing children's recall or talk about the future with an experimenter. Chernyak, Leech and Rowe (2017) worked with 81 3–5 year old children at preschool (early childhood setting). Children were shown a timeline identifying *before now*, *now* and *after now* and these concepts were explained. Children were then randomly allocated one of four conditions: near future, near past, distant future and present. An experimenter talked with each child individually, explaining their condition; for example, in the near future condition, children were told

they would be talking about events that happen *after now*, such as "*right after* this game when you will go back to class", "*later today* when you go home from school" and "*a really long time from now* when you will go to bed tonight" (p. 654). The child was then asked to draw a picture of the last example. Then, children were asked to list events relating to *right after*, *later today* and *a long time from now*. With a second experimenter, children then engaged in a counterbalanced series of tasks including a prospective memory task, a saving stickers for the future task, a timeline task and a mental time travel task. All tasks were used to measure either children's planning or their prospective abilities. Of interest here are the results relating to the children's talk: children produced more future tense orientated talk in the future tense conditions, and significantly more past tense utterances in the past tense condition. Children also used more personal pronouns in the near past and near future conditions. Chernyak et al. (2017) concluded that after children had been encouraged to talk about themselves temporally in a training interaction of just 5 minutes' duration, they were able to talk about their extended selves. They, that is, the children, were most effective at this in the temporally near past and near future.

Now I turn to the style and content of future talk within mother-child conversations, as an exploration of the content of these conversations will facilitate further understanding of this topic.

2.7.2 Elaboration in mother-child future talk conversations.

The work of Hudson, introduced earlier, is the only study to examine mother-child past and future talk. Hudson (2002, 2004, 2006) investigated maternal elaboration style across past and future conversations and novel and familiar conversations. Hudson (2002) calculated this by dividing the mothers by a median split into equal sized groups based on high or low elaboration mean scores for past conversations and future conversations. She then worked out how many mothers were in the same elaboration group—high or low—for

both past and future conversations (32 mothers were in the same categorisation but 24 mothers were not). Hudson (2002) concluded that mothers tended to be inconsistent in elaboration style when discussing past and future events.

Next, Hudson (2002) considered how maternal elaboration was associated with child elaboration. She found that maternal elaboration scores were significantly correlated for both past and future conversations for the 4-year-old mother-child dyads but not for the 2.5-year-old mother-child dyads. She found that maternal elaborations and children's elaborative contributions were mediated by age, whereby older children produced more elaboration, that is, new information, in conversational contributions than younger children. This difference was, however, only significant for future conversations. Her findings showed that for future talk generally, more elaborative mothers elicited greater child contribution; however, the repetitive or low elaboration style together with questions about children's preferences did encourage 4-year-old conversational contributions. Generally, as indicated earlier, talking about the future proved to be more difficult for younger children and talking about the novel future was more difficult than the familiar future for all children.

2.7.3 Temporal language in mother-child future talk conversations.

In future talk, there is a much stronger focus on temporal language that goes beyond that in reminiscing work. Talk of the future necessarily raises additional questions of temporality in terms of temporal judgment (Hudson, 2004), and understanding and use of future (and past) time concepts (Hudson, 2006). In her study that considered both reminiscing and future talk conversations with mothers and their children, Hudson (2002, 2004, 2006) coded all utterances for temporal points of reference. She coded for references to the past tense, to the timeless present tense, to future actions and to future hypothetical scenarios including preferences. The past tense references were evidently markers of the

mothers' and children's use of recall of a previous experience, in that they were contributions delivered in the past tense indicating an event that had happened in the past. There was no categorisation of the near or distant past. References to the timeless present were also considered to be a reference to general event knowledge. This type of knowledge is based upon an understanding of what generally or usually happened in the event. The references to the future involved both future action references but also hypothetical references, predictions and elicitation of preferences. Hudson also coded mothers' speech for use of temporal terms. These included such terms as references to episodes of time, conventional time across 24 hours and longer time periods. References to sequences of events and indeterminate intervals of time (again see Section 3.5 for more detail as the coding scheme for this research is based on Hudson's study).

The findings showed that mothers used temporal points of reference differently, depending upon whether they were talking about the past or the future. In conversations about the past, mothers frequently used past and general event references. When talking about the familiar future they also used past and general event references as well as future action references. However, when discussing future novel events, mothers used more future references (Hudson, 2004).

Younger children were better skilled at discussing events in the immediate future (same or next day) and benefited from explicit maternal temporal references to event sequences. Older children, however, were better able to utilise an extended future time frame, contributing to the conversation when mothers used temporal language involving future hypothetical references and general (timeless present) event knowledge (Hudson, 2004). This finding—that children were best able to talk about the future in light of their general event knowledge—supports Nelson's perspective that memory representations can serve the function of anticipating the future (Nelson, 1993). Hudson concluded that further

investigation is warranted into the role of maternal-child future talk conversations in terms of their potential to foster an understanding of time concepts.

Temporal language within the context of future talk is also connected to children's understanding of time concepts. As time is an abstract notion, to understand time children need to use language to establish culturally relevant understandings of the concepts (Hudson, 2006). Furthermore, as time can be measured and talked about in various forms there are multiple components to comprehend, for example, episode markers, conventional time markers across longer time frames and within 24 hours, sequences of time and indeterminate intervals. Hudson (2006) considered how maternal-child future orientated conversations contribute to children's understandings of future time concepts. She determined that maternal use of temporal language occurs at levels beyond the children's current abilities. She further suggested that the 4-year-old children's use of temporal terms in their contributions does not necessarily indicate mastery but more likely a process of acquisition, occurring via the process of support from a more knowledgeable partner. Hudson proposed that this complexity in future talk is a distinguishing characteristic between reminiscing and future talk.

2.7.4 Mental state language in mother-child future talk conversations.

By nature, conversations about the future are inherent with use of mental state language. Conversations about an event that is yet to be experienced will likely incorporate references to mental states as the anticipated event is discussed (Hudson & Mayhew, 2011), for example, references to thinking, knowing, guessing, hoping and believing about what is to occur in the event, among other mental state terms. As already indicated, there has only been one study (Hudson, 2002, 2004, 2006) that has specifically investigated maternal-child future talk. In this study, Hudson (2002) coded for utterances that focused on discussing future actions, and hypothetical references that referred to predictions and

preferences. Hudson (2002) found that mothers used hypothetical references more when talking about future events, and that the children's production of hypothetical utterances, thus their use of mental state language, was low. Further investigations into mental state language in future talk conversations is warranted.

2.8 Culture in Reminiscing and Future Talk

There are demonstrated differences in both the reminiscing styles of mothers and children dependent upon their cultural background. A wide body of research reflects Western individualised cultural practices, many of which have been extensively discussed in this thesis. However, over the last decade a considerable body of research has focused particularly on reminiscing, and to a lesser degree on future talk, in non-Western collectivist cultures.

Wang and colleagues have generated a significant body of work comparing Chinese, Chinese immigrant and European American maternal elaboration styles and their influence on children's autobiographical memory at age 3 (Wang, 2006) and self-representations, also at age 3 (Wang, et al., 2010), and past and future episodic thinking in middle childhood (Wang et al., 2011). Sahin-Acar and Leichtman (2015) investigated mother-child reminiscing and self-construal across Eastern and Western Turkey and the United States of America, and identified different levels of elaborativeness dependent upon cultural background. They determined that mother-child dyads from the United States of America were the most elaborative, with Western Turkish mothers midway and Eastern Turkish mothers showing lower levels of elaboration and associated high levels of repetitiveness.

Research has been conducted across a range of countries and cultures including Italy (Coppola et al., 2014), Chile (Leyva, Berrocal, & Nolivos, 2014; Leyva & Nolivos, 2015) and New Zealand Māori (Reese & Neha, 2015), to cite just a few, with interesting

differences emerging not just between individuals but also between cultures more broadly. The findings from all of these studies contribute substantial and important cultural understandings of reminiscing. This literature review, however, is focused on a discussion of reminiscing and future talk that explores maternal influences and instigates a discussion on the role of early childhood educators. With intent, due to the scope and nature of the proposed study, it does not take into account varied cultural influences. The decision for this focus is supported by other reviews of the reminiscing literature, for example, Neale and Pino-Pasternak (2016) who likewise focused their review article discussion to research from a Western context.

2.9 The Influence of Early Childhood Educators

The above research on reminiscing and future talk focused predominantly on mothers; however, educators also play an important socialisation role for young children and may have a specific role in reminiscing and future talk conversations. This thesis considers the way in which educators talk about different types of events, including the kinds of utterances made that lead to an elaborative style and it also focuses on two elements of content: use of temporal language and use of mental state language.

2.9.1 Aligning the sociocultural theory to early childhood educators.

To determine the potential role of early childhood educators in scaffolding young children's reminiscing and future talk conversations, I turn first to Nelson and Fivush's (2004) sociocultural theory. Recall from Section 2.3 that the gradual emergence of autobiographical memories across the preschool years is strengthened and supported by social interaction (Nelson & Fivush, 2004). Although in sociocultural research this social interaction is typically tested with mothers, multiple social partners are possible. Educators, too, appear well placed to have an influence on this development (Huntsman,

2008; Sammons et al., 2004; Sylva et al., 2007; Sylva et al., 2004). As is discussed in more detail below, the preschool years are a period of time when many young children are in early childhood education and care settings (Australian Bureau of Statistics [ABS], 2011, 2014, 2016), and consequently, are spending large periods of time with educators who engage them in social interaction (Australian Government DEEWR, 2009; Test, Cunningham, & Lee, 2010). Early childhood research also highlights the important role of educators in engaging children in high-quality conversations that incorporate "reflexive co-construction" and therefore extend children's thinking and narrative building skills (Siraj-Blatchford & Sylva, 2004, p. 720). Consistent with the possibility that educators might play a role in scaffolding children's reminiscing and future talk, Fivush et al. (2006) state in their comprehensive review of sociocultural theory informing the emergence of autobiographical memory, that research into the role of teachers and of peers are each a prospective area for investigation. To date, however, little research has been forthcoming.

Importantly, and consistent with the tenets of sociocultural theory, educators do not replace mothers as socialising agents; rather, both are likely to be important and there is potential for multidirectional influences. Further, given educators and mothers are embedded in different contexts with different goals and different relationships with the children, they therefore may not scaffold in the same way.

2.9.2 Australian children in an early childhood service.

I note above that children are spending time in early childhood education and care services. In the Australian context, as with many other Western contexts, the majority of Australian children today spend time in an early childhood education and care service prior to entering a formal school setting. Early childhood education and care services are structured and labelled in a number of ways including: childcare, day care, long day care or preschool. The latest Australian statistics indicate that 54% of children aged 2–3 years

attend regular formal childcare (ABS, 2014), and 95.9% of children aged 4–5 years who are not yet in school attend a preschool or preschool program in a long day care centre (ABS, 2016). The vast majority of children (nationally at 85%) are enrolled for more than 15 hours per week (ABS, 2016). Analysis of data from the Australian Institute of Family Studies (2013) shows that the number of children in formal care has appreciably increased over the period 1984–2011 (see Figure 2.2). This increase can be partially attributed to increases in maternal workforce participation (Baxter, 2013) and partially to increased availability of early education and care services. In 2011, the Australian Government committed to provide subsidised access to part-time preschool for one year for all Australian children in the year prior to commencing formal schooling—which is 4 years of age for most children (Coley, Lombardi, Sims, & Votruba-Drzal, 2013; Productivity Commission, 2011).

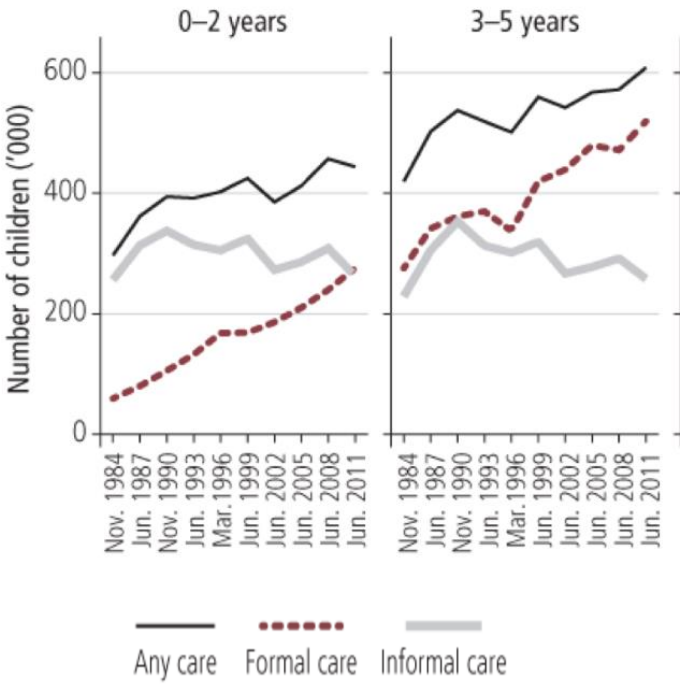


Figure 2.2. Estimated number of Australian children using any child care and formal or informal child care for children aged 0–2 years and 3–5 years in the period 1984–2011. Reproduced in part from *Estimated number of children using any child care and formal or informal child care, by age of child, 1984–2011* (Figure 3), by Australian Institute of

Family Studies, 2013, Canberra, ACT: AIFS, Commonwealth of Australia. Reproduced in part under Creative Commons CC BY 4.0.

2.9.3 Evidenced-based practice in early childhood education.

Having established that educators have the opportunity to engage with young children in early education and care services, I now turn to a separate body of research that focuses on evidence-based practice in such services. Across a number of Western countries, large-scale studies and projects have been conducted by governments to explore the factors constituting evidenced-based or high quality practice in early childhood, including the National Institute of Child Health and Human Development—Early Child Care Research Network studies from the United States of America; the Effective Preschool and Primary Education (EPPE) project from Britain; and E4Kids—Effectiveness Early Educational Experiences (E4Kids) study from Australia. While there are multiple contributors to best practice, with an exhaustive list extending beyond the scope of this thesis, the overarching premise is to improve the educational and developmental outcomes for children attending early childhood education and care services with a particular regard for social and cognitive competencies. In Sweden, for example, the Curriculum for Preschool promotes social and cognitive competencies as key factors in Swedish early childhood education (Sheridan & Gjems, 2016; Williams, Sheridan, & Sanberg, 2013). In Australia, the Early Years Learning Framework, a national framework devised to assist educators to maximise the potential of all children, provides these outcomes for children: Children have a strong sense of identity, Children are connected with and contribute to their world, Children have a strong sense of wellbeing, Children are confident and involved learners, and Children are effective communicators (Australian Government DEEWR, 2009). The Early Years Learning Framework also outlines specific pedagogical practices including, intentional teaching and responsiveness to children (DEEWR, 2009).

These practices can be enacted in part through high quality responsive conversations between educators and children.

High quality practice requires effective process qualities that facilitate positive outcomes for children. Process qualities are those characteristics of an early childhood education and care program that focus on dynamic aspects of the classrooms that lead to better cognitive outcomes for children, including: high quality adult-child interactions, relationships, teachers initiating higher levels of emotional support for children, organisational strategies that promote children's learning, teachers generating opportunities for children to partake in stimulating activities, and appropriate levels of teacher instructional support (La Paro, Thomason, Lower, Kintner-Duffy, & Cassidy, 2012; Manning, Garvis, Fleming & Wong, 2017; Tayler, Cloney, Adams, Ishimine, Thorpe, & Nguyen, 2016; Thomason & La Paro, 2009). Importantly, there is evidence that these process qualities are best facilitated by teachers with higher teaching qualifications. I now consider why this might be the case.

2.9.4 Educator qualifications.

In Australian early childhood education and care services staff have a range of qualifications including early childhood university degree teaching qualifications, diploma in children's services qualifications, and Certificate III level education and care qualifications (Australian Children's Education and Care Quality Authority [ACECQA], 2017a). Quality of care can be measured through a combination of structural factors (for example: child-adult ratio, qualifications of staff and group size), as well as process factors (for example: interactions between adults and children, and children's exposure to materials and activities that support their learning). There are established and clear links between educator qualifications, process quality and child outcomes in early education and care centres. In particular, there is strong evidence to show that university qualified early

childhood teachers undertake practices that establish higher levels of classroom learning potential and consequently increased developmental outcomes for the children they teach.

One early review by Whitebook (2003) analysed over 10 studies that examined the link between teachers with a bachelor degree and early childhood service quality and children's learning. Whitebrook concluded that early childhood teachers engaged with higher levels of warmth and sensitivity in their interactions with children, and that they were more responsive to children and overall were more positive about early childhood education. Burchinal et al. (2002) noted that educators with higher qualifications were able to generate overall higher quality learning environments within child education and care services. These findings are replicated in more recent research, for example, Phillips and Lowenstein (2011) found educator sensitivity, responsiveness and verbal stimulation to be associated with educators with higher qualification levels. The E4Kids—Effectiveness Early Educational Experiences study also corroborate these findings in Australian long day care centres (Tayler, 2016; Tayler, Ishimine, Cloney, Cleveland, & Thorpe, 2013).

Finally, Sylva et al. (2004), in the Effective Provision of Pre-school Education (EPPE) project (see paragraph below for a fuller account of this study), found that degree qualified early childhood teachers used more academic activities in their programming and engaged children in higher level thinking skills. Thus, while children receive education and care from educators with a range of qualifications, there is evidence that those educators with a university level teaching qualification provide higher quality experiences for children.

2.9.5 Educator-child conversations.

Educator-child conversations in the education context are deemed important, particularly if they contact certain characteristics. In Britain, the Effective Provision of Pre-school Education (EPPE) project investigated the effects of preschool education and care

on children's intellectual, social and behavioural development for children aged 3–7 years. From this study, findings relating to the quality of educator-child conversations have led to new terminology, for example, sustained shared thinking, as well as to new pedagogy in early childhood practice.

To explain how this evolved, in this section the scope and findings of the EPPE study are discussed. The EPPE study was originally devised to establish "better recognition of the long-term benefits of early childhood education" (Siraj-Blatchford, Taggart, Sylva, Sammons, & Melhuish, 2008, p. 23). The study determined that having a preschool experience, even with only part-time attendance, as compared to no preschool experience, enhanced intellectual and social development in all participating children (Sylva et al., 2004). However, Sylva et al. (2004) found that there were differences between early childhood education and care services, with some settings discovered to be more effective than others in enhancing the children's intellectual and social development. They determined that the key related to quality and the extent to which the early childhood education and care service focused on the intellectual but also the social development of children. The findings from the study showed that in services where there were:

- high quality verbal interactions with episodes of sustained shared thinking
- equal balance of staff and child initiated activities
- strong understanding and knowledge of the curriculum
- strong understanding and knowledge of child development
- trained teachers with the skills to support children
- high levels of parent engagement in their children's learning
- behaviour policies in which staff support children's behaviour management through reasoning and talking and
- equal priority to cognitive and social development,

the children showed greater positive cognitive and social developmental outcomes (Siraj & Asani, 2015; Siraj-Blatchford, 2009; Siraj-Blatchford, Sylva, Taggart, Sammons, & Melhuish, 2004; Sylva et al., 2004). Specific examples of the types of skills demonstrated by the children who attended quality care were greater cooperation with other children, more social participation, greater independence, less anxiety and higher ratings of overall social competence. In terms of the cognitive outcomes, the studies show a continuing positive effect for mathematical and reading skills at age 11 when children attended a higher quality or more effective preschool service (Sylva et al., 2010).

2.9.6 Sustained shared thinking: Parallels and differences to reminiscing and future talk.

The EPPE study determined that where settings viewed educational and social development as complementary and equal in importance, children made better progress overall. A key determinant of this progress was found to be the provision of instructive learning environments and opportunities to engage in sustained shared thinking conversations. Sylva et al. (2007), the authors of the EPPE study findings, determined that children's thinking was improved in early childhood settings that encouraged relatively more sustained shared thinking opportunities, that is, opportunities for adults and children or child peers to "'work together' in an intellectual way to solve a problem, clarify a concept, evaluate activities, extend a narrative" (p. 36). In the early childhood sector, this was one of several key findings that subsequently changed the focus of quality in early childhood.

There are evident parallels (and some differences) between reminiscing and future talk educator-child conversations and educator-child sustained shared thinking conversations (see Neale & Pino-Pasternak, 2016, for a full review). For the purposes of this study, the parallels between sustained shared thinking conversations and reminiscing

and future talk conversations are identified in these ways. All three conversation types—sustained shared thinking, reminiscing and future talk—involve being part of a turn-taking conversation where both partners contribute to the discussion. The conversations have the potential to provide opportunities to solve problems, clarify concepts, evaluate activities and/or extend narratives. The notion of extending the narrative forms an absolute parallel with the reminiscing and future talk research, as this is repeatedly described as a key function of the reminiscing and future talk conversations (Fivush, 2011; Nelson, 2007). Siraj-Blatchford et al. (2004), in their EPPE study, also indicate that another key component for evidence of quality is the provision of formative feedback to children during activities. This is evident in the reminiscing and future talk conversations. In particular, evaluations are particularly prevalent. Evaluations are the conversational contributions an adult offers as support to the child by actively commenting on and reaffirming their contribution to the event discussion. They can take the form of repeating what the child has said, repeating and extending what the child has said, or affirming or negating the child's contribution (Goodvin & Rolfson, 2014; Hudson, 2002).

Until recently, there have not been any parallels drawn in the literature between reminiscing and future talk and sustained shared thinking conversations. However, in their review paper, Neale and Pino-Pasternak (2016) used coding protocols from the reminiscing and future talk research to evaluate elements of sustained shared thinking conversations, gathered from the EPPE literature base, as a way to understand better sustained shared thinking. Neale and Pino-Pasternak (2016) indicated that the coding protocols from the reminiscing and future talk literature elicit greater information on the conversations and suggested this as a promising practice for better understanding sustained shared thinking conversations and other conversations within early childhood settings. They highlighted the benefit of using the elaborative style research approach as a beneficial process for

analysing the context, style, and content in a range of interactions and nominated this as a direction for future research.

While there are clear parallels between sustained shared thinking conversations, reminiscing and future talk, this study does not aim to evaluate sustained shared thinking conversations per se. The evidence of the critical importance of sustained shared thinking conversations, particularly the emphasis on narrative building, supports the need for better understanding of how educators and children work together to build narratives. Thus, this is evidence enough for actively promoting educator-child reminiscing and future talk conversations within early childhood settings and for researching the benefits of these in their own right.

2.10 The Current Study

As noted in the study overview (see Chapter 1), the aim of the current study was to examine how educators interact with young children in reminiscing and future talk conversations. Educators are potential adult conversation partners to young children who regularly spend time with them, who share close emotional bonds (Chen & de Groot Kim, 2014; King & La Paro, 2015) and who have a substantial influence on their learning and socioemotional development (Sammons et al., 2004; Sylva et al., 2004).

The research into mother-child conversations has established the importance of both reminiscing and future talk. Reminiscing assists children to recall salient parts of the event, to identify their personal involvement in the event, to recognise that their memory for the event is important and interesting to others, and to assist them in constructing a comprehensive narrative (Fivush et al., 2006; Nelson & Fivush, 2004). It is not yet known whether educators will view and enact reminiscing in the same way. Educators differ from mothers in that they, because of their qualifications, are likely to be more acutely aware of the importance of promoting developmental outcomes in the children with whom they

work. Therefore, educators in their reminiscing conversations may primarily focus on eliciting memory information about past events from the children. They may also though recognise the importance of expanding upon their ideas by adding interesting input and asking challenging questions (Chen & de Groot Kim, 2014). Questioning is an area that has been widely examined in the early childhood domain (Chappell, Craft, Burnard, & Cremin, 2008; Siraj-Blatchford & Manni, 2008). Educators are for the most part acutely aware of the importance of using effective questioning when talking to the children in their care (Bateman, 2013; Chen & de Groot Kim, 2014). Educators, as previously suggested, may therefore ask stimulating questions and/or use questions to seek children's knowledge for the past or future event.

When mothers and their children participate in conversations about future events, young children develop skills to mentally time travel into a prospective personalised future, they develop understanding of temporal concepts and they learn that their future talk conversations are important and interesting to significant adults (Hudson, 2002, 2004, 2006; Hudson & Mayhew, 2011). As would be expected, mothers use significantly more temporal language references to the past in the past conversations. Their future conversations tend to show approximately equal tendency to temporal language use in the form of general references, and for future conversations they show greater use of future action and future hypothetical references (Hudson, 2002, 2004). In their conversations about the future, educators may attempt to scaffold children to create event sequences, and work to ensure their conversations act as support for planning for the future. Educators may also assist children to understand and use time concepts through appropriate language modeling.

In both reminiscing and future conversation types, there is opportunity to hear adults' role model the use of mental state references (Rudek & Haden, 2005; Taumoepeau &

Reese, 2013). Currently, while educator use of mental state language has been researched in the early childhood sector this has not occurred in the context of educator reminiscing and future talk conversations. Rather, what is known is that educators with tertiary degree teaching qualifications are likely to provide sensitive and responsive high quality interactions (Burchinal et al., 2002; Gunter, Calderella, Korth & Young, 2012; Kelley & Camilli, 2007; Kingston et al., 2013; Manning et al., 2017; Misailidi et al., 2013; Thomason & La Paro, 2013). Hence, while all educators have the potential to incorporate mental state language into their conversations and to support young children in their use of mental state representations and language, I anticipate that tertiary degree qualified educators will do this at a higher level than the diploma trained educators. How this compares to mother use of mental state references is unknown.

Moreover, the similarity of discussions about past and future further supports the notion of a continuum, with both drawing on the memory system. Less is known about future talk than past talk; however, the work of Hudson (2002, 2004, 2006) has shown how the patterns for mother-child talk are similar, with elaboration style and scaffolding for specific content important for both. Therefore, using the sociocultural theory and referring to Figure 2.1 as a guide, the present study was designed to investigate educator total elaboration, elaborative style and content including temporal language and mental state language in educator-child reminiscing and future talk conversations. Educators were asked to talk about four events at two separate time points. The events varied in event temporal focus (past/future) and event type focus (novel/familiar). Children's contributions of the same elements—elaboration, use of temporal language and use of mental state language—were also investigated. Finally, the study also considers potential relationships between educator-child reminiscing and future talk language characteristics and mother-child reminiscing and future talk language characteristics.

The aim of the study, first presented in Chapter 1: Overview, has been reproduced below. Following this are the research questions for the current study.

2.10.1 Aim.

To examine how educators interact with young children in reminiscing and future talk conversations.

2.10.2 Research questions for elaboration.

- Research Question 1: When talking about shared events, what is the relationship between educator elaboration and child elaboration?
- Research Question 2: Does elaboration during educator-child talk about shared events vary according to event temporal focus (past/future) or event type focus (novel/familiar)?
- Research Question 3: When talking about shared events separately but with the same child, what is the relationship between educator-child elaboration and mother-child elaboration?

2.10.3 Research questions for temporal language.

- Research Question 1: When talking about shared events, what is the relationship between educator temporal language contributions and child elaboration and temporal language contributions?
- Research Question 2: Does use of temporal language during educator-child talk about shared events vary according to temporal focus (past/future) or event type focus (novel/familiar)?

- Research Question 3: When talking about shared events separately but with the same child, what is the relationship between educator-child temporal language contributions and mother-child temporal language contributions?

2.10.4 Research questions for mental state language.

- Research Question 1: When talking about shared events, what is the relationship between educator use of mental state language and child elaboration and child use of mental state language?
- Research Question 2: Does mental state language during educator-child talk about shared events vary according to event temporal focus (past/future) or event type (novel/familiar)?
- Research Question 3: When talking about shared events separately but with the same child, what is the relationship between educator-child mental state language contributions and mother-child mental state language contributions?

The next chapter (Chapter 3) explains in detail the method used to implement the current study.

Chapter 3: Method

This chapter outlines the methods used to examine the style and content of educator reminiscing and future talk, the style and content of mother reminiscing and future talk, and the children's own contributions. Additionally, the chapter outlines the methods used to determine associations and differences between educator-child and mother-child reminiscing and future talk conversations.

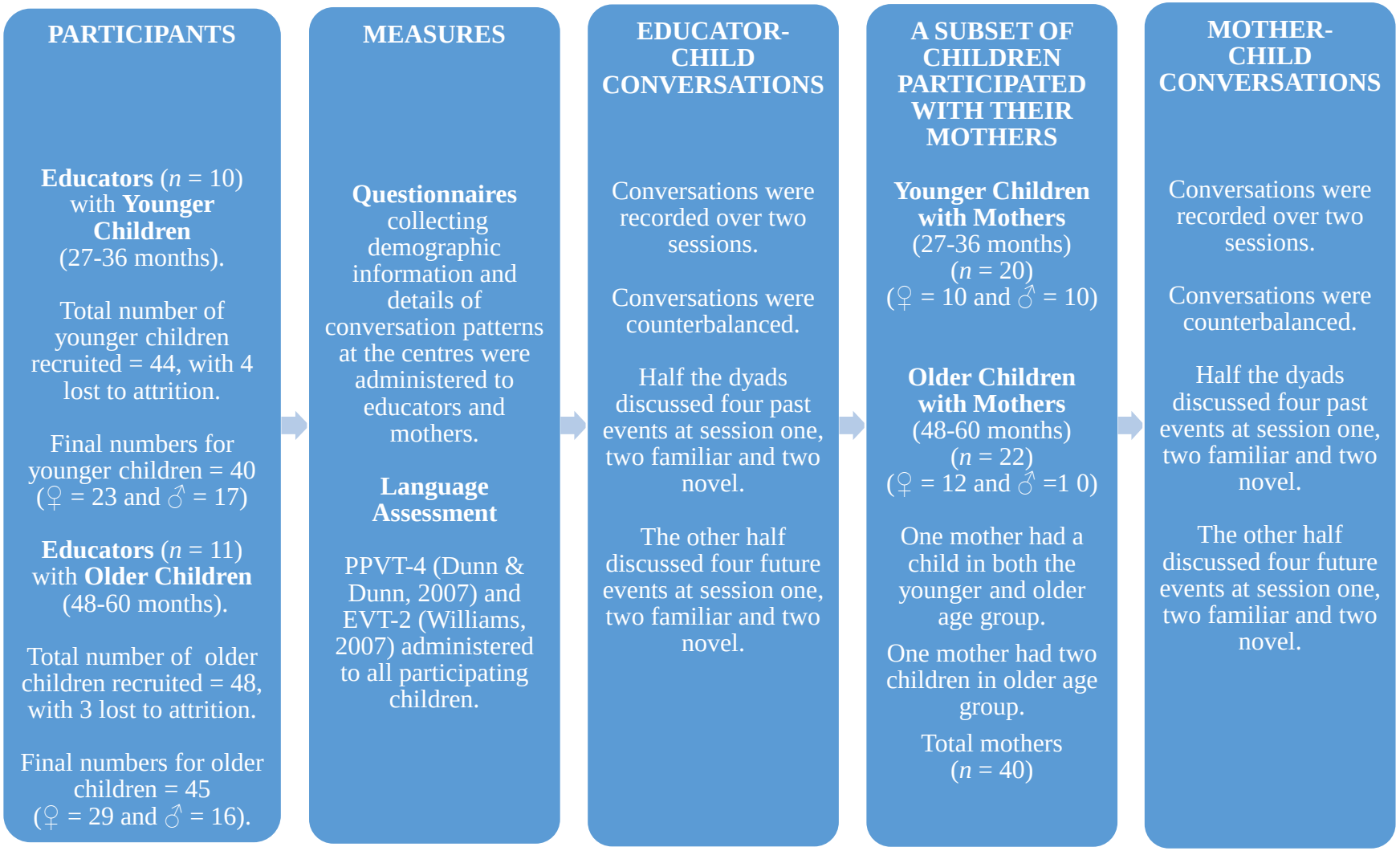
3.1 Overview of Design

The study was a 2 (time: past, future) x 2 (event: novel, familiar) x 2 (age: younger, older) factorial design with two within factors and one between factor. The dependent variables were elaboration, temporal language (including temporal points of reference and temporal terms), and references to mental state language. Figure 3.1 shows the design of the project. The covariates were centre based socioeconomic advantage/disadvantage and educator qualifications.

3.2 Participants

The study participants were early childhood educators (from here on referred to as educators), young children and their mothers. Australian early childhood long day care centres have staff with a range of qualification levels. The term ‘educators’ therefore refers to all staff involved in the education and care of young children and who have an early education qualification of at least one year duration (ACECQA, 2014). There were two groups of child participants: the younger group aged 27–36 months and the older group aged 48–60 months. All children attended long day care centres in Greater Metropolitan Sydney. Mothers of a subset of children also participated. Detailed characteristics of participants are explained in this section, but first I explain the process for centre selection.

Figure 3.1. Overview of the study design.



3.2.1 Recruitment of participating centres.

I recruited participants from a cross-section of early childhood long day care centres in Greater Metropolitan Sydney. In Australia, long day care centres are one form of prior to school services that provide regular education and care for children. Parents enrol their children to attend on a regular basis, usually a set number of days per week. Centres are open for 48 weeks per year with standard operating hours from 7.30 a.m. until 6 p.m. (Waniganiyake, Cheeseman, Fenech, Hadley, & Shepherd, 2012).

To ensure socioeconomic diversity in my sample, and as it is important to have an understanding of the impact of socioeconomic status (American Psychological Association, Task Force on Socioeconomic Status, 2007), I used three key Australian databases. First, I used the Australian Bureau of Statistics Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) to identify centres in both areas of relative advantage and areas of relative disadvantage. The ABS (2014) defines relative socioeconomic advantage and relative socioeconomic disadvantage in terms of people's ability to participate in society, together with their access to both material and social resources with a score of 1 (lowest) to 10 (highest). Thus, areas of relative disadvantage are indicated by households with low incomes, lower education levels, and/or people in unskilled occupations and few households with high incomes and/or professional workers. Areas of relative advantage have relatively high numbers of households of professionals, higher numbers of people with degree qualifications, more car owners and/or higher income occupations and fewer marginalised people (ABS, 2014).

Selecting centres based on their location in an area of relative advantage or disadvantage is a procedure previously used in Australian research to classify schools and centres (Lewis, Maher, Katzmarzyk, & Olds, 2016). I targeted geographical areas from the IRSAD that were within approximately one hour of driving time from Macquarie

University to ensure multiple visits to each centre were possible. The final sample included five participating centres in areas of relative disadvantage (Index scores of 2 and 3) and two in areas of relative advantage (Index scores of 8, 9 and 10). Note that due to age differences in the children in each centre, it was difficult to recruit younger children from lower socioeconomic areas. Thus, younger children in the study predominantly attended centres from areas of relative advantage.

3.2.2 Selection of centres by local government area and quality rating.

Regardless of geographical area, all participating long day care centres utilised in the study had attained an overall rating of *Exceeds National Quality Standard* according to the National Quality Standard Assessment and Rating Instrument (ACECQA, 2014). The process for how these centres were selected is described in the following paragraphs.

The Australian Government MyChild website (see Figure 3.2) was used to search for centres within the targeted geographical areas (Commonwealth of Australia, 2012). This website provided search functions for type of centre, locality and details of accreditation according to the National Quality Standard Assessment and Rating Instrument. The MyChild website was searched using the long day centre selection for type of service and then searched by local government area. Once an area was selected, I contacted centres with an accreditation rating within that locality and sought their interest to participate in the study.

Figure 3.2. Screenshot of the Australian Government MyChild website (Commonwealth of Australia, 2012).

The National Quality Standard Assessment and Rating Instrument is a part of the process established by all Australian governments (local, state and federal) to ensure high quality services for children in prior to school services including long day care centres (ACECQA, 2017a) (see Figure 3.3). The Standard is used to assess long day care centres across seven quality areas: Educational Program and Practice, Children's Health and Safety, Physical Environment, Staffing Arrangements, Relationships with Children, Collaborative Partnerships with Families and Communities, and Leadership and Service Management. The Standard is measured by different rating levels: *Significant Improvement Required*, *Working Towards National Quality Standard*, *Meets National Quality Standard*, and *Exceeds National Quality Standard* (ACECQA, 2017a).

Each of the long day care centres that took part in this study had attained a rating of *Exceeds National Quality Standard* for Quality Area 5—Relationships with Children. The Standard—Relationships with Children—incorporates "Standard 5.1: Respectful and equitable relationships are developed and maintained with each child" and "Standard 5.2: Each child is supported to build and maintain sensitive and responsive relationships with other children and adults" (ACECQA, 2017a p. 118). Furthermore, all participating long day care centres utilised in the study had attained an overall rating of *Exceeds National*

Quality Standard. To obtain this rating, a centre needed to have met all standards and received a rating of Exceeds National Quality Standard for at least four quality areas. Thus, all participating centres can be considered long day care centres of higher quality and are in the top 27% of centres in New South Wales, Australia (ACECQA, 2017b).

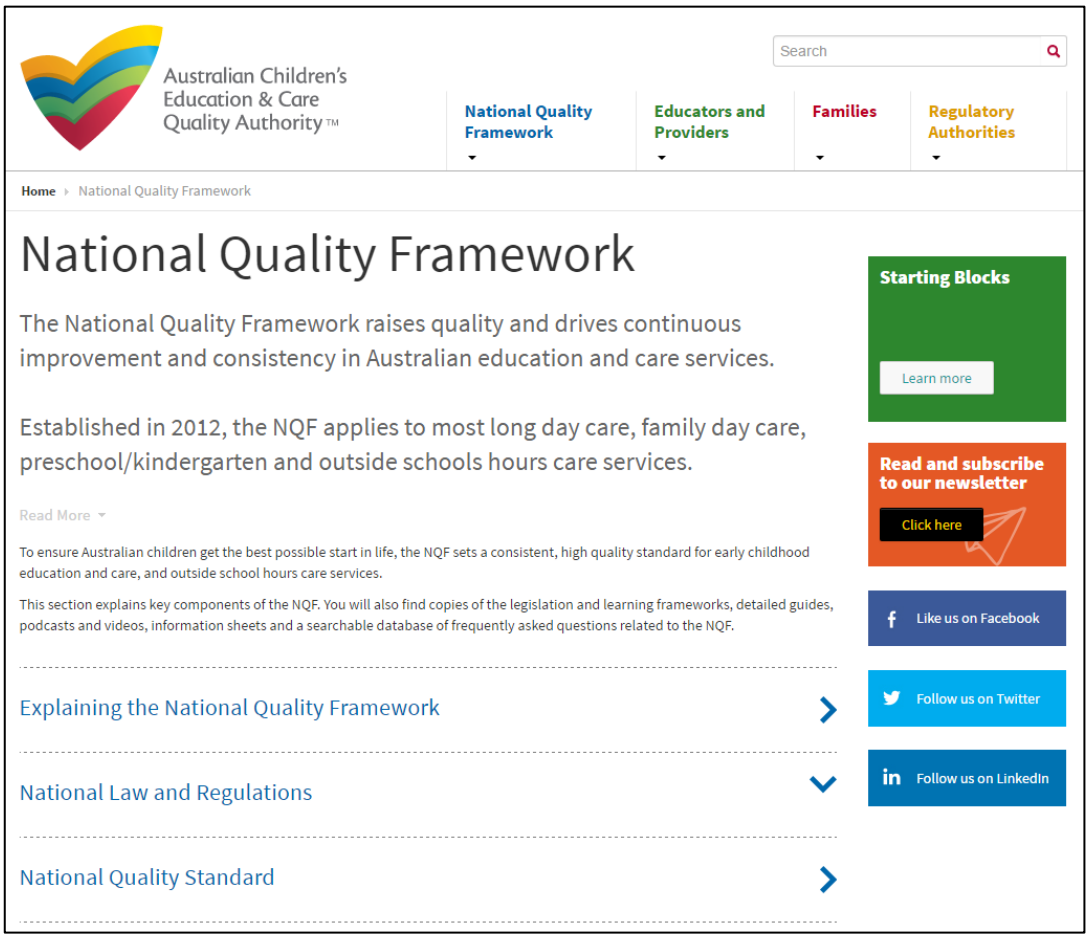


Figure 3.3. Screenshot of the ACECQA National Quality Framework website (ACECQA, 2017c).

3.2.3 Establishing connections with the long day care centres.

Initial contact with the long day care centres occurred via telephone; I contacted the long day care centres and spoke to centre directors asking if they were interested in participating in the research project. In centres in Australia, a director "oversees the daily operations of a service in relation to families, children and staff and … ensures a service compiles with relevant legislative requirements, financial management, strategic and

business planning" (Bryant & Gibbs, 2013, p. 15). Directors are usually qualified educators. Following the phone calls to the centre directors, an introductory information letter (see Appendix B) and a copy of the Educator Information and Consent form (see Appendix C) were sent via email for centre directors to share with their staff. One or more follow up phone calls were made a week later to ascertain the directors' and educators' interest in the project.

If a director confirmed that there was interest from their staff in participating in the study, I visited each centre to meet with educators and to discuss my study in more detail. Sometimes I attended staff meetings and at other times I spoke to staff in their classrooms (rooms). This discussion involved an explanation of the study, including a discussion of potential strategies for recruiting child conversational partners, the required time commitment and the possibility of receiving the results and conclusions from the study. I also explained that I had access to research funds to cover a relief staff member so the participating educator could spend time out of the room to participate in the research. In Australian long day care centres, the indoor space where children gather with their educator is typically referred to as their "room". It also denotes membership of a group of children linked to the educator's room.

Multiple educators from a single centre were involved when possible, with a maximum of six educators from a single long day care centre participating. Most centres had between two and six participating educators; one centre had only one educator participating. Once the educators agreed to participate, they were given the Parent Information and Consent form (see Appendix D for parents of children aged 2.5 years and Appendix E for parents of children aged 4 years) and the criteria for recruitment of the child participants to whom they would be paired. The letter contained details of the educator-child and mother-child sections of the study and the criteria were; that the child

should attend the centre a minimum of two days per week on the same days that the educator worked and that English should be the child's first language. The Information and Consent forms were distributed via the method that each particular centre used to disseminate information, for example, placed in child's "wall pocket" or locker. In some cases, educators spoke directly to the parents of potential child participants.

3.2.4 Recruitment of educators.

Twenty-one educators from metropolitan long day care centres in Sydney, Australia, participated in this study. Ten educators worked with the younger group of children, aged 27–36 months (n = 40), and 11 educators worked with the older group of children, aged 48–60 months (n = 45). All educators working with the younger age group were female, and all but one educator working with the older age group were female. All educators worked full time. More than half of the educators (n = 12) had a tertiary teaching degree qualification and the remaining educators (n = 9) had a Diploma in Children's Services from a technical college. A chi-square test of independence was performed to examine the relation between the educator qualification and the age groups. The relation between these variables was significant, X^2 (2, N = 85) = 7.15, p = .007, with the older age group having more educators with tertiary teaching qualifications. Educators ranged in their level of teaching experience from new graduates in their first six months of teaching to those with more than 15 years of experience teaching young children. See Table 3.1 for further educator characteristics.

Each educator was asked to nominate children from their room to participate. Permission was then sought from these children's parents. To ensure educators could nominate mostly novel topics for children, and to avoid repetition in conversations, each educator was partnered with no more than six children. As shown in Table 3.2 and Table 3.3, five educators were each partnered with six children, four educators were each

partnered with five children, three educators were each partnered with four children, six educators were each partnered with three children, and two educators were each paired with two children as conversation partners. One educator had only one child partner.

Table 3.1

Frequencies and Percentages for Educator Characteristics

Characteristic	Educators working with Younger children		Educators working with Older children	
	f	%	*f*	%
Qualification level				
Diploma in Children's Services	6	60.0	3	27.3
Bachelor of Education EC (3 years)	4	40.0	4	36.4
Bachelor of Education EC (4 years)	-	-	3	27.3
Master of Early Childhood	-	-	1	9.1
Teaching experience				
0–6 months	-	-	1	9.1
1–2 years	-	-	1	9.1
2–5 years	3	30.0	4	36.4
5–8 years	3	30.0	3	27.3
8–10 years	1	10.0	-	-
15+ years	1	10.0	2	18.2
Length of time working at the centre				
0–<6 months	-	-	2	18.2
6–<12 months	1	10.0	-	-
1–<2 years	-	-	1	9.1
2–<5 years	3	30.0	5	45.5
5–<8 years	-	-	2	18.2
8–<10 years	1	10.0	1	9.1
10–<15+ years	1	10.0	-	-
Length of time teaching age group				
0–<6 months	-	-	2	18.2
6–<12 months	2	20.0	1	9.1
1–<2 years	2	20.0	1	9.1
2–<5 years	1	10.0	3	27.3
5–<8 years	2	20.0	1	9.1
8–<10 years	-	-	1	9.1
15+ years	1	10.0	2	18.2

Note. f = frequency.

3.2.5 Recruitment of children.

As noted above, participating children were nominated by their educators. In the younger age group, children's ages ranged from 27–36 months (M = 33.45, SD = 2.24). In the older age group, children's ages ranged from 48–60 months (M = 53.44, SD = 3.81). In the older age group, there was almost twice as many girls (n = 29) as boys (n = 16), whereas the younger age group was more even in gender distribution with 23 girls and 17 boys. A chi-square test of independence showed no statistical difference in children's gender across age groups, X^2 (2, N = 85) = .430, p = .512. The children attended long day care centres from areas of high and low socioeconomic advantage across metropolitan Sydney; although across both age groups more children attended long day care centres within higher socioeconomic areas. Another chi-square test of independence showed that the groups were statistically different, X^2 (2, N = 85) = 13.07, p < .001, with more children from the younger age group attending centres in areas of relative advantage. Characteristics of the younger and older children are presented in Table 3.4. It is important to note that socioeconomic status relates to centre location, not the individual children.

There was some early attrition from the study. From the younger age group, one child left the centre unexpectedly and another child chose not to participate at either session, so consequently no data was collected for that child. In addition, for two children from the younger age group only partial data was collected; for one child, only one session of datum was recorded, and for another child only three events were discussed in each of the past and future sessions. Data from these children was not included in the study. From the older age group, two children were absent due to illness and family holiday and did not participate in any session, and a third child left the centre prior to the commencement of data collection. The final numbers for the younger age group were n = 40 and for the older age group, n = 45.

Table 3.2

Educators Qualifications, Centre Socioeconomic Level for Younger Children

Educator	Qualification	Centre SES	Child's age in months/gender/mother participating					
			Child 1	Child 2	Child 3	Child 4	Child 5	Child 6
1	Degree	High	35m ♀ Yes	35m ♀ No	30m ♂ Yes	33m ♀ Yes	-	-
2	Diploma	High	33m ♀ No	30m ♀ Yes	33m ♂ Yes	-	-	-
3	Diploma	High	31m ♂ No	36m ♀ No	35m ♂ No	35m ♂ Yes	32m ♂ Yes	35m ♀ No
4	Diploma	High	36m ♀ No	36m ♀ No	35m ♂ No	33m ♀ No	33m ♀ No	-
5	Diploma	High	31m ♂ Yes	35m ♀ Yes	35m ♀ Yes	-	-	-
6	Diploma	Low	32m ♂ No	30m ♂ Yes	35m ♂ No	34m ♀ Yes	-	-
7	Diploma	Low	35m ♀ No	35m ♀ Yes	32m ♀ Yes	-	-	-
8	Degree	High	30m ♂ No	34m ♀ Yes	35m ♂ Yes	27m ♂ Yes	34m ♂ Yes	29m ♀ No
9	Degree	High	33m ♂ Yes	35m ♀ Yes	-	-	-	-
10	Degree	High	35m ♀ No	34m ♂ No	36m ♀ No	36m ♀ No	-	-

Table 3.3

Educators Qualifications, Centre Socioeconomic Level for Older Children

Educator	Qualification	Centre SES	Child's age in months/gender/mother participating					
			Child 1	Child 2	Child 3	Child 4	Child 5	Child 6
11	Diploma	Low	52m ♀ Yes	57m ♀ Yes	60m ♂ Yes	60m ♀ Yes	56m ♀ Yes	-
12	Degree	High	55m ♀ No	48m ♂ No	55m ♀ No	-	-	-
13	Diploma	Low	48m ♀ Yes	53m ♀ No	48m ♂ No	-	-	-
14	Degree	High	54m ♂ No	55m ♀ No	-	-	-	-
15	Degree	Low	58m ♀ Yes	55m ♂ No	55m ♀ No	57m ♀ No	59m ♂ No	-
16	Degree	High	48m ♀ No	48m ♂ No	51m ♀ No	48m ♂ No	48m ♀ No	51m ♂ No
17	Degree	High	48m ♂ No	-	-	-	-	-
18	Degree	High	55m ♀ Yes	56m ♀ No	54m ♀ No	52m ♀ No	54m ♀ Yes	-
19	Diploma	Low	51m ♀ No	60m ♀ No	54m ♀ Yes	52m ♀ Yes	52m ♀ Yes	48m ♂ No
20	Degree	Low	48m ♀ No	57m ♀ No	60m ♂ Yes	54m ♂ Yes	55m ♂ Yes	53m ♂ No
21	Degree	High	57m ♀ Yes	55m ♂ Yes	51m ♂ Yes	-	-	-

Table 3.4

Characteristics of Younger and Older Children shown as Frequencies and Percentages

	Younger children		Older children	
	f	%	*f*	%
Birth order				
First	16	40.0	18	40.0
Second	12	30.0	19	42.2
Third	4	10.0	6	13.3
Fourth	1	2.5	1	2.2
Fifth	-	-	1	2.2
Data missing	7	17.5	-	-
Age child first attended childcare				
6 weeks–6 months	2	5.0	2	4.4
6–12 months	17	42.5	10	22.2
12–18 months	10	25.0	4	8.9
18 months–2 years	-	-	2	4.4
2–2.5 years	3	7.5	14	31.1
2.5–3 years	1	2.5	5	11.1
3–3.5 years	-	-	3	6.7
3.5–4 years	-	-	5	11.1
Data missing	7	17.5	-	-
Age first attended this centre				
6 weeks–6 months	2	5.0	-	-
6–12 months	11	27.5	6	13.3
12–18 months	14	35.0	2	4.4
18 months–2 years	-	-	1	2.2
2–2.5 years	3	7.5	16	35.6
2.5–3 years	3	7.5	5	11.1
3–3.5 years	-	-	9	20.0
3.5–4 years	-	-	6	13.3
4+ years	-	-	-	-
Data missing	7	17.5	-	-
Hours per week attending				
Up to 20 hours over 2 days	6	15.0	8	17.8
Up to 20 hours over 3 days	4	10.0	9	20.0
Up to 30 hours over 3 days	10	25.0	8	17.8
Up to 40 hours over 4 days	4	20.0	13	28.9
Up to 40 hours over 5 days	5	12.5	7	15.6
Data missing	7	17.5	-	-
Days of attendance				
5	7	17.5	9	20.0
4	8	20.0	12	26.7
3	11	27.5	16	35.6
2	7	17.5	8	17.8
Data missing	7	17.5	-	-
Other childcare attended	6	15.0	10	22.2

Note. *f* = frequency.

3.2.6 Recruitment of mothers.

All mothers of the participating children were asked to take part in the study. The decision to recruit mothers stemmed from the vast majority of previous research on reminiscing which has primarily investigated reminiscing and future talk with mothers (Farrant & Reese, 2000; Hudson, 2006; Taumoepeau & Reese, 2013). Using mothers ensured the results in this study could be considered in the context of previous research. Forty mothers agreed; for the older age group there were 12 girls and 10 boys (n = 22) whose mothers participated and for the younger age group there were 10 girls and 10 boys (n = 20) whose mothers participated. Two mothers each had two of their children participating in the study. One mother had both of her children (a son and a daughter) in the older age group and the other mother had two sons, one in each of the younger and older age groups. In total, there were 42 mother-child dyads. I used independent t-tests for both the younger and older age groups to test whether there were differences in age of the children whose mothers participated and those whose mothers did not participate. For the mother-child dyads in the older age group (n = 22), ages of the children ranged from 48–60 months (M = 54.36, SD = 3.84) and for the other older children, (n = 23) 48–60 months (M = 52.57, SD = 3.64). An independent sample t-test showed no statistically significant difference in the mean age of the children, $t(43) = 1.61$, $p = .114$. For the younger age group mother-child dyads (n = 20), children were aged 27–35 months, (M = 32.90, SD = 2.29) and for the other younger children (n = 20), these children were aged 29–36 months (M = 34.0, SD = 2.10). Similarly, this test showed no statistically significant difference in mean age for the groups, $t(43) = -1.58$, $p = .122$. Thus, for both the older and younger groups, there was no variation in the age of children whose mothers did participate and those whose mothers did not participate.

3.3 Measures

3.3.1 Demographic questionnaires.

Both educators and mothers completed separate paper-and-pencil questionnaires designed to obtain demographic information and data about communication between educators and mothers (see Appendices F and G). The educator questionnaire contained 30 items. In the first section of the questionnaire, educators responded to questions about their work patterns including education level, experience, current number of days per week worked at the centre, duration at centre, age group of children taught, time with current age group, and the staff-to-child ratio in their classroom.

In the second section, educators responded to questions that considered the links between themselves and each child's mother. The questions elicited the educators' preferred communication options (conversation at the time a parent brings their child to the service, known as "drop off", conversation at the time a parent arrives to collect their child from the service, known as "pick up", phone conversation, communication via email, communication via daybook or other), topics covered in conversations and frequency of those conversations. The educators responded to each question indicating how frequently they discussed a particular topic: every day of attendance, most days of attendance, weekly, infrequently or never. The topics covered developmental skills of the child, friendships, school readiness, family life for child and mother, and educators' personal life.

Finally, educators indicated how satisfied they were with the amount, depth and quality of discussion they have with each child's mother about her child (see Appendix F). Demographic data from the questionnaire for educators working with both younger and older children is included in Table 3.1. Two educators working with the younger age group did not complete questionnaires and therefore the only data available for these educators is their gender, qualification level and number of days worked per week.

Questionnaires for mothers were also structured in three parts with a total of 34 items. First, mothers responded to questions about their child: languages spoken, birth order, age child commenced childcare, length of time at current centre, hours and days of attendance, and use, if any, of other forms of childcare. In the second section, mothers responded to questions about their education level, occupation, marital status and annual household income. In the final section, mothers responded to questions asking about the topics they discuss with their child's educator and how often. The options were the same as those on the educator questionnaire: every day of attendance, most days of attendance, weekly, infrequently or never; and the questions similarly included references to the developmental skills of their child, friendships, school readiness, family life for their child and self, and mothers' personal life events.

Finally, mothers also indicated how satisfied they were with the amount, depth and quality of discussions they have with their child's educator (see Appendix G). Both educators and mothers could elect to check or circle "rather not say" for potentially sensitive questions. Mothers returned the completed questionnaires to the centre in a supplied sealed envelope for collection or posted them directly to me. Frequencies and percentages for maternal characteristics for mothers of all children and for the participating mothers as a separate sub-group are reported in Table 3.5.

Table 3.5

Frequencies and Percentages for Maternal Characteristics for Mothers of All Children and for Participating Mothers

	Younger children				Older children			
	All mothers (n = 40)		Participating mothers (n = 20)		All mothers (n = 45)		Participating mothers (n = 21)	
	f	%	*f*	%	*f*	%	*f*	%
Qualification level								
Postgraduate	13	32.5	8	40.0	12	26.7	4	19.0
Bachelor	12	30.0	5	25.0	14	31.3	9	42.9
TAFE/RTO	4	10.0	2	10.0	16	35.6	6	28.6
Year 12	3	7.5	1	5.0	3	6.7	2	9.5
Year 10	1	2.5	1	5.0	-	-	-	-
Data missing	7	17.5	3	15.0	-	-	-	-
Occupation								
Homemaker	-	-	-	-	8	17.8	5	23.8
Self employed	6	15.0	2	10.0	3	6.7	1	4.8
Temporary employee	-	-	-	-	2	4.4	1	4.8
Student	3	7.5	2	10.0	3	6.7	2	9.5
Administration	-	-	-	-	3	6.7	1	4.8
Skilled labourer	-	-	-	-	1	2.2	-	-
Professional	24	60.0	13	65.0	25	55.6	11	52.4
Data missing	7	17.5	3	15.0	-	-	-	-
Marital status								
Married	27	67.5	15	75.0	41	91.1	19	90.5
Living with another	3	7.5	-	-	-	-	-	-
Separated	2	5.0	1	5.0	1	2.2	-	-
Divorced	-	-	-	-	1	2.2	1	4.8
Single	1	2.5	1	5.0	2	2.2	1	4.8
Data missing	7	17.5	3	15.0	-	-	-	-
Current household income								
Under 50K	1	2.5	1	5.0	4	8.9	3	14.3
50–75K	-	-	-	-	6	13.3	1	4.8
75–100K	3	7.5	1	5.0	3	6.7	1	4.8
Over 100K	23	57.5	13	65.0	25	55.6	15	71.4
Rather not say	15	15.0	2	10.0	7	15.6	1	4.8
Data missing	7	17.5	3	15.0	-	-	-	-

Note. *f* = frequency.

3.3.2 Children's language assessment.

To ensure children had adequate receptive and expressive skills for the conversation tasks, children participated in two language assessments: the Peabody Picture Vocabulary Test—Four (PPVT-4) (Dunn & Dunn, 2007) and the Expressive Vocabulary Test—Two (EVT-2) (Williams, 2007). The PPVT-4 assesses children's receptive language abilities. The internal reliability for the PPVT-4 is high; split half reliabilities average .94 for age and grade ranges on each form, with the coefficient alpha reliabilities in a similar range of .94 to .95 and the test-retest correlation score ranging from .92 to .96 (Dunn & Dunn, 2007). In contrast, the EVT-2 assesses children's expressive language. For the EVT-2, the internal reliability is again high; the split half reliabilities range for age groups were .88 to .97 and for grade levels were .86 to .97. The coefficient alpha ranged from .93 to .98 on Form A and .93 to .97 on Form B, the alternate forms reliability ranged from .83 to .91 and the test-retest correlation scores ranged from .94 to .97 (Williams, 2007). The PPVT-4 and EVT-2 reliability information confirms that both tests are highly consistent.

Additional support for using these tests is the evidence that they have been used in other Australian studies. In fact, the previous version of the PPVT-4, the PPVT-3, is the test used to assess children's language in the Longitudinal Study of Australian Children (LSAC) research (Commonwealth of Australia, 2017), with numerous studies (including Khanam & Nghiem, 2016; Zubrick, Taylor, & Christensen, 2015) citing their use of this test. These tests also appear on Australian Government approved psychological tests lists, (for example, Department of Education and Training, 2016). Finally, Van Bergen and Salmon (2010) also used the PPVT-3, other researchers including Fritz, Howie and Kleitman (2010) have used the PPVT-4, and Wake et al. (2011) used the EVT-2 with Australian children.

In using the PPVT-4 and the EVT-2, my intention had been to exclude any child who scored two standard deviations below the mean from the study; however, all children performed above this level so all the consenting children were eligible to participate. The PPVT-4 is appropriate for use with participants aged from 2.5 years to adult. The process for administering the test begins with the participant being shown a card with four images. The participant is then asked to point to the picture that represents a particular word: for example, *Put your finger on the picture that shows laughing*. Initially, a basal set is to be established: this is the completion of 12 items (one full set) with one or no errors. Testing continues in sets of 12 items until the participant makes eight or more errors in one set—thus establishing the ceiling set for that participant. If a participant scores over the minimum number of errors for the age appropriate beginning set, the testing is continued on a prior set until the Basal Set Rule (the completion of 12 items—one full set—with one or no errors) can be met (Dunn & Dunn, 2007).

The EVT-2 is appropriate for participants aged from 2.5 years to adult. The test book contains 190 items arranged as a single image per page. For each item, the participant is shown a picture and asked to verbally label it. For example, in one item a participant is asked: *What is she doing*? while viewing a still image of a girl holding a microphone to her mouth. There are multiple correct responses including *singin*g or *talking*. Follow-up prompts such as *What do you call this*?, and *Tell me a name for what you see*? are also permitted if necessary, with a restriction of two prompts for any one item. Feedback during testing is to be noncommittal, and can include phrases such as *Listen carefully*, *That was a good answer* or *You're doing fine* to maintain the participant's interest and to provide nonspecific feedback. A basal set is established when the participant labels five consecutive correct items. Testing then continues until

the participant incorrectly labels five consecutive items when testing is to be discontinued (Williams, 2007). Both the PPVT-4 and the EVT-2 have an administration time of approximately 15 minutes, meaning a total administration time of 30 minutes.

3.4 Procedure

Visits were arranged with each centre director at times agreeable to both the director and educators. For the language assessments, I usually visited each centre over two days to be able to assess children on their regular days of attendance. For one centre that had six educators and 26 children participating, I instead attended over four days to complete all the language assessments. When the language assessments were complete, I then negotiated to visit the educators and children again for the recordings. As there were two conversation recording sessions per dyad, and given the children's different attendance patterns, I made multiple return visits to each centre. A small postgraduate grant was used to employ relief staff in each centre. This enabled educators to work one-on-one with a child away from distractions of the room. While educators do engage in one-on-one conversations with individual children throughout the day, these may occur spontaneously at any point during the day. I chose to separate each dyad from the room for a number of reasons. First, the naturally occurring conversations would be open to interruption as other children would likely join in; second, following educators around with recording equipment would be distracting for educators and children alike; and third, as recording equipment is sensitive to background noise, it was important to have the dyad in a quiet environment. Finally, employing relief staff ensured that educators were not rushed to complete conversations but they could participate knowing the children in their room were adequately supervised and cared for.

3.4.1 Procedure for children's language assessment.

I spent time in each early childhood centre before I began the language assessments. During this time, the centre director usually introduced me to other staff, parents and the children. At other times educators introduced me to the children. I spent time in the indoor or outdoor environments and involved myself in conversations and activities with the children. Gaining children's assent is an important part of researching with children (Dockett & Perry, 2011; McDonald, 2013), thus in the current study, the children were viewed as active participants. I ensured that the research was explained to them so they could make an informed decision about participation. They were afforded time and opportunity to consider their decision and during the language assessments or conversation recordings they were reminded that they could elect to stop participating (Dockett & Perry, 2011, McDonald, 2013). Additionally, signs of tiredness and disinterest were looked for by the participating adults and myself.

Then I completed the language assessments. Children's receptive language was assessed first using the PPVT-4. As this test did not require verbal contributions from participants, it also supported building a rapport between the child and me. The standard administration procedure was followed (Dunn & Dunn, 2007). All but one child completed the PPVT-4. The EVT-2 (Williams, 2007) was the second part of the children's language assessment. The standard administration procedure was followed (Williams, 2007). However, as all participants were Australian, some words that were not listed in the scoring manual but that are common to Australian English were also accepted as correct. For example, *rubbish* was accepted for *garbage* and *lounge* was accepted for *sofa* (see Reese & Sutcliffe, 2006, for a similar approach with New Zealander participants). Standard scores corresponding to raw scores by age were used as the final measure for children's language. The minimum, maximum, mean and

standard deviation for age standardised scores, included in Table 3.6. indicate all children have adequate linguistic competence for the tasks presented.

Table 3.6

Younger and Older Children Mean (SD) for PPVT-4 and EVT-2

	Younger children			Older children		
	Min.	Max.	Mean (*SD*)	Min.	Max.	Mean (*SD*)
PPVT-4	81	145	108.75 (12.89)	82	130	105.51 (12.25)
EVT-2	87	155	117.08 (13.80)	91	135	111.00 (11.20)

For six children, the centre directors requested that the language testing occur on the same day as the first educator-child recording (see the following description of this process). On these occasions, particular attention was paid to any signs of tiredness in the child and time was allowed for the child to take breaks, eat, rest and participate in the centre's program for that day. No child requested a break nor appeared tired, and the data from these children did not differ to the data from other children in the study.

3.4.2 Procedure for the conversation recordings for educators and children.

3.4.2.1 Nominating event topics.

Conversation recordings were conducted on two separate days. The period between visits was determined by the educators' work schedule, children's attendance patterns and other centre requirements. At each session, dyads discussed four events, with event type counterbalanced across participants, see Table 3.7. This meant that some dyads discussed past events and then future events, and others discussed future events and then past events.

Table 3.7

Counterbalancing Across Conversations

Counterbalancing across conversations			
Past familiar Event 1	Past familiar Event 2	Past novel Event 1	Past novel Event 2
Past novel Event 1	Past novel Event 2	Past familiar Event 1	Past familiar Event 2
Future familiar Event 1	Future familiar Event 2	Future novel Event 1	Future novel Event 2
Future novel Event 1	Future novel Event 2	Future familiar Event 1	Future familiar Event 2

In the case of the past event conversations, I explained to educators that the aim of the research was to examine how much and what kind of information children remember about past events with different conversational partners (see Farrant & Reese, 2000; Reese & Fivush, 1993). I sat with educators and asked them to nominate in writing two novel events and two familiar events that they had participated in with each of the children to whom they were paired. They were asked to ensure that the events nominated were those that they believed the child would remember; however, there was no limit on the time lapse between the time of the event and the present. For both familiar and novel events, I explained to educators that the event needed to contain individual details specific to a particular event but that it may still draw minimally on script-based information. Familiar and novel events were defined as follows:

- Familiar events were determined to be those that occur often throughout the year such as birthday celebrations in the centre, parent helping in the centre, or the children participating with the educator in extracurricular classes such as special music, dance or gymnastics sessions.
- Novel events were determined as those that typically do not occur more than once during a year, such as going on an excursion, participating in a novel

incursion at the centre, or holiday celebrations at the centre (see Hudson, 2002; Reese & Brown, 2000).

The task of nominating events took up to half an hour per educator, depending on the number of children with whom they were paired. Some educators used their centre daybooks to prompt their own memory for events. Daybooks are part of a centre's programming requirements. Educators use daybooks to record, in writing and photographs, the daily events within their room; therefore, they were a good source to assist educators to remember. Event topics were ideally unique to each child but there were some topics that applied to multiple children; for example, a magic show visiting the centre applied to more than one child. In each of these cases, the educator was encouraged to think of something specific that related to that child's own experience during the event, thus personalising the conversation.

Once educators had nominated four events, I reminded them that the aim of the research for the reminiscing condition was to examine how much and what kind of information children remember about past events with different conversational partners (see Farrant & Reese, 2000; Reese & Fivush, 1993). I asked them to discuss as normally as possible with each child the four shared past events that they had nominated for that child, using the original information on the event nomination paper as a prompt if required.

The process for future talk conversations was similar to that of the reminiscing/past event condition. In the future talk session, educators were told that the aim of the research for the future talk condition was to examine what kinds of information children offer about future events with different conversational partners (see Hudson, 2002, 2004, 2006). I asked educators to nominate two novel events and two familiar events that they anticipated participating in with each of the children to

whom they were paired. Educators were instructed to nominate events that they believed the child would be able to talk about in terms of a future event. They were given the same criteria for novel and familiar events as for the past event talk session; that is, familiar events were determined to be those which would likely occur often throughout the year, such as birthday celebrations in the centre (in this case the upcoming birthday celebration for a specific child), parent helping in the centre, or the children participating with the educator in extracurricular classes such as special music, dance or gymnastics sessions. Novel events were determined as those which typically do not occur more than once during a year, such as going on an excursion, participating in a novel incursion at the centre, or holiday celebrations at the centre (see Hudson, 2002; Reese & Brown, 2000). Several educators used centre diaries and classroom birthday calendars for ideas for future events. Future talk events were recorded for each child on a piece of paper for the educator to refer to as needed.

Educators were then asked to discuss with each child four future events that they had nominated for that child, using the event nomination paper if necessary. Again, I reminded educators for both conditions—talking about the past and future—that the conversations should be as natural as possible.

This design ensured methodological rigour in terms of counterbalancing, but in order to do this, some elements of the conversations were more controlled than would occur in an everyday context. Regardless, educators were instructed to talk in as natural a way as possible, hopefully ameliorating any controlling effect.

3.4.2.2 Determining an area for recording conversations with educators.

At each centre, in conjunction with the educator or centre director, I determined a suitable location for the recordings to occur. These included centre breakout rooms, the director's office, or an inside room not currently being used by other children. It was

important to ensure the spaces used for the language assessment and conversation recordings were spaces children were familiar with and where they regularly spent time. Once the setting was determined, I settled the educators and children into the space; usually the dyad sat at a small table and chairs. At the commencement of the session, assent was established. While the parents of each participating child had given consent for their child to participate, each child was also asked verbally for their assent. The participating children were considered to be capable and competent (Dockett & Perry, 2011) and therefore there was a focus on ensuring the children understood the nature of the tasks and they were asked if they wanted to talk to [educator name] about some things [they did last week / they did a few weeks ago / coming up next week / coming up next term]. Children were given the opportunity to respond. All but one child responded favourably. For the child who said no, the educator repeated the query about joining her in a conversation; when he still declined, I respected his wishes and he did not participate any further in the study.

3.4.2.3 Explaining the voice recorder to educators.

I next explained to the educator how to use the voice recorder. To ensure children were comfortable being recorded, they were permitted time to practice operating the recorder themselves: pressing the red button to start and the grey button to stop. I then explained to the educator and child that I would leave the room once they began conversing. For both sessions 1 and 2, educators were asked to initiate conversations with each child as normally as possible and to continue until they felt the conversation had come to a natural end. They were asked to then either move to the next conversation or to take a break if needed (for example, a have a drink of water and/or engage in a short activity that children enjoy such as bubble blowing or drawing). Finally, educators were asked to indicate to me once they had finished all four conversations and I would

re-enter the room. Once the educator was familiar with requirements, I left the room so that the educator and child could converse in private. While no dyad in the sample needed to take a break between conversations, a small number of conversations were each interrupted once for the child to use the bathroom (n = 3).

3.4.3 Procedure for the conversation recordings for mothers and children.

For the mother-child dyads, a similar process was followed. Recordings occurred at the long day care centre with the conversations being recorded at a convenient time for the mother. Recording times varied between morning drop off time and afternoon pick up time. Due to special circumstances, for one mother, the second recording occurred at home. Mothers were given the same instructions as educators. They were told that the aim of the research for the reminiscing session was to examine how much and what kind of information children remember about past events, and for the future talk condition, the aim was to examine what kinds of information children offer about future events with their mother as conversational partner.

3.4.3.1 Nominating event topics.

At the first session, some mothers nominated two novel past events and two familiar past events that they had participated in with their child (reminiscing condition). Others nominated two novel events and two familiar events that they anticipated participating in with their child (future talk condition). For two mothers in the study, siblings were participating, so these mothers were paired with two of their children. I advised all mothers on event characteristics:

- Familiar events were determined to be those which occur often throughout the year, such as a family get-together, visiting friends, playing in the park or going shopping.

- Novel events were determined to be those which typically do not occur more than once during a year, such as going on a holiday, or going on a special day outing such as to the zoo or city farm (see Hudson, 2002; Reese & Brown, 2000).

The time lapse between the recording and the occurrence of the past and future events was not prescribed. I asked mothers to nominate events that they believed their child would remember or be able to talk about in terms of a future event. I sat with the mothers and supported them to think of suitable event topics. These were recorded on the event nomination paper for the mother to refer back to during recording if needed. At the second session, I again supported the mothers to identify two familiar and two novel events for their child. Those who talked about the past in the first session then talked about the future for the second session and vice versa. This was the same process as that used by educators except that the definitions of familiar and novel events were adapted to include examples more relevant to the home and family context.

3.4.3.2 Determining an area for recording conversations with mothers.

In a similar process to that with educators, at each centre, a suitable location was determined for the mother-child recordings to occur. These included centre breakout rooms, the director's office, or an inside room not currently being used by other children. All settings were areas where children would feel familiar and comfortable. Once the setting was determined, I settled the mother and her child into the space; usually the dyad sat at a small table and chairs. At the commencement of the session, consent was established. While the mothers of each participating child had given consent for their child to participate, each child was also asked verbally for their consent. The children were asked if they wanted to talk to their mother about some

things (they did last week / they did a few weeks ago / coming up next week / coming up next term). All children responded favourably.

3.4.3.3 Explaining the voice recorder to mothers.

I also explained to mothers how to use the voice recorder. The children again wanted to operate the recorder; as it was simple to press the red button to start and the grey button to stop, many children operated the recorder with the supervision of their mother. I explained that I would leave the room once the mother and her child began conversing. For both sessions 1 and 2, mothers were asked to initiate conversations with each child as normally as possible and to continue until they felt the conversation had come to a natural end. They were asked to then either move to the next conversation, or to take a break if needed. Finally, they were asked to indicate to me once they had finished talking about all four topics and I would re-enter the room. Once the mother was familiar with the requirements, I left the room so that the mother and her child could converse in private. While no dyad in the sample needed to take a break between conversations, a small number of conversations were interrupted once for the child to use the bathroom (n = 2).

3.4.4 Transcribing the discussions.

All discussions were transcribed in “true verbatim” by a professional transcription company. True verbatim transcriptions are highly accurate in that they include all words, parts of words, and other audible sounds, for example, “ehh” and “mmm”. The transcriptions also identify laughter, giggles and silence. Participant privacy was maintained by using first names only and the centres were de-identified by using acronym codes.

3.5 Coding

Because the current study includes both past and future talk, I used the coding scheme of Hudson (2002) to code adults' and children's contributions. This coding scheme is adapted from Haden, Haine and Fivush (1997) and Reese et al. (1993). These schemes enabled a focus on coding for type of utterance, total (raw) elaborations, elaborative style, and for children, coding for just total (raw) elaborations. Hudson extended these coding protocols to focus on coding for content such as temporal language, including temporal points of reference and temporal terms. In order to also capture information on adult and child use of mental state language, I included modifications by Van Bergen and Salmon (2010), Salmon et al. (2008), and Rudek and Haden (2005). The transcripts for adults (educators and mothers) and children were coded separately for adult and child contributions.

3.5.1 Coding for adults.

Hudson's (2002, 2004, 2006) two-stage approach to coding was used. In stage one, adult talk was coded for reminiscing style. First, the language in the transcripts was formatted into utterances. Each utterance consisted of a subject and verb component (see Fivush, Haden, & Adam, 1995; Hudson, 2002, 2004, 2006; Reece et al., 1993; Song & Wang, 2013; Van Bergen & Salmon, 2010). For example; "Remember we were sitting down and she brought all these bugs out and you got up and you held some, do you remember the insects?" would be divided into five utterances: "Remember we were sitting down", "and she brought all these bugs out", "and you got up", "and you held some", "do you remember the insects?". Second, each utterance was coded as being a question, contextual statement, evaluation, prompt, memory placeholder, clarification, associative talk, or as unclassifiable. Third, utterances that had been coded as a

question, contextual statement or prompt were then further coded as an elaboration, which indicated the adult had added information to the event being discussed or as a repetition which indicated that the utterance was repeating a previous one. See Table 3.9 for specific definitions and examples of codes for each type of utterance.

In stage two, each adult utterance was coded for content. The first part of stage two focused on temporal language (including temporal points of reference and use of temporal terms) (see Table 3.10) and the second part of stage two focused on mental state language. For mental state language, Rudek and Haden (2005) identified a number of mental state terms that occur in past conversations. As Rudek and Haden coded the terms for all tenses and plural forms of the nominated words in their study; I determined that these terms could also be used for future talk conversations. In addition to the terms utilised by Rudek and Haden, an Australian English term "reckon" was added as another potential mental state term (see Table 3.8).

Table 3.8

Mental State Language Terms

Mental state language terms					
Know	Mean	Pretend	Wonder	Figure	Suppose
Think	Forget	Want	Wish	Believe	Mind
Remember	Guess	Hope	Bet	Understand	Reckon*

* *Reckon* is "colloquial" and means "to think or suppose" (Macquarie Dictionary, 2016).

Table 3.9

Coding Protocol for Educator and Mother Utterances and Elaboration Style

Utterance	Description	Example
Question	Any question that requires some kind of input from the child, including information questions, yes-no questions, and fill-in-the-blank questions.	"Did we go on a train?" "What happens at Grandma's house?"
Contextual statement	A statement that provides the child with new information about the event.	"It was hot that day."
Evaluation	Confirms or negates a child's previous utterance.	"Uh huh."
Prompt	Provides no content, but prods the child to respond.	"What else?"
Memory placeholder	Statement or question with no memory information.	"I don't know."
Clarification	Request for clarification from the child.	"What did you say?"
Associative talk	Comments about other events.	"I went to a dentist last month."
Unclassifiable	Utterance does not fall into any other category.	"You're not paying attention."
Style	**Description**	
Elaboration	Refers to new information about the event under discussion.	
Repetition	Refers to information previously discussed.	

Note. Adapted from Hudson, 2002, pp. 56-57.

Table 3.10

Coding Protocol for Educator and Mother Conversation Content: Temporal Language

Reference/term	Description	Example
	Temporal points of reference	
Past episodes	Use of the past tense.	"What did you do the last time you went to the playground?"
General event knowledge	Use of the timeless present tense.	"What happens at preschool?"
Future actions	Simple use of the future tense.	"What are you going to do at the beach?"
Future hypothetical	Includes references to possible actions.	"Maybe we'll see horses there."
	Predictions.	"Do you think Amanda will be there?"
	Elicitation of preferences.	"Would you like to have a birthday party at McDonald's?"
	Temporal terms	
Episode markers	References that serve to index which episode of a repeated event is being referred to. Although sometimes these might include reference to conventional time units but the purpose is to indicate which episode is under discussion.	"last year", "next time"
Conventional time markers	References to any conventionalised unit of time.	"day", "week", "month", "year", "Saturday", "July", "spring", "night", "hour"
Conventional time—within 24 hours	Conventional time references.	"yesterday", "today", "tomorrow", "now", "this afternoon", "tonight", "last night"
Sequence	References to time in terms of a sequence of actions within or between events.	"after", "before", "next", "then", "when we first came in", "the last thing"
Indeterminate interval	References to an interval of time, but not using a conventional time unit.	"in a while", "soon", "after a long while", "while I'm gone", "a long time ago"

Note. Adapted from Hudson, 2002, pp. 56-57.

3.5.2 Coding for children.

In the literature it is standard practice to capture children's total elaborative talk (Cleveland & Reese, 2008; Haden, 1998; Hudson, 2004, 2006; Leyva et al., 2014; Reese & Brown, 2000; Sachin-Acar & Leichtman, 2015). In this study, children's total elaborative talk was determined and the coding for the child conversational component was further adapted using the scheme developed by Hudson (2004, 2006), which includes codes for type of utterance and content, specifically temporal points of reference and temporal terms (see Table 3.11 and Table 3.12). In order to capture more detail within utterances categories, *open-ended responses to adult questions* and *spontaneous information statements* were categories added to the protocol (Van Bergen & Salmon, 2010). I also made adaptations for mental state language coding and used the same terms as initially generated by Rudek & Haden (2005), see Table 3.8.

Table 3.11

Coding Protocol for Child Utterances and Elaboration Style

Coding for elaboration		
Type of utterance	Description	Example
Questions	Genuine memory or future talk questions.	“Which mountains did we/will we go to?”
Yes-or-no responses		“Yes”, “No”
Repetitions	Repeating their own or their educator or mother’s utterances without adding additional information.	Child: “I had a sick throat.” Mother/Educator: “That’s right, you had a sick throat. That’s right. What was wrong with that throat, what did it feel like?” Child: “I was sick.”*
Open-ended responses	Open-ended responses to adult questions.	"Thredbo."
Spontaneous info Statements	Child contributes open-ended statements.	"Yes we go to Thredbo, and we have hot chocolate."
Placeholders	Participation in the conversation by taking a legitimate conversational turn but providing no memory or other additional information.	“I don’t know.”
Evaluations	Utterance that either confirmed or negated the educator or mother’s previous utterance. Head nods or shakes that can be inferred from an educator or parents comment will be coded as confirmation or negation.	“Yes I did go there.” Mother/Educator: “Did I go on the train with you?” Child: --- Mother/Educator: “You’re shaking your head—you have to speak up.”
Associative talk	Comments that are not specifically a question or statement about the event being discussed but rather a comment that relates to the event in some way.	
Off-topic talk	Utterances not related to the event being discussed.	
Unintelligible utterances	Unintelligible comments.	

Note. Adapted from Hudson, 2004, pp. 134-135; Hudson, 2006, pp. 77-78; Reese & Fivush, 1993, pp. 599; Van Bergan & Salmon, 2010.

Table 3.12

Coding Protocol for Child Conversation Content: Temporal Language

Reference type	Description	Example
	Coding for temporal points of reference	
Past episodes	Use of the past tense.	"I planted the seeds"
General event knowledge	Use of the timeless present tense.	"When we do drawing."
Future actions	Simple use of the future tense.	"I am going to …"
Future hypothetical	Includes references to possible actions.	"I might ride the bike"
	Predictions.	"I think …"
	Elicitation of preferences.	"I like …"
	Coding for temporal terms	
Episode markers	References to that serve to index which episode of a repeated event is being referred to. Although sometimes these might include reference to conventional time units (e.g., "year"), but the purpose is to indicate which episode is under discussion.	"last year", "next time"
Conventional time markers	References to any conventionalised unit of time.	"day", "week", "month", "year", "Saturday", "July", "spring", "night", "hour"
Conventional time—within 24 hours	Conventional time references.	"yesterday", "today", "tomorrow", "now", "this afternoon", "tonight", "last night"
Sequence	Reference to time in terms of a sequence of actions within or between events.	"after", "before", "next", "then", "when we first came in", "the last thing"

Note. Adapted from Hudson, 2004, pp. 134-135; Hudson, 2006, pp. 77-78; Reese & Fivush, 1993, pp. 599; Van Bergan & Salmon, 2010.

3.5.3 Coding reliability.

I coded the transcripts with a second coder who has a degree qualification in early childhood education and is a tutor in the Department of Educational Studies at Macquarie University. Initially, we coded two transcripts together so I could teach the second coder the coding protocol and together we discussed the coding decisions. The second coder and I then coded 25% of the transcripts. We discussed the protocol and any discrepancies were resolved. I then coded the remaining transcripts. Reliability was calculated as percentage agreements for educators, mothers and children. The values for agreement ranged from 84.6% to 100%. For full details of percentage agreements, see Appendix H.

3.6 Covariates: Gender, Socioeconomic Status and Educator Qualification

Potential covariates within this study were gender, socioeconomic status and educator qualification. First, I discuss gender as a potential covariate. The research is equivocal with regards to gender differences—sometimes differences are found, though these are often noted in studies with children in middle childhood (Fivush, 2014; Fivush, Bohanek, Zaman, & Grapin, 2011) and with adults (MacDonal, Uesiliana, & Hayne, 2000). Sometimes there are no differences for gender (Bost, Choia, & Wong, 2010; Farrant & Reese, 2000; Haden et al. 2009; Laible, 2011; Reese, Haden, & Fivush, 1996). Zaman and Fivush (2013) suggest that when there are gender differences noted in the reminiscing studies, these tend to indicate that mothers are more elaborative with daughters compared to their elaborative style with sons. However, Kelly (2016) found mothers with securely attached sons talked more than mothers of securely attached daughters, but securely attached boys themselves were less elaborative. Thus, with

broad differences in the findings relating to gender endemic in the literature, I added as a preliminary test, gender as a covariate for all analyses for elaboration, temporal language and mental state language, and no differences were noted. Therefore, in this study gender has been excluded from all future analyses.

Second, within the design of this study I aimed to account for socioeconomic status by recruiting centres that were within diverse socioeconomic local government areas. This is, as explained in Section 3.2.1, identified as centres being located in areas of relative advantage or areas of relative disadvantage. For the older children in the study, the number of children from each type of area (or socioeconomic background) was not statistically different; however, for the younger age group, statistically more children attended centres in areas of relative advantage. Centre based socioeconomic advantage/disadvantage was included as a covariate in the analyses to determine if it was associated with the findings.

Third, within this study, educators had either a tertiary degree teaching qualification or a Diploma in Children's Services from a technical college (see Section 3.2.4 for further details). For the younger children, 40% of educators had a tertiary degree qualification and 60% a diploma level qualification, whereas for the older group 73% had a tertiary degree qualification and 27% a diploma level qualification. Educator qualification is associated with skills in engaging children in sustained shared thinking conversational interactions (Sylva et al., 2007), educator sensitivity, responsiveness and verbal stimulation (Phillips & Lowenstein, 2011), and in classroom quality in childcare (Burchinal et al. 2002; Burchinal et al., 2008; Kelley & Camilli, 2007; Frampton, Perlman, & Jenkins, 2009). Educators with higher qualifications might use more elaborative talk than those with lower qualifications, perhaps because they know of the importance of building relationships with young children and in engaging in sustained

shared thinking conversations. Consequently, I also included educator qualifications as a covariate in the analyses.

3.7 Relationship Between the Methods and Results

The methods described in this chapter apply to the following three results chapters (Chapters 4–6). Although the results are presented as a series of chapters, all data comes from the methods described above rather than from a sequence of studies. The three results chapters focus on the findings that relate to educator and child contributions, and secondly, to the contributions of mothers as a point of comparison. Identical raw data were used for each of these chapters, but coding of the conversation data differed. Chapter 4 includes the results on elaboration, Chapter 5 details the results on use of temporal language, and Chapter 6 explains the results on use of mental state references. Each chapter responds to the corresponding three research questions indicated at the end of the literature review and which are listed again at the beginning of each results chapter.

Chapter 4: Results: Elaboration

4.1 Research Questions for Elaboration

- Research Question 1: When talking about shared events, what is the relationship between educator elaboration and child elaboration?
- Research Question 2: Does elaboration during educator-child talk about shared events vary according to event temporal focus (past/future) or event type focus (novel/familiar)?
- Research Question 3: When talking about shared events separately but with the same child, what is the relationship between educator-child elaboration and mother-child elaboration?

4.2 Introduction

This chapter presents the results relating to elaboration. There are two main sections in this chapter: Section 4.3 pertains to the educator-child use of elaboration in shared reminiscing and future talk conversations; and Section 4.4 examines the relationship between the educator-child shared reminiscing and future talk conversations and the mother-child shared reminiscing and future talk conversations.

The chapter begins with an explanation of, and rationale for, the use of the raw elaboration variable and the quotient elaboration variable. The calculation used to derive the elaboration variable is then described, followed by the justification for analyses using two educator elaboration scores. For the descriptive statistics that inform the elaboration variables, the data is examined according to educators partnered with younger and older children and for the whole cohort of children. The descriptive statistics relating to child use of elaboration are then provided.

The three research questions listed in Section 4.1 are addressed in Section 4.3 and 4.4. In Section 4.3 correlations are reported for educator-child elaborations (Research Question 1). Then the main analyses for Research Question 2 examine event temporal focus (past/future) and event type focus (novel/familiar) and have been conducted to investigate differences for the two age groups as well as the overall sample. Where appropriate, centre based socioeconomic advantage/disadvantage and educator qualifications have been included as covariates. Research Question 3 is addressed last, in Section 4.4. Throughout this chapter, reference is made to two types of elaboration scores: an *elaboration raw score* and an *elaboration quotient score*. The quotient score is the score that reflects elaborative style.

4.3 Educator-Child Elaboration

4.3.1 Educator elaboration scores.

In the current study, elaboration scores have been calculated as both raw scores and quotient scores. Following is a description of the process used to derive these scores. While the calculation process applies to both educator elaboration and mother elaboration, it is only described in detail for educators. As it is common practice in the research literature (Haden, 1998; Hudson, 2004, 2006; Leyva et al., 2009; Reese & Brown, 2000; Reese & Cleveland, 2006; Sachin-Acar & Leichtman, 2015), child elaboration is calculated solely as raw scores.

In contemporary research, elaboration has been counted in various ways, as a raw score (Farrant & Reese, 2000; Langley, Coffman & Ornstein, 2017; Salmon et al., 2011) predominantly using a calculation that captures different aspects of conversational contributions to determine a quotient score that can be considered an indicative measure of elaborative style. Coding processes in prior studies, for example,

in Hudson (2002, 2004, 2006), Reese and Fivush (1993), and Salmon et al. (2011) involved processes such as the following: participant utterances being coded as questions and contextual statements, and then being subsequently coded as to whether they were an elaboration or a repetition. Additionally, adult utterances that constituted a confirmation, negation or reinforcement of the child's utterance were coded in some research as evaluations (Hudson, 2002, 2004, 2006; Kulkofsky, 2011). Both these processes were utilised in the current study when determining the educator elaboration quotient scores. In particular, evaluations were included as elaborations, as evaluations were a frequent conversation contribution by educators—thus by including them, the elaboration quotient score captured more of the educator talk.

4.3.1.1 Educator raw elaboration scores.

Elaboration raw scores were determined for the four types of events: past novel, past familiar, future novel and future familiar. Conversations for each type of event occurred twice. Pearson's correlations revealed a high level of consistency between time point 1 and time point 2 for each type of conversation. Elaborations with the younger age group for past novel elaborations were, $r(40) = .66$, $p < .001$, for past familiar elaborations, $r(40) = .58$, $p < .001$, for future novel elaborations, $r(40) = .34$, $p = .031$ and for future familiar elaborations, $r(40) = .67$, $p < .001$. The educator elaborations with the older age group were also significantly correlated: past novel elaborations, $r(45) = .32$, $p = .035$, past familiar elaborations, $r(45) = .60$, $p < .001$, future novel, $r(45) = .41$, $p = .005$ and future familiar, $r(45) = .35$, $p = .019$. Because scores were consistent on both occasions for all conversation types, the scores from the two conversations were averaged for all subsequent analyses. A summary of the scores is presented in Table 4.1 for educator elaboration with younger, older and all child participants. Table 4.1 also presents the mean frequencies of educator repetition raw

scores. These scores (both the elaboration and repetition scores) were used in determining the quotient scores. The process for calculating these quotient scores is described next.

4.3.1.2 Educator quotient elaboration scores.

To determine the degree to which each educator total talk was elaborative (compared to the raw number of elaborations), an elaboration quotient score indicative of educator elaborative style was calculated for each conversation as follows.

$$\frac{\text{elaboration} + \text{evaluation} + 1}{\text{repetition} + 1}$$

Note that the value of one (1) was added to both the numerator and the denominator to account for instances in which the repetition score (that is, the denominator) was zero. While this meant a very small shift in the quotients calculated, it also meant that indicative scores were attainable for all educators. When the denominator was zero, that is, when there were no repetitions, the quotient score for elaborations was calculated as zero. This meant that educators with no repetitions then scored zero for their elaboration quotient score. Evidently, this did not accurately reflect their elaborations. Using plus one (+1) for the numerator and denominator was a strategy nominated to ameliorate the issue presented by zero repetitions and to reduce the large values (Petocz, personal communication, March 6, 2016). This also served to guard against distortions in the elaboration scores and ensured the final quotient score was reflective of educator contributions. Educator elaboration quotient scores were determined for all past novel, past familiar, future novel, and future familiar conversations, with the mean and standard deviation scores presented in Table 4.2.

Table 4.1

Mean (SD) for Frequencies of Educator Elaboration and Repetition Raw Scores

Style codes	Younger children (*n* = 40)				Older children (*n* = 45)				All children (*n* = 85)			
	Past		Future		Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Elaboration												
Mean	23.63	20.05	23.53	20.80	34.07	30.04	34.47	30.93	29.15	25.34	29.32	26.16
(*SD*)	(13.73)	(10.84)	(10.89)	(14.28)	(12.85)	(14.63)	(18.06)	(16.02)	(14.20)	(13.74)	(16.01)	(15.97)
Minimum	7.00	4.00	6.00	4.00	14.00	8.00	8.00	10.00	7.00	4.00	6.00	4.00
Maximum	55.00	48.00	48.00	64.00	73.00	68.00	85.00	83.00	73.00	68.00	85.00	83.00
Repetition												
Mean	4.50	3.08	3.53	5.20	5.91	6.24	6.56	7.40	5.25	4.75	5.13	6.36
(*SD*)	(4.03)	(3.23)	(3.00)	(4.92)	(5.35)	(6.11)	(5.95)	(6.73)	(4.80)	(5.19)	(5.00)	(6.01)
Minimum	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	17.00	13.00	12.00	22.00	31.00	25.00	25.00	22.00	31.00	25.00	25.00	32.00

Table 4.2

Mean (SD) for Frequencies of Educator Elaboration Quotient Scores

	Younger children (*n* = 40)				Older children (*n*= 45)				All children (*n* = 85)			
	Past		Future		Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Elaboration quotient score	9.12 (8.02)	12.18 (12.84)	10.55 (8.68)	9.52 (11.34)	10.44 (6.71)	10.93 (12.70)	10.76 (10.47)	10.99 (12.67)	9.82 (7.34)	11.52 (12.71)	10.66 (9.61)	10.30 (12.01)

Note that evaluations are not always included in elaboration quotient score calculations. Thus, as a supplementary test, a second calculation correcting for repetitions and not including the educator evaluations was also calculated using the following formula.

$$\frac{\text{elaboration} + 1}{\text{repetition} + 1}$$

Elaboration quotient scores correcting for repetitions but without evaluations were lower across all conversation types. See Appendix I for a table with these elaboration quotient scores and the elaboration quotient scores from the division including evaluations.

4.3.1.3 Justification for using both scores.

To determine which elaboration scores to use, I ran preliminary analyses using the elaboration raw scores and both the elaboration quotient scores. For the elaboration raw scores there were effects noted in several areas that were lost when the elaboration quotient score was used. These effects were expected based on previous research. In particular, there were significant associations noted in the correlations between educator elaboration raw scores and the child elaboration scores for each event type. Thus, as the elaboration raw score may potentially be a more sensitive score for educators, I decided to include analyses using the elaboration raw scores.

For the elaboration quotient scores, I ran the analyses described later in this chapter using the elaboration quotient scores from both divisions. When comparing the findings using both types of division scores there were no differences in the pattern of findings. So, as the elaboration quotient scores calculated using evaluations encompassed more of the educator conversational contribution, I decided to use this calculation in the analyses. In summary, Sections 4.3.5 - 4.3.7 present the main analyses

for educator elaboration using the elaboration raw scores and the main analyses for the elaboration quotient scores calculated using evaluations are presented.

4.3.2 Descriptive analysis of the variation for educator elaboration.

To determine whether there was variation in the way educators talked to the children with whom they were paired, I standardised the elaboration raw and quotient scores using a z-transformation. One educator was paired to only one child—as I could not look for variation in her elaboration, I did not include this educator in the analyses. The majority of educators (80– 95%) were within one standard deviation of the mean for all conversation types, regardless of whether elaboration was calculated as a raw or quotient score (see Table 4.3). Thus, educators were consistent in their elaboration across multiple children.

Table 4.3

Z-Transformation Scores and Percentages for Educator Elaboration Calculated Using Elaboration Raw Scores and Elaboration Quotient Scores by Conversation Type and for Total Raw and Total Quotient Elaboration

	Past				Future			
	Novel		Familiar		Novel		Familiar	
	Raw elaboration							
≤ 1	18	90%	18	90%	16	80%	16	80%
≤ 2	2	10%	2	10%	3	15%	4	20%
≤ 3	-	-	-	-	1	5%	-	-
	Quotient elaboration							
≤ 1	16	80%	17	85%	17	85%	15	85%
≤ 2	4	20%	3	15%	3	15%	5	25%
≤ 3	-	-	-	-	-	-	-	-
	Total raw elaboration				Total quotient elaboration			
≤ 1	20		100%		17		85%	
≤ 2	-		-		3		15%	
≤ 3	-		-		-		-	

4.3.3 Components of educator elaboration.

Educator elaboration that is comprised of multiple components includes questions, contextual statements and evaluations. As these various components of educator elaboration might predict children's elaboration in different ways, I also include here the descriptive statistics for these variables. See Table 4.4 for the mean frequencies for the various types of educator utterances from conversations with the younger children and older children, and then for all child participants.

Table 4.4

Mean (SD) for Educator Utterance Types for Younger, Older and All Children

Style codes	Younger children (*n* = 40)				Older children (*n* = 45)				All children (*n* = 85)			
	Past		Future		Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Questions	17.43 (9.22)	14.50 (5.83)	16.00 (7.47)	16.15 (9.74)	24.66 (11.65)	19.60 (9.59)	21.73 (11.55)	19.51 (11.55)	21.26 (11.13)	17.20 (8.40)	19.03 (10.20)	17.93 (10.53)
Contextual statements	10.30 (9.44)	9.02 (8.68)	12.32 (8.79)	10.35 (9.75)	13.87 (6.80)	15.28 (10.77)	17.31 (12.00)	18.08 (10.10)	12.19 (8.30)	12.34 (8.30)	12.19 (10.82)	14.96 (10.85)
Evaluations	8.10 (5.62)	7.02 (4.20)	8.40 (6.07)	8.57 (5.99)	16.51 (9.39)	12.84 (8.52)	14.51 (8.07)	14.08 (6.60)	12.55 (8.87)	10.11 (7.40)	11.64 (7.79)	11.49 (6.87)

4.3.4 Child elaboration scores.

The amount of information each child offered in a conversation was calculated as the total number of elaborations offered by conversation type. Children's contributions also comprised multiple components; of these questions, yes or no responses, open ended responses and spontaneous information statements were coded as elaborations (see Section 3.5). To determine how the total number of elaborations varied across conversation type—past novel, past familiar, future novel and future familiar—the mean (*SD*), minimum and maximum data are presented in Table 4.5. The number of repetitions offered by children was also calculated and the mean (*SD*) are also indicated in Table 4.5. Children across both age groups offered very little repetition in their conversation content (<1.00 per conversation); thus, I do not consider repetition further.

I used independent samples *t*-tests to determine similarities and differences between the elaborative contributions of the younger and older children. When in conversation with their educator, older children produced approximately twice as many elaborations as the younger children. Separate independent samples *t*-tests support a similar significant effect for age across all conversation types. There was significant difference in the elaborations for the younger (M = 9.45, SD = 6.56) and older children (M = 11.39, SD = 1.70) in past novel conversations, t (85) = 5.60, $p < .001$, for the younger (M = 8.32, SD = 1.32) and older children (M = 10.52, SD = 1.57) in past familiar conversations, t (85) = 3.94, $p < .001$, for the younger (M = 6.48, SD = 1.03) and older children (M = 13.13, SD = 1.96) in future novel conversations, t (85) = 4.87, $p < .001$ and for the younger (M = 7.62, SD = 1.20) and older children (M = 14.00, SD = 2.09) in future familiar conversations, t (85) = 3.76, $p < .001$. As the elaborations differ by age, throughout the chapter the descriptives and analyses are presented for the whole group and investigated by age group.

Table 4.5

Mean (SD) for Child Elaboration by Conversation Type with Educators

	Younger children (*n* = 40)				Older children (*n* = 45)				All children (*n* = 85)			
	Past		Future		Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Elaboration	09.45 (06.56)	10.43 (08.32)	10.15 (06.48)	10.67 (07.62)	20.93 (11.39)	18.60 (10.52)	21.31 (13.13)	20.04 (14.00)	15.53 (11.01)	14.75 (10.34)	16.06 (11.88)	15.64 (12.32)
Minimum	00.00	00.00	01.00	00.00	06.00	03.00	03.00	04.00	00.00	00.00	01.00	00.00
Maximum	24.00	41.00	27.00	27.00	62.00	53.00	62.00	75.00	62.00	53.00	62.00	75.00
Repetition	00.53 (00.71)	0.73 (01.06)	0.63 (01.19)	00.55 (01.01)	00.84 (01.36)	00.87 (01.47)	00.82 (01.25)	00.53 (00.84)	00.69 (01.11)	00.80 (01.23)	00.73 (01.23)	00.54 (00.92)
Minimum	00.00	0.00	0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
Maximum	02.00	04.00	05.00	04.00	06.00	05.00	05.00	03.00	06.00	05.00	05.00	03.00

4.3.5 Correlations between educator elaboration and child elaboration.

Pearson's correlations were used to examine the relationship between educator elaboration and child elaboration as a response to Research Question 1. The correlations are presented using the educator elaboration raw scores and then using the educator elaboration quotient scores. For the children, all elaboration scores are raw (total) elaboration scores. When using the educator raw elaboration scores, educator and child elaborations were significantly positively correlated for all four conversation types. For past novel conversations, $r(85) = .64$, $p < .001$, past familiar conversations, $r(85) = .33$, $p = .002$, for future novel conversations, $r(85) = .61$, $p < .001$ and for future familiar conversations, $r(85) = .48$, $p < .001$.

Pearson's correlations were also calculated using the educator elaboration quotient scores for all child participants (see Table 4.6). When considered this way, educator and child elaboration was positively correlated for past novel conversations only, $r(85) = .26$, $p = .002$. I also used correlations to examine the educator elaboration and child elaboration for each age group of children. These correlations are reported in Table 4.6 but can be summarised as the educator elaboration raw scores and the younger age group elaboration correlated in past novel conversations only, and for the older children there were positive correlations with educator elaboration in past novel, future novel and future familiar conversations. When using the quotient scores, there were only associations for younger children and educators in past novel conversations.

A separate set of correlations was used to investigate how the different components of educator elaboration (questions, contextual statements and evaluations) correlated with child elaboration (see Table 4.7). Pearson's correlations show strong associations for questions and evaluations in the data representing all child participants. Educator questions were significantly correlated across past novel, past familiar, future

novel and future familiar conversations for the older age group and the whole cohort data. When talking with their educators, the elaborations of older children were significantly correlated with their educators' statements when talking about the future. For younger children, elaborations were correlated for novel conversations but not for familiar conversations across both past and future time frames. Evaluations offered by educators were significantly correlated across all conversations for both younger and older children when considered separately and for the whole cohort. Full details of correlations are in Table 4.7. To examine these correlations in greater detail, a multiple regression analysis for all children was used–this is described in Section 4.3.6.

Table 4.6

Correlations for Educator-Child using Educator Elaboration Raw Scores and Quotient Scores and Child Raw Scores

	Young children (n = 40)				Older children (n = 45)				All children (n = 85)			
	Past		Future		Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Educator raw scores	.63**	.28	.40*	.29	.58**	.18	.58**	.47**	.64**	.33**	.61**	.48**
Educator quotient scores	.34*	.21	.20	.06	.21	.08	.21	.16	.26*	.102	.19	.14

*$p < .05$, **$p < .01$

Table 4.7

Educator Utterance Types Correlated with Younger Children (n = 40) and Older Children (n = 45) Elaboration

	Educator questions				Educator contextual statements				Educator evaluations			
	Past novel	Past familiar	Future novel	Future familiar	Past novel	Past familiar	Future novel	Future familiar	Past novel	Past familiar	Future novel	Future familiar
Child elaboration												
Younger	.56**	.28	.37*	.55**	.47**	.14	.37*	.17	.84**	.58**	.80**	.85**
Older	.60**	.48**	.47**	.44**	.19	.04	.61**	.40**	.73**	.75**	.82**	.71**
All	.64**	.48**	.51**	.48**	.35**	.19	.58**	.41**	.82**	.74**	.83**	.77**

*$p < .05$, **$p < .1$

4.3.6 Educator questions, contextual statements and evaluations as predictors of child elaboration.

In addition to the correlations presented in Section 4.3.5, to determine whether any or all of the specific components of educator elaboration (questions, contextual statements and evaluations) might predict child elaboration, a standard multiple linear regression analysis was used. To evaluate each component of educator contribution independently of the other variables, educator scores for questions, contextual statements and evaluations were entered simultaneously into the regression equation with the child elaboration raw scores. Table 4.8 displays the results of the regression analysis. Across the four types of conversation (past novel, past familiar, future novel and future familiar), educator questions, contextual statements and evaluations explained between 55% and 73% of the difference in children's elaboration. Educator evaluations were the only significant predictor for all types of conversations with the exception of future novel for which contextual statements were a significant, but weaker, predictor.

Table 4.8

Summary of Simple Regression for Variables Predicting Child Elaboration (N = 85)

	Past						Future					
	Novel			Familiar			Novel			Familiar		
	B	BSE	β	B	BSE	β	B	BSE	β	B	BSE	β
Constant	1.76	1.65		1.76	1.65		1.76	1.65		1.76	1.65	
questions	-.01	.10	-.01	-.01	.12	-.01	-.04	.09	-.03	-.06	.11	-.05
Contextual statements	.14	.09	.10	.04	.08	.04	.23	.07	.21*	.15	.09	.13
Evaluations	.99	.13	.79**	1.02	.14	.73**	1.14	.13	.75**	1.35	.17	.75**
R^2		.68			.55			.73			.61	
F		56.27			32.55			71.88			42.26	

*$p < .05$. **$p < .01$

4.3.7 Variation in educator elaboration raw scores.

To answer Research Question 2, a repeated measures analysis of covariance (ANCOVA) was used to determine whether educator elaborations differed depending upon child age (younger/older), event temporal focus (past/future) or event type focus (novel/familiar), or an interaction between these factors. Centre based socioeconomic advantage/disadvantage and educator qualifications were entered as covariates and elaboration quotient scores were entered as the dependent variable. Note that child age is factored into the ANCOVA as a variable; therefore, the ANCOVA analysis was conducted using all participants (both younger and older age groups) together. In each analysis, main effects and two-way interaction effects are reported sequentially. Three-way interaction effects are not reported for either the educator elaboration raw or quotient score analyses. Experimentally, these are not meaningful within this study, as the sample size for this study is smaller than the recommended sample size required to detect three-way interactions (Heo & Leon, 2010).

4.3.7.1 Temporal focus and event type focus.

The ANCOVA revealed a main effect for age, $F(1, 81) = 5.24$, $p = .025$, $\eta_p^2 = .061$. As this analysis is using the raw scores it is expected that there would be an effect for age as there are more contributions by educators when talking to the older children (see Table 4.1 for the mean (*SD*) for frequencies of educator elaboration). This main effect for age differs from the findings in the ANCOVA using the quotient score where there was no main effect for age (see Section 4.3.8). There was no main effect for temporal focus, $F(1, 81) = 1.07$, $p = .305$, $\eta_p^2 = .013$, but there was a significant effect for event type, $F(1, 81) = 4.15$, $p = .045$, $\eta_p^2 = .049$. Educators used more elaborations when talking about novel events ($M = 29.24$, $SD = 15.11$) than when talking about

familiar events (*M* = 25.75, *SD* = 14.86). There was no interaction for event x age, $F(1, 81) = 1.13$, $p = .291$, $\eta_p^2 = .014$, temporal focus x age, $F(1, 81) = .04$, $p = .843$, $\eta_p^2 = .000$ or for event x temporal focus, $F(1, 81) = .13$, $p = .717$, $\eta_p^2 = .002$. These findings relating to the interactions vary to those derived when using the quotient score. These variations are discussed in Section 4.3.8.

4.3.7.2 Covariates.

The ANCOVA did not show a significant effect for the covariate centre based advantage/disadvantage, $F(1, 81) = 2.08$, $p = .153$, $\eta_p^2 = .025$. There was no interaction for centre based socioeconomic advantage/disadvantage x temporal focus, $F(1, 81) = .59$, $p = .445$, $\eta_p^2 = .007$ or for centre based socioeconomic advantage/disadvantage x event type, $F(1, 81) = 1.25$, $p = .266$, $\eta_p^2 = .015$. When looking at educator qualifications, there was a significant main effect for educator qualifications, $F(1, 81) = 4.22$, $p = .043$, $\eta_p^2 = .050$. Educators with a tertiary degree qualification had higher raw scores of elaboration across all conversation types (see Table 4.9) when compared to educators with a diploma level qualification. There were no interactions. Educator qualification x temporal focus, $F(1, 81) = .59$, $p = .445$, $\eta_p^2 = .007$ and for educator qualification x event, $F(1, 81) = 1.33$, $p = .252$, $\eta_p^2 = .016$.

Table 4.9

Mean (SD) for Frequencies of Educator Elaboration by Educator Qualification

	Tertiary degree qualified educators (*n* = 47)				Diploma qualified educators (*n* = 38)			
	Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Elab. raw score	31.30 (12.28)	27.72 (13.16)	32.66 (17.71)	30.13 (14.44)	26.50 (16.04)	22.39 (14.04)	25.18 (12.65)	21.26 (16.59)
Elab. quotient score	11.61 (07.83)	14.89 (15.32)	13.27 (11.37)	14.24 (14.13)	07.60 (06.07)	07.35 (06.54)	07.44 (05.44)	05.43 (05.37)

4.3.8 Variation in educator elaboration quotient scores.

A second repeated measures analysis of covariance (ANCOVA) with elaboration quotient scores as the dependent variable was used to determined how educator elaborative style varied and to provide data to contrast with the educator elaboration raw score data. Again, centre based socioeconomic advantage/disadvantage and educator qualifications were entered as covariates.

4.3.8.1 Temporal focus and event type focus.

The ANCOVA revealed no main effect for age, $F(1, 81) = 1.15$, $p = .286$, $\eta_p^2 = .014$, but a significant main effect for temporal focus, $F(1, 81) = 5.04$, $p = .028$, $\eta_p^2 = .059$. Educators had higher elaboration quotient scores when discussing past familiar events than future familiar events and higher elaboration quotient scores when discussing future novel events when compared to past novel events (see Figure 4.1). There was no main effect for event type, $F(1, 81) = .026$, $p = .871$, $\eta_p^2 = .000$ and no interaction for event x age, $F(1, 81) = 2.93$, $p = .091$, $\eta_p^2 = .035$, temporal focus x age, $F(1, 81) = 3.50$, $p = .065$, $\eta_p^2 = .041$ or for event x temporal focus, $F(1, 81) = 2.86$, $p = .095$, $\eta_p^2 = .034$.

4.3.8.2 Covariates.

With the elaboration quotient scores, the ANCOVA did not show a significant effect of the covariate centre based socioeconomic advantage/disadvantage, $F(1, 81) = .17$, $p = .682$, $\eta_p^2 = .002$. There was however, a significant interaction for centre based socioeconomic advantage/disadvantage x temporal focus, $F(1, 81) = 10.27$, $p = .002$, $\eta_p^2 = .113$, but no interaction for centre based socioeconomic advantage/disadvantage x event type, $F(1, 81) = 9.23$, $p = .139$, $\eta_p^2 = .127$. When

looking at qualifications, there was a significant main effect for the covariate educator qualifications, $F(1, 81) = 16.45$, $p < .001$, $\eta_p^2 = .169$. When considering interactions, there was no interaction between educator qualification x temporal focus, $F(1, 81) = 1.12$, $p = .292$, $\eta_p^2 = .014$, but there was an interaction between educator qualification x event type, $F(1, 81) = 7.59$, $p = .007$, $\eta_p^2 = .086$.

The ANCOVA using the quotient score revealed no main effect for age which contrasts with the findings for educator elaboration when calculated as a raw score. This difference in finding a main effect for age with the elaboration raw score can, however, be accounted for by the higher number of contributions (raw counts) by educators when talking to the older children. There was also a significant main effect with the quotient scores for temporal focus, that is, depending on whether event conversations were about the past or future as compared to no effect for temporal focus with the raw elaboration score. Upon examination of the elaboration quotient scores, the difference can be accounted for by the overall greater difference between past novel ($M = 9.82$, $SD = 7.34$) and past familiar ($M = 11.52$, $SD = 12.74$) conversations than the marginal difference between future novel ($M = 10.66$, $SD = 9.61$) and future familiar ($M = 10.30$, $SD = 12.01$) conversations. Educators had higher elaboration quotient scores when discussing past familiar events when compared to future familiar events, and higher elaboration quotient scores when discussing future novel events when compared to past novel events (see Figure 4.1). Further contrasts are evident: elaboration raw scores showed a significant main effect for event type, that is, whether the event topic was novel or familiar (see Section 4.3.7); yet for quotient scores there was no main effect for event type. In their respective ANCOVA analyses, both the elaboration raw and quotient scores revealed no interaction effects.

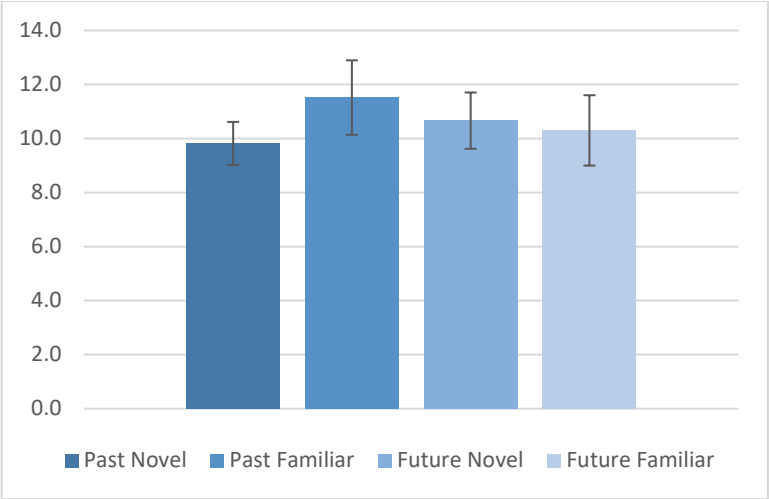


Figure 4.1. Educator elaboration quotient scores.

For the covariates, differences in findings are again apparent. First, for socioeconomic status at the centre location, there is no main effect for either the elaboration raw or quotient scores. For the raw scores, there are no interaction effects relating to centre based socioeconomic advantage/disadvantage, but for the quotient scores there is an interaction effect for centre based socioeconomic advantage/disadvantage with event temporal focus but not event type. Second, for the covariate of educator qualifications, there was a significant main effect for both the elaboration raw and quotient scores. Educators with tertiary degree qualifications had higher elaboration raw and quotient scores across all conversation types (see Table 4.9) when compared to educators with a diploma level qualification. In particular, for some event conversations the quotient score is almost twice that of the diploma level qualified educators. For the raw scores, there were no interaction effects but for the quotient scores, educator qualifications showed an interaction effect for event type, with a higher elaborative style indicated for familiar conversations. Thus, educators with a tertiary degree are more elaborative in their conversations about familiar events. There was no interaction effect for event temporal focus.

4.3.9 Variation in child elaboration scores.

To answer Research Question 2, which relates to the children's elaboration, an ANCOVA was run to determine whether children's elaboration differed depending upon age (younger/older), event temporal focus (past/future), event type (novel/familiar) or an interaction between these factors. Again, the covariates were centre based socioeconomic advantage/disadvantage and educator qualifications.

4.3.9.1 Temporal focus and event type focus.

The ANCOVA with child elaboration as the dependent measure revealed a significant effect for age, $F(1, 81) = 21.15$, $p < .001$, $\eta_p^2 = .207$, with the older children contributing significantly more to conversations than younger children. There was no main effect for event temporal focus, $F(1, 81) = .82$, $p = .368$, $\eta_p^2 = .010$, or event type, $F(1, 81) = .47$, $p = .497$, $\eta_p^2 = .006$. There was no interaction for event x age, $F(1, 81) = 2.58$, $p = .112$, $\eta_p^2 = .031$, temporal focus x age, $F(1, 81) = .51$, $p = .476$, $\eta_p^2 = .006$ or for event x temporal focus, $F(1, 81) = .01$, $p = .916$, $\eta_p^2 = .000$.

4.3.9.2 Covariates.

The repeated measures analysis of covariance, with child elaboration as the dependent measure and socioeconomic status as the covariate, revealed no interaction for centre based socioeconomic advantage/disadvantage x event temporal focus, $F(1, 81) = 1.93$, $p = .169$, $\eta_p^2 = .023$ and no interaction for centre based socioeconomic advantage/disadvantage x event type, $F(1, 81) = .75$, $p = .388$, $\eta_p^2 = .009$. When looking at educator qualifications as the covariate, this revealed no interaction for educator qualification x event temporal focus, $F(1, 81) = .00$, $p = .991$, $\eta_p^2 = .000$ and no interaction for educator qualification x event type, $F(1, 81) = .15$, $p = .700$, $\eta_p^2 = .002$. Children's elaborations did not vary significantly across any parameters except for age.

4.4 Educator-Child Elaboration and Mother-Child Elaboration

Research Question 3 asks about the relationship between the educator elaboration during discussions with a child, and mother elaboration during discussions with the same child. I approached the analyses for Research Question 3 in two ways. First, Pearson's correlations were used to determine any association between educator elaboration and mother elaboration for conversations at each temporal focus and event type. For the correlations, both the elaboration raw score and the elaboration quotient score were used in the analyses. As explained at the beginning of the chapter, elaboration scores for educators and mothers have been calculated as both raw scores and quotient scores, and child elaboration is calculated solely as raw scores.

Second, I sought to establish whether there were any systematic differences between the two groups: educators and mothers. To do this I used an ANCOVA. The findings from these two analyses are presented in this section. Recall from the method chapter (see Section 3.2), children who participated with their mothers were a subgroup of all participants, so these correlations and the ANCOVA specifically target the data from educator conversations with children from both age groups, but for only those children who also participated with their mother (n = 42). In the method chapter (see Section 3.2.) it was established that this subgroup of participants did not differ from the wider group of all participants.

The amount of information each child offered (when in conversation with their mother) was calculated as the total number of elaborations by conversation type. The mean (*SD*) are presented in Table 4.10. As this group of children (n = 42) is a subgroup of all children, the mean (*SD*) for the elaboration scores with educators is also presented in Table 4.10.

Table 4.10

Mean (SD) Scores for Child Elaboration with Educators and Mothers by Conversation Type

Style codes	Younger children (*n* = 20)				Older children (*n* = 22)			
	Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Mother elaboration	19.55 (10.72)	13.55 (6.72)	18.00 (9.84)	13.45 (6.20)	28.86 (14.72)	25.36 (13.72)	30.81 (17.64)	32.27 (17.46)
Educator elaboration	11.75 (7.25)	12.95 (9.38)	12.45 (7.00)	12.05 (7.47)	22.68 (14.04)	20.95 (12.84)	23.73 (14.36)	19.95 (11.50)

4.4.1 Correlations between educator and mother elaboration using elaboration raw scores and elaboration quotient scores.

When using the elaboration raw scores, educator and mother elaboration was not correlated across any conversation type nor were there any correlations for educator and mother elaboration quotient scores. The analyses for the educator raw and educator quotient elaboration scores were run for the whole group (n = 42), and then for the groups of younger children (n= 20) and older children (n= 22) with the same finding of no associations between educator and mother elaboration.

4.4.2 Correlations between educator and child elaboration and mother and child elaboration using elaboration raw scores and elaboration quotient scores.

Educator and child elaboration correlations for all participants were presented earlier in Section 4.3.5. For the educator-child dyads who were in the subgroup whose mothers participated (n = 42), Pearson's correlations were again used to investigate whether educator elaboration as both raw scores and quotient scores was correlated with child elaboration (raw scores). Educator elaboration calculated using raw scores was positively correlated with children's elaboration across novel past and future events for the younger, older and all children (see Table 4.11). Elaboration calculated as the quotient score was not correlated with children's elaboration across any conversation type for either the whole group or when examining younger and older children groups separately.

However, when examining correlations for mother and child elaboration, first for mother elaboration using the raw scores, when considered as a whole group (n = 42) mother-child elaboration was correlated for all of the event conversation types. For the separate cohorts, younger children were correlated across past novel, past familiar and

future novel conversations, and older children were correlated for both future novel and future familiar event conversations but not for either of the past event conversations. When using the quotient scores and considering the correlations for all children, mothers were positively correlated across three of the four event conversation types: past familiar, future novel and future familiar. For the mother-child dyads by age group, significant correlations were noted for future novel conversations with the younger group, and future familiar conversations with the older group (again see Table 4.11). To conclude, mother-child dyads were correlated on more events than educator-child dyads for both the younger and older age groups and when all the children were grouped together, regardless of whether the elaboration scores used were raw or quotient scores.

4.4.3 Educator questions, contextual statements and evaluations as predictors of child elaboration.

In addition to the correlations, similarly to educators, the specific components of mother elaboration (questions, contextual statements and evaluations) were used in a standard linear regression analysis to ascertain how the components might predict child elaboration. Maternal scores for questions, contextual statements and evaluations were entered simultaneously into the regression equation with the child elaboration raw scores. This was done for each conversation type: past novel, past familiar, future novel and future familiar.

Table 4.12 displays the results of the regression analysis. Mother conversational contributions predicted child elaboration differently to educators depending upon whether they were talking about the past or the future. In conversations about the past, maternal contextual statements were significant predictors of child elaboration, but this was not the case for educators. In conversations about the future, mothers were similar to educators in that evaluations significantly predicted child elaboration. These

comparisons were made against the educator-child conversations for the whole group of participants. As a fidelity check, I ran another regression with educator-child dyads using only those children whose mother had participated. The same pattern of findings was evident.

Table 4.11

Correlations for Educator-Child and Mother-Child Elaboration using Elaboration Raw Scores and Quotient Scores

	Young children (n = 20)				Older children (n = 22)				All children (n = 42)			
	Past		Future		Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Educator raw scores	.65**	.25	.59**	.26	.65**	.02	.61**	.17	.68**	.21	.68**	.27
Mother raw scores	.73**	.76**	.47*	.26	.08	.328	.47*	.45*	.38*	.53**	.56**	.55**
Educator quotient scores	.29	.16	.33	-.01	.11	-.05	.12	-.03	.192	.01	.16	-.04
Mother quotient scores	.03	.13	.61**	.12	-.07	.24	.18	.45*	-.04	.31*	.33*	.34*

*p < .05, **p < .1

Table 4.12

Maternal Questions, Contextual Statements and Evaluations as Predictors of Child Elaboration (n = 42)

	Past						Future					
	Novel			Familiar			Novel			Familiar		
	B	BSE	β	B	BSE	β	B	BSE	β	B	BSE	β
Constant	2.81	5.92		5.46	4.13		.55	4.66		.03	4.98	
questions	.14	.19	.11	.18	.19	.16	.17	.24	.09	-.01	.25	-.07
Contextual statements	.48	.17	.40	.36	.19	.30	.24	.14	.22	.32	.14	.31*
Evaluations	.37	.22	.40**	.29	.27	.19	.77	.21	.53**	.81	.21	.51**
R^2		.31			.28			.50			.61	
F		5.75			4.83			12.66			42.26	

*$p < .05$. **$p < .05$

The second analysis for Research Question 3 was to use an ANCOVA with the data from the educator-child and mother-child dyads to determine whether the elaboration of the two groups differed systematically depending upon talk partner (educator/mother) and age (younger/older), temporal focus (past/future), event type (novel/familiar) or an interaction between these factors. Similarly to the previous analyses, the same covariates, socioeconomic status at centre location and educator qualification were used.

4.4.4 Variation in educator and mother elaboration raw scores.

4.4.4.1 Temporal focus and event type focus.

The ANCOVA revealed no main effect for talk partner, $F(1, 38) = .28$, $p = .603$, $\eta_p^2 = .007$. There was an expected significant main effect for age, $F(1, 38) = 13.05$, $p = .001$, $\eta_p^2 = .256$ and a significant main effect for event type, $F(1, 38) = 6.71$, $p = .014$, $\eta_p^2 = .150$. There was no main effect for temporal focus, $F(1, 38) = .003$, $p = .958$, $\eta_p^2 = .000$. There were no interactions for talk partner x age, $F(1, 38) = .26$, $p = .614$, $\eta_p^2 = .007$, for talk partner x temporal focus, $F(1, 38) = .50$, $p = .486$, $\eta_p^2 = .013$ or for talk partner x event type, $F(1, 38) = .28$, $p = .603$, $\eta_p^2 = .007$.

4.4.4.2 Covariates.

There was no interaction for talk partner x educator qualification, $F(1, 38) = .18$, $p = .676$, $\eta_p^2 = .005$ or for talk partner x centre based socioeconomic advantage/disadvantage, $F(1, 38) = 1.61$, $p = .288$, $\eta_p^2 = .030$.

4.4.5 Variation in educator and mother elaboration quotient scores.

4.4.5.1 Temporal focus and event type focus.

The ANCOVA revealed a significant main effect for talk partner, $F(1, 38) = 4.76$, $p = .035$, $\eta_p^2 = .111$. There was no main effect for age, $F(1, 38) = .73$, $p = .400$, $\eta_p^2 = .019$,

temporal focus, $F(1, 38) = .73$, $p = .400$, $\eta_p^2 = .019$ or event type, $F(1, 38) = 1.30$, $p = .261$, $\eta_p^2 = .033$. There was no interaction for talk partner x age, $F(1, 38) = 1.89$, $p = .178$, $\eta_p^2 = .047$, for talk partner x temporal focus, $F(1, 38) = 2.71$, $p = .108$, $\eta_p^2 = .067$ or for talk partner x event type, $F(1, 38) = .99$, $p = .491$, $\eta_p^2 = .013$.

4.4.5.2 Covariates.

There was, however, an interaction for talk partner x educator qualification, $F(1, 38) = 5.93$, $p = .020$, $\eta_p^2 = .135$, but no interaction for talk partner x centre based socioeconomic advantage/disadvantage, $F(1, 38) = .36$, $p = .555$, $\eta_p^2 = .009$.

The findings for the educator and mother elaboration raw and quotient scores vary. For the raw scores, there was no main effect for talk partner but there was a significant main effect for age, temporal focus (past/future) and event (novel/familiar). Whereas the quotient scores showed a main effect for talk partner but not for age, event or temporal focus. The main effect for talk partner using the quotient scores suggests that mothers are more elaborative with their children than some educators. The interaction between talk partner and educator qualification shows that this relationship between mothers and educators is associated with educator qualification. When reviewing the mean and standard deviation quotient scores for educator and mother elaboration, mothers have higher mean elaboration quotient scores across all four conversation types (see Table 4.13).

Table 4.13

Mean (SD) for Frequencies of Educator and Mother Elaboration Quotient Scores for all Educator-Child and Mother-Child Dyads (n = 42)

	Educator				Mother			
	Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Elaboration quotient score	11.02 (7.49)	13.66 (14.83)	11.68 (9.06)	11.17 (12.77)	11.43 (9.20)	14.42 (12.85)	18.54 (15.29)	13.71 (9.94)

To investigate this further, the mean and standard deviation for elaboration of mothers was compared to the elaboration quotient scores of educators with a tertiary degree qualification and elaboration quotient scores of educators with a diploma level qualification (dependent upon whether their child was paired to a degree qualified or diploma qualified educator). As more of the younger children talked to diploma qualified educators than degree qualified educators, each group was considered by age and educator qualification. For the older age group, mothers and degree qualified educators were very similar in their scores across all conversation types. When compared to diploma qualified educators, mothers had higher mean scores for past familiar and future novel and future familiar conversations with the older children. For the younger children, mothers' elaboration mean scores were higher than the mean scores of diploma qualified educators for all conversations, but were lower when compared to degree qualified educators in past novel, past familiar and future familiar conversations (see Table 4.14).

Table 4.14

Mean (SD) for Educator and Mother Elaboration Quotient Scores for all Educator-Child and Mother-Child Dyads by Educator Qualification

	Educator				Mother			
	Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Younger children								
Diploma (*n* = 11)	6.47 (4.52)	8.99 (8.56)	10.58 (8.33)	6.09 (7.42)	12.38 (11.94)	11.65 (11.57)	19.84 (24.50)	14.44 (14.36)
Degree (*n* = 9)	14.65 (9.13)	20.41 (14.79)	12.69 (8.68)	19.31 (17.73)	9.67 (7.61)	11.81 (10.39)	14.15 (9.37)	8.90 (4.42)
Older children								
Diploma (*n* = 9)	12.66 (8.98)	6.62 3.84	6.88 (3.43)	5.25 (3.46)	12.35 (7.03)	16.68 (17.50)	16.30 (9.56)	13.82 (6.14)
Degree (n=13)	11.21 (5.89)	17.83 (20.60)	15.28 (11.45)	13.93 (13.61)	11.21 (9.75)	17.00 (12.39)	22.01 (12.10)	16.33 (10.12)

4.5 Conclusion

The findings for educator elaboration differed depending upon the type of elaboration score used. There were more apparent correlations between educator elaboration and child elaboration when using the raw scores than when using the quotient scores. Educator elaboration using raw scores were significantly positively associated with child elaboration for all event conversation types. Conversely, for the educator elaboration quotient score, this was associated with child elaboration for past novel conversations only.

Next, I considered if elaboration during educator-child talk about shared events varied according to event temporal focus (past/future) or event type (novel/familiar). Educator elaboration based on elaboration quotient scores differed by temporal focus; educators had higher elaboration quotient scores when discussing past familiar events than when discussing future familiar events, and higher elaboration quotient scores when discussing future novel events when compared to past novel events. When analysing elaboration using raw elaboration scores, educators varied depending upon the age group of the children. This is expected, as there are more contributions by educators when talking to the older children; however, when using the raw scores, educator elaboration also differed depending upon event type. For both calculations of elaboration, educators varied significantly depending upon whether they were degree or diploma qualified.

Educator and mother elaboration also differed. When considering the elaboration quotient scores or the raw elaboration scores, educator and mother elaboration was not correlated across any conversation type. When determining the difference between educator and mother elaboration, mothers were noted to be more elaborative with their children than educators; however, the interaction between talk partner (educator/mother) and educator qualification shows that this relationship between mothers and educators is dependent on educator qualification.

Chapter 5: Results: Temporal Language

5.1 Research Questions for Temporal Language

- Research Question 1: When talking about shared events, what is the relationship between educator temporal language contributions and child elaboration and temporal language contributions?
- Research Question 2: Does use of temporal language during educator-child talk about shared events vary according to temporal focus (past/future) or event type focus (novel/familiar)?
- Research Question 3: When talking about shared events separately but with the same child, what is the relationship between educator-child temporal language contributions and mother-child temporal language contributions?

5.2 Introduction

This chapter presents the results relating to temporal language. It is divided into two sections. Section 5.3 presents the findings relating to educator and child conversations and Section 5.4 draws comparisons between educator and child use of temporal language and mother and child use of temporal language in reminiscing and future talk conversations. In this study, temporal language refers to both temporal points of reference and temporal terms. Hudson (2002) defines *temporal points of reference* as speaker use of either past episode references (using past tense), timeless present references, future action references and future hypothetical references, and *temporal terms* as speaker use of episode markers, conventional time markers, conventional time markers within 24 hours, sequences and indeterminate intervals in language (see Section 3.5 for further detail including descriptions and examples of these terms).

This chapter begins with the main descriptive statistics relating to educator and child use of temporal language (see Section 5.3). The descriptive statistics are predominantly presented for the younger and older educator-child dyads to indicate the scores for each group, and for some data, the descriptives relate to all educator-child dyads. The three research questions at the beginning of the chapter (see Section 5.1) are addressed sequentially. Research Questions 1 and 2 focus on the relationship between educator temporal language contributions and child elaboration and temporal language contributions and the difference in educator and child use of temporal talk in conversations about shared events—these questions are addressed in Sections 5.3.3 and 5.3.4 respectively. Research Question 3, comparing educator and child, and mother and child temporal language contributions during separate discussions with the same child, is addressed in Section 5.4. As mother use of temporal language is first considered here, the beginning of the section includes the descriptive statistics relating to mother and child use of temporal language. The main analyses, similarly to the educator and mother use of elaboration in the previous chapter, include temporal focus and event type focus and have been conducted to investigate differences for the two age groups as well as all participants. Where appropriate, centre based socioeconomic advantage/disadvantage and educator qualifications have been included as covariates.

5.3 Educator-Child Use of Temporal Language

5.3.1 Educator temporal points of reference scores.

Descriptives for educator use of temporal points of reference are presented in Table 5.1. Specifically, Table 5.1 shows the mean, standard deviation and minimum and maximum counts for educator use of past episode references, timeless present references, future action references and future hypothetical references in past and future conversations

with younger children. Table 5.2 presents the same information for the educator and older children dyads. Then the descriptives for the child use of temporal points or reference are provided. Finally, the correlations between event type focus and educator and child use of temporal points of reference are presented separately for the younger and older age groups. All but five of the 32 categories for temporal points of reference across the four conversation types have minimum scores of zero.

Table 5.1

Mean (SD), Minimum and Maximum Scores for Educator Past Episode References, Timeless Present References, Future Action References and Future Hypothetical References when in Conversation with Younger Children (n = 40)

Categories	Mean	*SD*	Minimum	Maximum
Past novel				
Past episodes	28.25	18.50	7.00	78.00
Timeless present	1.75	2.33	.00	9.00
Future action	.28	2.33	.00	3.00
Future hypothetical	.40	.93	.00	4.00
Past familiar				
Past episodes	18.03	12.29	1.00	52.00
Timeless present	6.18	9.12	.00	40.00
Future action	.58	1.38	.00	7.00
Future hypothetical	.40	9.12	.00	4.00
Future novel				
Past episodes	2.23	3.17	.00	12.00
Timeless present	10.05	8.76	.00	37.00
Future action	5.53	4.14	.00	19.00
Future hypothetical	9.35	5.97	.00	25.00
Future familiar				
Past episodes	3.38	5.33	.00	25.00
Timeless present	9.70	10.73	.00	40.00
Future action	4.50	3.32	.00	14.00
Future hypothetical	9.08	6.33	.00	25.00

Table 5.2

Mean (SD), Minimum and Maximum Scores for Educator Past Episode References, Timeless Present References, Future Action References and Future Hypothetical References when in Conversation with Older Children (n = 45)

Categories	Mean	*SD*	Minimum	Maximum
Past novel				
Past episodes	32.20	13.02	9.00	75.00
Timeless present	3.51	4.25	.00	18.00
Future action	.18	.65	.00	4.00
Future hypothetical	0.40	1.95	.00	13.00
Past familiar				
Past episodes	28.71	15.18	2.00	66.00
Timeless present	5.84	6.15	.00	23.00
Future action	.60	1.32	.00	6.00
Future hypothetical	.40	1.95	.00	13.00
Future novel				
Past episodes	3.16	4.42	.00	25.00
Timeless present	6.29	6.83	.00	27.00
Future action	8.40	6.45	.00	28.00
Future hypothetical	15.96	10.59	.00	52.00
Future familiar				
Past episodes	4.53	5.02	.00	17.00
Timeless present	8.04	7.21	.00	32.00
Future action	8.80	7.18	.00	42.00
Future hypothetical	12.24	7.32	1.00	37.00

5.3.2 Child temporal points of reference scores.

The descriptive statistics for child use of temporal points of reference are presented in Table 5.3. Specifically, Table 5.3 shows the mean and standard deviation for child use of past episode references, timeless present references, as well as future action references and future hypothetical references in past and future conversations with their educators.

5.3.3 Correlations between educator use of temporal points of reference and child elaboration and child use of temporal points of reference.

This section addresses Research Question 1 using correlational analysis to indicate the relationship between educator use of temporal points of reference and child elaboration, and educator use of temporal points of reference and child use of educator temporal points of reference. The correlations are shown for the younger and older children in Table 5.4.

For the younger children, educator references to past episodes are positively correlated with the children's elaboration in past novel event discussions. Educator references to the timeless present tense are positively correlated with children's elaboration in future novel and future familiar event discussions. Educator references to future actions are positively correlated to children's elaborations in past familiar and future novel event discussions, and educator future hypothetical contributions are positively correlated to children's elaborations in future novel and future familiar event discussions.

Table 5.3

Mean (SD) for Frequencies for Child Use of Temporal Points of Reference with Educators

Temporal language	Younger children with educators (*n* = 40)				Older children with educators (*n* = 45)				All children with educators (*n* = 85)			
	Past		Future		Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Past episodes												
Mean	3.30	3.47	.63	.55	9.57	7.13	3.40	1.71	6.62	5.41	2.09	1.16
(*SD*)	(3.70)	(4.22)	(1.23)	(1.17)	(7.84)	(6.07)	(6.27)	(3.37)	(6.96)	(5.57)	(4.83)	(2.64)
Timeless present												
Mean	2.07	3.15	3.07	3.67	3.73	4.66	6.97	5.31	2.95	3.95	5.14	4.54
(*SD*)	(3.47)	(3.68)	(2.89)	(4.53)	(4.15)	(5.76)	(6.58)	(7.15)	(3.19)	(4.93)	(5.52)	(6.07)
Future action												
Mean	.18	.43	1.90	1.50	.47	.62	5.22	05.73	00.33	0.52	3.66	3.75
(*SD*)	(.55)	(1.10)	(3.10)	(2.30)	(1.05)	(1.92)	(4.96)	(5.48)	(00.86)	(1.58)	(4.51)	(4.76)
Future hypothetical												
Mean	.00	.00	.18	.05	.08	.04	1.00	1.27	.05	.02	.61	0.69
(*SD*)	(.00)	(.00)	(.50)	(.22)	(.46)	(.30)	(2.55)	(3.99)	(.34)	(.22)	(1.92)	(2.96)

For the older children, educator references to past episodes are significantly correlated with children's elaborations in conversations about both past novel and past familiar events and also to children's elaborations in conversations on future novel and familiar events. Educator references to the timeless present are significantly correlated to conversations on future novel and future familiar event topics. The timeless present educator contributions extend children's understanding of the topic by adding more information about the topic and therefore scaffolding children's contributions. Educator references to future actions are significantly correlated with children's elaborations in past familiar and future novel conversations. Educator future hypothetical contributions are significantly correlated with children's elaborations on events in future novel and future familiar conversations.

Next, I consider the relationship between educator-child use of temporal points of reference. The data is presented according to age group as the younger children were noted to use relatively few temporal points of reference in their conversations, while the older children offered more frequent use of these references. The mean (*SD*) for both groups are presented in Table 5.3. So as to identify any potential relationships, the correlations were run separately by age group (see Table 5.4). For the younger age group, their use of temporal language, specifically their references to past episodes, was associated in past novel conversations with educator use of past episode references. For the older children, their use of past references was also associated with educator use of past references in past novel conversations. Neither age group showed associations with educator use of temporal points of reference in past familiar conversations. For the older group, further associations were noted. The children used future action references in association with their educators in future novel event conversations and also used both future action and future hypothetical references in association with their educators in future familiar conversations.

Table 5.4

Correlations for Educator Temporal Points of Reference and Child Temporal Points of Reference and Child Elaboration for Younger, Older and All Children

		Child elaboration				Child temporal language			
		Past		Future		Past		Future	
		Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Younger children									
Educator temporal language	Past episodes	.55**	.09	.01	.01	.52**	-.06	-.19	-.04
	Timeless present	.14	.24	.31*	.48**	-.10	.25	.04	-.04
	Future action	.13	.37*	.37*	.02	-.02	.28	-.02	-.18
	Future hypothetical	-.12	.22	.47**	.45**	-.12	.13	.17	-.15
Older children									
Educator temporal language	Past episodes	.38**	.37*	.37*	.34*	.09	-.24	.10	.35**
	Timeless present	.04	-.18	.47**	.51**	.19	.27	.25	.28
	Future action	-.02	.13	.39**	.12	-.05	.10	.42**	.06
	Future hypothetical	-.04	.04	.52**	.39**	-.15	.12	.31*	.31*

*$p < .05$, **$p < .01$

5.3.4 Variation in educator use of temporal points of reference.

To answer Research Question 2, I used an ANCOVA to determine whether conversations differed depending upon child age (younger/older), event temporal focus (past/future) or event type focus (novel/familiar). The dependent measures were educator use of the following temporal points of reference: past episodes, timeless present, future action and future hypothetical. Centre based socioeconomic advantage/disadvantage and educator qualifications were entered as covariates. Three-way interactions are not reported as the sample size for this study is too small to reliably report (Heo & Leon, 2010).

The temporal language data was positively skewed for all but three variables (references to past episodes in past novel and familiar conversations and future hypothetical references in future familiar conversations) see Table 5. 5. With a non-normal distribution it is possible to "transform" the scores so as to make the distribution appear more normal (Pallant, 2013, p. 96). This is desirable as an ANCOVA assumes normally distributed scores. Different transformations can be used depending upon the shape of the distribution. Using Pallant's data distribution patterns (see Figure 8.2 in Pallant, 2013, p. 97 for more information) I determined that the distribution of scores for the temporal language data in this study required a square root transformation. This was performed in SPSS and the transformed data is reported in Table 5.6. Typically the acceptable level of skewness is -1 to 1 (Adams, 2017). However, for this square root transformation, a score of -1.1 to 1.1 was selected as an acceptable level of skewness as a number of the transformed scores—future action references in future familiar conversations and use of the timeless present in past novel and familiar conversations—remained minimally skewed due to the large number of tied values and the presence of a high number of zero scores. The transformed data have been used in all analyses reported in this chapter. Data for all conditions, including those that remained skewed were

entered into the ANCOVA to ensure the model was balanced. Conditions with highly skewed data have not been used in additional reporting or interpreting of results.

Table 5.5

Skewness for Frequencies for Educator Use of Temporal Language with All Children

Temporal language	Educators with all children (n = 85)			
	Past		Future	
	Novel	Familiar	Novel	Familiar
Past episodes	.86	.71	2.87	1.94
Timeless present	1.90	2.09	1.27	1.45
Future action	3.77	2.90	1.33	2.85
Future hypothetical	6.86	6.86	1.55	.99

Table 5.6

Square Root Transformation Scores for Educator Use of Temporal Language with All Children

Temporal language	Educators with all children (n = 85)			
	Past		Future	
	Novel	Familiar	Novel	Familiar
Past episodes	.26	-.03	1.33	1.14
Timeless present	1.13	1.02	.43	.53
Future action	3.17	2.28	.44	1.02
Future hypothetical	4.85	4.85	.40	.07

5.3.4.1 Temporal focus and event type focus: References to past episodes.

The ANCOVA with educator use of *references to past episodes* as the dependent measure revealed no main effect for age, $F(1, 81) = 1.50$, $p = .224$, $\eta_p^2 = .018$ or for event type, $F(1, 81) = .02$, $p = .887$, $\eta_p^2 = .000$. There was however a significant main effect for temporal focus, $F(1, 81) = 233.47$, $p = <.001$, $\eta_p^2 = .742$. References to past episodes were higher when educators were talking about past events than when talking about future familiar

events (see Figure 5.5). Note that the skewed response—use of past episodes in future novel conversations—was not significant and is not included in this analysis.

There were no interactions for temporal focus x age, $F(1, 81) = .66$, $p = .421$, $\eta_p^2 = .008$, event type x age, $F(1, 81) = .65$, $p = .422$, $\eta_p^2 = .008$ or event type x temporal focus, $F(1, 81) = .17$, $p = .678$, $\eta_p^2 = .002$.

5.3.4.2 Covariates for references to past episodes.

For centre based socioeconomic advantage/disadvantage as the covariate, the ANCOVA revealed a significant interaction for centre based socioeconomic advantage/disadvantage x temporal focus, $F(1, 81) = 4.04$, $p = .048$, $\eta_p^2 = .047$ and a significant interaction for centre based socioeconomic advantage/disadvantage x event type, $F(1, 81) = 4.58$, $p = .035$, $\eta_p^2 = .053$.

When looking at educator qualifications as the covariate, this revealed no interaction for educator qualifications x temporal focus, $F(1, 81) = .06$, $p = .810$, $\eta_p^2 = .001$ and no interaction for educator qualifications x event, $F(1, 81) = .10$, $p = .747$, $\eta_p^2 = .001$.

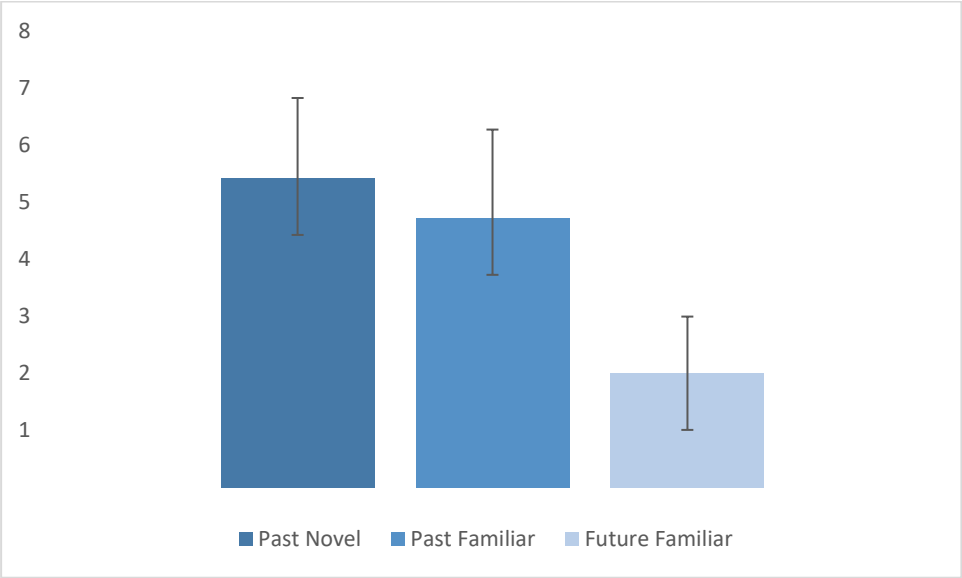


Figure 5.1. Educator use of past references.

5.3.4.3 Temporal focus and event type focus: References using the timeless present tense.

The ANCOVA with educator use of the *timeless present tense* as the dependent measure revealed no effect for age, $F(1, 81) = 1.87$, $p = .175$, $\eta_p^2 = .023$. There was, however, a significant effect for temporal focus, $F(1, 81) = 7.75$, $p = .007$, $\eta_p^2 = .087$, modified by a significant temporal focus x age interaction, $F(1, 81) = 5.39$, $p = .023$, $\eta_p^2 = .062$. As shown in Figure 5.6, educators made fewer references to the timeless present tense when talking about the past than when talking about the future. This effect was particularly pronounced when talking about novel conversations, with fewer references to the timeless present for novel past events than familiar past events. There was no main effect for event type, $F(1, 81) = .02$, $p = .887$, $\eta_p^2 = .000$ and no interactions between event type x age, $F(1, 81) = 2.47$, $p = .120$, $\eta_p^2 = .030$ or event type x temporal focus, $F(1, 81) = .01$, $p = .979$, $\eta_p^2 = .000$.

5.3.4.4 Covariates for references using the timeless present tense.

When considering centre based socioeconomic advantage/disadvantage as the covariate, the ANCOVA revealed no interaction for centre based socioeconomic advantage/disadvantage x temporal focus, $F(1, 81) = .52$, $p = .474$, $\eta_p^2 = .006$; however, there was an interaction for centre based socioeconomic advantage/disadvantage x event type, $F(1, 81) = 8.35$, $p = .005$, $\eta_p^2 = .093$.

When looking at educator qualifications as the covariate, this revealed no interaction for educator qualifications x temporal focus, $F(1, 81) = 1.10$, $p = .297$, $\eta_p^2 = .013$ and no interaction for educator qualifications x event type, $F(1, 81) = .00$, $p = .982$, $\eta_p^2 = .000$.

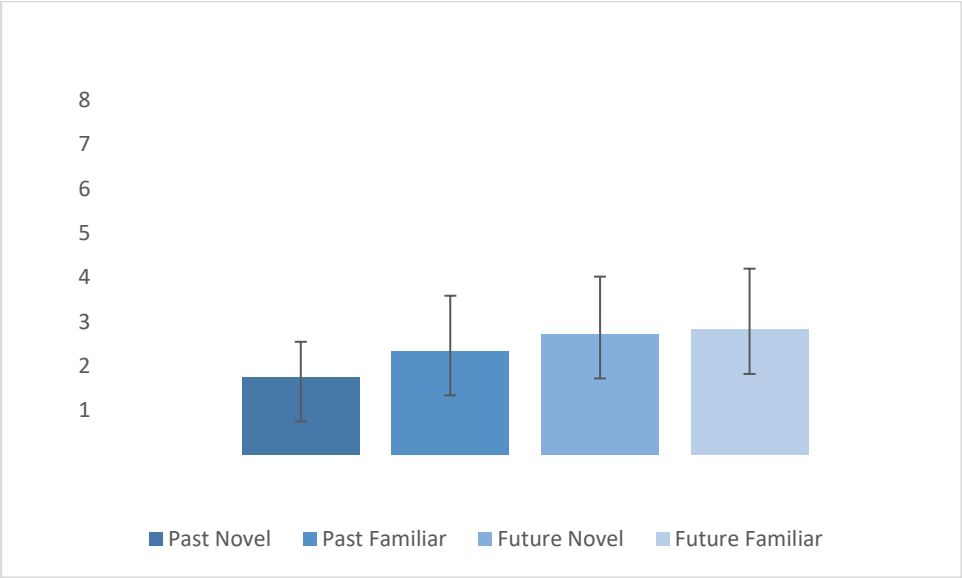


Figure 5.2. Educator use of timeless present tense.

5.3.4.5 Temporal focus and event type focus: References to future actions.

The ANCOVA with educator use of *references to future actions* as the dependent measure revealed a significant effect for age, $F(1, 81) = 6.91$, $p = .010$, $\eta_p^2 = .079$. There was a significant effect for temporal focus, $F(1, 81) = 139.07$, $p = <.001$, $\eta_p^2 = .632$ and a significant effect for temporal focus x age interaction, $F(1, 81) = 8.74$, $p = .004$, $\eta_p^2 = .097$. There was no main effect for event type, $F(1, 81) = .27$, $p = .607$, $\eta_p^2 = .003$, no event type x age interaction, $F(1, 81) = .42$, $p = .518$, $\eta_p^2 = .005$ and no event type x temporal focus interaction, $F(1, 81) = 2.20$, $p = .1427$, $\eta_p^2 = .026$.

There was a significant effect for educator use of the references to future actions depending upon whether they were talking about the past or the future. Figure 5.7 shows the transformed means for educator references to future actions. Educators did not differ statistically across novel and familiar conversation topics in their use of future action

references. Note that the skewed responses—use of references to future actions in past novel and familiar conversations—were not significant and are not included in this analysis.

5.3.4.6 Covariates for references to future actions.

When considering centre based socioeconomic advantage/disadvantage as the covariate, the ANCOVA revealed no interaction for centre based socioeconomic advantage/disadvantage x temporal focus, $F(1, 81) = .82$, $p = .367$, $\eta_p^2 = .010$ and no interaction for centre based socioeconomic advantage/disadvantage x event type, $F(1, 81) = .00$, $p = .987$, $\eta_p^2 = .000$.

When looking at educator qualifications as the covariate, this revealed no interaction for educator qualifications x temporal focus, $F(1, 81) = .11$, $p = .736$, $\eta_p^2 = .001$ and no interaction for educator qualification x event type, $F(1, 81) = 1.04$, $p = .311$, $\eta_p^2 = .013$.

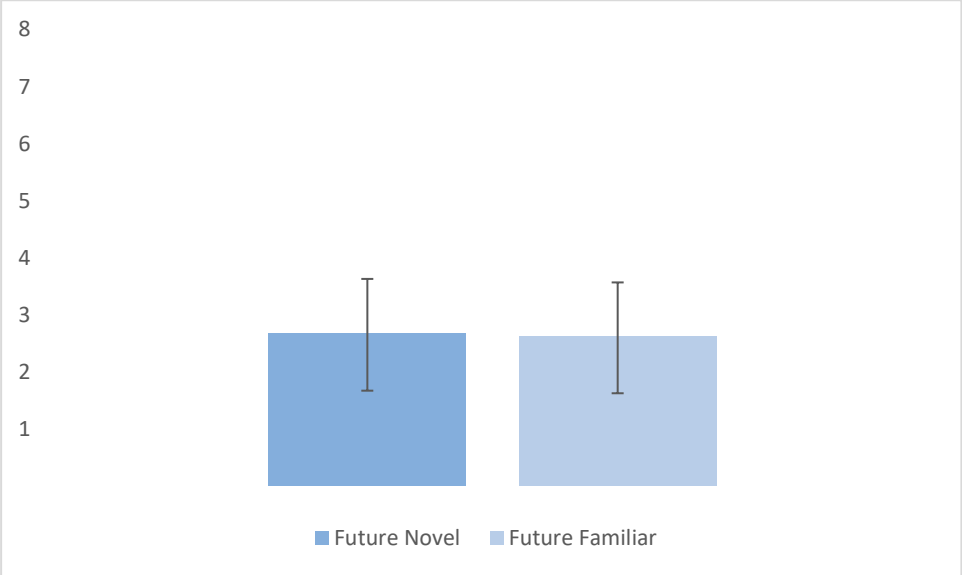


Figure 5.3. Educator use of references to future actions.

5.3.4.7 Temporal focus and event type focus: Use of future hypothetical references.

The ANCOVA with educator use of *future hypothetical references* as the dependent measure revealed a significant effect for age, $F(1, 81) = 2.90$, $p = .093$, $\eta_p^2 = .035$. There was

a significant effect for temporal focus, $F(1, 81) = 126.52$, $p = <.001$, $\eta_p^2 = .610$ and a significant interaction for temporal focus x age, $F(1, 81) = 6.14$ $p = .015$, $\eta_p^2 = .070$. There was no main effect for event type, $F(1, 81) = 1.68$, $p = .199$, $\eta_p^2 = .020$ and no event type x age interaction, $F(1, 81) = 2.11$, $p = .151$ $\eta_p^2 = .025$.

There was a significant effect for educators making future hypothetical references depending upon whether they were talking about the past or the future. Figure 5.8 shows transformed means for educator future hypothetical references. Similar to the findings for future action references, educators did not differ statistically across novel and familiar conversation topics in their use of future hypothetical references. Note that the skewed responses—use of future hypothetical references in past novel and familiar conversations—were not significant and are not included in this analysis.

5.3.4.8 Covariates for use of future hypothetical references.

When considering centre based socioeconomic advantage/disadvantage as the covariate, the ANCOVA revealed no interaction for centre based socioeconomic advantage/disadvantage x temporal focus, $F(1, 81) = .02$, $p = .880$, $\eta_p^2 = .000$ and no interaction for centre based socioeconomic advantage/disadvantage x event type, $F(1, 81) = .03$, $p = .864$, $\eta_p^2 = .000$.

When looking at educator qualifications as the covariate, this revealed no interaction for educator qualifications x temporal focus, $F(1, 81) = .32$, $p = .574$, $\eta_p^2 = .004$ and no interaction for educator qualifications x event type, $F(1, 81) = .08$, $p = .781$, $\eta_p^2 = .001$.

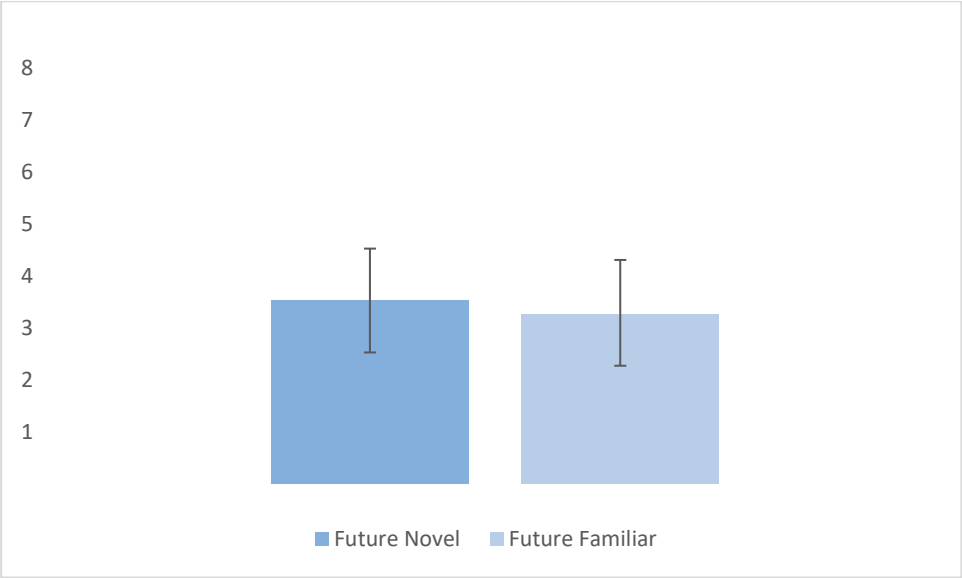


Figure 5.4. Educator use of future hypothetical references.

5.3.5 Variation in child use of temporal points of reference.

Children's contributions were first examined for references to past episodes, use of timeless present tense, the use of future actions, and the use of future hypothetical references when in conversation with their educators. Table 5.3 shows the mean frequencies for both younger and older children's use of temporal points of reference when in conversation with their educators.

5.3.5.1 Temporal focus and event type focus: References to past episodes.

The ANCOVA with educator use of *references to past episodes* as the dependent measure revealed a significant effect for age, $F(1, 81) = 18.60$, $p = <.001$, $\eta_p^2 = .187$. There was a significant main effect for temporal focus, $F(1, 81) = 17.63$, $p = <.001$, $\eta_p^2 = .179$, modified by a significant interaction for age x temporal focus, $F(1, 81) = 5.07$, $p = .027$, $\eta_p^2 = .059$. Older children made significantly more references to past episodes than younger children when talking about past events. There was no effect for event type, $F(1, 81) = .18$,

p = .673, η_p^2 = .002; however, there was an interaction for event type x age, F(1, 81) = 5.39, p = .023, η_p^2 = .062. There was no interaction for event x temporal focus, F(1, 81) = .0782, p = .789, η_p^2 = .001.

5.3.5.2 Covariates for references to past episodes.

There was no interaction for centre based socioeconomic advantage/disadvantage x temporal focus, F(1, 81) = .03, p = .854, η_p^2 = .000 and no interaction for centre based socioeconomic advantage/disadvantage x event type, F(1, 81) = .18, p = .673, η_p^2 = .002.

When looking at educator qualifications as the covariate, this revealed no interaction for educator qualifications x temporal focus, F(1, 81) = .23, p = .635, η_p^2 = .003 and no interaction for educator qualifications x event type, F(1, 81) = .03, p = .866, η_p^2 = .000.

It is not unexpected that conversations about the past would contain significantly more references to the past, and these findings are consistent with previous research conducted with children in conversations with their mothers (Hudson, 2004). Of note is that older children but not younger children, when in conversation with their educator, referred more often to the past when discussing novel events in comparison to familiar events (see Table 5.3 for mean [*SD*]).

5.3.5.3 Temporal focus and event type focus: References using the timeless present tense.

The ANCOVA with educator use of the *timeless present tense* as the dependent measure revealed a significant effect for age F(1, 81) = 6.00, p = .016, η_p^2 = .069. There was also a significant effect for temporal focus, F(1, 81) = 17.63, p = <.001, η_p^2 = .179, with a significant temporal focus x age interaction, F(1, 81) = 5.07, p = .027, η_p^2 = .059 also noted. Children made fewer references to the timeless present tense when talking about the past than

when talking about the future, and older children made more references to the timeless present in the past conversations than their younger counterparts. There was no main effect for event type, $F(1, 81) = .18$, $p = .673$, $\eta_p^2 = .002$ or for event type x temporal focus, $F(1, 81) = .07$, $p = .789$, $\eta_p^2 = .001$. There was, however, an interaction between event type x age, $F(1, 81) = 5.39$, $p = .023$, $\eta_p^2 = .062$.

A point of note is that the younger age group children provided a greater number of contributions (see Table 5.3) in the timeless present tense for future familiar conversations.

5.3.5.4 Covariates for references using the timeless present tense.

When considering centre based socioeconomic advantage/disadvantage as the covariate, the ANCOVA revealed no interaction for centre based socioeconomic advantage/disadvantage x temporal focus, $F(1, 81) = .06$, $p = .810$, $\eta_p^2 = .001$ and no interaction for centre based socioeconomic advantage/disadvantage x event type, $F(1, 81) = 3.01$, $p = .087$, $\eta_p^2 = .036$.

When looking at educator qualifications as the covariate, this revealed no interaction for educator qualifications x temporal focus, $F(1, 81) = .23$, $p = .635$, $\eta_p^2 = .003$ and no interaction for educator qualifications x event type, $F(1, 81) = .27$, $p = .606$, $\eta_p^2 = .003$.

5.3.5.5 Temporal focus and event type focus: References to future actions.

The ANCOVA with educator use of *references to future actions* as the dependent measure revealed a significant effect for age, $F(1, 81) = 14.89$, $p < .001$, $\eta_p^2 = .155$. There was a significant effect for temporal focus, $F(1, 81) = 20.79$, $p < .001$, $\eta_p^2 = .204$ and a significant interaction for temporal focus by age, $F(1, 81) = 11.81$, $p < .001$, $\eta_p^2 = .127$. Children's use of the simple future tense, also described as using terms pertaining to future

actions, was also measured across event type. There was no main effect for event type, $F(1, 81) = .43$, $p = .515$, $\eta_p^2 = .005$, no event type x age interaction, $F(1, 81) = .17$, $p = .677$, $\eta_p^2 = .002$ or event type x temporal focus interaction, $F(1, 81) = .51$, $p = .477$, $\eta_p^2 = .006$.

Again, it is not unexpected that conversations about the future would contain significantly more references to the future than conversations about the past, Table 5.3 shows that the children offered more future action contributions than future hypothetical contributions.

5.3.5.6 Covariates for references to future actions.

When considering centre based socioeconomic advantage/disadvantage as the covariate, the ANCOVA revealed no interaction for centre based socioeconomic advantage/disadvantage x temporal focus, $F(1, 81) = .054$, $p = .816$, $\eta_p^2 = .001$ and no interaction for centre based socioeconomic advantage/disadvantage x event type, $F(1, 81) = .000$, $p = .992$, $\eta_p^2 = .000$.

When looking at educator qualifications as the covariate, this revealed no interaction for educator qualifications x temporal focus, $F(1, 81) = .001$, $p = .972$, $\eta_p^2 = .000$ and no interaction for educator qualification x event type, $F(1, 81) = .174$, $p = .677$, $\eta_p^2 = .002$.

5.3.5.7 Temporal focus and event type focus: Use of future hypothetical references.

Finally, use of future hypothetical references as the dependent measure was investigated. Similar to the use of future action references, the ANCOVA with child use of future hypothetical references as the dependent measure revealed a significant effect for age, $F(1, 81) = 4.65$, $p = .034$, $\eta_p^2 = .054$. There was no effect for temporal focus, $F(1, 81) = .01$, $p = .978$, $\eta_p^2 = .000$, nor for temporal focus x age interaction, $F(1, 81) = 3.30$, $p = .073$,

η_p^2 = .039. There was no main effect for event type, $F(1, 81) = .18$, $p = .673$, η_p^2 = .025 and no event type x age interaction, $F(1, 81) = .94$, $p = .336$ η_p^2 = .011.

5.3.5.8 Covariates for use of future hypothetical references.

When considering centre based socioeconomic advantage/disadvantage as the covariate, the ANCOVA revealed no interaction for centre based socioeconomic advantage/disadvantage x temporal focus, $F(1, 81) = 1.10$, $p = .297$, η_p^2 = .013 and no interaction for centre based socioeconomic advantage/disadvantage x event type, $F(1, 81) = .58$, $p = .448$, η_p^2 = .007.

When looking at educator qualifications as the covariate, this revealed no interaction for educator qualifications x temporal focus, $F(1, 81) = .17$, $p = .680$, η_p^2 = .002 and no interaction for educator qualifications x event type, $F(1, 81) = .94$, $p = .336$, η_p^2 = .011.

It is evident that children make relatively few references to their hypothetical future. The older children, however, did make more future hypothetical references than the younger children (see Table 5.3).

5.4 Educator-Child and Mother-Child Use of Temporal Language

5.4.1 Mother temporal points of reference scores.

This section introduces mother use of temporal points of reference. Table 5.5 shows the mean and standard deviation for mother use of past episode references, timeless present general references, future action references and future hypothetical references when in past and future conversations with their children and Table 5.6 shows educator use of temporal points of reference with the subgroup of children whose mothers were also participating.

Table 5.7

Mean (SD) for Frequencies of Mother use of Past Episode References, Timeless Present References, Future Action References and Future Hypothetical References when in Conversation with Children

	Younger (*n* = 20)		Older (*n* = 22)		All (*n* = 42)	
	Mean	*SD*	Mean	*SD*	Mean	*SD*
Past novel						
Past episodes	39.05	16.29	37.73	11.26	38.36	13.73
Timeless present	12.40	8.13	9.32	5.80	10.79	7.09
Future action	.90	1.55	.91	1.80	.90	1.66
Future hypothetical	.15	.37	.55	.91	.36	.73
Past familiar						
Past episodes	19.55	10.53	23.23	14.65	21.48	12.84
Timeless present	19.30	15.07	19.45	14.58	19.38	14.64
Future action	1.5	1.64	2.00	2.25	1.76	1.97
Future hypothetical	.40	.82	.95	1.84	.69	1.46
Future novel						
Past episodes	1.00	1.26	2.32	3.36	1.69	2.64
Timeless present	17.75	9.47	21.91	13.46	19.93	11.78
Future action	18.15	9.10	19.59	8.81	18.90	8.87
Future hypothetical	3.30	2.89	4.73	3.97	4.05	3.53
Future familiar						
Past episodes	3.25	4.52	3.36	4.62	3.31	4.52
Timeless present	23.80	13.18	24.09	12.27	23.95	12.55
Future action	10.45	8.02	17.73	11.13	14.26	10.36
Future hypothetical	2.75	3.70	4.82	6.01	3.83	5.09

Table 5.8

Mean (SD) for Frequencies of Educator use of Past Episode References, Timeless Present References, Future Action References and Future Hypothetical References when in Conversation with Children

	Younger (n = 20)		Older (n = 22)		All (n = 42)	
	Mean	*SD*	Mean	*SD*	Mean	*SD*
Past novel						
Past episodes	30.50	18.60	31.41	15.05	30.98	16.63
Timeless present	2.20	2.55	4.23	4.78	3.26	3.97
Future action	.25	.72	.27	.88	.26	.80
Future hypothetical	.40	.88	.09	.91	.24	.66
Past familiar						
Past episodes	20.50	13.83	32.32	14.92	26.69	15.44
Timeless present	7.75	10.39	4.36	5.31	5.98	8.21
Future action	.55	1.61	.41	1.10	.48	1.35
Future hypothetical	.40	.88	.09	1.84	.24	.66
Future novel						
Past episodes	3.00	3.77	4.14	5.22	3.60	4.57
Timeless present	11.55	8.77	7.09	7.52	9.21	8.35
Future action	5.90	4.38	9.95	7.36	8.02	6.39
Future hypothetical	12.15	5.74	17.36	10.40	14.88	8.81
Future familiar						
Past episodes	4.70	6.66	4.95	4.94	4.83	5.75
Timeless present	13.55	13.04	8.18	7.79	10.74	10.83
Future action	4.90	3.89	7.50	5.96	6.26	5.19
Future hypothetical	2.75	6.18	12.18	7.85	11.05	7.12

5.4.2 Correlations between educator and mother use of temporal points of reference.

Pearson's correlations were used to compare educator and mother temporal language contributions for conversations at each event temporal focus and event type focus. For children in the younger age group, educator and mother future hypothetical references were significantly correlated for past novel conversations, $r(20) = .62$, $p = .004$ and past familiar conversations, $r(20) = .57$, $p = .009$. This stems from the high number of occurrences of zero references to the future in past conversations. There were no significant correlations for future

novel and future familiar conversations, however, and no significant correlations for any other temporal utterance (for younger or older groups), all *ps* > .05.

5.4.3 Correlations between educator-child and mother-child temporal points of reference.

Educator and child temporal language correlations for all participants were presented in Section 5.3.3. For the educator-child dyads who were in the subgroup whose mothers participated (n = 42), Pearson's correlations were again used to investigate whether educator temporal forms of reference was correlated with child temporal forms of reference. I report here the positive correlations only. Educator use of future action references was positively correlated with child use of the timeless present tense in past familiar conversations, $r(42) = .72$, $p < .001$ and in future novel conversations, $r(42) = .45$, $p = .003$. In future novel conversations, educator use of the past tense was correlated with child use of the past tense, $r(42) = .47$, $p = .002$, and educator use of future action references and future hypothetical references in future novel conversations were also associated with child use of the past tense, $r(42) = .46$, $p = .002$; $r(42) = .32$, $p = .038$. Perhaps children opted for the past tense as an indication of their inability to respond in the future tense.

Mother use of temporal points of reference was associated with greater instances of child use of temporal language (see Table 5.7) when compared to educator-child conversations. Mothers' past novel and past familiar conversations were correlated with mother and child use of past references. Mother and child use of the timeless present tense was correlated across all event conversations. Use of references to future actions was correlated in past novel, future novel and future familiar conversations. Use of future hypothetical references was correlated for future novel and familiar conversations.

Table 5.9

Correlations for Mother Use of Temporal Points of Reference with Child Use of Temporal Points of Reference (n = 42)

	PN Past episodes	PF Past episodes	FN Past episodes	FF Past episodes	PN Timeless present	PF Timeless present	FN Timeless present	FF Timeless present	PN Future action	PF Future action	FN Future action	FF Future action	PN Future hypothetical	PF Future hypothetical	FN Future hypothetical	FF Future hypothetical
PN Past episodes	.37*	.25	.10	-.09	-.23	.10	-.08	.10	-.18	-.02	.12	.10	.30	-.12	.25	.40**
PF Past episodes	.18	.66**	.11	-.22	-.16	.00	-.13	-.04	-.13	-.11	.23	.29	.25	-.19	.30	.49**
FN Past episodes	-.11	.06	.04	-.16	-.16	-.01	-.08	.15	.06	-.10	.14	.07	-.08	-.09	-.06	-.07
FF Past episodes	.18	-.08	.21	.02	.16	-.01	.07	.34*	.12	-.06	.13	.33*	-.08	.12	.20	.36*
PN Timeless present	.29	.25	.16	-.02	.43**	.45**	.34*	.13	.19	.41**	.14	.30	.38*	.25	-.16	.02
PF Timeless present	.03	.24	.13	-.02	.28	.46**	.27	.00	-.05	.06	.15	.11	.36*	-.05	-.16	-.06
FN Timeless present	.06	-.17	.23	.15	.07	.24	.38*	.25	-.14	.11	.13	.53**	.23	.07	.12	.25
FF Timeless present	.03	-.14	.05	.02	.01	.27	.16	.36*	-.03	.10	-.04	.22	.17	.10	.27	.16
PN Future action	.11	.05	.16	.08	.41**	-.01	.05	-.07	.33*	.33*	.29	.12	.34*	.27	.07	.04
PF Future action	-.10	.00	.10	-.10	.10	.10	.20	.00	-.10	.10	.00	.20	.10	.10	.10	.00
FN Future action	-.30	-.08	.19	-.17	-.21	.00	.08	.01	.05	.06	.44**	.59**	.11	-.04	.00	.15
FF Future action	-.10	.20	.20	-.10	.00	.20	.20	.10	.00	.20	.2	.57**	.18	.06	.26	.36*
PN Future hypothetical	-.11	.28	-.08	-.19	.14	.08	-.08	-.04	-.03	-.02	-.03	.05	.17	-.10	.04	-.02
PF Future hypothetical	.25	.53**	-.02	-.08	-.04	.23	-.05	-.03	.01	.13	.19	.17	.53**	-.10	.18	.39*
FN Future hypothetical	-.02	.10	.25	.33*	-.10	.17	.33*	.31*	.03	.22	.03	.08	.24	.25	.49**	.25
FF Future hypothetical	.07	-.15	.29	-.08	-.06	-.05	.14	.38*	-.03	-.06	.23	.42**	-.07	.07	.44**	.49**

*$p < .05$, **$p < .01$

When considering the correlations by age; older children were correlated with their mothers for use of past references in past familiar conversations, $r(22) = .77$, $p < .001$, for the use of timeless present references in past novel, $r(22) = .48$, $p < .005$ and future familiar conversations, $r(42) = .46$, $p < .005$. In future novel and future familiar conversations, references to future actions were correlated for mothers and their older children, $r(22) = .43$, $p < .005$ and $r(22) = .56$, $p < .001$, respectively. References to the future hypothetical were correlated for future novel, $r(22) = .44$ $p < .005$ and future familiar conversations, $r(22) = .55$, $p < .001$. There were also several associations for the younger children, and references to the past in both past novel and past familiar event conversations were correlated, $r(20) = .57$, $p < .001$ and $r(2) = .44$, $p < .005$. Mothers and their younger children's use of timeless present references was also correlated across past novel, $r(20) = .47$, $p < .005$, past familiar, $r(20) = .50$, $p < .005$ and future novel conversations, $r(20) = .66$, $p < .001$. Future action references were correlated for past novel, $r(20) = .58$, $p < .001$ and future novel conversations, $r(20) = .55$, $p < .005$. In summary, mother-child dyads were correlated on more events than educator-child dyads for use of temporal points of reference.

5.4.4 Variation in educator and mother use of temporal points of reference.

5.4.4.1 Temporal focus and event type focus: References to past episodes.

The ANCOVA considering use of *references to past episodes* as the dependent measure revealed a significant effect for talk partner, $F(1, 38) = 189.71$, $p < .001$, $\eta_p^2 = .883$. There was no main effect for age, $F(1, 38) = .48$, $p = .494$, $\eta_p^2 = .012$. There was a significant main effect for temporal focus, $F(1, 38) = 9.36$, $p = .004$, $\eta_p^2 = .198$ and no effect for event type, $F(1, 38) = 1.60$, $p = .214$, $\eta_p^2 = .040$. There was an interaction for talk partner x temporal focus, $F(1,$

38) = 7.11, p = <.001, η_p^2 = .158, but not for talk partner x event type, F(1, 38) = .29, p = .594, η_p^2 = .008.

5.4.4.2 Covariates for references to past episodes.

There was no interaction for talk partner x centre based socioeconomic advantage/disadvantage, F(1, 38) = 1.24, p = .272, η_p^2 = .032 and no interaction for talk partner x educator qualification, F(1, 38) = .85, p = .36, η_p^2 = .022.

5.4.4.3 Temporal focus and event type focus: References using the timeless present tense.

The ANCOVA with educator use of the *timeless present tense* as the dependent measure revealed a significant effect for talk partner, F(1, 38) = 8.41, p < .006, η_p^2 = .181. There was no main effect for age, F(1, 38) = .06, p = .815, η_p^2 = .001. There was no main effect for temporal focus, F(1, 38) = .89, p = .352, η_p^2 = .023, but there was a main effect for event type, F(1, 38) = 7.30, p = .010, η_p^2 = .161. There was no interaction for talk partner x temporal focus, F(1, 38) = .08, p = .7851, η_p^2 = .002 or for talk partner x event type, F(1, 38) = .14, p = .711, η_p^2 = .004.

5.4.4.4 Covariates for references using the timeless present tense.

There was no interaction for talk partner x centre based socioeconomic advantage/disadvantage, F(1, 38) = .19, p = .664, η_p^2 = .005 and no interaction for talk partner x educator qualification, F(1, 38) = .82, p = .372, η_p^2 = .021.

5.4.4.5 Temporal focus and event type focus: References to future actions.

When considering use of references to future actions as the dependent measure, the ANCOVA revealed a significant effect for talk partner, F(1, 38) = 101.91, p < .001,

η_p^2 = .728. There was no main effect for age, $F(1, 38) = 1.28$, $p = .265$ η_p^2 = .033. There was no main effect for temporal focus, $F(1, 38) = 3.79$, $p = .059$, η_p^2 = .091, but a significant effect for event type, $F(1, 38) = 20.28$, $p < .001$, η_p^2 = .348. There was an interaction for talk partner x temporal focus, $F(1, 38) = 5.28$, $p = .027$, $\eta_p^2 = .122$ and for talk partner x event type, $F(1, 38) = 18.83$, $p < .000$, $\eta_p^2 = .331$.

5.4.4.6 Covariates for references to future actions.

There was an interaction for talk partner x centre based socioeconomic advantage/disadvantage, $F(1, 38) = 4.78$, $p = .035$, η_p^2 = .112, but no interaction for talk partner x educator qualification, $F(1, 38) = 2.53$, $p = .120$, $\eta_p^2 = .062$.

5.4.4.7 Temporal focus and event type focus: Use of future hypothetical references.

Similar to the use of future action references, the ANCOVA with educator use of *future hypothetical references* as the dependent measure revealed a significant effect for talk partner, $F(1, 38) = 78.78$, $p < .001$, η_p^2 = .675. There was a main effect for age, $F(1, 38) = 5.30$, $p = .027$, η_p^2 = .122. There was no main effect for temporal focus, $F(1, 38) = 2.335$, $p = .133$, η_p^2 = .058, but a significant effect for event type, $F(1, 38) = 29.96$, $p < .001$, η_p^2 = .441. There was no interaction for talk partner x temporal focus, $F(1, 38) = 2.00$, $p = .165$, $\eta_p^2 = .050$, but there was an interaction for talk partner x event, $F(1, 38) = 25.00$, $p < .001$, $\eta_p^2 = .397$.

5.4.4.8 Covariates for use of future hypothetical references.

There was no interaction for talk partner x centre based socioeconomic advantage/disadvantage, $F(1, 38) = .01$, $p = .940$, η_p^2 = .000 and no interaction for talk partner x educator qualification, $F(1, 38) = .60$, $p = .443$, $\eta_p^2 = .016$.

5.4.5 Educator, mother and child use of temporal terms.

The second component to temporal language in this study was the use of temporal terms. These included episode markers, conventional time markers, conventional time markers within 24 hours, sequences and indeterminate intervals (see Section 3.5 for details and examples of these terms). Table 5.8 shows the mean and standard deviation for educator and mother use of the various temporal terms and Table 5.9 shows the child use of temporal terms. The scores for use of temporal terms by educators, mothers and children are particularly low; consequently, these have been discounted from further analysis.

Table 5.10

Mean (SD) for Frequencies for Educator and Mother Use of Temporal Terms

	Educator				Mother			
	Younger		Older		Younger		Older	
	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*
Past novel episode markers	.45	.67	.42	.86	.20	.52	.77	1.30
Past novel conventional time markers	1.67	1.50	.66	.82	.55	.94	1.54	2.08
Past novel conventional time markers 24 hours	1.12	1.75	.35	.93	.50	1.05	1.40	1.81
Past novel sequences	1.07	1.16	1.66	2.30	.30	.57	1.54	3.23
Past novel indeterminate intervals	.15	.42	.48	.81	1.50	2.23	2.86	1.98
Past familiar episode markers	.62	.80	.48	.92	2.30	2.29	3.18	2.68
Past familiar conventional time markers	1.67	1.50	.88	1.19	2.50	2.91	3.40	4.57
Past familiar conventional time markers 24 hours	.92	2.48	.17	.49	2.75	3.41	6.00	4.70
Past familiar sequence	.70	1.22	2.66	4.00	1.70	2.45	.95	1.78
Past familiar indeterminate intervals	.07	.34	.35	.74	1.75	2.04	1.77	2.04
Future novel episode markers	.95	1.37	1.28	2.13	1.40	1.31	1.22	1.10
Future novel conventional time markers	2.50	4.48	3.24	3.46	3.45	3.15	2.22	2.02
Future novel conventional time markers 24 hours	.65	1.27	.75	1.22	1.30	1.80	1.72	1.80
Future novel sequence	.72	1.35	1.04	1.29	1.60	1.78	1.72	1.72
Future novel indeterminate intervals	.52	.81	.55	.96	.80	.89	2.27	2.35
Future familiar episode markers	1.02	1.71	1.64	2.11	1.65	2.49	3.27	2.07
Future familiar conventional time markers	1.32	1.73	2.93	3.84	.20	.41	.40	.79
Future familiar conventional time markers 24 hours	.65	1.27	.88	1.54	.15	.36	.04	.21
Future familiar sequence	.72	1.35	2.71	2.20	.45	.75	.68	.71
Future familiar indeterminate intervals	.37	.74	.97	1.32	.10	.30	.31	.64

Table 5.11

Mean (SD) for Frequencies for Child use of Temporal Terms with Educators and Mothers

	Children with educators (*N* = 85)				Children with mothers (*N* = 42)			
	Younger		Older		Younger		Older	
	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*
Past novel episode markers	0.00	0.00	0.04	0.21	0.00	0.00	0.14	0.64
Past novel conventional time markers	0.05	0.22	0.22	0.82	0.70	2.50	0.77	3.00
Past novel conventional time markers 24 hours	0.10	0.30	0.04	0.30	0.30	0.60	0.82	3.20
Past novel sequences	0.28	0.68	1.94	1.62	0.30	0.40	1.70	2.50
Past novel indeterminate intervals	0.00	0.00	0.04	0.21	0.00	0.00	0.05	0.21
Past familiar episode markers	0.03	0.16	0.16	0.42	0.00	0.00	0.22	1.00
Past familiar conventional time markers	0.13	0.40	0.11	0.61	0.20	0.40	0.41	0.73
Past familiar conventional time markers 24 hours	0.23	0.73	0.33	0.64	0.40	0.70	0.36	0.85
Past familiar sequence	0.23	0.62	1.33	2.75	0.20	0.40	1.00	1.60
Past familiar indeterminate intervals	0.03	0.16	0.13	0.46	0.00	0.00	0.05	0.21
Future novel episode markers	0.03	0.47	0.20	0.55	0.00	0.00	0.18	0.39
Future novel conventional time markers	0.08	0.47	0.64	1.40	0.10	0.40	1.20	2.10
Future novel conventional time markers 24 hours	0.03	0.16	0.75	1.22	0.10	0.20	0.36	0.85
Future novel sequence	0.13	0.46	1.64	3.13	0.40	1.10	1.00	1.60
Future novel indeterminate intervals	0.03	0.16	0.27	0.62	0.10	0.20	0.05	0.21
Future familiar episode markers	0.08	0.35	0.33	1.07	0.00	0.00	3.27	2.07
Future familiar conventional time markers	0.08	1.73	2.93	3.84	0.00	0.00	0.40	0.79
Future familiar conventional time markers 24 hours	0.18	0.50	0.16	0.37	0.10	0.30	0.04	0.21
Future familiar sequence	0.20	0.52	1.49	2.62	0.50	1.20	0.68	0.71
Future familiar indeterminate intervals	0.00	0.00	0.09	0.36	0.00	0.00	0.05	0.21

5.5 Conclusion

Educator use of temporal points of reference varied according to the interaction of the age group of the children and to whether the conversation was about the past or the future. Additionally, centre based socioeconomic advantage/disadvantage and educator qualifications did not have a significant effect on educator use of temporal points of reference in educator-child conversations, apart from when educators were making references to past episodes. Educator and mother use of temporal language specifically temporal points of reference when in conversation with the sub-group of children differed significantly. Educator and mother use of temporal terms scores were particularly low and consequently were discounted from further analysis.

Chapter 6: Results: Mental State Language

6.1 Research Questions for Mental State Language

- Research Question 1: When talking about shared events, what is the relationship between educator use of mental state language and child elaboration and child use of mental state language?
- Research Question 2: Does use of mental state language during educator-child talk about shared events vary according to event temporal focus (past/future) or event type focus (novel/familiar)?
- Research Question 3: When talking about shared events separately but with the same child, what is the relationship between educator-child mental state language contributions and mother-child mental state language contributions?

6.2 Introduction

This chapter presents the results relating to mental state language. The main descriptive statistics relating to educator and child use of mental state language are presented first (see Section 6.3.1), and then the three research questions listed above (see Section 6.1) are addressed. Section 6.3 considers the use of mental state language in educator-children conversations (Research Questions 1 and 2) and Section 6.4 examines the relationship between use of mental state language in educator-child and mother-child conversations (Research Question 3). As indicated in the previous results chapters, the main analyses include an event temporal focus and an event type focus with all analyses investigating the differences for younger and older children and for the overall participant sample. Where appropriate, centre socioeconomic status and educator qualifications have been included as covariates.

6.3 Educator-Child Use of Mental State Language

6.3.1 Educator mental state language scores.

Initially, as educators and children participated in two conversations for each event type, a preliminary analysis was completed to examine whether there was consistency across the two conversations for each type of event. Scores for educator use of mental state language were determined for the four types of events: past novel, past familiar, future novel and future familiar and examined in a correlation matrix.

Pearson's correlations for educator use of mental state language with the younger children across conversation time point 1 and time point 2 was significantly correlated for past novel conversations, $r(40) = .35$, $p = .029$, for past familiar conversations, $r(40) = .39$, $p = .014$ and for future familiar conversations, $r(40) = .49$, $p < .001$. However, educator use of mental state language with the younger children was not significantly correlated for future novel conversations across time point 1 and time point 2, $r(40) = .14$, $p = .404$.

Educator use of mental state language with the older children across conversation time point 1 and time point 2 was also not significantly correlated for past novel conversations, $r(45) = .02$, $p = .910$, nor for past familiar conversations, $r(45) = .27$, $p = .075$. It was significantly correlated for future conversations: future novel, $r(45) = .43$, $p = .003$ and future familiar, $r(45) = .62$, $p < .001$.

As the main analyses investigate differences for the overall sample as well as the two age groups, further correlations were run for educator use of mental state language with all children. With the whole participant sample, correlations were significant for all conversation types: for past novel conversations, $r(85) = .23$, $p = .034$, for past familiar conversations, $r(85) = .35$, $p < .001$, for future novel conversations, $r(85) = .29$, $p = .008$ and for future familiar conversations, $r(85) = .55$, $p < .001$.

Table 6.1 shows the scores for educator use of mental state language in conversations with the older children and Table 6.2 shows the scores for educator use of mental state language in conversations with the older children. Educators do not appear to use more mental state language in either first or second event conversations. They do, however, tend to use more mentalistic language in future conversations.

The scores for the mental state language references across conversation time point 1 and time point 2 were averaged as use of mental state language was correlated across conversations when considered as a whole group. This is potentially a minor limitation because evidently there was a lack of consistent correlations when the data was viewed by age group, thus the average scores are slightly less indicative of the actual scores. Averaged scores for educator use of mental state references from the two conversations are presented in Table 6.3. It is important to note that for all of the conversations, the minimums are particularly low and two educators across two conversations used no mental state language at all. This occurred in a future familiar conversation at time point 1 and time point 2 with a younger child, and in a future novel conversation at time point 1 and time point 2 conversation with an older child.

Table 6.1

Educator use of Mental State Language

	Young children (*n* = 40)				Older children (*n* = 45)				All children (*n* = 85)			
	Past		Future		Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Elaboration												
Mean	13.88	9.88	13.15	14.20	12.38	10.91	14.00	12.60	10.42	13.08	12.48	13.35
(*SD*)	(8.15)	(7.02)	(7.56)	(11.33)	(5.19)	(6.12)	(8.17)	(9.34)	(6.54)	(6.75)	(6.49)	(10.29)
Minimum	3.00	2.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	2.00	0.00
Maximum	37.00	30.00	32.00	42.00	28.00	27.00	38.00	42.00	30.00	37.00	30.00	42.00

6.3.2 Child mental state language scores.

In the same way as for educators, preliminary statistics for children's use of mental state language were also examined. Pearson's correlations were run to ascertain that both conversations for each event type were associated. Table 6.2 shows the correlation scores. When children's use of mental state language was considered, all time point 1 and time point 2 conversations were correlated for the whole participant group, and for the younger children. For the older children, only the children's use of mental state language in past novel conversations was not correlated. For further statistical analysis, conversations were still averaged as the vast majority showed clear associations, but similarly to educators, note that the average scores for the older children's past novel event conversations may be marginally less indicative of the actual scores.

Overall, child use of mental state language was low (see Table 6.3); consequently, I also scored this as present and absent across conversation types (see the recorded frequencies in Table 6.4).

Table 6.2

Correlations for Child use of Mental State Language (MSL) Across Two Conversations at Time Point 1 and Time Point 2 for Younger, Older and All Children

	Younger children (n = 40)				Older children (n = 45)				All children (n = 85)			
	Past		Future		Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
MSL	.37*	.60**	.70**	.60**	.32*	.05	.55**	.39**	.43**	.24*	.62*	.48**

*p < .05, **p < .01

Table 6.3

Mean (SD) for Frequencies of Child Use of Mental State Language (MSL) by Age

	Younger children (*n* = 40)				Older children (*n* = 45)				All children (*n* = 85)			
	Past		Future		Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
MSL	0.63 (1.17)	0.80 (1.36)	0.85 (1.73)	0.80 (1.96)	3.07 (2.92)	3.11 (2.83)	3.80 (4.11)	3.09 (3.36)	1.92 (2.60)	2.02 (2.53)	2.41 (3.53)	2.01 (3.01)
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	5.00	6.00	7.00	11.00	10.00	13.00	21.00	12.00	10.00	13.00	21.00	12.00

Table 6.4

Present/Absent Percentages for Child Use of Mental State Language by Age

	Younger children (*n* = 40)				Older children (*n* = 45)				All children (*n* = 85)			
	Past		Future		Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Present	30.00	40.00	27.50	30.00	77.80	77.80	84.40	75.60	55.30	60.00	57.60	54.10
Absent	70.00	60.00	72.50	70.00	22.20	22.20	15.60	24.40	44.70	40.00	42.40	45.90

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6.3.3 Correlations between educator use of mental state language and child elaboration and child use of mental state language.

To answer Research Question 1, Pearson's correlations were used to determine the relationship between educator mental state language scores and child conversational contributions in two forms: mental state language contributions and elaboration raw scores. Correlations were run for the whole group (N = 85) and both the younger (n = 40) and older (n = 45) age groups.

First, for the whole group, there were no associations between educator use of mental state language and child elaboration for past novel, past familiar and future familiar conversations. A highly significant correlation was found for future novel conversations, r (85) = .47, p < .001. Pearson's correlations were also used to determine the relationship between educator use of mental state language and child use of mental state language. Educator and child use of mental state language was significantly correlated for future novel conversations, r (85) = .28, p =.009 and future familiar conversations, r (85) = .28, p =.010, but not for past novel or familiar conversations (see Table 6.5).

Second, it is apparent from Table 6.6 that children differ in their use of mental state language by age. For the younger children, between 27.5–30% conversations contained mental state language; however, for the older group, over 75% of conversations contained mental state language. Correlations were conducted for each age group—younger and older—and as expected, the pattern of findings differed. Educator use of mental state language with elaboration of the younger age group was significantly correlated for future novel conversations, r (40) = .51, p < .001, but there were no associations for past novel and past familiar or future familiar conversations. For educator use of mental state language and child use of mental state language, there were no associations for any conversations (see Table 6.5).

The calculations for educator use of mental state language and the older children produced different associations. For educator mental state language and children's elaboration, the older age group was significantly correlated for future novel conversations, r (45) = .61, $p < .001$, but there were no associations for past novel and familiar conversations and for future familiar conversations. For educator use of mental state language and child use of mental state language, there were no associations for the past novel or familiar conversations, or for future novel conversations; however, for future familiar conversations, r (45) = .29, $p < .001$, there was a positive association. Table 6.5 shows the correlations for educator mental state language and older children's elaboration and mental state references.

Table 6.5

Correlations for Educator use of Mental State Language and Child use of Mental State Language and Child Elaboration for Younger, Older and All Children

		Child mental state language				Child elaboration			
		Past		Future		Past		Future	
		Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Younger children	Educator mental state language	-.02	.02	.40*	.40*	.51*	.30	.31	.13
	Educator elaboration quotient score	-.20	.08	.09	.55**	.34*	.21	.20	.06
Older children	Educator mental state language	-.07	.12	.27	.33*	.09	-.09	.61**	.17
	Educator elaboration quotient score	.09	-.14	.04	.17	.21	.08	.21	.16
All children	Educator mental state language	-.09	.10	.28**	.28*	.15	.11	.47**	.10
	Educator elaboration quotient score	.05	-.08	.05	.29**	.26**	.10	.19	.14

*$p < .05$, **$p < .01$

6.3.4 Variation in educator use of mental state language.

To determine whether educator use of mental state language in conversations differed according to event temporal focus or event type focus, therefore answering Research Question 2, a repeated measures analysis of covariance (ANCOVA) was run. Event temporal focus (past/future) and event type focus (novel/familiar) were entered as within participant variables while child age (younger/older) was entered as a between-subjects variable. Centre based socioeconomic advantage/disadvantage and educator qualifications were entered as covariates. Finally, mental state language scores were entered as the dependent variable. As in previous chapters, three-way interaction effects are not reported due to the number of participants and there not being appropriately high enough levels of statistical power.

6.3.4.1 Temporal focus and event type focus.

The ANCOVA revealed no main effect for age, $F(1, 81) = 2.38$, $p = .127$, $\eta_p^2 = .029$ and no main effect for temporal focus, $F(1, 81) = 1.46$, $p = .231$, $\eta_p^2 = .018$. There was a significant main effect for event type, $F(1, 81) = 5.83$, $p = .018$, $\eta_p^2 = .067$. Educators made higher numbers of mental state references when talking about familiar events than when talking about novel events (see Table 6.1). There was no interaction for event type x age, $F(1, 81) = .44$, $p = .511$, $\eta_p^2 = .005$, temporal focus x age, $F(1, 81) = 1.28$, $p = .263$, $\eta_p^2 = .016$ or for event type x temporal focus, $F(1, 81) = .365$, $p = .55$, $\eta_p^2 = .004$.

6.3.4.2 Covariates.

For the covariate, centre based socioeconomic advantage/disadvantage, there was no main effect, $F(1, 81) = .03$, $p = .869$, $\eta_p^2 = .000$. When considering the interactions, there

was also no interaction for centre based socioeconomic advantage/disadvantage x temporal focus, $F(1, 81) = .03$, $p = .876$, $\eta_p^2 = .000$ and no interaction for centre based socioeconomic advantage/disadvantage x event type, $F(1, 81) = .09$, $p = .771$, $\eta_p^2 = .048$.

However, educator qualification presented a significant main effect, $F(1, 81) = 19.78$, $p < .001$. Tertiary degree qualified educators used significantly more mental state language than diploma qualified educators. For the interactions with educator qualifications, there was significant interaction for educator qualification x temporal focus, $F(1, 81) = 12.38$, $p < .001$, $\eta_p^2 = .133$ and a significant interaction for educator qualification x event type, $F(1, 81) = 4.07$, $p = .047$, $\eta_p^2 = .048$. Degree qualified educators used more mental state reference in in future conversations and more mental state references than diploma trained educators when talking about familiar topics. Although the degree qualified educators performed better overall, there were some who produced very little mental state language and some diploma trained educators who produced a lot of mental state language (see Table 6.6 and Figures 6.1–6.5).

Table 6.6

Mean (SD) for Frequencies of Educator Use of Mental State Language (MSL) by Educator Qualification

	Degree qualified (*n* = 47)				Diploma qualified (*n* = 38)			
	Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
MSL references	13.87 (07.81)	11.68 (06.46)	16.28 (08.21)	18.04 (11.01)	12.11 (05.09)	08.87 (06.38)	10.29 (05.99)	07.55 (05.23)
Minimum	01.00	01.00	03.00	01.00	03.00	02.00	00.00	00.00
Maximum	37.00	29.00	38.00	42.00	25.00	30.00	22.00	20.00

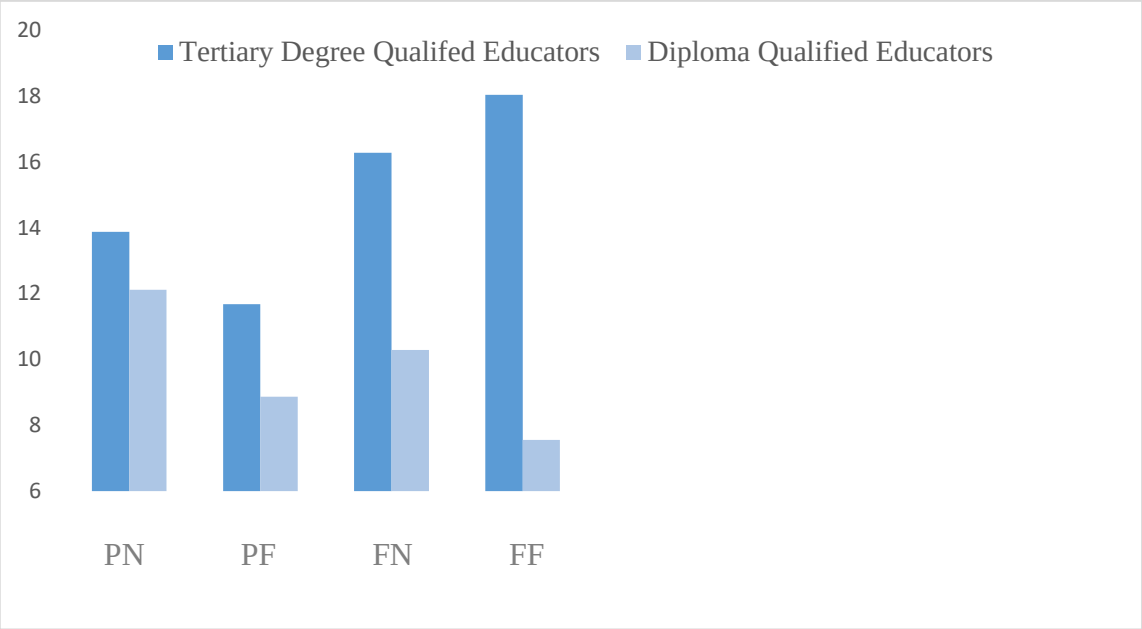

Figure 6.1. Educator use of mental state language across four event types: past novel (PN), past familiar (PF), future novel (FN) and future familiar (FF).

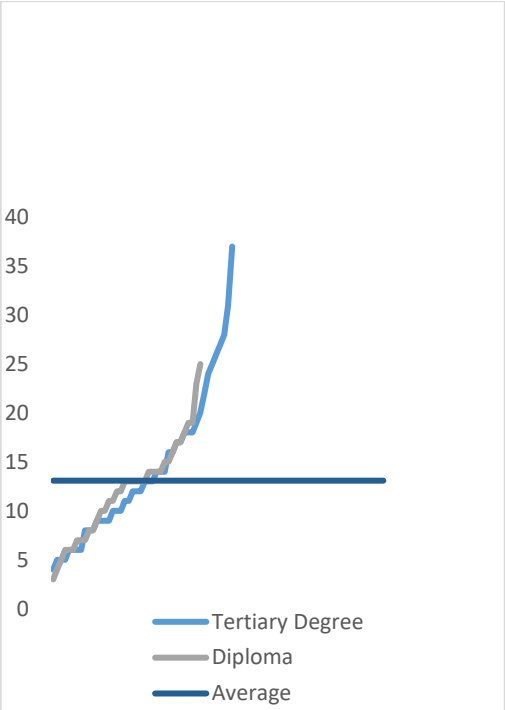

Figure 6.2. Educator use of mental state language in past novel conversations by educator qualification.

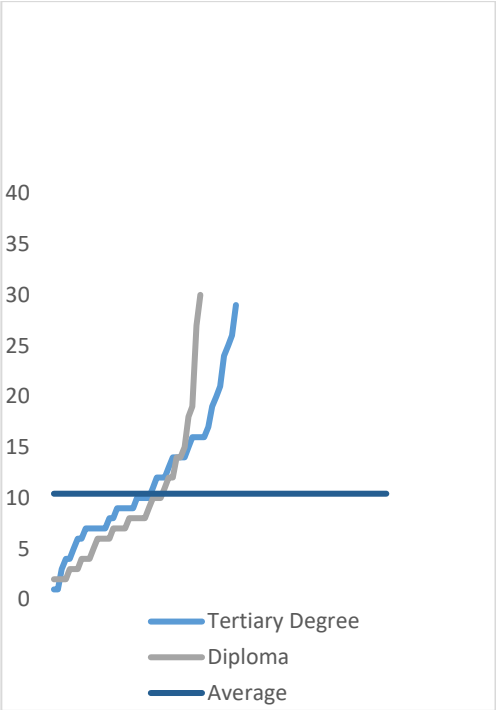

Figure 6.3. Educator use of mental state language in past familiar conversations by educator qualification.

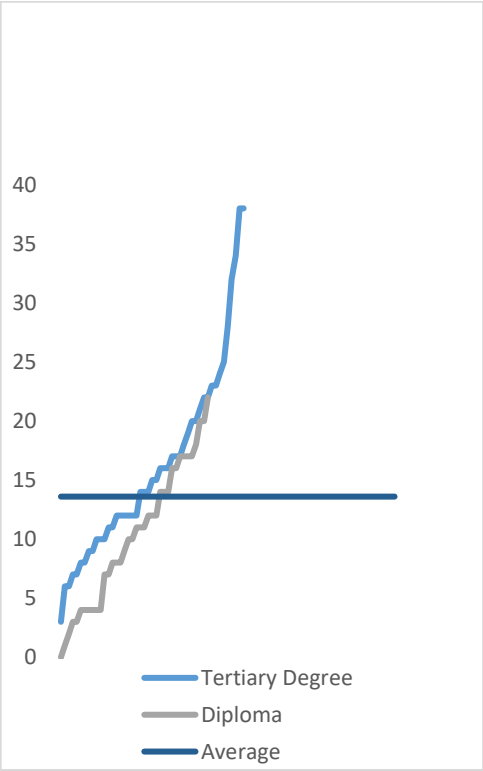

Figure 6.4. Educator use of mental state language in future novel conversations by educator qualification.

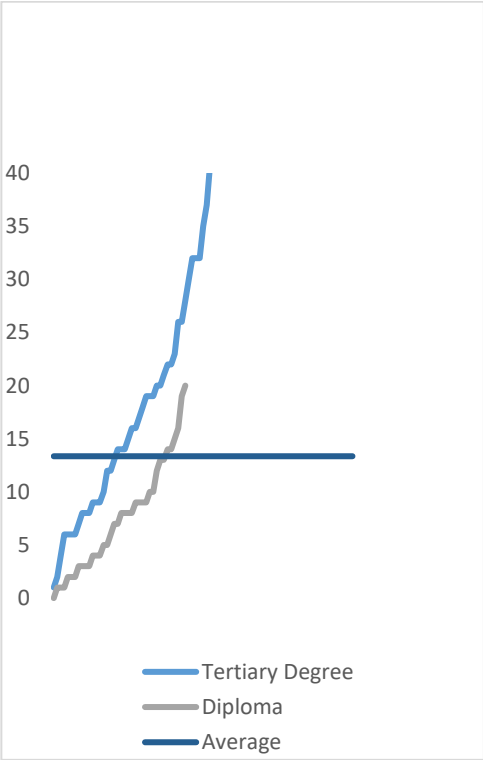

Figure 6.5. Educator use of mental state language in future familiar conversations by educator qualification.

6.3.5 Variation in child use of mental state language.

Second, to determine whether child use of mental state language in conversations differed according to event temporal focus or event type focus, therefore answering Research Question 2 from the child perspective, another repeated measures analysis of covariance (ANCOVA) was run. Similarly, event temporal focus (past/future) and event type focus (novel/familiar) were entered as within participant variables while child age (younger/older) was entered as a between-subjects variable. Centre based socioeconomic advantage/disadvantage and educator qualifications were entered as covariates. Finally, mental state language scores were entered as the dependent variable.

6.3.5.1 Temporal focus and event type focus.

The ANCOVA revealed a significant main effect for age, $F(1, 81) = 27.52$, $p < .001$, $\eta_p^2 = .254$. Older children made significantly more mental state references than did younger children (see Table 6.3 and Table 6.4). There was no main effect for temporal focus, $F(1, 81) = .91$, $p = .342$, $\eta_p^2 = .011$ nor for event type $F(1, 81) = 3.76$, $p = .056$, $\eta_p^2 = .044$. There was no interaction for event type x age, $F(1, 81) = .92$, $p = .301$, $\eta_p^2 = .013$, temporal focus x age, $F(1, 81) = .03$, $p = .869$, $\eta_p^2 = .000$ or for event type x temporal focus, $F(1, 81) = 1.09$, $p = .301$, $\eta_p^2 = .013$.

6.3.5.2 Covariates.

For the covariate, centre based socioeconomic advantage/disadvantage, there was a significant main effect, $F(1, 81) = 4.78$, $p = .032$, $\eta_p^2 = .056$. Children in centres of higher relative advantage made more mental state references ($M = 8.66$, $SD = 11.19$) than children in centres of lower relative advantage ($M = 7.88$, $SD = 7.07$). There was no interaction for centre based socioeconomic advantage/disadvantage x temporal focus $F(1, 81) = .01$,

p = .970, η_p^2 = .000 and no interaction for centre based socioeconomic advantage/disadvantage x event type, $F(1, 81) = .37$, $p = .056$, η_p^2 = .044. Educator qualification showed no main effect, $F(1, 81) = .35$, $p < .56$, η_p^2 = .004. For interactions with educator qualifications, there were was an interaction for educator qualification x temporal focus, $F(1, 81) = 4.89$, $p = .030$, η_p^2 = .057, but no interaction for educator qualification x event type, $F(1, 81) = 1.89$, $p = .173$, η_p^2 = .023.

6.4 Educator-Child and Mother-Child Use of Mental State Language

6.4.1 Correlations between educator use of mental state language and mother use of mental state language.

Research Question 3 asks about the relationship between educator use of mental state language and mother use of mental state language during discussions with the same cohort of children. Pearson's correlations were used to determine any association between educator and mother use of mental state language for conversations at each temporal focus and event type focus. As was explained in the previous results chapters, children who participated with their mothers were a subgroup of all participants. These correlations specifically target the data from educators' conversations with children from both age groups who also participated with their mothers (n = 42), and then from this subgroup further subgroups of younger (n = 20) and older (n = 22) children.

First, educator and child use of mental state language was considered. There was a different pattern to that presented in Tables 6.3, 6.4 and 6.5 that looked at the overall participant sample (N = 85). For the whole subgroup of children (n = 42) who participated in conversations with their educators, there were no associations in their use of mental state language across any of the conversation types, except for future novel conversations with

older children, r (45) = .43, $p < .05$. However, when these same children were paired with their mothers, their use of mental state language was correlated across past novel, past familiar and future novel conversations, excepting only future familiar conversations (see Table 6.8). When separated into age groups, the younger children showed no correlations for mental state language use in their conversations with educators but when talking to their mothers were highly significantly correlated for past familiar conversations. The older children were significantly correlated with their educators for future novel conversations but no others, and oppositely, with their mothers they were significantly correlated for all conversations but future novel, (again see Table 6.7).

Table 6.7

Correlations for Educator, Mother and Child use of Mental State Language (MSL)

	Younger children whose mother participated (*n* = 20)				Older children whose mother participated (*n* = 22)				All children whose mother participated (*n* = 42)			
	Past		Future		Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
Educator MSL	-.07	-.27	.36	.44	-.14	.16	.43*	.35	-.14	.02	.30	.27
Mother MSL	.17	.72**	.30	.04	.52*	.49*	.18	.49*	.32	.53**	.33	.29

*$p < .05$, **$p < .01$

6.4.2 Variation in educator-child and mother-child use of mental state language.

Research Question 3 was also addressed by performing an ANCOVA for each group of dyads to determine whether use of mental state language within each group differed depending upon talk partner (educator/mother), age (younger/older), temporal focus (past/future), event type focus (novel/familiar) or an interaction between these factors. Educator qualification and centre based socioeconomic advantage/disadvantage were again entered as covariates.

6.4.2.1 Temporal focus and event type focus.

The ANCOVA revealed a significant main effect for talk partner, $F(1, 38) = 7.12$, $p = .011$, $\eta_p^2 = .158$. Educators used significantly higher levels of mental state language when in conversation with the children than did their mothers (see Table 6.8). There was no main effect for age, $F(1, 38) = .56$, $p = .461$, $\eta_p^2 = .014$ or for temporal focus, $F(1, 38) = .83$, $p = .367$, $\eta_p^2 = .021$, but there was a significant effect for event type, $F(1, 38) = 8.37$, $p = .006$, $\eta_p^2 = .180$, with novel topics having higher mean scores across all conversation types for both educators and mothers. There was a significant interaction for talk partner x age, $F(1, 38) = 4.93$, $p = .032$, $\eta_p^2 = .115$, and no interaction for talk partner x temporal focus, $F(1, 38) = .55$, $p = .462$, $\eta_p^2 = .014$ or for talk partner x event type, $F(1, 38) = 1.06$, $p = .310$, $\eta_p^2 = .027$.

6.4.2.2 Covariates.

There was no interaction for talk partner x educator qualification, $F(1, 38) = 1.349$, $p = .253$, $\eta_p^2 = .034$ and no interaction for talk partner x centre based centre based socioeconomic advantage/disadvantage, $F(1, 38) = .936$, $p = .339$, $\eta_p^2 = .024$.

The main effect for talk partner indicated that educators and mothers differed in their use of mental state references. The mean and standard deviation for educator and mother use of mental state language (see Table 6.8) show that educators use more mental state references across all conversations for both younger and older children compared to mothers. However, the higher levels of mental state language generated by educators did not correlate with the children using more mental state language.

Table 6.8

Mean (SD) for Frequencies of Educator and Mother Use of Mental State Language (MSL) for all Educator-Child and Mother-Child Dyads (n = 42)

	Educator				Mother			
	Past		Future		Past		Future	
	Novel	Familiar	Novel	Familiar	Novel	Familiar	Novel	Familiar
MSL score	14.40 (7.94)	11.31 (6.43)	15.40 (8.18)	13.88 (9.98)	11.67 (5.39)	7.40 (5.95)	8.81 (5.62)	7.21 (6.42)

6.5 Conclusion

Overall, educators did not differ in the amount of mental state language they used with either age group, but they did make higher numbers of mental state references when talking about familiar events when compared to talking about novel events. Generally, older children made more mental state references than the younger children. Educator use of mental state language was associated with younger child use of elaboration in future novel conversations, but was not associated with younger child use of mental state language for any conversation type. Older children, however, differed: educator use of mental state language and child elaboration was positively associated for future novel conversations as was educator use of mental state language and older child use of mental state language in future familiar conversations. There was no difference in mental state language use dependent upon centre based socioeconomic advantage/disadvantage;

however, tertiary degree qualified educators used significantly more mental state language than diploma qualified educators. There was difference, though, within the educators: some degree qualified educators used less mental state language and some diploma trained educators made frequent mental state references.

6.6 Relationship between Chapters 4, 5 and 6 and Chapter 7

The three results chapters have built on previous reminiscing and future talk research with mothers and children by examining the way in which educators interact with young children in reminiscing and future talk conversations. To accomplish this, I examined the extent to which each educator used elaborations and an elaborative style of speech (Chapter 4), and then I considered how educators included two kinds of content: temporal language and mental state language in their conversations (in Chapter 5 and Chapter 6 respectively). Specifically, I examined conversations across events varying in event temporal focus (past/future) and event type focus (novel/familiar). I also considered children's contributions of the same elements: elaboration, use of temporal language and use of mental state language, and finally, I compared educators and mothers. In the next chapter I use sociocultural theory to integrate and discuss the findings and establish that educators do use reminiscing and future talk conversations in ways both similar and different to that of mothers.

Chapter 7: Discussion

7.1 Introduction

This study extended the important sociocultural research with mothers and children by examining educator-child conversations about the past and future within the domain of early childhood education. The aim was to examine how educators interact with young children in reminiscing and future talk conversations. There were three research questions that related to the aim. These were applied to each of the main variables (contributions): elaboration, temporal language and mental state language. The stem research questions were:

- Research Question 1: When talking about shared events, what is the relationship between educator contribution and child contribution?
- Research Question 2: Does the contribution during educator-child talk about shared events vary according to event temporal focus (past/future) or event type (novel/familiar)?
- Research Question 3: When talking about shared events separately but with the same child, what is the relationship between educator-child contributions and mother-child contributions?

Educators and young children participated in a series of counterbalanced event-related conversations. There were two age groups; a younger group (27–36 months) and an older group (48–60 months) who participated in the study. Conversations were coded first for elaborative style and second for content including use of temporal and mental state language. To understand how the type of event might influence the conversations, the events educators discussed varied by both temporal focus (past/future) and type (novel/familiar). Additionally, educator-child conversations were compared to the

conversations from the subset of mothers who also participated. Age was used in the major analyses, and centre based socioeconomic advantage/disadvantage and educator qualifications were included as covariates. Initial analyses incorporating gender revealed no differences, therefore gender was excluded from all analyses.

There were four key findings. First, I determined that there were associations between educator talk and child talk for all variables—elaboration, temporal and mental state langauge—across all the event conversations. Underpinning that and second, the findings showed that educators are talking about events in relation to temporal and event type focus in different ways. Elaboration and temporal language differed by temporal focus (past/future) and mental state language differed by event type (novel/familiar). Third, when I considered educator talk and mother talk with the same children, I determined educators were not talking about events in the same way as mothers. Educators though, were found to be consistent across their child conversational partners. That educators were characteristically different to the mothers suggests that the children were not driving the conversations rather the adults were. Therefore children may be getting different support from their adult different conversational partners. Fourth and finally, as a corollary to these findings, I determined that educator qualifications made a difference in the way educators talked with children. Educators with degree qualifications were more elaborative and used more mental state language than their diploma qualified colleagues. I do note though, that there was wide variation in the educators within each qualification level.

7.2 Relationship Between Educator and Child Conversational Contributions

As I was interested in how educators interact with young children in reminiscing and future talk conversations, I first considered the relationship between educator and child

contributions in the form of elaboration, and use of temporal and mental state language. These relationships are discussed in Sections 7.2.1, 7.2.2 and 7.2.3 respectively. As the findings are discussed, unless younger children or older children are specified, the finding relates to the whole sample.

7.2.1 Relationship between educator elaboration and child contributions.

To capture an extensive understanding of educator elaboration, these were calculated in two previously established ways: first, as a raw score using total counts of elaborations (Farrant & Reese, 2000; Langley et al., 2017; Salmon et al., 2011) and second, as a quotient score, indicative of educator elaborative style (Hudson, 2002, 2004, 2006; Kulkofsky et al., 2011; Reese & Fivush, 1993; Salmon et al., 2011). This ensured the capture of two critical yet distinctly different kinds of information.

When the quantity of educator elaborations (elaboration raw score) was considered, there was a positive association with child elaboration consistent with the type of reciprocity that would be predicted from sociocultural theory. Educator total elaboration was positively associated with child elaboration for all event types. More specifically, educator elaboration was associated with older children's contribution in past novel and future novel and future familiar conversations, and for the younger children was associated with elaboration in past and future novel conversations only. Interestingly, when coding for elaborative style (elaboration quotient score) the associations diminished and were only found when the educator-child dyads were engaged in past novel conversations. Thus, for educators there is an effect for total amount of elaboration but not for the style of discussion used.

Given the importance of educators as conversational partners to young children, (Brebner et al., 2016; Chen & de Groot Kim, 2014), it is important to consider why educator-child elaborative associations were diminished when measuring elaborative style.

As it appears that educator contributions facilitate child contributions, perhaps this measure is less useful in describing educator contribution than it has been in the maternal research. The same coding protocol was used with the mother–child sample and this operated in the same way as in previous research with mothers. As the coding protocol accounts for repetitions, it may be that repetitions have an important role in educator-child conversations that are not so important for mother-child dyads. Repetitions conventionally occur when an adult refers to information previously discussed. Perhaps when repeating information, educators are doing so in a formative way that, while not eliciting a contribution from the child, is still reinforcing contextual event information.

Another possibility is that educators when conversing with their child conversational partner do not have to work to establish and explain new social and physical elements pertaining to the event topics. Within early childhood long day care centres the context is predictable, thus, in the discussions for many of the events there is no need to establish where the event will occur, or who will be the likely participants. The event almost always occurs within the early childhood centre and with the same group of children. This notion is conceivably represented in that educators only showed associations in conversations about past novel events. Past novel events would be the context when there would be more opportunity to scaffold the child to recall the novel event by talking about novelty, the context and participants. It could be argued that future conversations also offer this opportunity but given that future conversations are more complex than past conversations, it is in past novel topics where opportunity occurs.

Alternatively, as elaboration is often considered as the overarching style, it may be that the components within elaboration (evaluations, contextual statements and questions) act in different ways in educator-child talk and mother-child talk. This is potentially the case for educators. As there is no research in this area, to understand this better I tested the

degrees to which identified key components of educator talk (evaluations, contextual statements and questions) would predict child contribution.

Educator evaluations (defined as contributions that confirmed or negated a child's previous utterance in some way) were the strongest predictor of child contribution. Frequently, the educators repeated what the child had said as a confirmation or affirmed in some way that the child's contribution was valued. Validation of a child's comments through evaluations are considered important as they assist the child to know that their contribution has meaning and that it is valued as a contribution to the overall event narrative (Fivush et al., 2006; Reese & Fivush, 1993). As a conversational strategy, evaluations reflect the importance of listening and responding appropriately to children, traits that educators are acutely aware of as being important (Bateman, 2013; Brebner et al., 2015; Chen & de Groot Kim, 2014).

Interestingly, educator use of contextual statements predicted child contribution in future novel conversations only. Across the four conversation types, conversations about future novel events could be considered the most complex for the children to engage in. This is because the children would not typically be able to draw on past experience to inform their understanding for the future event. Rather they must instead imagine by using the personally resourced information they have available. It is telling then that in the future novel conversations only, educator use of contextual statements was associated with child elaboration. By supporting the children's knowledge and understanding for the upcoming events, educators likely facilitated the children's own ability to contribute to the discussion.

Intriguingly, educator questions did not predict child elaboration for any conversation types. This is surprising given mother-child research shows clear associations between mother questioning and child responses (Fivush & Fromhoff, 1998; Hudson et al.,

2011; Salmon & Reese, 2016) as well as in education where questions typically elicit child responses (Bateman, 2013; Chappell et al., 2008). This finding now needs to be replicated because it is widely assumed that questions are an important mechanism for educators to understand children's interests and facilitate children's expression of their ideas, but as indicated, my findings suggest otherwise.

When examining the relative type of educator contributions made across all event types, it is evident that educators asked higher numbers of questions when compared to contextual statements or evaluations. Together though, contextual statements and evaluations were offered in greater numbers than questions alone. The educators varied significantly in the proportion of questions to contextual statements used, with some educators asking higher numbers of questions and using fewer contextual statements, and others using higher numbers of both questions and contextual statements. Hudson's (2002) parent-child sample also showed there was wide variation in the proportion of questions to contextual statements between mothers.

Past reminiscing research with mothers and their children has found that children provide a more scant response when their mother provides limited content herself (Farrant & Reese, 2000; Fivush & Fromhoff, 1988; Goodvin & Rolfson, 2014; Haden, 1998; Van Bergen et al., 2009). This is particularly the case when mothers repeatedly ask the same questions designed solely to elicit specific, pre-determined information from their children (Fivush et al., 2006). Although mothers may intend for their questions to enhance children's output (e.g., see Kulkofsky, 2011), this repeated questioning does not allow the mother to follow her child's interests nor to show respect for the child's autonomy (Cleveland & Reese, 2004; Larkina & Bauer, 2010). It is not clear though, that this is what the educators in the present study were doing. One possibility is that the children simply contributed less because they were less familiar in a scenario where they talked one-on-one

with an educator, although this is not likely given all children were in a familiar environment and agreeable to participating in the conversation.

A second possibility, therefore, is that although the educators were asking unique (non-repetitive) questions, their impact was similar to that of the previous unsupportive style. Closer examination of the transcripts suggests the possibility that the questions were playing the same role as repetitive questions. Specifically, even if their structure and content changed slightly each time, often with the addition of further contextual information, the questions appeared to still be attempting to elicit similar specific information to the initial questions. These questions could be viewed as purposeful serial questions. This raises an interesting notion for future research to consider in terms of questioning style and purpose.

The following two transcripts of two different reminiscing conversations, each with an educator and a 4-year-old child, highlights how even when changing question content, the educators' questions continue to drive at eliciting similar specific information.

Educator: *Remember when we went to the library, into the city?*

Child: *Hmmm.*

Educator: *And you and I, what did we sit next to each other on, the what?*

Child: [silence]

Educator: *What did we take to get to the city?*

Child: [silence]

Educator: *Was it a bus?*

Child: *Two trains.*

Educator: *Two trains. That's right, it was two trains.*

And:

Educator: *And do you remember when, when we went to the gym one day and you were practising your forward rolls and your flips?*

Child: [silence]

Educator: *Do you remember doing that?*

Child: [silence]

Educator: *What can you tell me about that gym day, what sort of things did you like doing?*

Child: *Umm, I don't know.*

Educator: *What other, they had, you were doing forward flips, and what else?*

Child: *I don't know.*

Educator: *Yeah, can you tell me how you do the forward flip?*

Child: *Well, I don't remember.*

Educator: *Where do you put your hands?*

Child: [silence]

Educator: *Oh, so you bend down. Can you tell me, Child, can you tell me about it? Sit on here. Can you describe to me using your words about, about the day at the gym and what things we were doing?*

Child: *You put your hands up and then put them down.*

Educator: *Oh.*

Child: *And then put your head down and then roll.*

Educator: *Oh wow.*

Furthermore, different coding schemes pick up different aspects of questioning. It was considered important in the present study to use Hudson's coding scheme as her work is the only previous work to have considered both maternal reminiscing and future talk concurrently (Hudson, 2002, 2004, 2006). The coding scheme did not, however, allow me to detect differences between open and closed questions, and it may be that the educator purposeful serial questions were sometimes or even frequently close-ended. Moving forward, it would be beneficial to discriminate between open and closed questions in future research with educators, to extend what is currently known. As has been identified in other work, open-ended questions operate differently to yes-no or fill-in-the-blank type questions (McGuigan & Salmon, 2004; Reese & Newcombe, 2007; Van Bergen et al., 2009). While

both are requesting a response from the child they do so to different extents, for example, Van Bergen et al. (2009) describe high elaborative or information questions as *wh*-questions and yes-no questions and fill-in-the-blank questions as closed. Thus, the use of a coding scheme that captures these different types of questions separately would offer strong benefits in determining whether questioning style is contributing to the surprising lack of relationship between questions and child output.

It is possible that an educator purposeful serial question style limits children's responses. One clear finding emerging from the reminiscing and future talk mother-child literature is that genuinely open questions during reminiscing are useful for encouraging children's contributions. In early childhood literature, too, there is widespread evidence that open-ended questions in everyday conversations about current activities offer the opportunity for children to make extended responses demonstrating their knowledge and understanding, while closed questions instead limit children's responses (Dickinson & Porche, 2011; Siraj-Blatchford & Manni, 2008; Siraj-Blatchford et al., 2003; Sylva et al., 2010). In a study with nine educators, for example, Carr (2011) found that educators often used a series of questions that resulted in children responding with one word answers, or "yes" and "no" and "don't know" type answers.

The response to this might be to suggest that educators be guided to use open-ended questions. However, rather than broadly promoting frequent use of open-ended questions, a more nuanced approach is required. Some early childhood research (Torr & Pham, 2016) suggests that educators should be taking more of the load of conversations. The reminiscing and future talk research also presents evidence for this, suggesting that educators use contextual statements to add meaning and information about the event under discussion, to support the children's knowledge about the event, and that this may be a key

component in educators scaffolding children's elaboration (Fivush, 2011; McGuigan & Salmon, 2004).

An alternate possibility is that it may not be the open- or close-endedness of the questions that is inhibiting children's responses in the current study. It is also possible that a series of inter-related questions about the same event—even if the questions differ—simply result in little or no child response. Perhaps the practice of serial questioning is inhibiting to child output. Investigation into serial questioning is another aspect that should be pursued in future research with educators.

To further explore the lack of relationship between questions and child contribution, future research might also consider educator motivations. Research with mothers suggests a range of motivations; such as those as suggested above including responding to the child's lead or holding more adult focused and self-driven agendas (Cleveland & Reese, 2005). It appears that those educators who used this questioning style were focused less on the joint or shared aspects of reminiscing, but rather talked with the child to elicit and therefore demonstrate the child's knowledge. Similar traits have been noted in mother-child reminiscing. Kulkofsky (2011) examined the characteristics of functional joint reminiscence in maternal child conversations and noted that mothers tended to direct conversations as either bonding conversations or lesson conversations. In lesson conversations, when mothers were trying to teach their children something, they referenced their child more, and used more didactic language characteristics (Kulkofsky, 2011). While I cannot ascertain whether educators were asking questions with the same intent as the mothers in previous research, I can, however, note that elements of educator questioning in the present study were similar to mother didactic practices.

The two research fields—developmental psychology and early childhood education—can align cohesively here. In psychology, Cleveland and Reese (2005)

highlight the importance of autonomy support; that is, supporting the child's interests and following the child's responses. In early childhood education, Bateman (2013) suggests educators need to be guided beyond being simply recommended to ask open-ended questions but to respond to children's answers and follow their interests. She reinforces the need to acknowledge and respect children's contributions and to support children in the turn-taking process of conversations. This type of congruity between both fields of study is important for recommendations for research and education practice going forward.

7.2.2 Relationship between educator use of temporal language and child contributions.

Educator use of temporal language, specifically temporal points of reference in the reminiscing and future talk conversations, was associated with child elaboration. Educators who used more temporal points of reference resulted in children responding more elaborately overall. The relationship to educator use of temporal points of reference and child use of temporal points of reference was more complex, with older children (48–60 months) and younger children (27–36 months) offering different levels of contribution. Past research into maternal use of temporal points of reference has produced similar findings (Hudson, 2002, 2004, 2006), suggesting that younger children (2.5 years) are likely to be less elaborative and to produce fewer temporal points of reference than their older (4 years) peers. Similarly to the findings for educator elaboration, the type of event also influenced educator use of temporal language.

First, I consider educator use of temporal points of reference and child elaboration. Educator use of past references was associated with elaborations of the younger children in past novel conversations only, whereas for the older children, educator use of past references was associated with elaborations across all event topics. That educator references to the past are associated with younger children's elaboration in past

conversations suggests that these references support the younger children to remember. They may provide greater event structure and scaffolding, for example, or simply serve as memory cues to support additional child contributions. It is unclear why the same effect is not then found for past familiar events, in which children should theoretically also benefit from this same scaffolding and support. It may simply have been more interesting for children to talk about novel events. Alternatively, the younger children may have not needed this support as familiar events are encoded multiple times already. If this were the case, however, we would expect similar findings to emerge for older children. As stated above, this was not the case. Instead, older children benefited from past references for all topics, both novel and familiar.

For older children, but not younger children, references to the past supported discussion about the past and discussion about the future. References to the past typically add contextual information or seek information in the form of questions about a past event. Within the current study, past temporal references supported older children's elaboration in novel and familiar past conversations, and also when an educator made references to the past, older but not younger children were able to use this information to inform their understanding of novel and familiar future events. Educators did not differ in their use of past references between the younger and older groups, so it was not that educators offered more to the older children to work with. Rather, because talk of the future is complicated and requires imagining about events not yet experienced, younger children may have found it difficult to contribute to the future conversations.

Importantly, other forms of temporal reference were also associated with both the younger and older children's elaboration. References to the timeless present, to future actions and those that are future hypothetical in nature, are associated with both the younger and older children's elaborations in future novel and familiar conversations, and

references to the timeless present and future hypothetical (but not future action) are associated with children's elaborations in future familiar conversations.

Next I consider educator use of temporal points of reference and child temporal points of references, whereby, in contrast to educators, children used relatively few temporal points of reference. This was particularly the case for younger children, for whom associations with the educator contributions were only significant for past references in past conversations. This is perhaps not surprising, as references to the past in past event conversations may be the easiest kind of temporal language to use. Older children's use of past references was also associated with educator use of past references. Unlike the younger children who made negligible references to the future, older children also talked about their future actions in future novel conversations, and used both future action and future hypothetical references, in association with their educators, in future familiar conversations. They also made more future references when talking about a familiar future. This is likely to be because it is easier for a child to talk about a future that is familiar, that they already have a schema for and that they can draw upon to facilitate their predictions. Supporting this possibility, past research shows that children, when discussing events with their mothers, were readily able to understand and talk about future familiar events (Hudson, 2004). Hayne et al. (2011) also noted that young children were able to contribute accurate future oriented content in their accounts of imminent future events.

7.2.3 Relationship between educator use of mental state language and child contributions.

The third educator discussion variable considered in this study was mental state language. Educator use of mental state language is an important aspect of educator-child conversations and exposure to mental state language likely supports children's understanding of mental states (Frampton et al., 2009; King & La Paro, 2015). Previous

research has also established that mental state language talk occurs most frequently in sensitive educator–child interactions within higher quality emotionally responsive early childhood classrooms (Frampton et al, 2009; Gunter et al., 2012; King & La Paro; 2015; Kingston et al., 2013; Manning et al., 2017). There is, however, a paucity of literature that has looked at children's responses to educator use of mental state language either in terms of elaboration or their own use of mental state references. This study has attempted to fill this gap in the literature.

For both older and younger children, educator mental state references were associated with child elaboration in future novel conversations, but not other kinds of conversations. In addition, educator mental state references were also associated with child use of mental state references in both future novel and future familiar conversations. Conversations about the future included references to possible actions, predictions and preferences. These future action and future hypothetical references made by educators likely generated opportunities for the children to not only mentally time travel but also to think and express themselves in terms of mental state language. Notwithstanding these positive associations, however, the level of production of mental state references by the children overall was very low. This was particularly the case for the younger age group, who were aged just 27–36 months. This finding is not unexpected: other developmental research has also noted that children are only beginning to use mental state references at 24–33 months dependent upon maternal role modelling talk (Taumoepeau & Ruffman, 2008).

7.3 Variation in Educator-Child Talk about Shared Events

The second question I sought to explore was if educator-child talk about shared events varied according to the type of event discussed. I therefore manipulated event temporal focus (past/future) and event type (novel/familiar), comparing educator

elaborations, elaborative style and content; including use of temporal language and mental state language across the past novel, past familiar, future novel and future familiar event conversations. Similarly, I considered the children's use of these same language features from the same educator-child conversations.

7.3.1 Educator elaboration according to child age, temporal and event focus.

When comparing the results for the elaboration quotient and elaboration raw scores, the findings differed depending upon which elaboration score was used. When elaborative style was accounted for by using the quotient score, educator elaborative style differed by temporal focus; no such difference was noted for the elaboration calculated as a raw score. Conversely, the raw score accounted for a difference by event type, which was not indicated by the quotient score.

When educator elaboration was measured as a raw count of elaboration utterances, the elaboration score differed significantly by age group. It is expected that educators would have elaborated more with the older children than with the younger children. Older children possessed more language capabilities than their younger peers, evidenced by the scores on the receptive and expressive language tests. Educators, however, did not vary in terms of the raw number of elaborations they used when talking about the past and future; rather, a greater number of raw elaborations were made for novel events than for familiar events. It is probable that conversations about novel events generated higher total elaboration counts purely because the topics were original, new and interesting. Consistent with this possibility, it is surprising that this is also not true for future events which also contain a degree of unpredictability. A possible explanation is that future events do not have as many details to discuss in general, so the novelty of all future events may be partly counteracted by the greater number of details to be discussed in past event talk.

A different pattern of findings emerged when educator elaborative style was captured using the elaboration quotient score. In this instance, significant differences according to event temporal focus were noted. Specifically, there was a significant interaction between temporal focus and novelty. If the event was in the past, educators used a high elaborative style to discuss novel events and a less elaborative style to discuss familiar events. This is possibly because when events become routine—that is, events where an individual can begin to develop a script for the narrative associated with them (in this study represented as past familiar events)—there is less to be said about the event. Rather, what exists is a generalised memory for the "gist" or central details of the event and this often comes with fewer salient details, thus it may be that events that are very familiar are discussed in a more generalised way. Additionally, another plausible explanation is that the familiar past may be more routine and concrete and more likely to elicit repetition as well as elaboration; indeed, some educators did seem to repeat the same questions and statements in the hope of eliciting specific information from their child conversational partner.

If the event was in the future, however, educator use of an elaborative style did not differ between novel and familiar events. When discussing the future, even familiar events are less certain and therefore event novelty may not have influenced conversational contributions. Rather, the challenge for educators was in scaffolding their child conversational partners to project themselves forward in time to conjure up a narrative for an event not yet experienced.

Overall, conversations about past personally experienced events and future events in which the child anticipates participating provided children with different information about how these occur across their personal timeline. Educator elaborations referred to the past, present and future within a few utterances as the educators located the events in time during their conversations. Specifically how this occurred is explored next.

7.3.2 Educator use of temporal language according to child age, temporal and event focus.

Similar to educator elaborations, educator use of temporal points of reference also varied significantly depending upon the temporal focus of the event, that is, if the conversation was about a past or a future event. First, and not surprisingly, references to past episodes were higher when educators were talking about past events than when talking about future events. This finding is consistent with Hudson's (2002) finding with mother-child dyads. Second, and again consistent, with Hudson's (2002) work with mothers and children, educators also made more references to the timeless present when talking about the future than when talking about the past. Using timeless present references was a common way for educators to add new information about the event. As this is occurring for future events that the children have not yet participated in, it is highly probable that the timeless present references were the educators' way of supporting the children's knowledge and understanding of the upcoming event.

Consistent with this explanation, educators used more timeless present references when in conversation with the younger children, perhaps sensing a greater need to scaffold the younger children's conversations about upcoming events. As was the case for past references in past conversations, it is expected that conversations about the future would contain significantly more references to the future than conversations about the past, and these findings about educators again reflect previous similar findings with mothers and children (Hudson, 2002). In both cases, whether mothers (Hudson, 2002) or educators, there were significantly more future action references, preferences and future hypothetical contributions in future conversations when compared to past conversations.

When talking about the future with the younger and older children, educators also differed in their approach to the conversations in other ways. Specifically, they made

significantly more references to future action and to future hypothetical states when talking to the older children. One explanation for this finding is that educators are sensitive to the needs and abilities of individual children and are therefore responding appropriately to the older children's more developed conceptual understanding of time. Thus, there may be a developmental sequence in educators' from timeless present talk with younger children to future action and future hypothetical talk with older children. This may particularly be the case when educators ask questions about children's ideas about what they *would* do in the future and what they *might* do in the future, thus eliciting the children's preferences and predictions. Supporting this possibility, Hudson (2004) found that mothers often used a similar strategy of eliciting 4-year-old children's views by using hypothetical language or by asking about what generally might happen. This strategy was more effective than asking direct information-seeking questions about past episodes (which instead tended to result in "I don't know" and single word responses from children). The findings were similar with educators. See the following transcripts, first with an educator asking direct information-seeking questions of a 4-year-old child when talking together about a past event of introducing hermit crabs into their early childhood centre room.

Educator: *Do you know what other creatures we have at Kindy. Do you remember when we got the special little creatures in the preschool room?*

Child: *No.*

Educator: *What little creatures do we have in the preschool room? Inside a shell?*

Child: *Crabs.*

Educator: *Do you remember when we got then?*

Child: *No.*

Educator: *You don't. Are you sure? Do you remember what they like to eat?*

Child: *Vegetables.*

Educator: *Sometimes they like to eat vegetables.*

A second transcript shows an educator eliciting a 4-year-old child's predictions in a future talk conversation about a movie night at the early childhood centre. They plan to watch the movie *Frozen* on a large screen in the outdoor garden area.

Educator: *So maybe you can tell me, there's lots of things about to happen at Kindy, isn't there?*

Child: *Movie night.*

Educator: *Yeah, movie night. What's happening at movie night?*

Child: *And I've already had a movie night with my whole family.*

Educator: *Did you? Well, what do you think the movie night at Kindy will be like?*

Child: Frozen *and popcorn and pizza.*

Educator: *Wow, that's going to be exciting. And who's going to come to the movie night, do you think?*

Child: *My whole family.*

Educator: *Your whole family?*

Child: *And maybe Lulu and Bella.*

Educator: *There will be lots of persons. What do you think you're going to have to bring to the movie night?*

Child: *Bean bags, toys, and a blanket.*

Educator: *Oh, you seemed to have thought about this a lot already. Have you?*

Child: *Yeah.*

Educator: *You've been planning what to bring.*

Child: *Yeah.*

Educator: *A blanket is a good idea because it might be a bit cold, mightn't it…?*

Child: *Yeah, on your lap.*

Educator: *…at night time. Because do you think it's going to be light out in the garden or…?*

Child: *No, dark.*

Educator: *It's going to get dark, isn't it, and we're going to have a big screen to see the movie.*

7.3.3 Educator use of mental state language according to child age, temporal and event focus.

Apart from individual differences in educator use of mental state references, educators did not differ in their use of mental state language with the younger and older age group. This finding contrasts with that for elaboration and temporal references, where educators did differ in their contributions according the age of the child they were conversing with. This finding is also somewhat surprising given that children's understanding of mind increases across this period (Eggum et al., 2011), yet it is nonetheless consistent with research conducted with mothers. For example, mothers have been found to be relatively stable in their mental state language even as children age (Reese, Sparks, & Levya, 2010; Rudek & Haden, 2005; Taumoepeau & Ruffman, 2008). An explanation for this lack of age difference may be that there were low base rates with many zero scores overall, thus the finding might be an artefact of the floor effect rather than a true indication of a lack of difference.

Consistent with the findings for elaboration and temporal references, there were differences in mental state references according to event type. Educators made higher numbers of mental state references when talking about familiar events than when talking about novel events, and this was the case irrespective of whether the event was located in the past or future. Mental state references often occurred in the form of questions such as "Do you remember?" in past conversations and "What do you think …?" in future conversations. This finding for educators is consistent with previous research that showed that mothers used these similar explicit references "think" and "know" in questions and prompts for information from their children (Rudek & Haden, 2005; Taumoepeau & Ruffman, 2008). It is likely that educators used more "think", "know" and "remember" references when talking about familiar events as compared to novel events, because when

talking about familiar events the children would conceivably have more memory for the events and their personally experienced involvement in those events when referring to the past. When talking about future events, again children would be able to draw on their memory for familiar events and subsequently be able to then project forward their knowledge or thinking about the prospective event in their personal timeline. So too would educators be attuned to these shared events and therefore be able to ask relevant and supportive questions to elicit the child's knowledge.

7.4 Educator Contributions Impacted by Educator Qualifications

One important factor when considering educator impact and practice is the qualifications of the educator. Consistent with this notion, educator qualification levels were predictive of difference in the ways educators talked with children in terms of elaboration and mental state language but not temporal language. Educators with tertiary degree qualifications were more elaborative than educators with diploma level qualifications, regardless as to whether elaboration was measured by raw or quotient scores. Educators in the study had either a university teaching qualification or a diploma level qualification. For the younger age group, 40% of educators had a tertiary degree qualification and 60% had a diploma level qualification. For the older group, 73% had a tertiary degree qualification and 27% had a diploma level qualification.

Educators varied in their elaboration by event type: novelty or familiarity. Educators with a tertiary degree were more elaborative in their conversations about familiar events. As suggested earlier, familiar events probably have a more easily remembered "gist" or central details, but it may be harder to remember and scaffold individual children's personal styles and idiosyncratic details that make a memory story come alive. A high elaborative style is identified as being in tune with the child conversational partners' interests; thus, the findings suggest that educators with tertiary degree qualifications may

have been more skilled at responding to and extending the children's own contributions during the reminiscing and future talk conversations. Educator qualifications are well established predictors of high quality interactions in other kinds of educator-child conversations, including sustained shared thinking conversations (Sylva et al., 2004) and conversations relating to emotion regulation (Denham, Bassett, & Zinsser, 2012; Kingston et al., 2013). Specifically, educators with higher qualifications are noted to display increased sensitivity, responsiveness and verbal stimulation (Manning et al., 2017; Phillips & Lowenstein, 2011), to engage with higher levels of warmth and sensitivity in their interactions (Whitebrook, 2003), and to initiate higher levels of emotional support for young children (Tayler et al., 2016). The current study extends these findings to reminiscing and future talk conversations that occur in early childhood settings.

High quality interactions are not just about discussion style; content is also scaffolded. In particular, some content, including modelling mental state references, is especially useful for children's development (King & La Paro, 2015; Rudek & Haden, 2005; Taumoepeau & Ruffman, 2008). Previous work has established that exposure to mental state references in mother-child conversations is associated with child use of mental state references and with more sophisticated memory strategies (King & La Paro, 2015; Rudek & Haden, 2005; Taumoepeau & Ruffman, 2008). Mental state references also varied by educator qualification. In particular, degree qualified educators used a greater number of mental state references when discussing the past and future with the children. Although the role that educator qualifications may play at the group level is important, it is also worth noting the difference amongst individual educators. Specifically, there were some degree qualified educators who produced very few mental state references and some diploma qualified educators who produced multiple mental state references. Thus, while differences were noted, this was not indicative of each educator with each qualification. It

is worthwhile to note that it is beyond the scope of the present study to determine if those with degree qualifications do better because of attaining a teacher education degree, or if particular types of educators elect to undertake degree qualifications in the first instance.

7.5 Relationship Between Educator Contributions and Mother Contributions

Much of the existing sociocultural research into reminiscing and future talk conversations is with mothers, with little research extending beyond the family. Above, I have presented findings from this current study in which I examined how educators also reminisce and discuss the future with young children. While the contributions of mothers and educators have not previously been examined together, many young children spend large portions of time with each adult. For example, children may spend some days of the week at home with a caregiver (most often the mother), and may also spend many hours of their week in early childhood services. They therefore are exposed to a range of social influences from both mothers and educators. Working with a subset of participants, the final contribution of this study was, first, to draw comparisons between educator and mother contributions when conversing with the same child; and second, to examine the associations between educator and mother elaborative style, and use of temporal and mental state language. While this approach does not capture all possible social partners a child may have (including fathers, siblings and grandparents), it nonetheless offers a first opportunity to consider the different ways family and non-family partners might converse with each child.

7.5.1 Relationship between educator elaboration and mother elaboration.

There were important differences in conversation style for the educators and mothers who engaged in conversation with the children. When using the quotient elaboration

scores, mothers were found to be more elaborative with their children than some educators. There were, however, different findings depending upon whether the educators were tertiary degree qualified or diploma qualified. As more younger children talked to diploma qualified educators than degree qualified educators, each group was considered by age and educator qualification. For the older children, mothers and degree qualified educators were similar in their elaboration scores; however, when compared to diploma qualified educators, mothers were more elaborative in past familiar, future novel and future familiar conversations. For the younger children, mothers were more elaborative than educators with a diploma qualification for all event conversations, but not as elaborative as the degree qualified educators in past novel, past familiar and future familiar conversations. A possible explanation is the large difference in the elaboration scores of the educators overall.

Additionally, another possibility may stem from adult expectations of the child conversational partner. It appears that the degree qualified educators have high expectations for their child conversational partner regardless of age. This may stem from the degree educators' knowledge and understanding of the importance of quality conversations (Manning et al., 2017; Phillips & Lowenstein, 2011; Sylva et al., 2004). It is interesting that mothers elaborate more with their children, regardless of whether they are in the younger or older age group, when compared to educators with a diploma qualification. Perhaps mothers were more attuned to their children overall or had more interesting events to discuss. That this difference exists is enough though to suggest that further research should be conducted to ascertain why this is occurring.

Interestingly, there were no correlations between educator and mother elaboration (raw or quotient) for either age group, or for the whole cohort. In effect, these findings suggest that what happens in each of the dyads is somewhat independent of the other. This

may in turn suggest that what the adult (either educator or mother) contributes is more influential than what the child brings to the conversation in terms of language, cognition, social skills and overall ability to contribute to the conversation. Research with mothers has shown that maternal reminiscing style is consistent across child age and siblings (Fivush, 2011). It also seems to also be the case for educators that they too are consistent in their approach across different child conversational partners. Note that this finding should not be used to suggest that the relationship between educator and child is or is not bidirectional. At a theoretical level it is still possible that a child's own contributions influence the way in which the individual adult he or she is conversing with operates; indeed, past research with mothers highlights the presence of bidirectionality for older children in particular (Reese et al., 1993). Nonetheless, just because the child has a particular bidirectional relationship with one adult does not mean they will operate in a similar way with another adult.

For the mothers in the study, their elaboration raw scores and child elaboration scores correlated for all event conversations. When using the quotient elaboration score, mothers were positively correlated across three of the four event conversation types: past familiar, future novel and future familiar. This is consistent with previous research and suggests that the mother-child participants are aligned with those in other studies. Educators, however, did not show the same pattern. Educator elaboration calculated using raw scores was positively correlated with children's elaboration across past and future novel events only, and for elaboration calculated as the quotient score, educator elaboration was not correlated with children's elaboration across any conversation type.

The reason for this may relate back to functions of reminiscing. As briefly discussed earlier, in maternal reminiscing there is evidence for different drivers or functions of reminiscing. Conversations may be driven by a focus on bonding and establishing a social

connection or by a focus on a lesson to be learnt or to be used as a process where culturally appropriate elements are integrated into the joint conversations (Kulkofsky, 2011; Kulkofsky & Koh, 2009; Wang, 2006, 2013). It is possible that the motivations of the educators and mothers were different.

Previous mother-child research has found that different adult approaches to reminiscing elicits different responses from children. Cleveland, Reese, and Grolnick (2007) found that parents' structured conversations as either *product oriented* or *process oriented* elicited differences in children's recall, elaborative contributions and cohesiveness for their memory of the event. Salmon et al. (2011) also found differences associated with children's recall and contribution, dependent upon whether mothers were instructed to *inform* their child about an upcoming staged event or *discuss* with their child an upcoming staged event. Based on previous research (Farrant & Reese, 2000; Reese & Fivush, 1993), in the current study, educators (and mothers) were given the same instruction when settled into the reminiscing and future talk recordings. They were told that the aim of the research for each of the reminiscing and future talk conditions was to examine how much and what kind of information children remember about past events or what kinds of information children offer about future events with different conversational partners.

It may be that there is a culture associated with the way an educator engages in conversations with the young children in their care. Educators are taught about effective communication in their tertiary education (see the Australian Professional Standards for Teachers, Graduate Level Standard 3.5: Uses effective classroom communication (Australian Institute for Teaching and School Leadership (2017) and the Australian Government Diploma in Children's Services (Early Childhood Education and Care) training package, Core Units: Develop positive and respectful relationships with children and Foster the holistic development and wellbeing of the child in early childhood

(Australian Government, 2015) for additional information). Furthermore, a key difference between educators and mothers, both in this study and others, is that educators participated in the study in a professional context. The reminiscing and future talk conversations occurred in the early childhood setting, the educators' place of work, and, indeed when having initial discussions, some educators expressed initial reservations stating they wanted to "perform well". Their approach to the reminiscing and future talk task may therefore vary along with their understanding of the task purpose. Overall, educators appeared to be keen to elicit elaborations in the form of information to demonstrate the children's knowledge. Perhaps educators are more likely to resort to the more didactic style representative of when there is a lesson to be taught. Given this possibility, future research should consider the instructions given to educators.

7.5.2 Relationship between educator use of temporal points of reference and mother use of temporal points of reference.

There were also differences in the way mothers and educators used temporal points of reference, including references to past episodes, references to the timeless present tense, references to future actions and use of future hypothetical references. Unlike with elaboration, this difference was not associated with educator qualification. Rather, mothers tended to use many past references in conversations about novel past events with their children. They included significantly more references to the timeless present and more references to future actions, while they made minimal hypothetical references in all their event conversations. Oppositely, while educators also made references to the past in their past event conversations, they also made significantly more references to the past in their future event conversations when compared to mothers. Educators also used significantly less timeless present and future action references than mothers. However, educators' use of future hypothetical references, particularly for future hypothetical conversations, was more

than three times that of mothers' hypothetical references. It appears that educators were talking to children at a temporally more sophisticated level than their mothers, particularly in future conversations where educators made references to the past and also references to the hypothetical future. Future conversations have been found to be more complex than past conversations in other research (Hudson, 2006; Hudson et al., 2011). However, mothers' use of temporal points of reference was associated with greater instances of children's use of temporal language when compared to educator-child conversations. Perhaps the children found it easier to respond to maternal temporal contributions that were more concrete and related to the past, the timeless present or to future actions.

That educators were using more hypothetical references was challenging for the children. This practice though, does align with sociocultural theory whereby the educator is working at a level just beyond the child's capabilities. Vygotsky (1930-1934/1978) presents a process whereby children benefit from a more experienced partner who extends their learning by encouraging them to operate in the *zone of proximal development*—this being at an intellectual, linguistic or problem solving capacity beyond what the child can do when working on their own, but within achievable reach with the scaffold of a more knowledgeable partner. In the reminiscing literature, an aberration to this pattern has been identified whereby mothers, as the conversational partners for their children, instead of reducing the amount of support and scaffolding offered as children's narrative skills increase (as would align with the Vygotskyian perspective), rather, as the children's narrative skills increase, the mothers increase their own complexity and provision of narrative components, in what is referred to as the *spiral model* (Newcombe & Reese, 2004; Van Bergan et al., 2009). Potentially, this was what occurred with the educators in the current study.

7.5.3 Relationship between educator use of mental state language and mother use of mental state language.

Differences were also noted in the ways that educators and mothers used mental state language. Educators generated significantly higher levels of mental state language when in conversation with the children than did their mothers. However, in a pattern similar to educator use of temporal references noted previously, the higher levels of mental state language generated by educators did not correlate with the children using more mental state language. These same children, when paired with their mothers, showed a higher number of associations. Their use of mental state language was correlated across past novel, past familiar and future novel conversations, and were only not associated for future familiar event topics. The subgroup of educator-child dyads were not related across any conversation type in their use of mental state language.

That mother-child dyads showed a higher number of associations for mental state references when compared to educator-child dyads is interesting, as educators actually used higher numbers of mental state references than did mothers. One argument for this discrepancy could be that mothers are likely to be more attuned to their children. Evidence for this stems from attachment theory (Bowlby, 1988) and previous research that asserts that maternal use of mental state language is of central importance to child mental state language development (Laible, 2004; Laranjo, Bernier, Meins, & Carlson, 2010). Consistent with this possibility, research has shown that mothers who engaged in connected turn-taking conversations including using mental state references with their preschool aged children, were more likely to have children with higher social understanding and who also used mental state references within the same conversation (Ensor & Hughes, 2008). The findings for mental state language are therefore different to

those for elaboration, but similar to hypothetical references in terms of the pattern of relationships between educator and child.

7.6 Centre Based Socioeconomic Advantage/Disadvantage

Centre based socioeconomic advantage/disadvantage was also considered as a covariate in the educator-child conversations. This measure was taken by considering the socioeconomic level at each centre's location. Centre level data did not provide a lot of predictive power, as there were only seven centres in the study; however it may be that socioeconomic status is not a key predictor. Fivush, et al. (2006), in their review on maternal reminiscing, noted that socioeconomic status is not always associated with maternal reminiscing style. In the current study, educators at centres from areas of higher relative advantage were noted to elaborate significantly more in future talk conversations than educators working at centres located in areas of relative socioeconomic disadvantage. It may be that there is a greater influence for socioeconomic status on future talk conversations. A natural question here might be to ask about the educators' own socioeconomic status; however, this type of demographic data was not collected. Future research can potentially examine further the synchronicity between educator demographic characteristics and child partner and family demographic characteristics.

7.7 Implications for Early Childhood Practice

While maternal influence is undoubtedly important, children live in a complex social world and have enduring relationships with other significant people of influence. The current study has extended what is currently known about reminiscing and future talk conversations with mothers as informed by sociocultural theory, to include new knowledge emanating from how educators and children engage in reminiscing and future talk conversations. Evidently, there is a role for educators as reminiscing and future talk

conversational partners with young children. Consequently, there are implications for educators to perform well as conversational partners with multiple implications for early childhood practice.

Importantly, educators in the current study are considered to be working within services that are of higher quality. It is likely that reminiscing, future talk, and use of temporal and mental state language may vary widely between different centres. Centre quality in Australia is assessed using the National Quality Standard Assessment and Rating Instrument (ACECQA, 2014), which is used in both long day care and other early childhood settings. One Standard within this tool is Building Relationships. All the centres involved in this study were rated by assessors from the governing authority, the Australian Children's Education & Care Quality Authority, as exceeding the standard for Building Relationships (see Section 2.9), therefore the centres are higher in quality when compared to others on this category. It is also important to note that in Australia, centres vary in quality and the conversations investigated in this study may not be representative of other centres, particularly those that do not rate as highly in building relationships. This provides a strong impetus for intervention. The interventions could take two forms: first, as professional development and as part of teacher education programs; and second, in the form of research projects to determine the success of such intervention programs.

In the current study, it appears that having tertiary degree qualifications benefited the educators in terms of their interactions. While I am unable to determine whether this is due to the degree itself or the nature of the individual who elects each pathway, there are nonetheless policy implications for the selection and professional education of future early childhood educators. Also, I note that while diploma qualified educators scored lower on multiple measures, there were a wide range of individual differences amongst the degree

qualified educators, confirming that it is potentially useful for all educators to engage in intervention programs.

One intervention could be to coach educators (at all qualification levels) and pre-service teachers, in the skills of reminiscing and future talk; specifically, that using an elaborative conversational style and using specific features of temporal language within future talk conversations can support child participation. Interventions with educators that encourage them to converse with children in an elaborative way for short periods of time could potentially have a positive impact. In fact, Chernyak et al. (2017) found that when children were asked to talk about the past or future in a five-minute interaction, the children in the near future training session later showed their ability to engage in future thinking and planning. Thus, the children were benefited by just five minutes of intervention (Chernyak et al., 2017). Consequently, interventions explaining how to incorporate such conversations into a daily education program do not need to be arduous.

Following any intervention, a subsequent evaluation of the training component is also required. Intervention programs have been shown to be effective at shifting mother talk style, and consequently are likely to be effective for educators too (Reese & Newcombe, 2007; Taumoepeau & Reese, 2013; Van Bergen et al., 2009). This is particularly important given the role of educators in supporting the socioemotional development of young children. Dickinson (2011) suggests that research needs to pay particular attention to educator-child interactions and to base recommendations on empirical data (Dickinson, Darrow, & Tinubu, 2008) so as to create effective professional development and coaching opportunities that will enable meaningful change. While this is of importance to early childhood education practice, it is also particularly important as educator-child conversations may be compensatory when parent-child conversation at home is impoverished.

A final area where there is consideration for practice is in using pedagogical documentation to support reminiscing conversations. Following the Reggio Emilia approach, pedagogical documentation is a tool for documenting children's learning in early childhood services. It involves recording aspects of children's work, for example, through photographs of children completing work, quotations from the children on their learning and experiences, and teacher explanations of the learning they see occurring (Katz, 1998). Documentation has been found to support young children's memory for a novel learning event (Fleck, Leichtman, Pillemer, & Shanteler, 2013) and to facilitate mother-child reminiscing about unshared events in a preschool child's day (Fleck, Richmond, Sanderson, & Yacovetta, 2015). Fleck et al. (2013) determined that one ten-minute session viewing documentation (photos and written text of what the child had said on the novel event topic) enhanced the child's memory for facts attained during the novel event in a testing interview three week later. Fleck et al. (2013) concluded that revisiting the information in the documentation format helped to consolidate the children's factual learning. In a second study, Fleck et al. (2015) determined that the mother-child conversations showed increased characteristics of the highly elaborative style when supported by pedagogical documentation and that mothers generally spoke more about the events when supported by pedagogical documentation. Children also made a greater number of contributions when the pedagogical documentation was accessible. Fleck et al. (2015) concluded that mother-child conversations of unshared events that occurred at the early childhood settings were enhanced when pedagogical documentation was used as a tool to scaffold the conversations. This could be extended to educators; in fact, as educators share in the events with the children, pedagogical documentation could be used as a tool to facilitate educator-child reminiscing and future talk conversations.

7.8 Crossing Disciplinary Boundaries

An important aspect of this thesis is to broaden the disciplinary base of research on reminiscing and future talk with young children. While the foundations and the major empirical work has come from psychology—and specifically from sociocultural researchers examining mothers' and children's shared reminiscing and future talk—there is considerable opportunity for this research to be influential in a range of disciplines where conversations between adults and young children are examined, including law and human geography. The present thesis has demonstrated the importance of examining reminiscing and future talk between educators and young children in formal child care contexts.

The methods from different disciplines can be integrated and used to enhance reminiscing and future talk research. The methods developed by Nelson and Fivush (2006), Hudson (2002, 2004, 2006) and others to examine child-adult reminiscing and future talk, go beyond standardised testing of language and have potential to be qualitatively analysed in more detail. In the current study, individual differences were found; however, what specifically underlies these are not yet known. Using more detailed case studies is one possible way to investigate these further. Furthermore, although early childhood researchers and practitioners are generally more familiar with qualitative approaches, it is recognised that rigorous quantitative studies are more likely to be acceptable as evidence for policy and funding decisions (Eisenstadt, 2011; Shonkoff, 2010; Taggart, 2010). Research such as the present study has important implications for educator qualifications, educator professional development and educator qualification programs, all of which need to be considered by politicians and other policy-makers. To ameliorate the tension between experimental demands and the requirement of a large representative sample with educators who respond to tangible, real-world examples (Siraj-Blatchford et al., 2008), future

investigations could include a mixed methods approach that incorporates quantitative and detailed qualitative analysis into the design.

7.9 Directions for Future Research and Limitations

This thesis is the first to consider the influence of educator reminiscing and future talk on children's elaboration in past and future conversations. It is also the first to consider educator use of temporal and mental state language in reminiscing and future talk conversations. For this thesis I was primarily interested in understanding how educators reminisce and talk about the future with young children. However, examining children's reminiscing and future talk by capturing educators with small groups of children within the context of the early childhood education service, would allow me to determine affordances associated with joint reminiscing and future talk in a naturalistic way. Furthermore, future research that follows children longitudinally across their time at their early childhood education service, to examine how reminiscing and future talk conversations facilitate autobiographies of their experience at the early childhood education service, would offer unique insights into educators' and children's perspectives on their ongoing relationships across the preschool years.

There are a few limitations that arose in the current study. Using centre based socioeconomic advantage/disadvantage as a determinant of socioeconomic diversity offered only a modest opportunity to examine socioeconomic influences. There were seven centres involved in the study, and whilst other studies have followed a similar process using areas of relative advantage or disadvantage to classify schools and centres (Lewis et al., 2016), using centre level data meant that there was not a high level of difference. Thus, individual differences may not have been apparent.

To ensure that there was no conversation fatigue or bias by the participants, the order in which events were discussed in the educator-child conversations and mother-child

conversations was counterbalanced. This meant that conversations were structured in a particular pre-determined order for each dyad. Conversations were also organised to occur in a space away from other children, so that recordings were clear and conversations could be conducted according to the requirements of the study, without interruptions from other children or staff members. Thus, some elements of the conversations were more controlled than would occur in an everyday early childhood context. Indeed, while educators report frequently conversing one-on-one with individual children, group discussions are also common (Test, Cunningham, & Lee, 2010). It is unknown how much the conversations varied because of being planned and occurring in a one-to-one context; this is something that can be examined in future research. Indeed, it possible that conversations in centres that involve multiple participants may be richer due to a wider range of input, and may differ again from those that occur one-on-one between individual educators and children.

While there were differences between individual dyads in this study, educators were consistent in the way they talked to each of their child conversational partners. One possibility for future research is to consider the individual temperament of children. There may have been a benefit in asking mothers to complete a measure that evaluated each child's temperament and emotion regulation. It is possible that individual temperament may have impacted on the children's ability and willingness to engage in the conversations. As understanding about individual children's temperament and emotion regulation is related to mother-child reminiscing outcomes (Ensor, Spenser & Hughes, 2008; Taumoepeau & Reese, 2013; Van Bergen et al., 2009), thus in the future it could be helpful to include this type of measure. Another possibility for future investigation is the type of attachment relationship between educators and their child conversational partner. Evaluating the attachment bonds might provide more information about the conversational output.

Actual event topics are another area that could be considered. In the present study, educators nominated the event topics. Given the importance of following children's interests in educator-child conversations (Bateman, 2013; Carr, 2011; Sylva et al, 2010), it would be interesting to investigate whether different patterns would be found if children nominated the topics. Alternatively, a different possibility for the future would be to use this same design with a staged event that allows the researcher to control for variation in event topics. Even though in the current study conversations were correlated between events at time point 1 and time point 2, it is possible that some dyads discussed more suitable or more interesting events.

Culture and ethnicity were not considered within this study. A range of studies highlight the impact of culture on mother-child reminiscing (Reese & Neha, 2015; Schroder et al., 2013; Wang, 2006, 2013), suggesting a possible role in educator-child relationships too. Yet educator-child relationships differ from parent-child relationships. Educators work to maintain "warm, trusting and reciprocal relationships" with the children in their care and to "understand, communicate and interact across cultures by being aware of their own world view" (Australian Government DEEWR, 2009; Cohressen, Church, & Tayler, 2011, p. 5). However, they are not necessarily able to do this consistently and with intent in every conversation. Hence, future studies that pair educators and children of similar cultural backgrounds is warranted.

A larger sample size would have permitted investigation of more complex interactions. The sample size in the present study was sufficient to examine two-way interactions only. It is possible that a larger sample size would have elucidated relationships that either supported or created barriers for high quality conversations. By way of example, degree qualified educators did better than diploma qualified educators; within this finding I know there was an overlap, with some diploma qualified educators

performing well and some degree qualified educators performing not so well. Also, I note that the effect size was not strong, thus it might be that other things are occurring and that a larger sample would provide a more definitive explanation.

A final possibility is the use of a correlational study to investigate the role of peers in the development of autobiographical memory, reminiscing and future talk in young children. With the understanding that learning can occur in the company of a more knowledgeable partner, peers could potentially scaffold the development of reminiscing and future talk skills with each other. Justice, Petscher, Schatschneider, and Mashburn (2011) investigated whether peer effects in preschool classrooms were associated with the language abilities of their classroom peers. Children with lower language abilities immersed with children with higher language abilities were noted to benefit from the association, while the higher functioning children showed no detriment. This study shows that peer effects on language are possible purely by general classroom exposure to peer language models. Thus, peers may be able to be incorporated into reminiscing and future talk conversations. This concept would work well as it is naturalistic to early childhood education and care settings. It would also be prudent to incorporate this naturalistic grouping (of an educator with small groups of young children), as memory via reminiscing and future talk does not follow a purely Vygotskian perspective. As discussed earlier, research with mothers and educators as conversational partners shows that as the children's skills increase, mothers and educators, rather than reducing the amount of support and scaffolding to allow children to exhibit their newly developed skills, increase the complexity of their own contributions (Newcombe & Reese, 2004; Van Bergen et al., 2009). Peers alone may not have the capacity to follow a similar trajectory, thus, reminiscing and future talk conversations with educators and small groups of children have promising potential.

7.10 Conclusion

This thesis explored the role of early childhood educators and considered elaborations, elaboration style and content including use of temporal and mental state language. Examining these key areas has enabled understandings of how past and future conversations with educators influence the conversational contributions of young children. Educators who engage in reminiscing and future talk conversations with the young children in their care do so in particular ways. Educator elaboration was positively associated with child elaboration for all event type conversations for the older children, and was positively associated with child elaboration for novel conversations with the younger children. Thus, the more extensive the overall number of educator contributions, the more extensive the older child's contributions in all conversation types and the more extensive the younger children's contributions in novel conversations. Educators tended to seek to elicit information from their child conversational partners using a specific conversational style representative of, but not conclusively the same as, a maternal didactic style. Educator reminiscing and future talk likely serves a distinctive purpose in extending children's recall for or prospective talk about events, thus extending the principal premise for sociocultural theory where, as children take part in reminiscing and future talk conversations, new skills are elicited.

Overall, educators talked differently to children than did mothers. Their conversations differed in terms of elaborative style and in terms of content—both use of temporal references and mental state language. Hence, as educators offer something different in reminiscing and future talk conversations with younger children, there is an important role for them as reminiscing and future talk partners.

Educator qualification levels were also associated with a difference in the ways educators talked with children. Educators with tertiary degree qualifications performed

better than their diploma qualified colleagues. They were statistically more likely to elaborate based on the elaboration quotient score, to use more mental state references, and overall, they may have been more skilled at responding to the children's conversational style.

Given the differences in performance of individual educators, it is important that interventions be developed. These would need to be controlled carefully; however, there is potential for programs that offer ongoing professional development for educators. Programs that teach the important factors in reminiscing and future talk conversations, as well as suitable educator goals for these conversations, would be beneficial to all educators, including both those with tertiary degree and diploma qualifications. Finally, this study has made an important step towards connecting the developmental psychology and early childhood domains by extending knowledge of the importance of elaborative reminiscing and future talk conversations and by espousing the benefits afforded to children who have the opportunity to engage in high quality reminiscing and future talk.

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Appendix A: Ethics Approval

MACQUARIE University

Rebecca Andrews <rebecca.andrews@mq.edu.au>

RE: HS Ethics Application - Approved (5201300756)(Con/Met)

3 messages

Fhs Ethics <fhs.ethics@mq.edu.au> Mon, Nov 11, 2013 at 2:15 PM
To: Dr Shirley Wyver <shirley.wyver@mq.edu.au>
Cc: Dr Penny Van Bergen <penny.vanbergen@mq.edu.au>, Mrs Rebecca Andrews <rebecca.andrews@mq.edu.au>

Dear Dr Wyver,

Re: "Reminiscing and Future talk: Early childhood educators, young children and their mothers in conversation"(5201300756)

Thank you for your recent correspondence. Your response has addressed the issues raised by the Faculty of Human Sciences Human Research Ethics Sub-Committee and approval has been granted, effective 11th November 2013. This email constitutes ethical approval only.

This research meets the requirements of the National Statement on Ethical Conduct in Human Research (2007). The National Statement is available at the following web site:

http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/e72.pdf.

The following personnel are authorised to conduct this research:

Dr Penny Van Bergen
Dr Shirley Wyver
Mrs Rebecca Andrews

Please note the following standard requirements of approval:

1. The approval of this project is conditional upon your continuing compliance with the National Statement on Ethical Conduct in Human Research (2007).

2. Approval will be for a period of five (5) years subject to the provision of annual reports.

Progress Report 1 Due: 11th November 2014
Progress Report 2 Due: 11th November 2015
Progress Report 3 Due: 11th November 2016
Progress Report 4 Due: 11th November 2017
Final Report Due: 11th November 2018

NB. If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. If the project has been discontinued or not commenced for any reason, you are also required to submit a Final Report for the project.

Progress reports and Final Reports are available at the following website:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/forms

3. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report and submit a new application for the project. (The five year limit on renewal of approvals allows the Sub-Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

4. All amendments to the project must be reviewed and approved by the

Sub-Committee before implementation. Please complete and submit a Request for Amendment Form available at the following website:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/forms

5. Please notify the Sub-Committee immediately in the event of any adverse effects on participants or of any unforeseen events that affect the continued ethical acceptability of the project.

6. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University. This information is available at the following websites:

http://www.mq.edu.au/policy

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/policy

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide the Macquarie University's Research Grants Management Assistant with a copy of this email as soon as possible. Internal and External funding agencies will not be informed that you have approval for your project and funds will not be released until the Research Grants Management Assistant has received a copy of this email.

If you need to provide a hard copy letter of approval to an external organisation as evidence that you have approval, please do not hesitate to contact the Ethics Secretariat at the address below.

Please retain a copy of this email as this is your official notification of ethics approval.

Yours sincerely,

Dr Peter Roger
Chair
Faculty of Human Sciences Ethics Review Sub-Committee
Human Research Ethics Committee

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Appendix B: Introductory Information Letter for Directors

MACQUARIE UNIVERSITY | FACULTY OF HUMAN SCIENCES

Reminiscing and future talk:
Early childhood educators, young children and their mothers in conversation.

Contact: **Rebecca Andrews**
Email: **rebecca.andrews@mq.edu.au**
Phone: **9850 9871**

Dear Director,

This email/letter is a follow up to our recent telephone conversation. Thank you for showing an interest in this research project. As indicated on the phone here is some additional information about myself and the project.

My name is Rebecca Andrews, I am a lecturer at the Institute of Early Childhood at Macquarie University and I am interested in children's developmental outcomes, particularly language. The domain of children's language tells us so much about children's understanding and knowledge of their world. In particular I am interested in children's conversations with adults. From studying conversations between mothers and children other researchers have learnt about how children remember the past and understand the future. In this area of investigation much of the research to date has focused on conversations between mothers and their children. Not much is known about other potential conversational partners such as fathers, grandparents or educators.

I am interested in investigating educators, mothers and children as conversational partners. As you know educators are trained to extend children's thinking and spend regular ongoing periods of time building relationships with and educating the children. So I am enthusiastic to see what role educators can play as conversational partners. This project will investigate educators and children in reminiscing and future talk conversations. For this study I consider an educator to be a person with either a three or four year teaching qualification Bachelor of Education (Early Childhood) or a Diploma in Children's Services qualification who works with young children aged approximately 2.5 years or 4 years.

I am conducting this project to meet the requirements for the degree of Doctor of Philosophy at Macquarie University under the supervision of Dr Shirley Wyver (shirley.wyver@mq.edu.au, Institute of Early Childhood) and Dr Penny Van Bergen (pennyvanbergen@mq.edu.au, Department of Education).

I would like to invite educators at your centre to participate in this project. I anticipate that the research will occur in your child care centre and will involve the following:

- Interested educator(s) will be linked with up to six child conversational partners from the children in their room. I will ask the educator(s) and/or yourself to nominate children and mothers who meet the criteria to participate.

- With each child partner the educator(s) will participate in eight conversations across two sessions. The educator(s) will discuss four topics in each session; I will help them to determine the topics. The conversations are likely to take from five minutes up to half an hour. The first session will occur at a mutually agreeable time and the second session will occur a fortnight later.

- The educator(s) will also be asked to complete a questionnaire that asks about demographic information and about their conversations with the participating children's mothers.

Some other things you might like to know:

I am able to offer payment for a replacement Early Childhood Teacher or Diploma trained educator to cover the time the educator(s) are part of the project. Dependent upon the number of children participating, I anticipate this would be anywhere from half to one day payment so they can be off the floor and not counted in ratios during the research session.

The results from this project will be published in academic journals and presented at conferences. Publications will not include any information that identifies any individual participant. I will also provide you with information about the findings from this research which you can disseminate in your centre newsletter or notice board should you choose to do so.

If you or any of your staff consent to participate in this project you can indicate at any time that you would like to withdraw from further participation. You can do this without giving a reason.

I have attached to this letter the educator information and consent form which contains additional information. If you are interested in participating or if you have any further questions, please contact me at the details listed below. I look forward to working with you.

Yours sincerely,

Ms Rebecca Andrews
Institute of Early Childhood
Macquarie University
NSW 2019

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contact: **Rebecca Andrews** email: **rebecca.andrews@mq.edu.au** phone: **9850 9871**

Appendix C: Educator Consent Form

MACQUARIE UNIVERSITY | FACULTY OF HUMAN SCIENCES

Reminiscing and future talk:
Early childhood educators, young children and their mothers in conversation.

Contact: **Rebecca Andrews**
Email: **rebecca.andrews@mq.edu.au**
Phone: **9850 9871**

Dear _____,

My name is Rebecca Andrews, I am a lecturer at the Institute of Early Childhood at Macquarie University and I am interested in children's developmental outcomes, particularly language. The domain of children's language tells us so much about children's understanding and knowledge of their world. In particular I am interested in children's conversations with adults. From studying conversations between mothers and children other researchers have learnt about how children remember the past and understand the future. In this area of investigation much of the research to date has focused on conversations between mothers and their children. Not much is known about other potential conversational partners such as fathers, grandparents or educators.

I am interested in investigating educators, mothers and children as conversational partners. As you know educators are trained to extend children's thinking and spend regular ongoing periods of time building relationships with and educating the children. So I am enthusiastic to see what role educators can play as conversational partners. This project will investigate educators and children in reminiscing and future talk conversations. For this study I consider an educator to be a person with either a three or four year teaching qualification Bachelor of Education (Early Childhood) or a Diploma in Children's Services qualification who works with young children aged approximately 2.5 years or 4 years.

I am conducting this project to meet the requirements for the degree of Doctor of Philosophy at Macquarie University under the supervision of Dr Shirley Wyver (shirley.wyver@mq.edu.au, Institute of Early Childhood) and Dr Penny Van Bergen (pennyvanbergen@mq.edu.au, Department of Education).

I would like to invite you to participate in this project. I anticipate that the research will occur in your child care centre and will involve the following:

- You will be linked with up to six child conversational partners from the children in your room. I will ask you to nominate children and their mothers who meet the criteria to participate.

- With each child partner you will participate in eight conversations across two sessions. You would discuss four topics in each session; I will help you to determine

the topics. The conversations are likely to take from five minutes up to half an hour. The first session will occur at a mutually agreeable time and the second session will occur a fortnight later.

- You will also be asked to complete a questionnaire that asks about demographic information and a section that asks about your conversations with the participating child's mother.

Some other things you might like to know:

I am able to offer payment for a replacement Early Childhood Teacher or Diploma trained educator to cover the time you are part of the project. Dependent upon the number of children participating, I anticipate this would be anywhere from half to one day payment so you can be off the floor and not counted in ratios during the research session.

When you are in conversation with the child I will leave the room. I will be using a digital audio recorder to record your conversation; I will ask you to stop the recording when you are finished and to call me back into the room. I will ensure that all data will be secure throughout the stages of data collection, storage and reporting. Hard data will be stored in a secure, lockable filing cabinet and soft data will be stored on a password locked computer within my office at Macquarie University. The data will only be viewed by me and my two direct supervisors. The data will be sent to a transcription service but will not be identifiable. Any information or personal details gathered in the course of the research are confidential, except as required by law.

The results from this project will be published in academic journals and presented at conferences. Publications will not include any information that identifies any individual participant. I will also provide your centre with information about the findings from this research which will available to you through the centre. Additionally, you can request to have the information emailed to you (please include your email address on consent form over the page).

If you consent to participate in this project you can indicate at any time that you would like to withdraw from further participation. You can do this without giving a reason and without consequences for your employment.

I may conduct a follow up study at some time in the future. If this is so I will contact the Director at your centre who will provide you with further details. You can decide at that stage if you are interested in participating.

If you have any further questions, please contact me at the details listed below. I look forward to working with you.

Ms Rebecca Andrews
Institute of Early Childhood
Macquarie University
NSW 2019

Reminiscing and future talk:
Early childhood educators, young children and their mothers in conversation.

I (the participant) have read and understand the information above, and any questions I have asked have been answered to my satisfaction. I agree to participate in this research, knowing that I can withdraw at any time without consequence. I have been given a copy of this form to keep.

Participant's Name: _____ (block letters)

Participant's Signature: _____ Date: _____

Participant's Email: _____

Investigator's Name: REBECCA ANDREWS (block letters)

Investigator's Signature: _____ Date: _____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone (02) 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

PARTICIPANT COPY

Reminiscing and future talk:
Early childhood educators, young children and their mothers in conversation.

I (the participant) have read and understand the information above, and any questions I have asked have been answered to my satisfaction. I agree to participate in this research, knowing that I can withdraw at any time without consequence. I have been given a copy of this form to keep.

Participant's Name: _____ (block letters)

Participant's Signature: _____ Date: _____

Participant's Email: _____

Investigator's Name: REBECCA ANDREWS (block letters)

Investigator's Signature: _____ Date: _____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone (02) 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

INVESTIGATOR COPY

Appendix D: Parent Information and Consent Form
(For children aged 2.5 years)

MACQUARIE UNIVERSITY | FACULTY OF HUMAN SCIENCES

Reminiscing and future talk:
Early childhood educators, young children and their mothers in conversation.

Contact: **Rebecca Andrews**
Email: **rebecca.andrews@mq.edu.au**
Phone: **9850 9871**

Dear _____,

My name is Rebecca Andrews; I am a lecturer at the Institute of Early Childhood at Macquarie University. I am interested in children's developmental outcomes. In particular I am interested in investigating children's language. From studying conversations between mothers and children other researchers have learnt about how children remember the past and understand the future. In this area of investigation much of the research to date has focused on conversations between mothers and their children. Not much is known about other potential conversational partners such as fathers, grandparents or educators.

I am interested in investigating educators, mothers and children as conversational partners. As you know, educators at your child's long day care centre have been trained to extend children's thinking and spend regular ongoing periods of time building relationships with and educating the children in their care. Educators rely on research to learn new ways to extend children's thinking. This project will investigate educator-child pairs and mother-child pairs in reminiscing and future talk conversations.

I am conducting this project to meet the requirements for the degree of Doctor of Philosophy at Macquarie University under the supervision of Dr Shirley Wyver (shirley.wyver@mq.edu.au, Institute of Early Childhood) and Dr Penny Van Bergen (pennyvanbergen@mq.edu.au, Department of Education).

I would like to invite you and your child to participate in this project. I anticipate that the research will occur at your child's child care centre and will involve the following:

- Your child will participate in eight conversations with their educator across two sessions. He/she will discuss four topics in each session – some conversations will focus on past events and others on future events. The conversations are likely to take from five minutes up to half an hour. The first session will occur at a mutually agreeable time to the educator, your child and me and the second session will occur a fortnight later.
- You will also be asked to complete a brief questionnaire to provide demographic details and some information about your conversations with your child's educator.

There is also an opportunity for you to participate further in this research. Your involvement would be:

- With your child you will participate in eight conversations across two sessions. You would discuss four topics in each session; I will help you to determine the topics. The conversations are likely to take from five minutes up to half an hour. The first session will occur at a mutually agreeable time and the second session will occur a fortnight later. These conversations will occur at your child's centre.

When you are in conversation with the child I will leave the room. I will be using a digital audio recorder to record your conversation; I will ask you to stop the recording when you are finished and to call me back into the room. I will ensure that all data will be secure throughout the stages of data collection, storage and reporting. Hard data will be stored in a secure, lockable filing cabinet and soft data will be stored on a password locked computer within my office at Macquarie University. The data will only be viewed by me and my two direct supervisors. The data will be sent to a transcription service but will not be identifiable. Any information or personal details gathered in the course of the research are confidential, except as required by law.

The results from this project will be published in academic journals and presented at conferences. Publications will not include any information that identifies any individual participant. I will also provide your centre with information about the findings from this research which will available to you through the centre. Additionally, you can request to have the information emailed to you (please include your email address on consent form over the page).

If you consent to participate in this project you can indicate at any time that you would like to withdraw from further participation. You can do this without giving a reason and without consequences to you or your child and without impact on their enrolment at this child care centre.

I may conduct a follow up study at some time in the future. If this is so I will ask staff from your child's centre to provide you with details and you can decide at that stage if you are interested in participating.

If you have any further questions, please contact me at any time. I look forward to working with your child and you.

Kind regards,

Ms Rebecca Andrews
Institute of Early Childhood
Macquarie University
NSW 2019

Reminiscing and future talk:
Early childhood educators, young children and their mothers in conversation.

PERMISSION FOR YOU AND YOUR CHILD TO PARTICIPATE

I, as the parent of (the participant) have read (or, where appropriate, have had read to me) and understand the information above, and any questions I have asked have been answered to my satisfaction. I agree to my child participating in this research and I agree to complete a questionnaire, knowing that I can withdraw our participation at any time without consequence. I have been given a copy of this form to keep.

Your Name: _____ (block letters)

Your Child's Name: _____ (block letters)

Parent's Signature: _____ Date: _____

Are you also willing to participate in the parent – child conversation component of the research?

YES [ ] NO [ ] Parent's Signature _____

Please provide contact details so the recording of your parent-child conversation can be arranged.

Phone number: (h)_____ (w)_____

Email Address: _____

I would like the findings of the research emailed directly to me. YES [ ] NO [ ]

Investigator's Name: _____ (block letters)

Investigator's Signature:_____ Date: _____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone (02) 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

PARTICIPANT COPY

Reminiscing and future talk:
Early childhood educators, young children and their mothers in conversation.

PERMISSION FOR YOU AND YOUR CHILD TO PARTICIPATE

I, as the parent of (the participant) have read (or, where appropriate, have had read to me) and understand the information above, and any questions I have asked have been answered to my satisfaction. I agree to my child participating in this research and I agree to complete a questionnaire, knowing that I can withdraw our participation at any time without consequence. I have been given a copy of this form to keep.

Your Name: _____ (block letters)

Your Child's Name: _____ (block letters)

Parent's Signature: _____ Date: _____

Are you also willing to participate in the parent – child conversation component of the research?

YES [ ] NO [ ] Parent's Signature _____

Please provide contact details so the recording of your parent-child conversation can be arranged.

Phone number: (h)_____ (w)_____

Email Address: _____

I would like the findings of the research emailed directly to me. YES [ ] NO [ ]

Investigator's Name: _____ (block letters)

Investigator's Signature:_____ Date: _____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone (02) 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

INVESTIGATOR COPY

Appendix E: Parent Information and Consent Form
(For children aged 4 years)

MACQUARIE UNIVERSITY | FACULTY OF HUMAN SCIENCES

Reminiscing and future talk:
Early childhood educators, young children and their mothers in conversation.

Contact: **Rebecca Andrews**
Email: **rebecca.andrews@mq.edu.au**
Phone: **9850 9871**

Dear _____,

My name is Rebecca Andrews; I am a lecturer at the Institute of Early Childhood at Macquarie University. I am interested in children's developmental outcomes. In particular I am interested in investigating children's language. From studying conversations between mothers and children other researchers have learnt about how children remember the past and understand the future. In this area of investigation much of the research to date has focused on conversations between mothers and their children. Not much is known about other potential conversational partners such as fathers, grandparents or educators.

I am interested in investigating educators, mothers and children as conversational partners. As you know, educators at your child's long day care centre have been trained to extend children's thinking and spend regular ongoing periods of time building relationships with and educating the children in their care. Educators rely on research to learn new ways to extend children's thinking. This project will investigate educator-child pairs and mother-child pairs in reminiscing and future talk conversations.

I am conducting this project to meet the requirements for the degree of Doctor of Philosophy at Macquarie University under the supervision of Dr Shirley Wyver (shirley.wyver@mq.edu.au, Institute of Early Childhood) and Dr Penny Van Bergen (pennyvanbergen@mq.edu.au, Department of Education).

I would like to invite you and your child to participate in this project. I anticipate that the research will occur at your child's child care centre and will involve the following:

- Your child will participate in a language assessment. This would involve pointing to and labelling pictures. The tasks are designed specifically for young children and should take ten to fifteen minutes each.
- Your child will participate in eight conversations with their educator across two sessions. He/she will discuss four topics in each session – some conversations will focus on past events and others on future events. The conversations are likely to take from five minutes up to half an hour. The first session will occur at a mutually agreeable time to the educator, your child and me and the second session will occur a fortnight later.

- You will also be asked to complete a brief questionnaire to provide demographic details and some information about your conversations with your child's educator.

There is also an opportunity for you to participate further in this research. Your involvement would be:

- With your child you will participate in eight conversations across two sessions. You would discuss four topics in each session; I will help you to determine the topics. The conversations are likely to take from five minutes up to half an hour. The first session will occur at a mutually agreeable time and the second session will occur a fortnight later. These conversations will occur at your child's centre.

When you are in conversation with the child I will leave the room. I will be using a digital audio recorder to record your conversation; I will ask you to stop the recording when you are finished and to call me back into the room. I will ensure that all data will be secure throughout the stages of data collection, storage and reporting. Hard data will be stored in a secure, lockable filing cabinet and soft data will be stored on a password locked computer within my office at Macquarie University. The data will only be viewed by me and my two direct supervisors. The data will be sent to a transcription service but will not be identifiable. Any information or personal details gathered in the course of the research are confidential, except as required by law.

The results from this project will be published in academic journals and presented at conferences. Publications will not include any information that identifies any individual participant. I will also provide your centre with information about the findings from this research which will available to you through the centre. Additionally, you can request to have the information emailed to you (please include your email address on consent form over the page).

If you consent to participate in this project you can indicate at any time that you would like to withdraw from further participation. You can do this without giving a reason and without consequences to you or your child and without impact on their enrolment at this child care centre.

If you have any further questions, please contact me at any time. I look forward to working with your child and you.

Kind regards,

Ms Rebecca Andrews
Institute of Early Childhood
Macquarie University
NSW 2019

Reminiscing and future talk:
Early childhood educators, young children and their mothers in conversation.

PERMISSION FOR YOU AND YOUR CHILD TO PARTICIPATE

I, as the parent of (the participant) have read (or, where appropriate, have had read to me) and understand the information above, and any questions I have asked have been answered to my satisfaction. I agree to my child participating in this research and I agree to complete a questionnaire, knowing that I can withdraw our participation at any time without consequence. I have been given a copy of this form to keep.

Your Name: _____ (block letters)

Your Child's Name: _____ (block letters)

Parent's Signature: _____ Date: _____

Are you also willing to participate in the parent – child conversation component of the research?

YES [ ] NO [ ] Parent's Signature _____

Please provide contact details so the recording of your parent-child conversation can be arranged.

Phone number: (h)_____ (w)_____

Email Address: _____

I would like the findings of the research emailed directly to me. YES [ ] NO [ ]

Investigator's Name: REBECCA ANDREWS (block letters)

Investigator's Signature:_____ Date: _____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone (02) 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

PARTICIPANT COPY

Reminiscing and future talk:
Early childhood educators, young children and their mothers in conversation.

PERMISSION FOR YOU AND YOUR CHILD TO PARTICIPATE

I, as the parent of (the participant) have read (or, where appropriate, have had read to me) and understand the information above, and any questions I have asked have been answered to my satisfaction. I agree to my child participating in this research and I agree to complete a questionnaire, knowing that I can withdraw our participation at any time without consequence. I have been given a copy of this form to keep.

Your Name: _____ (block letters)

Your Child's Name: _____ (block letters)

Parent's Signature: _____ Date: _____

Are you also willing to participate in the parent – child conversation component of the research?

YES [ ] NO [ ] Parent's Signature _____

Please provide contact details so the recording of your parent-child conversation can be arranged.

Phone number: (h)_____ (w)_____

Email Address: _____

I would like the findings of the research emailed directly to me. YES [ ] NO [ ]

Investigator's Name: REBECCA ANDREWS (block letters)

Investigator's Signature:_____ Date: _____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone (02) 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

INVESTIGATOR COPY

Appendix F: Questionnaire for Educators

Questionnaire for Educators

Information for the respondent:
Please try to answer all questions. All of your answers are confidential. Only the person completing the questionnaire and the researchers will see this questionnaire. You will not be identified in any reports. A summary of the findings from the research will be available for your information as indicated on the consent form.

Name: _____ Date: _____

Child care centre: _____

1. How many days per week do you work at the centre? _____

Monday [ ] Tuesday [ ] Wednesday [ ] Thursday [ ] Friday [ ]

2. What is your qualification?

a) Masters or other Postgraduate Qualification [ ]
b) Bachelor of Education (Early childhood) Four year qualification [ ]
c) Bachelor of Education (Early childhood) Three year qualification [ ]
d) Diploma in Children's Services [ ]
e) Other, please provide details _____

3. How many years have you worked as a qualified educator?

a) 0 – 6 months [ ]
b) 6 – 12 months [ ]
c) 1 – 2 years [ ]
d) 2 – 5 years [ ]
e) 5 – 8 years [ ]
f) 8 – 10 years [ ]
g) 10 – 15 years [ ]
h) 15+ years [ ]

4. How long have you worked at this centre?

a) 0 – < 6 months [ ]
b) 6 – < 12 months [ ]
c) 1 – < 2 years [ ]
d) 2 – < 5 years [ ]
e) 5 – < 8 years [ ]
f) 8 – < 10 years [ ]
g) 10 – < 15 years [ ]
h) 15+ years [ ]

5. What are the ages of the children that you teach?

a) 18 months – < 2 years [ ]
b) 2 years – < 3 years [ ]
c) 3 years – < 4 years [ ]
d) 4 years – < 5 years [ ]

6. How long have you taught this age group?

a) 0 – < 6 months [ ]
b) 6 – < 12 months [ ]
c) 1 – < 2 years [ ]
d) 2 – < 5 years [ ]
e) 5 – < 8 years [ ]
f) 8 – < 10 years [ ]
g) 10 – < 15 years [ ]
h) 15+ years [ ]

7. What is the staff to child ratio in your room?

a) 1 staff member to less than 4 children [ ]
b) 1 staff member to 4 children [ ]
c) 1 staff member to 5 children [ ]
d) 1 staff member to 6 children [ ]
e) 1 staff member to 7 children [ ]
f) 1 staff member to 8 children [ ]
g) 1 staff member to 9 children [ ]
h) 1 staff member to 10 children [ ]
i) 1 staff member to more than 10 children [ ]

Links Between You and the Children's Mothers

This section asks about communication between you and the child's mother.

Child's Name_____

8. Which of the options below do you generally use to communicate with the mother of this child? Select as many as appropriate.

a) Conversation at drop off [ ]
b) Conversation at pick up [ ]
c) Phone conversation [ ]
d) Communication via email [ ]
e) Communication via a day book [ ]
f) Other, please explain below

_____

_____

_____

_____

9. How often do you engage with this mother in conversation? Tick/circle the most appropriate box for each topic.

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

10. This section is asking about the topics you discuss with the child's mother and how often you discuss them. Tick/circle the most appropriate box for each topic.

a. Daily experiences at the centre that involve the child

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

b. Daily experiences at the centre that do not involve the child

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

c. Developmental information about the child

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

d. The child's social skills

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

e. The child's cognitive skills

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

f. The child's motor skills

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

g. The child's language skills

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

h. The child's self-help skills

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

i. The child's behaviour

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

j. The child's friendships

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

k. Toilet training

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

l. School readiness

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

m. Family life of mother and child

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

n. Family outings for mother and child

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

o. Family holidays for mother and child

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

p. Cultural celebrations for mother and child

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

q. Your family/social/personal life

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

r. Other, please explain below

_____

_____

_____

_____

11. How satisfied are you with the amount of discussion you have with this child's mother about her child? Tick/circle the most appropriate box.

1. Very Satisfied	2. Satisfied	3. Neutral	4. Dissatisfied	5. Very Dissatisfied

12. How satisfied are you with the depth and quality of the discussion you have with this child's mother about her child? Tick/circle the most appropriate box.

1. Very Satisfied	2. Satisfied	3. Neutral	4. Dissatisfied	5. Very Dissatisfied

13. Do you have any other comments?

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE.

Appendix G: Questionnaire for Parents

Questionnaire for Parents

Information for the respondent:
Please try to answer all questions. All of your answers are confidential. Only the person taking the questionnaire and the researchers will see this questionnaire. You will not be identified in any reports. A summary of the findings from the research will be available for your information as indicated on the consent form.

Parent's name: _____

Child's name : _____

Child's date of birth: _____

Date: _____

Child care centre: _____

You are completing this section of the form for your child:

1. Is your child's first language English? YES [ ] NO [ ]

2. What language(s) other than English does your child speak at home?

   _____

   _____

3. Where in the birth order of children in your family does this child rank?

a) First [ ]
b) Second [ ]
c) Third [ ]
d) Fourth [ ]
e) Fifth [ ]
f) Other [ ] Please indicate birth order _____

4. At what age did your child first attend **a** child care centre?

a) 6 weeks – < 6 months [ ]
b) 6 months – <12 months [ ]
c) 12 months – < 18 months [ ]
d) 18 months – < 2 years [ ]
e) 2 years – < 2.5 years [ ]
f) 2.5 years – < 3 years [ ]
g) 3 years – < 3.5 years [ ]
h) 3.5 years – < 4 years [ ]
i) 4 years + [ ]

5. At what age did your child first attend **this** child care centre?

a) 6 weeks – < 6 months [ ]
b) 6 months – <12 months [ ]
c) 12 months – < 18 months [ ]
d) 18 months – < 2 years [ ]
e) 2 years – < 2.5 years [ ]
f) 2.5 years – < 3 years [ ]
g) 3 years – < 3.5 years [ ]
h) 3.5 years – < 4 years [ ]
i) 4 years + [ ]

6. How long has your child attended **this** child care centre?

a) < 6 months [ ]
b) 6 months – < 12 months [ ]
c) 12 months – < 18 months [ ]
d) 18 months – < 2 years [ ]
e) 2 years – < 2.5 years [ ]
f) 2.5 years – < 3 years [ ]
g) 3 years – < 3.5 years [ ]
h) 3.5 years – < 4 years [ ]
i) 4 years + [ ]

7. How many hours per week does your child attend **this** child care centre?

a) Up to 10 hours [ ]
b) Up to 20 hours across two days [ ]
c) Up to 20 hours across three days [ ]
d) Up to 30 hours across three days [ ]
e) Up to 40 hours across four days [ ]
f) Up to 40 hours across five days [ ]

8. Which days per week does your child attend **this** child care centre?

Monday [ ] Tuesday [ ] Wednesday [ ] Thursday [ ] Friday [ ]

9. Does your child attend any other form of child care?

a) No [ ]

b) Yes – my child attends another child care centre [ ]

c) Yes – my child is cared for by her/his grandparents [ ]

d) Yes – my child is cared for by another family member [ ]

e) Yes – my child is cared for by a nanny or babysitter [ ]

f) Yes – my child has another form of child care [ ]

Please describe below

_____

_____

_____

10. How many hours per week does your child attend this other child care?

a) Up to 10 hours [ ]

b) Up to 20 hours across two days [ ]

c) Up to 20 hours across three days [ ]

d) Up to 30 hours across three days [ ]

e) Up to 40 hours across four days [ ]

f) Up to 40 hours across five days [ ]

You are completing this section of the form for yourself:

11. What is your highest educational qualification?

a) Postgraduate Diploma, Masters, Doctorate [ ]

b) Bachelor degree [ ]

c) TAFE or RTO diploma [ ]

d) Year 12 or equivalent [ ]

e) Year 10 or equivalent [ ]

f) Left school before completing Year 10 [ ]

g) Other, please provide details

_____

_____

_____

12. What is your occupation?

a) Homemaker [ ]
b) Self – Employed [ ]
c) Temporary Employee [ ]
d) Consultant [ ]
e) Skilled Labourer [ ]
f) Trained Professional [ ]
g) Student [ ]
h) Administrative Staff [ ]
i) Junior Management [ ]
j) Middle Management [ ]
k) Senior Management [ ]

13. What is your current household income?

a) Under $50 000 [ ]
b) $50 000 - $75 000 [ ]
c) $75 000 - $99 999 [ ]
d) Over $100 000 [ ]
e) Would rather not say [ ]

14. What is your current marital status?

a) Married [ ]
b) Living with another [ ]
c) Separated [ ]
d) Divorced [ ]
e) Single [ ]
f) Widowed [ ]
g) Would rather not say [ ]

Links between you and your child's educator

This section of the questionnaire is specifically asking about your links with one educator who has agreed to participate in this research project. Please respond to the following with this educator in mind.

Your child's educator: _____

15. Which of the options below do you generally use to communicate with your child's educator? Select as many as appropriate.

a) Conversation at drop off [ ]
b) Conversation at pick up [ ]
c) Phone conversation [ ]
d) Communication via email [ ]
e) Communication via a day book [ ]
f) Other, please explain below

_____

_____

_____

_____

16. How often do you engage with your child's educator in conversation? Tick/circle the most appropriate box.

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

This section is asking about the topics you discuss with your child's educator and how often you discuss them. Tick/circle the most appropriate box for each topic.

17.

s. Daily experiences at the centre that involve your child

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

t. Daily experiences at the centre that do not involve your child

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

u. Developmental information about your child

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

v. Your child's social skills

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

w. Your child's cognitive (thinking and problem solving) skills

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

x. Your child's motor skills

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

y. Your child's language skills

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

z. Your child's self-help skills

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

aa. Your child's behaviour

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

bb. Your child's friendships

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

cc. Toilet training

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

dd. School readiness

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

ee. Family life for you and your child

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

ff. Family outings for you and your child

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

gg. Family holidays for you and your child

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

hh. Cultural celebrations for you and your child

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

ii. The educator's family/social/personal life

1. Every day of child's attendance	2. Most days of child's attendance	3. Weekly	4. Infrequently	5. Never

jj. Other topics, please explain below

_____

_____

_____

18. How satisfied are you with the amount of discussion you have with your child's educator? Tick/circle the most appropriate box.

1. Very Satisfied	2. Satisfied	3. Neutral	4. Dissatisfied	5. Very Dissatisfied

19. How satisfied are you with the depth and quality of discussions you have with your child's educator? Tick/circle the most appropriate box.

1. Very Satisfied	2. Satisfied	3. Neutral	4. Dissatisfied	5. Very Dissatisfied

20. Do you have any other comments?

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE.

Appendix H: Interrater Reliability Percentages

		Educators with older children	Educators with younger children	Mothers with older children	Mothers with younger children	Older children with educators	Younger children with educators	Older children with mothers	Younger children with mothers
Elaboration									
Elaboration	Past novel	98.9	96.5	98.8	97.7	100.0	96.3	99.0	97.4
	Past familiar	96.8	97.0	98.3	100.0	99.0	96.8	100.0	97.1
	Future novel	95.6	100.0	99.4	100.0	100.0	100.0	97.4	100.0
	Future familiar	96.3	95.0	98.8	97.4	98.4	97.8	100.0	100.0
Mental state language									
Temporal language past episodes	Past novel	96.6	93.0	100.0	100.0	100.0	100.0	100.0	100.0
	Past familiar	93.6	95.8	100.0	100.0	100.0	100.0	100.0	100.0
	Future novel	97.1	92.3	100.0	100.0	100.0	100.0	100.0	100.0
	Future familiar	97.2	93.8	100.0	100.0	100.0	100.0	100.0	100.0
References to past episodes									
Temporal language future references	Past novel	98.4	99.0	97.8	97.9	100.0	95.2	98.2	91.7
	Past familiar	97.2	98.9	98.5	100.0	100.0	84.6	91.4	100.0
	Future novel	100.0	100.0	95.0	100.0	100.0	100.0	100.0	100.0
	Future familiar	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
References to future episodes									
Mental state language	Past novel	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Past familiar	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Future novel	100.0	91.7	93.8	90.9	100.0	100.0	100.0	100.0
	Future familiar	98.6	94.3	97.0	92.3	100.0	100.0	100.0	100.0

Appendix I: Elaboration Quotient Scores for Older and Younger Children

Quotient scores not including evaluations				Quotient scores including evaluations			
Past novel	Past familiar	Future novel	Future familiar	Past novel	Past familiar	Future novel	Future familiar
3.14	2.65	4.70	3.79	3.57	3.12	5.50	4.86
5.00	9.50	5.33	7.86	6.57	12.00	5.78	9.86
10.14	5.63	5.20	4.56	14.14	6.88	7.00	5.56
12.00	11.25	10.75	0.94	15.60	13.25	14.00	1.75
23.00	4.73	7.20	3.45	34.00	6.64	10.20	4.55
2.22	2.14	1.64	1.35	3.89	3.00	2.29	1.85
4.50	3.33	5.00	4.75	6.88	5.33	7.00	8.25
7.50	2.52	3.31	3.50	9.17	2.52	3.50	4.88
7.75	3.60	2.27	10.00	12.25	5.80	3.64	11.50
7.00	3.80	7.33	3.27	9.33	5.60	8.67	5.36
3.75	2.75	2.25	9.00	5.88	7.25	3.25	15.33
16.00	14.00	3.50	2.83	22.00	18.50	5.25	4.00
21.50	8.00	8.00	21.00	27.00	10.00	11.67	27.00
15.33	54.00	7.55	13.50	23.00	72.00	10.91	18.25
6.13	9.29	3.88	4.00	8.75	12.29	5.63	5.00
9.00	10.75	19.50	9.00	14.67	17.25	32.00	15.33
8.00	23.50	11.40	14.00	11.50	26.00	15.60	17.50
7.80	34.00	24.50	4.40	10.80	51.00	36.00	5.70
3.00	4.75	38.00	42.00	4.40	6.25	52.00	62.00
8.00	20.00	10.20	3.55	11.00	25.50	14.20	5.27
10.67	8.75	8.89	27.00	15.00	12.25	12.00	36.33
9.75	6.80	17.50	33.00	13.75	9.60	24.00	49.00
9.33	3.71	6.67	10.75	14.33	5.86	10.67	13.25
7.00	4.25	29.00	8.00	10.25	5.50	40.00	14.33
4.58	9.33	4.86	2.83	7.00	12.00	6.57	4.17
5.67	3.63	8.00	5.20	7.67	5.88	10.67	7.20
2.75	2.30	4.75	2.18	4.75	3.50	6.50	3.27
1.38	3.00	4.00	6.33	1.85	4.20	6.00	10.00
3.56	5.33	5.67	8.50	4.89	8.00	9.67	14.00
3.43	10.00	6.33	2.83	5.29	13.50	9.33	4.67
5.83	4.33	3.50	4.40	8.50	6.33	5.00	5.80
2.22	2.53	2.05	1.08	4.33	3.87	2.90	1.92
5.69	2.67	5.22	3.82	9.85	5.75	7.89	5.41
8.00	2.22	2.38	0.79	12.50	4.78	3.86	1.71
2.71	0.71	2.28	0.83	5.50	1.33	3.94	2.08
0.94	1.33	2.00	0.91	1.50	2.67	3.71	1.70
4.40	16.00	3.88	1.56	8.80	22.50	5.63	3.56
5.13	2.07	2.57	2.00	7.50	2.47	4.29	3.25
16.00	11.25	7.75	6.33	22.00	13.25	9.25	8.67
3.83	4.67	1.38	5.67	5.17	6.67	1.95	6.83

Quotient scores not including evaluations				Quotient scores including evaluations			
Past novel	Past familiar	Future novel	Future familiar	Past novel	Past familiar	Future novel	Future familiar
4.67	4.50	4.00	4.40	6.17	100.00	5.75	7.00
5.57	2.11	2.75	1.89	8.29	2.89	3.88	2.56
10.00	6.60	10.00	11.00	12.00	7.40	13.83	13.67
10.00	5.50	10.50	27.00	13.50	8.00	16.00	36.00
3.89	2.20	4.20	3.36	5.11	3.47	6.80	4.45
11.00	2.00	7.00	1.67	16.00	3.00	13.00	3.67
9.00	6.00	6.50	2.00	10.00	8.00	7.50	3.75
3.67	4.75	6.67	1.50	6.00	7.25	9.33	2.00
1.28	1.00	2.13	0.79	1.56	1.45	2.63	1.29
2.67	1.50	2.11	0.78	3.93	2.43	2.67	1.39
7.67	8.00	4.17	1.67	9.33	10.00	6.00	3.08
2.43	1.31	2.38	2.63	3.71	1.85	3.38	4.63
2.60	3.75	5.50	0.73	4.10	6.00	9.00	1.55
1.33	2.20	2.00	1.23	2.00	2.60	2.83	2.08
3.00	2.75	8.00	1.29	4.50	3.75	10.50	2.00
3.40	3.67	3.00	10.00	4.00	6.00	4.80	10.00
3.25	3.40	6.00	3.67	3.75	4.60	7.50	4.67
3.00	4.33	3.40	1.75	4.75	6.67	4.6	1.75
4.60	3.67	6.00	14.00	5.80	4.67	8.00	19.00
2.57	6.33	12.33	2.73	3.86	8.67	22.67	4.27
7.50	23.00	15.00	15.50	12.25	34.00	24.50	27.50
10.00	4.44	14.00	5.80	15.00	6.11	22.00	8.40
5.25	21.00	3.80	3.40	6.25	26.00	4.20	3.80
7.50	6.50	2.00	2.14	9.50	10.00	2.71	2.29
4.50	3.00	6.33	4.75	5.00	3.75	7.00	6.00
2.67	4.50	3.67	3.00	3.50	6.25	7.00	7.00
5.50	17.00	6.50	3.00	7.25	20.00	7.25	3.38
1.25	4.29	4.67	3.50	1.75	5.86	5.17	3.83
1.33	4.33	2.67	0.78	1.50	5.00	3.17	1.78
6.71	3.78	9.40	17.00	9.71	4.44	13.00	23.33
4.23	11.00	8.17	4.38	5.46	11.67	9.33	6.50
26.00	9.67	3.13	2.17	30.50	11.67	4.50	2.91
18.67	18.50	3.18	5.40	22.00	23.50	3.55	8.40
6.80	7.00	33.00	4.60	9.20	9.67	44.00	6.80
18.50	28.00	13.00	25.00	21.50	31.00	18.33	29.00
12.00	33.00	22.00	32.50	16.00	49.00	25.00	37.50
3.29	14.50	6.60	2.80	4.57	19.50	10.40	4.10
12.67	22.50	21.00	47.00	15.67	29.00	26.00	53.00
25.00	49.00	17.00	15.00	30.00	58.00	19.00	17.00
1.71	1.25	6.00	11.00	1.86	1.25	8.00	13.00
6.00	8.33	3.33	1.89	10.00	14.33	4.67	2.56
1.57	1.00	6.00	4.50	1.57	1.33	7.00	5.00

Quotient scores not including evaluations				Quotient scores including evaluations			
Past novel	Past familiar	Future novel	Future familiar	Past novel	Past familiar	Future novel	Future familiar
4.60	11.00	7.00	2.43	5.00	13.00	9.00	3.29
4.00	5.00	12.00	18.00	6.50	6.50	15.50	24.00
21.00	5.67	5.00	7.50	30.00	9.33	7.50	15.50