A Mixed Methods Exploration of Educators' Use of Language Facilitation Strategies

and Infants and Toddlers' Language Participation During Snack Time in Australian

Long-Day-Care Centres

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This thesis is presented as a partial fulfilment to the requirements for the Master of Research.

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Statement of Candidate

I certify that the work in this thesis entitled "**A Mixed Methods Exploration of Educators' Use of Language Facilitation Strategies and Infants and Toddlers' Language Participation During Snack Time in Australian Long Day Care**" has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree to any other university or institution other than Macquarie University.

I also certify that the thesis is an original piece of research and it has been written by me. Any help and assistance that I have received in my research work and the preparation of the thesis itself have been appropriately acknowledged.

In addition, I certify that all information sources and literature used are indicated in the thesis.

The research presented in this thesis was approved by Macquarie University Ethics Review Committee (reference number: 5201400388; approval date: 16 May 2014).

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Abstract

This research explores the language interactions between 15 early childhood educators and 0- to 2-year-old children during snack time in Australian long day care centres with the aim of investigating the educators' language facilitation strategies and exploring the implications of these strategies for educator-infant interactions. Video recordings of 15 educators' language-supporting strategies during group snack time were analyzed according to the Teacher Interaction and Language Rating Scale (TILRS) (Girolametto, Weitzman, & Greenberg, 2000). From the TILR scale, three subscales - Child Centered, Interaction Promoting and Language Promoting strategies were derived (Girolametto, Weitzman, & Greenberg, 2000). Transcripts of educator talk were separated into utterances and the number of utterances directed to the children, adults and self-talk were counted.

The findings indicate that educators had relatively low ratings for each of the subscales. A comparison of the subscales showed that ratings for Interaction Promotion was significantly lower than those for Child Centered and Language Promotion subscales. In mealtimes with higher educator-child ratios (educator-child ratio was calculated by dividing the number of children by the number of educator), educators directed more utterances to the children than situations where educator-child ratios were lower. However, the quality of language promoting strategies was higher when infants and educators were seated at a single small table than they were seated at a single large table or at multiple tables.

Findings suggest that educators may overlook the significance of mealtime language interactions for facilitating infants and toddlers' language development. They suggest the need for underscoring the learning potential of caring-giving routines, including ways to build educators' ability to sensitively encourage children's participation in conversations.

Chapter 1: Introduction

Introduction

It is widely acknowledged that infancy and toddlerhood are critical age for first language acquisition. This significance is particularly emphasized by research demonstrating that language ability is one of the dominant elements for human beings' successful achievement in many aspects of their lives (Dickinson, Golinkoff, & Hirsh-Pasek, 2010; Leslie & Lindley, 2001; Thomas & Collier, 2002).

In this thesis, I explore the ways that language development is facilitated by educators of infants and toddlers in long-day-care centres. In contemporary Australia, very young children are spending a significant amount of time in long-day-care centres, so the quality of these services has been emphasized as it is related to children's language development. In terms of the definition of a good long day care, people usually pay attention to the structural features of a center, such as its teacher-child ratios or its financial status (NICHD Early Child Care Research Network, 2002a). However, the interaction between educators and children is one of the most influential factors to infants and toddlers' language acquisition (Degotardi, 2010; NICHD Early Child Care Research Network, 2002a, 2002b).

Although some studies have investigated educator-infant interactions during the playtime and book reading, very few researchers have investigated their communication in the context of mealtime, during which children also spend a significant amount of time (de Rivera et al., 2005; Girolametto et al., 2003). Typically, a mealtime provides children with not only nutritious meals and relaxing time, but also provides them with plenty of chances to engage in conversations with educators (Cote, 2001; Degotardi, 2010). Thus, the educator-child language interactions during mealtime will be investigated in this study (Cote, 2001; Degotardi, 2010).

This chapter will begin by providing a brief background of language development. Then, it will review the implications of long day care towards children's development as well as the previous research on educator-child interaction. After that, it will present the characteristics of educators' language facilitation strategies and that of children's language participation. Finally, it will propose that mealtime has potential to facilitate infants and toddlers' language learning but little research has been conducted on this topic.

The Critical Stage of Acquiring a New Language

Infancy is a critical period for language development. From 0 to 1 year old, Infants' non-verbal language abilities undergo subtle development (Hoff, 2013). They gradually understand intonations, gestures (e.g., gazing, pointing) and recognize their own names during the first year (Gleason & Ratner, 2005; Hoff, 2013). From 1 to 2 years old, infants' vocabulary undergoes a quick growth (Hoff, 2013). 2-year-old babies normally can accumulate 300 words, produce word combinations and they have an increased willingness to communicate with others (Hoff, 2013). Once children start to formally use verbal language since 2 years' old, they are able to share personal intentions and experience with adults or peers through showing intentionality and establishing joint attention (Gleason & Ratner, 2005; Hoff, 2013). These two preverbal communicative skills (showing intentionality and establishing joint attention) have undergone development from around 10 months (Hoff, 2013).

Nativist approach vs. social interactionist approach.

Broadly speaking, there are two theories of language acquisition. The first is the nativist theory founded by Chomsky (1957). The other is the social interactionist theory.

The nativist theory proposes that children develop their language automatically via the maturation of linguistic mechanism in their brains (Beller, 2008; Hoff, 2013). There is little emphasis placed on the impact of the social environment (Gleason & Ratner, 2005).

In other words, nativist assumption is that children are able to learn language without any effort and their language is developed mainly through the gradual maturation of the inborn language mechanism (Hoff, 2013).

At the extreme, the nativist approach excludes the function of people's daily interactions. However, research does suggest that the quality and the amount of language input does have influence on language development (Hoff, 2003). In this case, nativist positions seem to neglect an important factor related to language acquisition, which is the factor of social environment (Beller, 2008).

The interactionist approach emphasizes both genetic factors and social environmental aspects (Beller, 2008). The core concept of interactionist theory is that language acquisition occurs in bi-directional interactions. This concept assumes that the social environment enhances children's cognitive and linguistic functions as it generates social context for children to acquire language patterns used in real lives (Gleason & Ratner, 2005). Thus, the interactionist approach seems to contrast with the nativist theory by emphasizing the importance of social context other than the grammatical rules and language structures (Beller, 2008; Gleason & Ratner, 2005).

The nativist and social theories both agree that biological factors are a basis for language acquisition (Beller, 2008). However, social interactionist approach holds that the inner functions of linguistic device need to work together with outer environment because language cannot exist without social activities (Hoff, 2013). Lacking enough experience of social interactions, children would lose chances to acquire necessary linguistic competence, such as establishing joint attention with others and taking turns in conversations (Beller, 2008; Gleason & Ratner, 2005).

The Quality of Long Day Care Predicts Infants' Language Development

In Australia today, increasing numbers of parents choose to enroll their 9- to 20-month-old children in long-day-care (full day care in Australian context) centres (Degotardi, 2010). According to Australian statistics in 2014, nearly half of Australian parents with children under 12 months (48%) use formal or informal childcare. Among three patterns of formal care (long day care, before and after school care, family day care), long day care ranked the first in terms of its attendance rate of the infants under 2 (14%). The attendance rates for before and after school care and family day care were attended by 7.8% and 2.5% respectively (Australian Bureau of Statistics, 2014). Thus, long day care seems to be a popular choice when parents need to find formal care to look after their children.

Early Years Learning Framework has also pointed out that children's language development (e.g., vocabulary learning, making sense of people's opinions) will be promoted by educators' communication efforts, for example, educators' trying to engage children in mutual interactions, listening to and replying children's utterances, and encouraging children to express their own ideas and thoughts under a wide range of contexts (Australian Government, 2015).

Long day care as a developmental context.

In terms of their potential to foster early development, long-day-care centres have unique advantages in the following aspects: (a) long day care provides many opportunities for infants to interact with educators and peers. Research indicated that infants' interactions with adults besides their parents shaped their early language learning experiences (Shin, 2010); (b) long-day-care centres have curriculum designs and also have qualified and experienced educators (NICHD Early Child Care Research Network, 2000).

These two features suggest that long day care may facilitate infants and toddlers' development. However, in reality, the quality of infant-toddler programs varies widely. For

example, the business model of running a long-day-care center raised concerns that pressure

related to the provision of cost-effective childcare can have negative implications on quality

(Ishimine, Tayler, & Thorpe, 2009). To support this, high staff turnover rates and unqualified

educators in some centers impeded the establishment of secure attachment and trusting

relationship between children and educators (Ishimine et al., 2009; Nyland, 2004).

Additionally, some long-day-care centres tended to overly emphasize academic purposes

(e.g., school readiness or numeracy skills) in their group activities, resulting in too much

didactic educator-directed teaching and in less child-centered free play (Ishimine et al., 2009).

　　　Research has shown that high-quality long day care has a positive relationship with

children's learning outcomes in early years (e.g., performances in linguistics and cognitive

functions) (Harrison, 2008; NICHD Early Child Care Research Network, 2000, 2002a). The

quality of long day care is also a reliable predictor of children's future memory performance

and pre-academic skills (NICHD Early Child Care Research Network, 2002b). For instance,

according to the national longitudinal survey of NICHD in 2000, 5-year-old preschoolers'

reading abilities from low-income families had a close association to the quality of the long-

day-care centers they attended.

　　　The Longitudinal Study of Australian Children indicated that there was a positive

relationship between the quality of long-day-care centres and the development of children's

social-emotion skills (Harrison, 2008). Harrison's study implied that high-quality long-day-

care centers were more able to develop children's social competence and to implement more

effective solutions to each child's emotional problems than low-quality centers (Harrison,

2008). For example, with a high staff-infant ratio, each infant would have more opportunities

to engage in mutual interactions with educators, leading to children's increased experiences of

acquiring and practicing social competence (Harrison, 2008; Ishimine et al., 2009).

A study on Israel long-day-care centres presented the finding that the quality of the centres affected children's secure attachment with their mothers (Sagi, Koren-Karie, Gini, Ziv, & Joels, 2002). Due to low educator-infant ratios and educators' inadequate training in Israeli long-day-care centres, infants and toddlers had negative experiences from their educators, which impacted children's social-emotional wellbeing (Sagi et al., 2002). The long-term implications of long-day-care quality was explored by Vandell, Belsky, Burchinal, Steinberg and Vandergrift (2010) who measured the association between the quality of long-day-care centres and children's behaviors at the age of 15 (Vandell, Belsky, Burchinal, Steinberg, & Vandergrift, 2010). The research showed that the quality of long-day-care centres not only predicted infants and toddlers' future problem behaviors, but was also related to children's later cognitive development and academic performance (Vandell et al., 2010). For example, if children attend moderate-quality or high-quality long-day-care centers in their infancy and toddlerhood, they may achieve better academic outcomes and language capabilities after 10 years than children who attend low-quality centers.

The quality of language in long day care matters.

The quality of long day care is therefore a critical factor that has implications on children's physical and mental "wellbeing, learning and development", including the development of social competence, social behaviours, later academic outcomes and emotional health (Harrison, 2008, p. 17; Thomas & Collier, 2002; Vandell et al., 2010). Usually, the quality of a long-day-care center is defined by two aspects: structural features and process features (Harrison, 2008). The structural features mainly consist of group size, educator-child ratios, educators' qualification and financial situation of centers, all of which are important but have less direct implications on children's language facilitation (Harrison, 2008; NICHD Early Child Care Research Network, 2002a). The process features, represented by sensitive and responsive care, educator-infant interactions and

relationships, have relatively more direct implications on infants' language and cognitive development in comparison with structural features (Girolametto & Weitzman, 2002b; Harrison, 2008; NICHD Early Child Care Research Network, 2002a).

Among the three process features, the quality of communicative interactions has the closest relationship with infants and toddlers' language learning experience (NICHD Early Child Care Research Network, 2002a). To support this, previous studies showed that children's language learning benefited from a high proportion of verbal stimulations received in their first two years in long day care (Hoff, 2003; NICHD Early Child Care Research Network, 2000). A related study also indicated that children's social and linguistic facilitation was considered as a major indicator of quality of long-day-care centers (Girolametto, Weitzman, & Greenberg, 2003).

What do we know about educator-infant interactions?

Educator-child interactions in long day care are essential elements of the quality of long day care as they implicate children's language development and communicative competence in the future (Girolametto, Weitzman, & Greenberg, 2000). In this section, I review what is known about the nature of these interactions as well as which features have been identified as particularly facilitative for children's language development.

Although there are many studies on language interactions in long day care, most of them focused on educators' interactions with older children (e.g., preschoolers). Firstly, a study in France assessed the quality of educators' language provided to 4-year old children in long day care by using the Teacher Interaction and Language Rating Scale (TILRS) (Bouchard et al., 2010). The finding showed that educators infrequently used language-support practices during mealtime (Bouchard et al., 2010). Due to the distraction from preparing food in snack time context, educators were unable to pay full attention to children's words and they seldom expanded children's responses based on children's

communicative interest (Bouchard et al., 2010). In this case, the authors proposed that poor use of language-supporting strategies had negative implications on children's language development and they suggested the necessity of in-service training to enhance educators' language facilitation strategies (Bouchard et al., 2010).

In addition, Girolametto and Weitzman (2002) investigated 26 educators' responsive language in routine activities (e.g., book reading, play time) with toddlers and preschoolers and found that educators' replies to preschoolers consisted of a higher variety of vocabulary and more extended discourses than their replies to toddlers (Girolametto & Weitzman, 2002b). For example, educators employed advanced language and created many language-learning opportunities for preschoolers to practice language in a decontextualized context (Durden & Dangel, 2008; Girolametto & Weitzman, 2002b). Another important finding in this research is that educators' encouraging attitudes in their replies were related to children's rich language output (Girolametto & Weitzman, 2002b). A similar study examined another language aspect of directives in educators' talk with toddlers and preschoolers and it indicated that educators' overuse of directive language children (e.g., using language to manage children's behaviors) impeded children's vocabulary productivity (Girolametto, Weitzman, van Lieshout, & Duff, 2000).

Just like Girolametto and Weitzman (2002), Durden and Dangel (2008) also investigated the educators' use of directives with 2- and 3-year-old toddlers in long day care. They found that educators' tendency to use directive and declarative language led to containing low cognitive challenges in educators' language in educator-child interactions, which impeded children to practice language and to develop their linguistic and cognitive functions (Durden & Dangel, 2008).

The above studies examined the strategies used by educators to facilitate children's language learning, while the following study conducted by Girolametto and his colleagues

investigated the verbal participation of toddlers and preschoolers. The research observed

the 26 educators' questions and responses in the conversations with 104 children (52

toddlers and 52 preschoolers) in the activity of play dough and it was found that

preschoolers uttered longer replies to educators' questions than toddlers (de Rivera,

Girolametto, Greenberg, & Weitzman, 2005). They also found the forms of questions had

few implications on toddlers' responses. Another finding showed children uttered more

complex words when replying to open-ended questions and topic-continuing questions (a

topic-continuing question contains the key words that semantically linked to children's

previous utterances) than their replying to closed-ended questions and topic-initiating

questions (the questions without semantically links between the present question to the

previous content) (de Rivera et al., 2005). The findings on children's verbal responses

above implied that educators' open-ended questions and topic-continuing questions

benefited children's language acquisition through eliciting frequent and complex

responses from children (de Rivera et al., 2005; Durden & Dangel, 2008).

Characteristics of the Educator-Infant Interactions

An effective educator-infant interaction results from both educators' guiding

strategies and infants and toddlers' participation. Many researchers have found that

educators' and children's mutual participation in language interactions may lead to the

most effective language learning experiences for children (Bouchard et al., 2010; Cote,

2001; Hoff & Naigles, 2002; Kultti & Pramling, 2015). In Hoff and Naigles's home based

research (2002), it was found that children's language learning process was facilitated not

only by immediate language reactions from their mothers, but also by high frequency of

mother-infant communicative interactions. These findings suggest that timely responses

from educators in educator-child interactions would also assist children's language

acquisition as the quality of nonmaternal care had the similar function to maternal care

(e.g., predicting children's language outcomes) (NICHD Early Child Care Research Network, 2000). The interaction-promoting strategies in educator-child interactions play an importance role in children's first language acquisition in long-day-care centers (Kultti, 2014). It is therefore important to consider strategies that both promote language development and encourage children's participation.

According to Girolametto and Weitzman (2002), educators' responsive language has important implications on children's language acquisition. These researchers categorized educators' responses into three forms in educator-child interactions: child-oriented responses, interaction-promoting responses, and language-modeling responses. They argued that high-quality responsive language would motivate children to engage in conversations and would establish an advanced language modeling for children through joint engagement (Girolametto & Weitzman, 2002b). In their study, they examined the relationship between educators' use of responsive strategies in three situations and children's vocabulary productivity (e.g., the number of total utterances and of multiword utterances) in the activities of book reading and play dough (Girolametto & Weitzman, 2002b). It was found the interaction-promoting responses were most correlated to toddlers' the rich language output (Girolametto & Weitzman, 2002b).

Not only is the response style be important, but Girolametto, Weitzman, Lieshout and Duff (2000) also held educators' balanced use of directive language input in educator-child interactions would also be influential. These authors investigated the effect of five educators' directives (e.g., conversational control, topic control, behavior control, response control and turn-taking control) and found that children's motivation to participate in interactions were promoted by educators' conversational control directives (e.g., using conversational Yes/No questions to clarify children's meaning), but children's language productivity was inhibited by turn-taking control (e.g., educator's dominating

the conversation by taking most of the turns) and behavior control directives (e.g., using commands or directive Yes/No questions to manage children's behaviors) (Girolametto, Weitzman, van Lieshout, et al., 2000). The research suggests that although some directives may scaffold very young children's language participation, an over-use of directive language would offset its benefit, such as reducing lexical contingency or cognitive challenges in language interactions (Durden & Dangel, 2008; Girolametto, Weitzman, van Lieshout, et al., 2000).

Another strategy that has been linked to child language participation is the use of open-ended question. According to Durden and Dangel (2008), open-ended questions have the potential to elicit more words from children and to activate a higher level of cognitive process than closed-ended questions. Related research showed that open-ended questions from educators tended to lead to extended topics and to elicit long replies from children, which in turns promote educators' rich language feedback (de Rivera et al., 2005). On the contrary, an over-use of directive language from adults was related to low frequency of children's responses and relatively short length of utterances (NICHD Early Child Care Research Network, 2000).

Girolametto, Weitzman and Greenberg (2003) implemented a professional training program to develop educators' language facilitation strategies. Educators were trained in four areas: (a) to respond actively and immediately to children's initiations; (b) to model children's language within their zone of proximal development; (c) to extend educator-infant language interactions by extending turn-takings and reducing directive input; (d) to encourage infant-peer interactions (Girolametto et al., 2003). Post-training results demonstrated that educators' improvement in the above four areas increased the quality and quantity of young children's talk (e.g., an increase of complex utterances) (Girolametto et al., 2003).

Participation from infants and toddlers.

Although educators' strategies are important in supporting children's language development, children also play an important role in mutual interactions (Kultti, 2014). Children's participation has been emphasized by many researchers and they hold that children would have better language learning experiences when participating in language interactions with others (Kultti, 2014; Kultti & Pramling; Lee & Kinzie, 2012). To support this, in order to communicate with educators and peers, infants and toddlers need to recognize the received words and sentences first, then to activate related memory and language knowledge, finally to organize and produce utterances to make the dialogue continued (Lee & Kinzie, 2012). This process affords children plenty of language stimulations that facilitate the development of their linguistic and cognitive abilities, including the skills of listening, speaking, comprehending and memorizing (Kultti, 2014). Normally during educator-infant interactions, children's motivation to verbally express themselves is increased by educators' understanding, confirming and encouraging attitudes in their responses (Girolametto & Weitzman, 2002b). Thus, after receiving language stimulations, children will then respond to educators' language, the process of which helps children to practice language in a social context (Girolametto & Weitzman, 2002b; Hoff & Naigles, 2002).

Children's language participation is therefore an essential component of facilitative language interactions. In one study, Girolametto and Weitzman found that children who were more talkative and who actively participated in interactions with educators received more language replies from educators and more opportunities to practice their language than those children who less actively participated in educator-child interactions (Girolametto & Weitzman, 2002b). The study also found that educators' quality language input was more determined by children's language abilities rather than their age

(Girolametto & Weitzman, 2002b). In this case, children with high language levels received more advanced language feedback (e.g., the responses containing various vocabulary) than children with low language levels (Girolametto & Weitzman, 2002b).

It can therefore be seen that both educator strategies and child participation are important factors to consider when examining how educator-child interactions can support children's language development. In the next section, I consider what is known about these facilitative interactions during one potential learning context – that of mealtimes in long-day-care centers.

The Role of Mealtime as a Language Learning Opportunity

Mealtime in long-day-care centers plays an important role in infants and toddlers' daily lives. Children spend 15% of a day on mealtimes in long-day-care centers, while other activities with learning potential only occupy no more than 3% of a day, such as book reading and music (Harrison, Elwick, Vallotton, et al., 2014). Studies have shown the significance of the pedagogical role in mealtime because this routine activity not only provides children with nutritional needs, but can also create a rich language environment for children. In the next section, I review some key studies that point to the learning potentials of this context.

Kultti (2014) has suggested that the quality of mealtime is an important aspect of the quality of long day care. Usually, mealtime is considered a routine activity, during which children will have a nutritious meal, time to relax and chances to interact with educators (Cote, 2001). According to Kultti (2014), the average hours an infant spent on breakfast, lunch and afternoon snack time in long day care was from 10 to 15 hours per week, occupying nearly 15% of a day of infants and toddlers (Kultti, 2014). Thus, mealtime is a neglectable routine activity in children's early lives.

According to NICHD Early Child Care Research Network (2000), a high-quality

mealtime would have the following characteristics: (a) a rich language environment with plenty and various language input from educators; (b) many contingent linguistic and cognitive stimulations that rarely occur in academic-oriented activities (e.g., book reading). If educators employ too much directives and ignore opportunities to guide children's language learning in the mealtime context, this kind of mealtime would not be so facilitative for early development (Kultti, 2014).

Mealtime: a pedagogical event.

Cote (2001) has pointed out that the language learning experience is shaped by educators' utterances and educator-infant interactions during mealtime. Many researchers also indicated that mealtime has pedagogical potentials (Cote, 2001; Johansson & Berthelsen, 2014; Kultti, 2014). Firstly, in a typical mealtime, children's sense modalities will be stimulated by food and by educators' language through seeing, hearing, testing, smelling and touching (Kultti & Pramling, 2015). With these stimulations being activated, children's linguistic and cognitive abilities undergo development (Kultti & Pramling, 2015). Secondly, mealtime provides a casual setting for educators to sit face-to-face with children, to hear from and to talk to children freely (Cote, 2001). Thus, educators and children can have plenty of time to negotiate the meaning of the talk together in snack time context (Johansson & Berthelsen, 2014; Kultti & Pramling, 2015).

Thirdly, since there are no explicit academic goals, the topics chosen by educators have potentials to be interesting and attractive to infants and toddlers (Cote, 2001). In this case, the relaxing atmosphere would help to elicit playful initiatives from children (Johansson & Berthelsen, 2014). This kind of "spacious interaction patterns" would have a great tolerance for children's playful utterances so as to extend mutual interactions (Johansson & Berthelsen, 2014, p. 76). To support this, if educators value language contributions from each child, they would try to engage every child in conversations and

to facilitate children to talk (Cote, 2001). Cote (2001) has also argued that educators'
availability is important. In her study, she found that children produced more words and
sentences about the non-present (decontextualized) topics when educators were sitting
with them than educators were circulating in the classroom (Cote, 2001). Additionally,
mealtimes have the potential for relaxing and meaningful conversations because they
contain more spontaneous nature and more frequent mutual engagement than book reading
and play time (Cote, 2001).

Finally, mealtime's pedagogical potential is also implicated by contextual factors:
educators' qualification, group size, physical arrangement and educator-child ratio
(Bouchard et al., 2010; Degotardi, 2010; Pellegrino & Scopesi, 1990). In the previous
research, practitioners' sensitive and complicated interpretation of children's language
contribution was found to have positive relationship with their qualification levels, which
normally led to high-quality educator-child interactions (Degotardi, 2010). In terms of the
group size and psychical arrangement, Bouchard and her colleagues (2010) have proposed
that more educators attending at mealtime would produce more utterances to children to
meet their interests and needs, supporting children's language development. These
researchers have also suggested that using single table would increase the opportunities of
educator-child interactions instead of using multiple tables (Bouchard et al., 2010).
Similar finding of physical arrangement was also indicated in Pellegrino and Scopesi's
research (1990). Children's group size under seven at the mealtime would make educator
more focus on language interactions with children and less focus on behavioral control
(Pellegrino & Scopesi, 1990).

Conclusion

There are many opportunities for children to develop their language through
educator-child interactions during mealtime. However, previous research showed that

educators did not capitalize these opportunities. A recent qualitative study reported

educators deemphasized the pedagogical functions of mealtime and only focused on

feeding food and teaching behavioral rules (Degotardi, 2010). The similar finding

indicated that educators' focusing on directives and on establishment of rules during

mealtime, which resulted in toddlers' negative emotions because of their ideas and

thoughts being overlooked by educators (Johansson & Berthelsen, 2014). Research from

Bouchard et al., (2008) also found that educators' overall use of language-supporting

strategies in snack time context is poor.

Therefore, based on previous research on morning tea time in Bouchard et al.,

(2008), this research aims to investigate educator's use of language facilitation strategies

and children's language participation in snack time context in Australian long-day-care

centers. The study will address two research questions:

- How effectively do educators use child-centered strategies, interaction-promoting

  strategies and language-promoting strategies in snack time in Australian long day

  care?

- What are the implications of these strategies for infants' participation in mealtime

  interactions?

By exploring the quantity and quality of educator-infant interactions in mealtime, I

hope to identify opportunities and constrains to educator abilities so as to support infants' and

toddlers' language development in this context (the age of infants and toddlers are all between

zero to two years old in the thesis).

Chapter 2: Methodology

Introduction

This study used the data from an Australian Research Council funded discovery project "Investigating Educator-Infant and Infant-Peer Interactions in Long Day Care". The project is currently investigating the quality and quantity of 60 educators' talk with the children aged from 0 to 2 in Australian long day care centres. It is a largely observational study, comprising the following components:

- 3 hours of video-recorded naturalistic observation of a focus educator of 0-2 year old children.

- 3 hours of video-recorded naturalistic observation of a focus infant (aged under 24 months).

- A focus educator questionnaire to ascertain their understanding of language development and how this can be supported in early childhood center contexts.

- An educator survey requesting information about their qualifications, experience, and work-place satisfaction.

The present study used a subset of this data – the focus educator footage that involved a video-recording of a group snack-time (morning or afternoon tea) in which the focus educator was directly involved. In this chapter, I provide details of the recruitment methods used in the larger, ARC study, before then explaining the general procedure, participant selection I have used in my study, and measures.

The Large Study: General Recruitment and Procedures

Participating centres were invited by contacting major early childhood employer group within the Sydney metropolitan area. These early childhood employer groups were from non-profit and profit sectors. A representative of each center was contacted and invitation was extended for their centers to participate. After approval was given, each

group called for expressions of interests from their centers to participate in the study.

60 childcare centres volunteered to participate in the research. Each center was given the freedom of nominating one educator and one child as focus participants.

At the beginning of the study, consent forms were sent to the directors of long-day-care centres, focus educators, other educators in the classrooms, parents of focus infants and the parents of other infants in the classroom. These forms were sent 3 weeks prior to the study in the form of hardcopy and were collected by research assistants in the first visit. The research purpose and process were clearly stated in consent forms (see Appendix A for consent forms).

For each center, there were four visits in total.

1. In the first visit, RAs went to the center (a) to collect consent forms; (b) to collect educator surveys; (c) to negotiate the time for the following three visits; (d) to familiarize themselves with the participants and classroom environment.

2. In the second visit, RAs collected the required focus educator recording 1 (1.5 hour of footage).

3. In the third visit, RAs collected the required focus educator recording 2 (1.5 hour of footage).

4. In the fourth visit, the focus infant was recorded (3 hours of footage).

Ethical approval.

This study received approval from Macquarie University Human Ethics Committee. In addition to this, I also received Ethical Approval to use data for the purpose of this thesis (see Appendix B for details).

Audio-visual footage of educators.

I have chosen video-recording to collect data in this study as it has advantages of reflecting educators' authentic behaviors and producing a comprehensive understanding

through observing both sounds and images (Gravetter & Forzano, 2015). During the

observation, an RA held a video camera around 4 meters away from the participants to record

a normal day in long day care center, catching a general idea of what the focus educator and

infants were normally doing and what occurred during the classroom. Footages were timed to

capture all normal activities, consisting of shared play interactions (e.g., singing games,

picture books), mealtime interactions (e.g., snack or lunch time) and caregiving interactions

(e.g., nappy change, dressing or undressing, washing). Each focus educator wore a blue-tooth

lapel microphone to record their voice clearly when interacting with children.

Participant Selection for the Present Study

In order to select the participants for my study, I watched all the recorded videos that

had been generated before June 2015 (40 videos in all, provided by 38 long-day-care

centers) and selected footage for analysis based on meeting all the selection criteria as

follows:

- The full video-footage contained a clearly defined group snack time. A snack time

  was defined as a short meal (morning or afternoon tea) when children were

  provided with small snack (e.g., fruit, toast, yogurt) and a drink (e.g.,

  predominantly milk or water).

- The focus educator was directly involved with the children who were partaking the

  snack.

- There were more than two children present at the mealtime.

The selection process identified 15 focus educator videos to observe for the present

study. The number of children presented at each video was between three to fifteen.

Participants were therefore 15 focus educators, whose qualifications and working

experience were derived from educator surveys. All of the educators had received some

level of professional training (3 participants were qualified as Certificate III, 7 participants

were qualified as Diploma and 5 participants were qualified as Early Childhood Teachers).

All educators had previous teaching experience with infants of more than one year (*Mean*

= 85.73 months; Minimum = 12.00 months; Maximum = 168.00 months).

Segmentation of video footage.

In order to study the qualities of the educators' talk during snack time, it was

necessary to define the start and the end point of the observed snack time. So as to meet

the above criteria for the identification of a snack time, the following starting and

finishing points were developed. The start point of the snack time met the following

conditions:

- The educator began to focus on all the infants and toddlers present at the mealtime

  instead of focusing only on one child.

- The participating children were seated at the table or around the educator.

- The snack time was deemed to have started once the first child received food from

  educator.

The end point of a snack time was defined as follows:

- Most of the children finished their food and left the table, with no more than one

  child still eating at the table.

- (Or) The educator moved away from the snack time venue to begin a new activity.

Measures

The aim of the research was to assess the quality and the quantity of educators talk

to the infants during their snack time. Two main measures were used to meet the aim.

The Teacher Interaction and Language Scale (TILRS).

The Teacher Interaction and Language Rating Scale (TILRS) has been developed to

evaluate educators' performance of using language facilitation strategies to assist

children's language acquisition in early childhood settings (Girolametto, Weitzman, &

Greenberg, 2000). Girolametto and his colleagues have used it to assess educators'

responsive input for toddlers and preschoolers, and the scale has also been used to guide

educators' in-service training to improve language facilitation skills (Girolametto &

Weitzman, 2002b; Girolametto, Weitzman, & Greenberg, 2006). The TILR scale has also

been translated in another language to assess French-Canadian educators' ability to

employ language-support practices to 4-year-old children in child care centers (Bouchard

et al., 2010).

There are 11 assessable items of language teaching strategies in the scale. Since the

items of *Join in and Play*, *Scan* and *Imitate* were not applicable to interactions during

mealtime, these three items were excluded from the study. The remained eight items

derived theoretically to assess the three broad types of language promoting strategies:

Child-Centered Strategies, *Interaction Promotion Strategies* and *Language Promotion*

Strategies.

Three items comprised the Child-Centered category:

- *Wait and Listen:* This assessed educators' ability to wait expectantly and patiently

   for children's verbal or non-verbal participation through pausing between the

   sentences or exchanging eye contact with children.

- *Follow the Children's Lead:* This assessed the extent to which educators responded

   to children's verbal and non-verbal communication initiations.

- *Be Face to Face:* This item assessed the extent to which educators made efforts to

   be face-to-face with children when interacting with them, such as sitting with

   children, learning forward or bending themselves to meet the same height with

   children.

Two items comprised the Interaction Promotion category:

- *Use a Variety of Questions:* This item assessed educators' ability to employ an

amount of questions to obtain the information from children. A good use of questions often combines WH-questions and conversational Yes/No questions, and avoids to use test or rhetorical questions.

- *Encouraging Turn-Taking:* This item assessed the extent to which educators invited children to take more turns in the interaction through commenting on or raising questions to children's responses and allowing children the time to think and organize their replies before uttering them. In order to achieve a score of 5 in Encouraging Turn-Taking, there needed to be at least one conversation comprising more than four conversational turns.

    Three items are categorized as Language Promotion:

- *Use a Variety of Labels:* This item assessed the extent to which educators guided children's vocabulary learning by applying a variety of words and phrases into their utterances. This item also assessed educators' ability to emphasize and repeat the key words in their language so as to strengthen children's memory of learnt language.

- *Expand:* This item assessed educators' ability to create an enrich language environment for children through expanding children's initiations or responses, such as adding new information to children's utterances or correcting their mistakes in language.

- *Extend:* This item assessed the extent to which educators facilitated children's language development by challenging their cognitive functions. This strategy can be fulfilled through the methods of educators' talking in a decontextualized context (e.g., previous experience), asking about children's ideas and feelings, or explaining a phenomenon to children. To achieve a score of 5 in this item, educators are expected to activate children's cognitive functions through

employing another two methods in addition to informing children of facts.

The TILR scale adopts a 7-point Likert-type of scale format. A TILRS scale user guide provides instructions on how to determine a final rating for each individual scale item. The broad descriptors of the scale scores are 1 (*Almost Never*), 3 (*Sometimes*), 5 (*Frequently*), and 7 (*Consistently*). A score of 4 is given if that educator adopts the strategy in teaching but a lack of consistency shows that an improvement is needed before it can be deemed as 5 (*Frequently*). The score from 5 to 6 represents a good use of the skills, and the score of 7 indicates the perfect use of the skill. A copy of rating sheet with the description of each item is provided in Appendix C.

Rating process.

The recorded sections were rated by myself, in consultation with my supervisor (See section below). In order to rate each item accurately, I observed each segment without any notes to get a general idea of the educator's performance and children's participation during the snack time. Since the duration of all the videos were between 5 minutes to 20 minutes, I have divided my observation process into three stages. Firstly, after watching the video for 5 minutes, I stopped the video and began to note down the key information on the rating sheet, for example, writing "almost never" in the space for the item of *Be Face to Face* if the educator was busy with distributing the food throughout the first five minutes (If the duration of the video is 5 minutes, I did not stop.). Then after note taking, I continued to watch the video. Five minutes later, I stopped the video again and began to write down the comments for each item. As the scores for each items became clear, I would rate them with the scores at this time. Then I continued to watch the video until the end of the video. I noted down the comments as before, and adjusted any final scores at that time.

I then watched the video once more, with the aim of focusing on the items that

need to be more carefully observed. For example, with the item of *Use a variety of questions*, it was important to determine how many WH-questions the educator used, and for *Extend*, it was important to observe closely to ascertain the number of pragmatic functions that were employed. In order to confidently finalize the scores for each segment, the video was normally watched another one or two time.

Reliability.

Prior training.

Before commencing rating, I attended training on how to rate the video correctly. The training was provided by supervisor and it consisted of two main activities: (a) the supervisor offered the requisite knowledge and the skills of rating; (b) I was provided with the samples of contrasting footages and was required to do the practice rating for the samples. After that, the rating results for each sample were assessed and explained by supervisor.

Individual rating.

My supervisor and I rated first three videos independently and compared the scores together. After discussing and negotiating on the items with discrepancy, both sides reached a final consensus. A version of additional criteria was developed with the negotiation between the researcher and supervisor to make the rating process more consistent (Refer to Appendix D).

After complementing the original criteria, I rated another two videos with my supervisor to check the inter-rater reliability. The discrepancy at this time was lower than that in the first three videos and differences were again discussed and resolved.

Finally, the researcher and supervisor assessed another three videos individually and compared their results together to ensure the reliability of rating. With the accepted allowance for 1—point difference between two raters (Girolametto & Weitzman, 2002b),

the inter-rater reliability was at or above 90% for all items. I then independently rated final

7 video segments.

Number of utterances.

The definition of an utterance.

As well as the quality of educator talk, this research also aims to assess the quantity

of their talk to infants. Previous research has indicated that the quantity of maternal

utterances has implications for children's vocabulary learning (Hoff & Naigles, 2002). For

example, Hoff (2003) found that the linguistic input from maternal speech (represented by

the number of utterances and word tokens) was related to the growth of vocabulary

productivity of 2-year-old children. By receiving a high frequency of words, phrases or

sentences, the children's language was developed through their increased familiarization

with the word pronunciation and language patterns (Hoff, 2003). Thus, we used the

utterances as a broad measure of quantity of the educators' talk to explore educator-infant

language interactions.

In this research, an utterance was defined as a natural segment of speech, divided by

pauses (pause-before and pause-after) and intonation (e.g., falling or rising intonation)

(Huttenlocher, Vasilyeva, Waterfall, Vevea, & Hedges, 2007). An utterance can be one

word (e.g., *milk*), repeated words with no pause (e.g., *chop chop*), word combination (e.g.,

nice in the garden), a single clause consisting of a subject and a verb phrase (e.g., *Do you

want some banana?*) and more often an utterance is comprised of a sentence that contains

at least one clause (e.g., *I'll tuck your chair in and I'll grab you another one.*)

(Huttenlocher et al., 2007). Sometimes educators would stop for a while to search a word

to continue the latter part of the sentence. In this case, a sentence contains word-searching

pauses is also categorized as one utterance (Huttenlocher et al., 2007).

Coding utterances.

Each educator's talk during the snack time was transcribed from the beginning to the end point. Then I used the definition of an utterance from Huttenlocher et al., (2007) to segment the utterances in my study.

In order to examine the relationship between the quantity of educator's utterances and other educator talk variables, the study calculated the number of the total utterances produced by 15 participants during the snack time, the number of the utterances to children, to adults and to educators themselves. The description for each category is presented as follows:

- *The utterances to children*: Educators' utterances were clearly directed towards the children participating in the snack time.

- *The utterances to adults*: Educators' utterances were addressed to the other adults present at the mealtime, such as assistant educators or the mothers of children.

- *The utterances to self*: Educators talked to themselves, as if thinking out loud. This kind of utterance was neither addressed to children, nor to the other adults in the classroom.

After coding each utterance, the counts of educators' utterances to each group of people (to children, to adults, and to self) were converted into percentage of the total utterances.

Reliability.

I coded the transcriptions for 15 videos. After coding the first video, the questions that occurred during the coding process were noted down (e.g., How to segment an utterance correctly or how to identify the exact addressee?). The discussion with supervisor contributed to the complementing of the criteria for segmenting an utterance in my study based on the original definition. The main problems during coding process were

exemplified as follows:

- The segmentation of an utterance: Clarification was needed when coding two

  sentences with almost no pause in between. After discussing with my supervisor,

  we had reached the consensus that the two sentences in the situation above needed

  to be coded as two separate utterances because they contained two different topics.

- The identification of the exact addressee: There were some occasions when the

  educator was speaking to no one. For example, the educator uttered: 'Let's clean

  up this (table)' but it was unclear whom she was speaking to. After discussing with

  my supervisor, we had agreed that the researcher needed to watch video

  immediately before and after so as to determine the exact addressee in the context.

- Then I coded another three transcripts. When the coding of the utterances was

  unclear, I directly consulted and discussed with my supervisor. After coding the

  first four transcripts, the questions I have met during the coding process were

  gradually reduced. The rest of the transcriptions were coded based on the

  additional criteria.

Plan of Analysis

This study used both quantitative and descriptive qualitative methods to analyze educators' use of language facilitation strategies and children's language participation in snack time context.

Firstly, descriptive statistics to explore means, standard deviations of, and correlations between the key independent and dependent variables. Then a multivariate analysis of variance was used to assess the difference between the mean scores of the TILRS educator strategies. Finally, the mean scores of differently-qualified educators, and of educator talk in different table arrangement were explored.

Secondly, two extracts from the snack time footage of educators who were rated high and low in the TILR scale were compared to identify the qualitative features of both educator and infant participation in these snack time interactions. Both educators and children's language participation was analyzed with reference to research findings about mutual contribution to educator-infant interactions (Kultti, 2014; Kultti & Pramling, 2015; Shin, 2010).

Conclusion

This chapter explained the methodology of the research. It provided the information of the recruitment procedure for the large project. Then, it illustrated the selection process of the participants for my study. After that, I identified and described the two main quantitative measures employed in this research. These measures became dependent variables whose variability would be studied in Chapter 3. Finally, the plan of analysis was presented.

Chapter 3: Results

Quantitative Analysis

In this chapter, I present the results of the analysis of educators' talk. I begin by presenting the descriptive statistics for each talk variable, and then examine the correlations among 8 measures on the Teacher Interaction and Language Rating Scale (TILRS). I then examine the relationships between the three subscales of language guiding strategies (Child Centered, Interaction Promotion, and Language Promotion), the educator utterance variables and the demographic, duration and organisational factors. Finally, I present examples of educator-infant interactions from high and low TILRS rated video footage in order to qualitatively explore the educators' and infants' contribution to these interactions.

Variation in educator talk variables.

Descriptive statistics were used to assess the variation of the 8 language facilitation strategies as assessed with the Teacher Interaction and Language Rating Scale (TILRS) and the number of utterances of each educator during snack time. Table 1 presents these descriptive statistics.

TABLE 1

Variation in Educator Talk

Variable name	Minimum	Maximum	*Mean*	*SD*
Wait and Listen	1	6	3.80	1.61
Follow the Children's Lead	2	7	4.27	1.49
Face to Face	2	7	3.67	1.84
Variety of Questions	2	5	3.27	1.16
Turn-Taking	1	6	3.20	1.57
Variety of Labels	2	6	3.80	1.42
Expand	1	6	4.00	1.60
Extend	1	7	4.53	1.89
Duration	0:05:20	0:25:38	0:16:20	0:05:58
Total Utterances	117.00	452.00	279.87	119.68
Utterances to Children (%)	.63	.97	.86	.10
Utterances to Adults (%)	.02	.37	.13	.10
Utterances to Self (%)	.00	.03	.01	.01

Overall, the scores for each measure in the TILRS were relatively low. As described in Chapter 2, a rating of 5 or above indicates an acceptable use of that strategy, while a score of 4 or below indicates a weakness. The highest rated measure from the TILR scale was 'Extend', with a mean of 4.53, followed by Follow the Children's Lead, with a mean of 4.27. All other scale items scored 4 or less, the lowest being 'Encourage Turn-Taking', with a mean of 3.20.

The average duration of the snack time was 16 minutes, 20 seconds ($SD = 5:58$), with the shortest lasting only 5 minutes, 20 seconds, and the longest lasting 25 minutes and 38 seconds. The total number of utterances during each snack time episode was counted ($M =$

279.87, *SD* = 119.68). As there was broad variation in the length of the number of utterances and the duration of the snack time, I converted the raw counts of utterances to children, utterances to adults and utterances to self into proportions of all utterances. On average, 86% of the utterances were directed to children, with a range of 63% to 97%.

Relationships between individual TILRS scale items.

Next, I assessed the relationships between each TILR scale items. Table 2 presents non-parametric Spearman's Rho correlation statistics between individual scale items.

TABLE 2

Non-parametric Spearman's Rho Correlation between Individual Scale Items from the TILR Assessment Scale

	Follow the Children's Lead	Face to Face	Variety of Questions	Turn-Taking	Variety of Labels	Expand	Extend
Wait and Listen	.84**	.61*	.36	.80**	.62*	.69**	.79**
Follow the Children's Lead		.45+	.23	.67**	.41	.50+	.70**
Face to Face			.57*	.68**	.64*	.78**	.71**
Questions				.59*	.74**	.63*	.57*
Turn-Taking					.61*	.68**	.71**
Variety of Labels						.90**	.81**
Expand							.89**

Two-tailed tests of significance: ** *p* < .01; * *p* < .05; + *p* <.1

Most the individual scale items were significantly correlated with each other. The exceptions were the items of 'Follow the Children's Lead' and 'Use a Variety of Questions'. 'Follow the Children's Lead' was only significantly correlated with 'Encourage Turn-Taking' and 'Extend', but was correlated to a marginal level with 'Be Face to Face' ($p = .09$) and 'Extend' ($p = .06$). 'Questions' was significantly correlated with all scale items with the exception of 'Wait and Listen' and 'Follow the Children's Lead'.

Because of the generally significant correlations between individual scale items, it was decided to form 3 composite variables according to the category of strategy, as identified in the TILR scale. I therefore averaged the scores for the three items classified as Child Centred (Wait and Listen, Follow the Children's Lead, Be Face to Face), the two items classified as Interaction Promotion (Use a Variety of Questions, Encourage Turn-Taking), and the three items classified as Language Promotion (Use a Variety of Labels, Expand, Extend) Cronbach's alpha for these new scale variables were .86, .73 and .94 respectively. The descriptive statistics for the subscale items are provided in Table 3 below.

TABLE 3

Variation in Three Subscales of Educator Talk

	n of Items	**Minimum**	**Maximum**	*Mean*	*SD*
Child Centred	3	3.67	4.27	3.91	1.46
Interaction Promotion	2	3.20	3.27	3.23	1.22
Language Promotion	3	3.80	4.53	4.11	1.55

I then assessed the difference between the means of the three subscales. The multivariate analysis of variance was significant (Wilks Lambda = .50, $F(2,13) = 6.39$, $p = .01$). Post hoc pairwise comparisons showed that the scores for Interaction Promotion was significantly lower than the scores for Child Centred and Language Promotion ($t = 2.88$, $p =$

.01; t = -3.51, p < .01 respectively). The mean scores for Child Centred and Interaction

Promotion were not significantly different (see Figure 1).

FIGURE 1

Mean Ratings for Child Centred, Interaction Promotion and Language Promotion

Educator Talk Variables
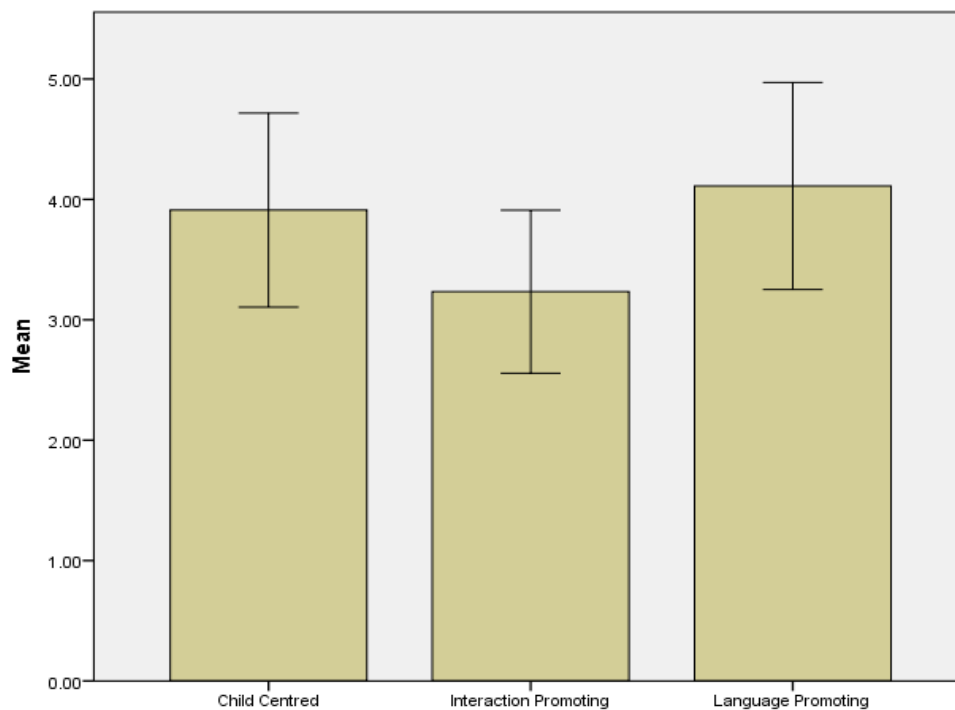
Relationships between quantity of educators' talk and TILRS scale items.

Next I assessed correlations between the quantity of educators' talk and three

subscales of educator talk variables. All correlations between the number of utterances to

children, to adults and to self and the TILRS quality variables were non-significant (see Table

4).

TABLE 4

Correlation Coefficient between Educators' Utterances and Educator Talk Variables

	Child Centered	Interaction Promotion	Language Promotion
Utterances to Children (%)	.32	.23	.01
Utterances to Adults (%)	-.26	-.15	-.02
Utterances to Self (%)	.19	-.04	.30

Relationship between talk variables and demographic, duration and organisational features.

I then explored whether there were relationships between any of the educator talk variables and our demographic, duration, and organisational features. Table 5 presents the Spearman's Rho correlations between the educator talk variables and number of children (children's number was counted at the beginning of the snack time. If the child finished eating and left, he or she would still be counted into this number), number of educators (the educators who were present throughout the mealtime. If she went to collect food and came back, she would still be counted into this number.), educator-child ratio (calculated by dividing the number of children by the number of educator), time (the same as 'duration' in Table 1), and working experience in long day care.

TABLE 5

Non-parametric Spearman's Rho Correlation between Educator Talk Variables and

Other Related Variables

	Number of Children	Number of Educators	Educator-Child Ratio	Duration of snack time	Experience with infants
Child Centred	-.13	-.44	.41	.37	-.32
Interaction Promotion	-.25	-.28	.18	.25	-.40
Language Promotion	-.22	-.25	.27	.20	-.49+
Utterances to Children (%)	.17	-.42	.61*	-.11	.15
Utterances to Adults (%)	-.06	.47+	-.56*	.13	-.05
Utterances to Self (%)	-.12	.03	-.13	.06	-.23

Two-tailed tests of significance: ** $p < .01$; * $p < .05$; + $p < .1$

In most cases, the relationship between the educator talk variables and demographic, duration or organisational features were non-significant. The only exception was the correlations between educator-child ratio and the proportion of educators' utterances to children and adults. In the snack time, with higher educator-child ratios (children number divided by educator number), educators directed more utterances to the children and fewer to other educators than situations where educator-child ratios were lower. Furthermore, there was a tendency that mealtimes with higher numbers of educators overall involved a higher proportion of talk to adults than those with fewer educators. A marginally significant negative correlation existed between educators' experience with infants and their use of language

promoting strategies (*p* = .07). Educators with more experience working with infants tended to be rated lower in language promoting strategies than those with less experience.

I then explored whether the educator talk variables varied according to the qualification level of the educators and the snack time psychical organisation. While the small sample size prohibited the use of inferential statistics, descriptive statistics were used to identify trends.

Figure 2 shows the means for educators with Certificate III (*n* = 3), Diploma (*n* = 7) and Degree (*n* = 5) qualifications.

FIGURE 2

TILRS Talk Variables Ratings according to Educator Qualification
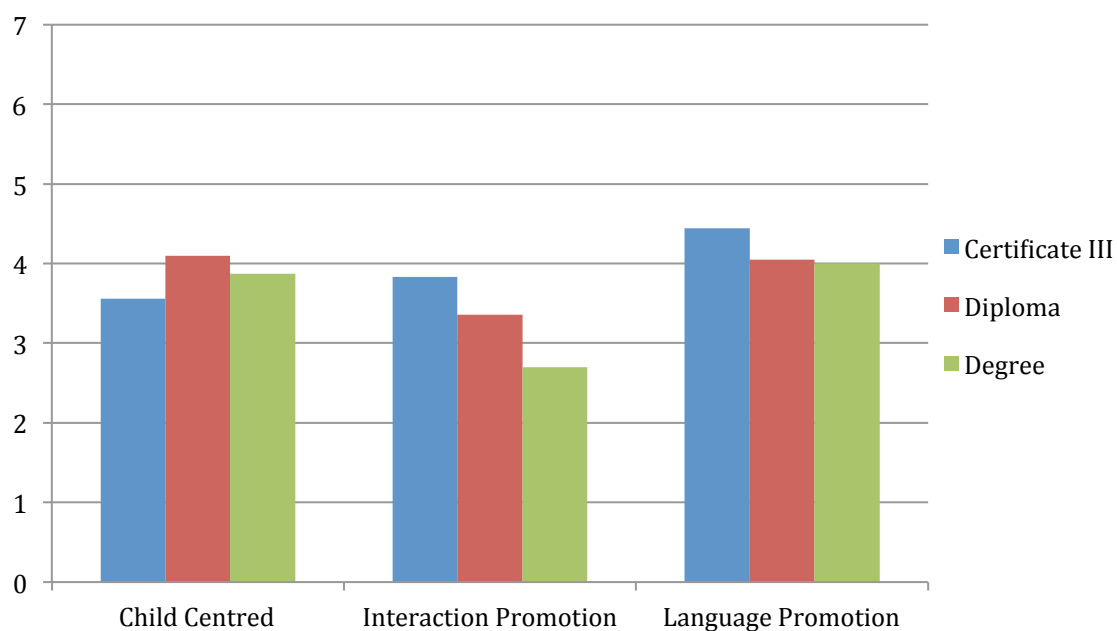
There was little difference between the means of the three educator qualifications for Child Centred (*M* = 3.56, *SD* = 1.17; *M* = 4.10, *SD* = 1.51; *M* = 3.87, *SD* = 1.77), Interaction Promotion (*M* = 3.83, *SD* = 1.25; *M* = 3.36, *SD* = 1.31; *M* = 2.70, *SD* = 1.10) and Language Promotion (*M* = 4.44, *SD* = .51; *M* = 4.05, *SD* = 2.05; *M* = 4.00, *SD* = 1.37). With the Interaction Promotion variable, the means showed a decreasing trend as the qualification level increased.

Finally, I explored whether the table configuration was related to the three TILRS talk valuables. Figure 3 compares the three TILRS talk variables according to the three classifications of snack time configuration: small single table ($n = 6$); large single table ($n = 4$) and multiple tables ($n = 5$). If the number of tables was more than one, it would be categorized as 'multiple tables'.

FIGURE 3

TILRS Talk Variables according to Table Organisation
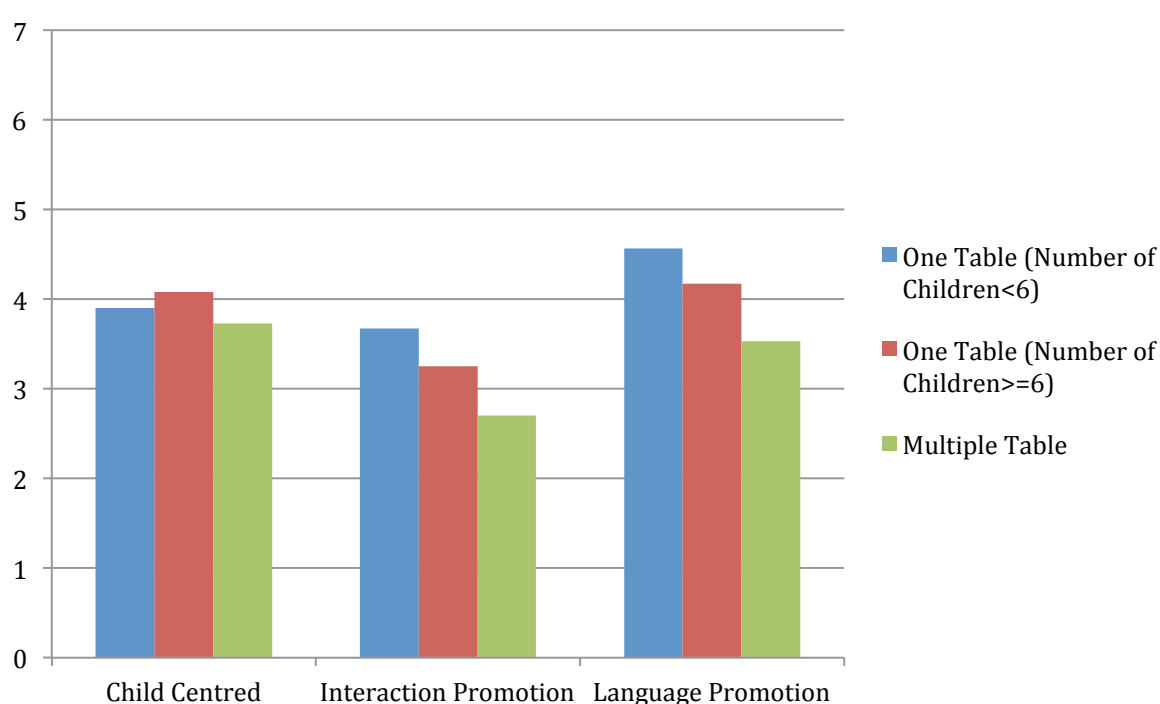
The mean scores for Child Centred variable were similar, regardless of table organisation. However, with both the Interaction Promotion, and Language Promotion variables, there was a trend towards a reducing in mean score as the table configuration became larger (Interaction Promotion: $M = 3.67$, $SD = 1.33$; $M = 3.25$, $SD = 1.76$; $M = 2.70$, $SD = 1.22$ for small single table; large single table and multiple tables respectively. Language Promotion: $M = 4.56$, $SD = 1.03$; $M = 4.17$, $SD = 2.56$; $M = 3.53$, $SD = 1.22$ for small single table; large single table and multiple tables respectively).

Qualitative Analysis

One of the major findings from the quantitative analysis report was that the scores for Interaction Promotion were significantly lower than the scores for Child Centered and Language Promotion. To examine this point further, the videos were observed to investigate the implications of the interaction promoting strategies for the resulting educator-infant conversation.

Interaction Promotion consists of two skills: (a) to employ a variety of questions; (b) to encourage turn-takings. According to Girolametto at al (2000), a good use of questions means educators have combined WH-questions and conversational Yes/No questions together skillfully and purposefully in their talk with young children to obtain the information and clarify children's wants. Their questions also need to be genuine and natural, with a period of time to wait expectantly for the responses from children (Girolametto, Weitzman, & Greenberg, 2000).

The second component of Interaction Promotion is to encourage turn-taking. This strategy requires the educators of young children to make efforts to maintain the original conversations with infants and toddlers during snack time. The extended conversation could be achieved mainly through educators' interpreting and translating children's verbal or non-verbal language into complete sentences, commenting children's verbal or action responses or inviting turns by raising questions.

Following two extracts were analyzed according to educators' different performance on applying Interaction Promoting and children's various participation during the mealtime. The educator in Extract 1 was rated much higher on both items of 'Use a Variety of Questions' (score: 5) and 'Encourage Turn-Taking' (score: 5) than the educator in Extract 2 (score for 'Questions' and 'Turn-Taking' are 2 and 1).

Extract 1(a).

At the snack time, Educator1 was sitting at a low table with three children. Two of the children were eating, while Olivia was looking around.

Educator: "How was your weekend Olivia?" Hearing her name called by educator, Olivia turned to the educator, gazed at the educator but remained silent.

Educator: "Did you go to the park?" "Yeah." murmured Olivia. Educator continued with this topic: "You went to the park last week, too!" "Yeah" confirmed Olivia.

Olivia [appeared to be thinking for a moment before talking]: "Momma."

Educator: "With Momma? Yeah? "

This time, Olivia quickly added more information: "Daddy."

"And daddy?" repeated the educator.

The educator then raised some related questions around the same topic: "It was fun. Was it fun?"

"Yeah!" Olivia answered quickly with a grin. The educator smiled back to Olivia and said: "Yeah [prolonged sound]".

This example can be examined on two fronts. The first aspect relates to how the infant started to reply the educator's questions after educator's adjusting the difficulty of the content. Raising questions is a facilitative approach in developing children's language, usually placing cognitive demands on infants and toddlers (Durden & Dangel, 2008). Furthermore, the open-ended question requires a high level of cognitive challenging as it elicits long replies from children; encouraging them to remember, think, or predict, so as to extend the mutual understanding of the topic (de Rivera et al., 2005; Durden & Dangel, 2008).

However, this example demonstrates how open and closed ended questions can be used in tandem in order to facilitate interactions. After being asked to comment on her weekend by use of an open-ended question, Olivia was required to recognize the words in the question first, then to recall the related memory, and finally to retrieve the linguistic devices to reply (Kultti, 2014). In the extract above, Olivia did not respond verbally but gazed at the

educator, maybe due to the challenge of meeting the cognitive demand of higher-order-mental processing and framing a linguistic response. An open-ended question often contains a few abstract words (e.g., "park", "weekend") and refers to a decontextualized context, so it might have been difficult for Olivia to answer the question with relatively long utterances (Durden & Dangel, 2008; Kultti, 2014; Lee & Kinzie, 2012).

In order to make the child understand her meaning, the educator quickly changed the open-ended question ("How was your weekend?") to a closed question with relatively low cognitive expectation ("Did you go to the park?"), and a declarative statement ("You went to the park last week, too!"), in order to seek confirmation from the child. This kind of modification not only lowered the cognitive challenge, but also supported Olivia's comprehension and allowed her to respond in a more simplified way (Durden & Dangel, 2008; Kultti, 2014).

The second aspect to be explored is Olivia's changing role in the interaction. As the topic of the interaction was confirmed, Olivia changed her role from an information receiver to an information sender. For example, Olivia contributed to the existing topic by providing the information of "momma" and "daddy", implying that she went to the park with her parents. Although the replies from Olivia were mostly with one word, these one-word replies demonstrated that Olivia actually understood the first several questions asked by educators. Her simple answers (e.g., "Yeah…" "Yeah…" "Momma…" "Daddy") showed that she met the linguistic demand of recognizing the words in the questions and cognitive demand of recalling the memory (Kultti, 2014).

Moreover, Olivia's resulting transformed participation from passive receiver of the educator's questions to an active provider of information could be related to educator's frequently agreeing with and positively inviting any verbal or non-verbal contribution from the child throughout the conversation (Kultti & Pramling, 2015). This reflects the work of

Girolametto and Weitzman (2002) whose study indicated that children were motivated to produce more utterances if they were understood, confirmed and encouraged by the conversation partner. The educator's quick translation of Olivia's word of "momma" and "daddy" to "(went to the park) with momma and daddy" informed Olivia that she understood the child's meaning (Kultti, 2014). Moreover, the confirming expressions of "yeah" twice (e.g., when Olivia mentioning her mother, at the end of the conversation) exemplified the educator's highly valuing any verbal responses from children (Kultti, 2014). Similarly, the comment and question of "It was fun. Was it fun?" were aimed at inviting Olivia to talk more so as to help the child's to practice her cognitive functions of recalling and thinking, and her linguistic functions of listening and speaking (Durden & Dangel, 2008; Kultti, 2014; Kultti & Pramling, 2015).

Extract 1(b).

Olivia was gazing at the educator for a while when chewing some orange. The educator quickly noticed her eye contact.

"Were you going to say something?" asked by educator [looking at Olivia].

Olivia [with a grin]: "Yeah."

"Yeah…What were you going to say?" asked educator smiling.

Olivia did not utter any words, but pointed her mouth with one finger.

Educator observed for a second and seemed to suddenly understand: "Is that (the orange) a bit sour?"

"Yeah…" said Olivia.

"Yeah…A little sour." confirmed the educator [nodding her head].

Olivia, pointing to her bowl, tried to show the educator: "Here."

Educator looked at the bowl where Olivia pointed and expanded the sentence by saying: "The orange is a little sour."

Olivia tried to pick up a piece of orange with the fork, but she failed. Educator watched her action and suggested: "You can use your fingers to put it on the spoon or it's going to fall out." the instructions explained by the educator.

"FALL OUT." Olivia repeated loudly and suddenly turned to look at the educator.

"You can use that hand [pointing to Olivia's hand at the same time] and you put it on the spoon."

Olivia tried to use her finger to eat the orange this time, but she did not make it either.

Educator [observed Olivia's attempt]: "You can't get it?"

"No." answered Olivia, looking a little sad.

"Would you like me to help you?" asked the educator.

Olivia replied happily: "Yeah!"

Extract 1(b) demonstrates the educator's strong awareness of how mutual participation can benefit children's language learning in adult-infant interactions (Kultti, 2014). Since mealtime is a setting without any academic goal, it could be used to facilitate children's language development through mutually responsive talk (Cote, 2001; Kultti, 2014). In order to engage the child in the interaction in the extract, the educator tried to interpret Olivia's non-verbal initiations. She confirmed the meaning with Olivia through a list of questions, such as "Were you going to say something?" "What were you going to say?" "Would you like me to help you?" In this case, the shared reference between the educator and infant established a context of inter-subjectivity. Thus, the educator-infant conversation was developed and facilitated based on coordinating Olivia's perspectives (e.g., the idea about the orange, need the help from the educator), coordinating her sense modality (e.g., the orange is sour) and present experience (e.g., to instruct Olivia to pick up the orange by fingers) (Kultti & Pramling, 2015).

The educator's guidance through the conversation was to identity Olivia's communicative intention through exchanging eye contact, observing psychical actions,

flowing the child's leads, and raising a list of guided questions (Cote, 2001). These strategies reflect the Child-Centered strategies in the TILR scale (Girolametto, Weitzman, & Greenberg, 2000). While this assessment scale treats Child Centered and Interaction Promotion as separate strategies, this extract showed the use of Child-Centered strategies also had implications on the effect of Interaction Promotion strategies (Kultti & Pramling, 2015).

Hoff and Naigles (2002) have held that children's language acquisition is based on both children's participation and educator's guiding strategies. Effective use of guiding strategies is different from educator's fully controlling the conversation by managerial language (Durden & Dangel, 2008). Instead, it refers to educators' talk being guided by children's responses (Cote, 2001; Durden & Dangel, 2008). In the extract, the educator successfully translated Olivia's non-verbal initiation (pointing to the orange in her mouth) into that the child felt the orange was sour, and translated Olivia's physical attempts to pick up the orange as a request for help. After each translation, Olivia appeared more willing to respond both physically and verbally. According to Girolametto and Weitzman (2001), Olivia's active participation in the interaction could be related to her feeling of being understood by the educator.

Extract 2.

The educator in Extract 2 achieved low scores in Interaction Promotion. She used few interaction promoting strategies to encourage infant-educator interactions, such as paying less attention to the verbal or non-verbal participation from children or lacking expectant waiting for children's responses throughout the mealtime. In the example below, most of the infants and toddlers remained quiet, focusing on their food rather than engaging in interactions with the educator. This kind of infants' language participation could be related to the characteristics of the educator's talking style, which appeared to discourage turn-taking and lack immediate responses to children's participation (Hoff & Naigles, 2002).

The snack time just began and everyone was quietly sitting at the table. The educator

brought the wet paper tissue for children to wipe their hands.

"Kayla would you like to wash your hands?" asked educator. "And you (Daisy)?" The

educator then gave the wet paper tissue to Daisy without any eye contact.

Daisy took the tissue, quickly wiped her hands and raised her tissue to educator.

Educator [quickly glanced down at Daisy]: "Wash, wash, wash. Can I help you? Can I help

you?"

Without receiving any answer from Daisy, the educator started to clean Daisy's hands.

At this time, a boy named Jayden spoke to educator loudly with his hands waving: "I'm

sticky. I'm sticky." His voice caught Daisy's attention, but it seems the educator did not notice

it. "I'm sticky. I'm sticky. I'm sticky…" repeated Jayden. Again, his assertion was not

responded by the educator, and Jayden put her hands down and became silent.

After a while, another girl Claire sitting next to Jayden asked water from educator. So Jayden

followed her voice by saying: "I want water, too."

Educator: "How is it going there? You want water, Jayden? Okay. Claudine (another

educator) is getting water for you." This time Jayden's request was noticed by educator.

"Yeah!" shouted Jayden in an exciting voice. After that, educator turned her attention to other

children, not talking to Jayden any more and Jayden's attention returned to his drink.

In this extract it is apparent that the educator's talk contained a high proportion of

directives, mostly consisting of response control and behavior control (Girolametto,

Weitzman, van Lieshout, et al., 2000). Educators' balanced use of directive talk could

scaffold children's participation (Girolametto, Weitzman, van Lieshout, et al., 2000).

However, an over-use of behavior and response control may restrict young children's

language learning opportunities because this kind of directive input lacked cognitive

challenges, reduced the chances of joint attention and led to children's relatively short and

simple replies (Girolametto, Weitzman, van Lieshout, et al., 2000; Kultti, 2014; NICHD Early

Child Care Research Network, 2000). To support this, Daisy's non-verbal initiation of lifting

the wet tissue in her hand was directly interpreted by the educator as a sign of asking help without any clarification or eye contact. And then, the educator directly instructed Daisy to "wash, wash, wash" and did not wait for Daisy's responses after asking her "do you need help", leaving little room and allowing time for Daisy to think and organize her reply (de Rivera et al., 2005; Girolametto, Weitzman, van Lieshout, et al., 2000).

According to previous research, adults' immediate language response played an supportive role in children's language development (Hoff & Naigles, 2002; NICHD Early Child Care Research Network, 2000). In Extract 2, Jayden initiated an interaction, with loud assertions about his sticky hands. However, with his initiations seemingly going unnoticed, Jayden's voice gradually decreased, suggesting a decreased motivation to express oneself (Girolametto & Weitzman, 2002b). Even when his motivation was later acknowledged, this educator's low encouragement of turn-taking was evident as she ceased talking to Jayden after meeting his immediate needs.

Compared with the first educator, the second educator was poor at promoting adult-infant interactions, represented by her general lack of response to children's non-verbal or verbal communication. In this case, the children in Extract 2 missed many opportunities of language development attributed to not being challenged linguistically or cognitively to understand, think and talk (Kultti, 2014). This observing result was consistent with the previous research findings that some educators generally overlooked the significance of employing language-support practices and they lacked eye contact in educator-child language interactions (Bouchard et al., 2010; Degotardi, 2010)

Conclusion

In sum, Chapter 3 explored the educators' use of language guiding strategies and the children's participation quantitatively and qualitatively during mealtimes. The quantitative analysis showed that (a) the scores for educators' use of 8 language facilitation measures on

TILR scale were relatively low; (b) in terms of the relationship among three subscales of strategy measures, Interaction Promotion was rated lower than the other two subscales (Child Centered and Language Promotion); (c) educator-child ratios were negatively correlated with the educators' total utterances addressed to children.

The qualitative analysis then examined the major finding from the results above: Interaction Promotion was lower than Child Centered and Language Promotion. It was found that the educator with high scores in Interaction Promotion combined WH-questions and conversational Yes/No questions in her talk and frequently translated, commented on and responded to children's verbal or non-verbal initiations and replies. Thus, the children in Extract 1 made initiations frequently and actively participated in educator-child interactions. They were able to respond to decontextualized topics with relatively complex words and utterance structures. The educator from Extract 2 who got a low score in this subscale raised no WH-questions, frequently employed directives, and showed no willingness to engage children in mutual interaction. The children cared by Educator 2 had a tendency to repeat their initiations and gradually stopped talking and started to focus on eating quietly when the educator overlooked their initiations.

Chapter 4: Discussion

This study had two aims. Firstly, it aimed to examine the qualities of educators' use of language facilitation strategies during snack time in Australian long day care. Secondly, it aimed to explore the implications of the language facilitation strategies for infants and toddlers' language participation in educator-child interactions during snack time context.

In this chapter, I will begin with the discussion of the major findings of the study. Next, I will indicate the limitations of the study. Finally, the implications of the study will be presented.

Discussion of Findings

In line with the study from Bouchard et al., (2010), we found the average scores for all scale items were around 4 or lower, indicating that educators needed improvement in these areas. The present findings are consistent with previous studies that educators tended to employ simple words, directives and short utterances to infants and toddlers in group interactions (e.g., using attention calls, behavior control, response control) (Girolametto & Weitzman, 2002b; Girolametto et al., 2003; Girolametto, Weitzman, van Lieshout, et al., 2000). Two explanations for the present finding may reside in (a) educators' being busy with managing children's behaviours and (b) their underestimation of infants and toddlers' language abilities (Girolametto & Weitzman, 2002a; Girolametto, Weitzman, van Lieshout, et al., 2000). While snack time has opportunities for children to acquire language through natural occurring dialogues with adults, educators' attention may be split due to preparing and distributing food (e.g., cutting fruits, fetching milk or bowls) for groups of children. These competing demands may offset the benefit from language facilitation opportunities in snack time setting (Bouchard et al., 2010).

Previous studies reported that educators tended to adapt themselves to fit different contexts by adjusting their performance and interaction styles (Bouchard et al., 2010;

Girolametto & Weitzman, 2002b). However, without enough opportunities to concentrate on children during mealtime, educators may find it difficult to adapt their performance to the context, such as establishing joint attention with children. The challenge from split attention may account for educators' poor facilitation of children's language learning, mainly presented by their distracted use of child-centered strategies, tendency to raise cognitive challenging questions (e.g., topic-initiating questions), overly employing response control and behavior control and discouraging attitudes to invite turns (Cote, 2001; de Rivera et al., 2005; Girolametto & Weitzman, 2002b; Kultti & Pramling, 2015; Shin, 2010). The result that 'Expand' was relatively lower than 'Extend' was also found in Bouchard et al., (2010) and they explained that educators' lacking focused observation of children's needs and initiations at table made it harder for them to continue the original topic than starting a new one (Bouchard et al., 2010).

Another possible reason for overall weak scores for 8 strategies is that educators may respond to average level of children's language abilities (Girolametto & Weitzman, 2002b). According to Pellegrino and Scopesi (1990), educators adopted different language styles with 12-month-old infants and 30-month-old toddlers. This finding suggests that educators in my study may have lowered their own language levels (e.g., use single words or less Wh-questions) to purposefully reduce cognitive challenges for 0- to 2-year-old children (Durden & Dangel, 2008; Girolametto & Weitzman, 2002b; Pellegrino & Scopesi, 1990). To support this, Girolametto et al., (2002) indicated infants' prelinguistic communicative ways required educators to change their communication style from that with toddlers who could have mainly verbal communication with adults. Thus, educators need to facilitate children's language differently according to their individual language level. However, it may also be that educators' competing attentions during snack time inhibited their accurate observation of each child's language level, which made it difficult for them to gear their language levels to

individual (de Rivera et al., 2005; Girolametto & Weitzman, 2002b). In the present study, the group context may have restrictions on taking into account individual child's differences. In future studies, it would be worthwhile to consider how educators' language levels are related to the age or language ability of the child being addressed.

The use of simple labels may be related to the nature of snack time. Snack time as a routine group activity has a traditional purpose of feeding food, so educators may prioritize regulation management in this context to ensure group safety, leaving little room for children to freely express ideas and thoughts (Johansson & Pramling Samuelsson, 2009). Degotardi (2010) also pointed out that, in her study, educators' unawareness of developmental opportunities in routine activities resulted in their fullfilling children's physical needs first. Thus, the simple labels are likely to be related to educators' emphasis on group management of snack time, during which they may apply a majority of plain and repeated vocabulary and instructions about food and behavioral management (Degotardi, 2010; Johansson & Berthelsen, 2014).

Interaction Promotion was lower than Child-Centered and Language Promotion.

The finding that Interaction Promotion was lower than Child-Centered and Language Promotion suggested educators did not raise a variety of questions and lacked effort to encourage children to participate in mutual interactions. The qualitative analysis suggests three categories of language facilitation strategies have not operate as independent strategies. This result is consistent with recent findings reported by Bouchard et al., (2010) and Girolametto et al., (2003). The poor use of interaction-promoting strategies may be explained by three possible reasons.

Firstly, educators may lack knowledge of interaction-promoting strategies in conversations with children. In order to get a high score for the item of 'Using a Variety of

Questions', the scale criteria called for a balance of open- and closed-ended questions to obtain information from children. However, educators in my study mainly used closed-ended questions in their talk, which is also found in de Rivera et al., (2005). These authors indicated that educators overused closed-ended questions in the group activities.

While cognitive demands in open-ended questions can activate children's cognitive functions, overly employing cognitive challenges in educators' talk may be ineffective for infants and toddlers' language acquisition as their relatively immature responses to high-order thinking content are likely to offset the benefit from educators' rich language input (Cote, 2001; de Rivera et al., 2005; Durden & Dangel, 2008). To support this, previous research showed that educators quickly repeated questions and did not allow enough time for children to think, especially when they considered children could not understand the question (de Rivera et al., 2005). This kind of quickly shifting from one question to another increased cognitive demands in language interactions (de Rivera et al., 2005; Durden & Dangel, 2008). de Rivera et al., (2005) also showed that educators addressed more topic-initiating questions and less topic-continuing questions to toddlers than older children (de Rivera et al., 2005). A topic-initiating question normally requires high cognitive thinking as it contains no keywords semantically linked to previous topics in comparison with topic-continuing questions (de Rivera et al., 2005). Thus, sometimes educators' low scores for Interaction Promotion may reside in overly placing cognitive demands in language interactions with children besides an overuse of closed-ended questions, even though they seemingly kept a good balance of various forms of questions (de Rivera et al., 2005).

In addition to their use of effective questioning, educators' discouraging attitudes in mutual conversations also have implications on the scores for Interaction Promotion. In qualitative analysis, the educator in Extract 2 ceased to talk with children after meeting their wants, which are consistent with the finding that educators had low willingness to engage

children in language interactions (Girolametto et al., 2003). According to the research, this educator's reaction of providing little responsive feedback to the child may reduce the child's opportunities to practice language and inhibit his motivation to participate in later interactions (Girolametto et al., 2003; Girolametto, Weitzman, van Lieshout, et al., 2000).

The second possible explanation for the research finding is that educators unbalanced the use of interaction-promoting strategies and language-promoting strategies. According to the analysis results, educators had a relatively better use of Language Promotion than Interaction Promotion, while related research implies that Language Promotion may inhibit infants and toddlers' language productivity as it overly contains cognitive challenges for very young children to process (de Rivera et al., 2005). For example, toddlers produced fewer responses to Wh-questions and topic-initiating content in comparison with preschoolers (de Rivera et al., 2005). Thus, a poor use of Interaction Promotion may offset the benefit from Language Promotion because children may have difficulty responding to educators' extended discourses and various language functions (e.g., talking about past content or projecting future plans) (de Rivera et al., 2005; Girolametto & Weitzman, 2002b; Hoff, 2013; Kultti, 2014). Furthermore, the unbalance between Interaction Promotion and Language Promotion may lead to a vicious circle of poor use of Interaction Promotion, which may be resulted from educators' being demotivated to extend conversations or invite turns from children when receiving few responses from them (de Rivera et al., 2005; Girolametto & Weitzman, 2002b).

The third possible explanation for the research finding is that educators' performance of using interaction-promoting strategies is impacted by children's participation among three subscales (Child-Centered, Interaction Promotion, Language Promotion) (de Rivera et al., 2005; Hoff, 2013; Kultti, 2014). To support this, Social interactionist theories have implied that educators' high frequency of responses is related to children's language productivity (de Rivera et al., 2005). Due to infants and toddlers' underdeveloped language, their responses

consist of a majority of non-verbal language, so educators may have difficulty identifying and interpreting children's non-verbal language (Hoff, 2013). In this case, if educators consider they have received no response from children, they may be demotivated to provide children with any verbal feedback (de Rivera et al., 2005).

High educator-child ratio was correlated with low proportion of child-directed utterances.

Contrary to the expectation, the present research found that high educator-child ratio (e.g., more educators in mealtime) was not related with high proportion of child-directed utterances. A high educator-child ratio meant that there were more adults available for each child, which would normally be expected to benefit children as they could receive more care and attention from these educators. However, the present study suggested the contrary. It may be that educators' attention was distracted by other adults, resulting in less child-directed utterances (Pellegrino & Scopesi, 1990). The number of educators was positively related to the proportion uttered to adults also suggested that more educators may distract talk away from children, as opposed to direct it towards them (de Rivera et al., 2005).

In the present study, educators' self talk is considered ineffective language input in terms of children's language facilitation. However, previous research showed educators' thinking aloud elicited more responses from children as this action may lower cognitive challenges in language interactions through gradually familiarizing children with topics and content (Durden & Dangel, 2008; Girolametto et al., 2006). Therefore, future research can investigate the implications of adults' self talk on facilitating children's language development.

The quantity of utterances was not related to the quality of the talk.

In this study, the number of the utterances were counted as a broad measure to examine the quantity of educator-child interactions. It was found that the quantity of

educators' talk was not correlated with educators' use of language facilitation strategies. The possible explanation may be that the quality of educators' talk cannot be examined from its quantity aspect. Quality of utterances in the literature mainly consists of two parts: (a) vocabulary richness and sentence complexity; (b) content and forms of language (Cote, 2001; Girolametto, Weitzman, van Lieshout, et al., 2000; Huttenlocher et al., 2007).

Firstly, while high quantity may include complex clauses and diverse words, the following situations with high quantity of utterances has few implications on facilitating children's language acquisition: (a) educators repeated same utterances; (b) educators adopted inefficient language levels in educator-child interactions (e.g., providing simple and repeated language input to older children); (c) educators invited no child in conversations (e.g., raising a question to a group of children without calling any child's name) (Girolametto & Weitzman, 2002b; Hoff & Naigles, 2002; Huttenlocher et al., 2007). Since I have not investigated the difference between simple and complex utterances, this may be an avenue for future research (Huttenlocher et al., 2007).

Due to the split attention from preparing and distributing food, the educator in Extract 2 in the qualitative analysis quickly repeated the question to the child without any modification on her original question. This kind of repeated utterances resulted in an increase in quantity of utterances but had few contributions to children's language learning, which is consistent with the finding in Hoff (2002). Hoff suggested that it was the variation in educators' speech that influenced children's productive use of vocabulary (Hoff & Naigles, 2002). Similar research finding showed that educators' sensitively adapted their speech quality (e.g., levels of complexity and diversity) to meet children's zone of proximal development in language acquisition (Huttenlocher et al., 2007). However, Huttenlocher and colleagues found that educators did not adjust the quantity of their utterances in their

language adaption to the growth of infants and toddlers' language levels (Huttenlocher et al., 2007).

Even if educators' language may contain a high variety of vocabulary and advanced sentence structures, whether educators place appropriate levels of cognitive demands in their talk was also not shown by the quantity of utterances. For example, while decontextualized topics facilitate language development through stimulating language learners' cognitive functions, educators' overuse of decontextualized topics in language interactions with infants may not be appropriate as infants may feel cognitive overload (Cote, 2001; de Rivera et al., 2005; Durden & Dangel, 2008; Girolametto, Weitzman, van Lieshout, et al., 2000). In this case, the quality of educators' language may be poor even though they have adopted decontextualized topics. Therefore, it is suggested to investigate language quality in terms of its content and appropriate use in future research.

Physical arrangement matters.

It was found that the mean scores for Interaction Promotion and Language Promotion appeared related to table configuration. When the number of children and table increased, there was a tendency for educators' performance of language facilitation strategies to become relatively worse, which is consistent with the finding from Bouchard et al.,(2010). Bouchard et al., (2010) indicated that educators would improve their language facilitation strategies when children are sitting together at one table than seated themselves separately during snack time. The reason for their suggestion is that children's gathering at single table may enable educators to save time and energy from serving between tables so that they can concentrate on observing children's intentions (Bouchard et al., 2010). The merit of table arrangement was also indicated in Cote (2001), she found that educators who were constantly sitting with children were more likely to encourage children to talk and engage children in decontextualized topics than educators who had to circulated around during mealtime. Both

research findings have implied that improved physical arrangement (e.g., using single table instead of multiple tables) can increase the time educators spent with children, which is a prerequisite for educators to conduct child-directed interaction-promoting strategies and language-promoting strategies.

Qualitative findings.

The results from qualitative analysis suggested two critical factors that promote educator-child interactions: raising effective questions and motivating children to participate.

In terms of the first skill of raising effective questions, Educator 1 combined open-ended questions and conversational Yes/No questions to guide the child to gradually understand the meaning of questions and participate in conversations. Educator 2 communicated differently by repeating the directive Yes/No question to child, resulted in receiving no responses from the child. The two different educator-child interactions implied that children's language participation and performance were related to educators' use of a variety of questions. This observational result is consistent with previous finding that a skillful use of questions was comprised of raising questions to facilitate cognitive thinking within children's zone of proximal development and to enable children to understand questions through auxiliary questions (de Rivera et al., 2005; Durden & Dangel, 2008; Girolametto, Weitzman, van Lieshout, et al., 2000). Thus, Educator 2 used directives Yes/No questions frequently in educator-child interactions and did not employ any open-ended question or wait patiently for any responses from children, which may be related to children's low speech production (de Rivera et al., 2005; Durden & Dangel, 2008; Girolametto, Weitzman, van Lieshout, et al., 2000).

Secondly, the child's high motivation to join in mutual interactions in Extract 1 may be related to educators' consistent attitudes of understanding, confirming and encouraging children's language contributions, which is consistent with Girolametto and Weitzman

(2002). To explain, when Educator 2 did not immediately respond to the child Jayden's initiations and quickly ceased the talk with Jayden after meeting his needs, Jayden stopped his talk. This suggests that educators' prioritizing behavioral management and showing little awareness and encouragement of children's participation may reduce children's motivation to participate (Girolametto & Weitzman, 2002b; Johansson & Berthelsen, 2014). The reason of Educator 2's low motivation to promote interactions with children could also be related to the unawareness of language learning opportunities in snack time, which may lead to her focusing only on organisational goals during snack time (Cote, 2001).

Limitations of the Study

The present study was limited in terms of the sample size, geographic location, and measures. Firstly, the sample size is small ($n = 15$), so the results cannot be generalized to wider situations. The results are therefore considered as exploratory. In future research, a larger sample size is required to increase confidence in these results.

Secondly, the participants are all from the same geographic area (Sydney metropolitan area). In future research, the data need to be collected from other regions of of New South Wales and Australia so as to increase the representativeness of research results. Another concern raised at the aspect of geography is the cultural difference. Cultural diversity may question the appropriate use of the strategies in the TILR scale, especially in Australia, a country of immigrants (Bouchard et al., 2010; Snow & Beals, 2006). Thus, future research needs to consider the diversity of cultural backgrounds of both educators and children (Girolametto & Weitzman, 2002b).

Thirdly, the current study only measured the educators' language facilitation strategies. However, interaction is a mutual activity (Kultti, 2014). In future research, children's language competence needs to be measured to increase the objectiveness of the study results. Additionally, TILR scale needs to be appropriately adjusted to fit the context of

snack time (Bouchard et al., 2010). For example, educators' skill of using a variety of questions will not be affected by raising no Wh-questions in the context with very young children (de Rivera et al., 2005).

Fourthly, the excerpts of two educators were chosen to compare their effective use of language facilitation strategies with each other, but the comparison cannot be justified by limited samples in the qualitative analysis. Thus, future research needs to deemphasize the comparison and to increase sample size in qualitative analysis. The similar limitation resulted from the sample size is the comparision of table arrangement. Due to the sample size restriction, the mean scores of three type of table arrangement were only compared descriptively. Further study with large sample size are needed.

Another limitation in terms of the methodology is that the current study did not include in-depth interviews. However, educators' beliefs from which may strengthen the understanding on educators' various use of language facilitation strategies (Girolametto & Weitzman, 2002b). For example, educators' use of relatively simple words with toddlers was supposed to reside in their awareness of supporting toddlers' emerging literacy abilities (Girolametto & Weitzman, 2002b). Future research is suggested to add interviews to investigate educators' beliefs on scaffolding infants and toddlers' language development during snack time (Girolametto et al., 2003).

Implications for Practice: Snack Time as a Pedagogical Event

Research has indicated potential of mealtime as a pedagogical event for language facilitation. For example, Cote (2001) pointed out mealtime had as same opportunities as other routine activities by scaffolding children linguistic and social abilities during authentic interactions with educators. Kultti (2014) also suggested that children's language could be facilitated through contingent language under flexible settings.

In order to capitalize pedagogical opportunities, the present study suggested that educators may need specialized training in language facilitation strategies as they may benefit from increased efforts during pre-service and in-service education programs to raise their awareness of infant communicative abilities and assist them to develop means to establish and promote interactions with very young children. To support this, Girolametto and his colleagues demonstrated that educators balanced the use of directives and had an increased attitude to encourage children to participate in mutual interactions after attending specialized training (Girolametto et al., 2003). The training would also help to stop the vicious circle of low Interaction Promotion with the educators' improvement in identifying children's non-verbal responses (de Rivera et al., 2005; Girolametto & Weitzman, 2002b; Girolametto et al., 2006).

More importantly, through professional training, educators would change their view of regarding snack time as a routine activity to a conversational activity, where children could learn and practice language through educator-child interactions (Girolametto, Weitzman, van Lieshout, et al., 2000). Related research indicated the significance of transforming the traditional mode of activities (e.g., mainly managing children's behaviors) to the activities with opportunities to exchange information and meaning (Durden & Dangel, 2008). In addition to the change of view, educators would also transform their identification from managerial roles to equal interlocutors and would assist to coordinate the meaning with children and make sense of any initiations or responses from them (Kultti & Pramling, 2015; Snow & Beals, 2006).

Educators also need to consider the aspects of cultural diversity of children to reduce adverse effects during their caring and improve physical arrangement during snack time context (Snow & Beals, 2006). According to Bouchard et al., (2010) and Cote (2001), arranging children to sit at single table during snack time may increase each child's chance to

receive more responses and care from educators as educators can save time and energy from organisational management.

Conclusion

In sum, the results of the present study suggested that the educators need to be more child-focused during snack time and adjust their language guiding strategies when caring very young children. The study implied that efforts are needed to underscore snack times as pedagogical events and that specific training in language development may be required in order to provide infants and toddlers with a language-rich environment (Bouchard et al., 2010).

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Appendices

Appendix A: Consent Form for Focus Educator, Other Educators and Parents

Dr Sheila Degotardi
Macquarie University
Phone 9850 9895
Email:
sheila.degotardi@mq.edu.au

Associate Professor Jane Torr
Macquarie University
Email: jane.torr@mq.edu.au

Professor Ben Bradley
Charles Sturt University
Email: bbradley@csu.edu.au

Information and Consent Form: Focus Educator

Name of Project: *Talk and Interactions in the Infant Room*

Dear Educator

We would like to invite you to participate in an Australian Research Council funded study of the talk and interactions that occur in long day care infant rooms. The purpose of the study is to explore

- the characteristics of educator - infant interactions
- how infants interact with each other
- any links between educator characteristics (e.g., qualifications, professional learning and work perceptions) infant characteristics (e.g., age, gender) and the quality of educator - infant interactions.

As the first, comprehensive Australian study of this topic, our ultimate aim is to develop a deep understanding of how educators and infants communicate and to determine the kinds of interactions and contexts that are most supportive of infant language development.

The study is being conducted by Dr Sheila Degotardi, Associate Professor Jane Torr, both of the Institute of Early Childhood, Macquarie University, and Professor Ben Bradley, of Charles Sturt University. All are experienced lecturers and researchers with a particular interest in providing optimal environments for infants and toddlers. Please see our contact details at the top of this letter.

If you decide to participate, you will be asked to allow a trained Research Assistant to video record you for 2 one-and-a-half-hour sessions. The visits will occur at a time to suit you, the other educators and the children. The person doing the video

recording will endeavour to be as unobtrusive as possible and will take measures to become familiar with the educators and infants in the room before the video recording commences. We would like to capture the everyday spontaneous conversations and activities, without you doing anything special or different from your normal activities.
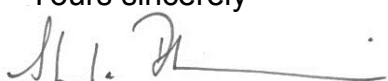
You will be also asked to undertake a short interview, with the Research Assistant, about how you think that infant language development occurs within your room. This will be accompanied by a short, confidential survey on your qualifications, professional learning and perceptions of your work environment.

Please note that all investigators in this project have extensive experiencing researching infants and their educators, so are sensitive to any signs of upset. Should any child become upset by the methods used in this study, we will stop our data collection and will not recommence until we have discussed with you and the educators how best to proceed. Please feel free to contact Dr Sheila Degotardi, using the contact details over the page, should you have any questions.
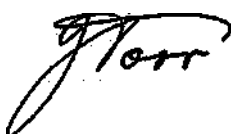
Any information or personal details gathered in the course of the study are confidential (except as required by law). No individual will be identified in any publication of the results. Only ourselves and our Research Assistant will have access to the data. Participation in this study is entirely voluntary: you are not obliged to participate and if you decide to participate, you are free to withdraw at any time without having to give a reason and without consequence. Your decision regarding participation in this research will not influence any ongoing or future relationship you may have with the Institute of Early Childhood, Macquarie University or Charles Sturt University.

We do hope that you will consider participating in this study. Please feel free to contact us should you have any questions.

Yours sincerely

Dr Sheila Degotardi.   Associate Professor Jane Torr.   Professor   Ben Bradley

---

I, …………………………………..(*participant's name*) 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 participate in this research, knowing that I can withdraw from further participation in the research 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:_____

Investigator's Name: _____Sheila Degotardi_____

Investigator's Signature:_____ Date: ___5/1/2015___

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 and Integrity (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.

Dr Sheila Degotardi
Macquarie University
Phone 9850 9895
Email:
sheila.degotardi@mq.edu.au

Associate Professor Jane Torr
Macquarie University
Email: jane.torr@mq.edu.au

Professor Ben Bradley
Charles Sturt University
Email: bbradley@csu.edu.au

Information and Consent Form: Educators

Name of Project: *Talk and Interactions in the Infant Room*

Dear Educator

We would like to invite you to participate in an Australian Research Council funded study of the talk and interactions that occur in long day care infant rooms. The purpose of the study is to explore the characteristics of educator – infant interactions as well as how infants interact with each other. As the first comprehensive Australian study of this topic, our ultimate aim is to develop a deep understanding of how educators and infants communicate and to determine the kinds of interactions and contexts that are most supportive of infant language development.

The study is being conducted by Dr Sheila Degotardi, Associate Professor Jane Torr, both of the Institute of Early Childhood, Macquarie University, and Professor Ben Bradley, of Charles Sturt University. All are experienced lecturers and researchers with a particular interest in providing optimal environments for infants and toddlers. Please see our contact details at the top of this letter.

What is involved?

During the course of the study, a researcher will visit your room 4 times, during which time she or he will observe and take video and audio recordings of the talk and interactions that take place. A colleague and one nominated child (with parental consent) have kindly agreed to be the focus of these recordings. Your colleague will be recorded twice, for an hour and a half each time, in order to record video and audio footage of her or his interactions with the children in the room. The focus infant will be video-recorded for up to 4 hours and will wear an item of clothing containing a small recording device which will capture the talk that he/she hears and his/her vocalisations during the course of that day.

As we are trying to obtain as natural footage as possible, it is possible that you may also be captured on the video and/or audio footage. We would like to capture the

everyday spontaneous conversations and activities, without you doing anything special or different from your normal activities. The visit will occur at a time to suit you, the other educators and the children. The person doing the video recording will endeavour to be as unobtrusive as possible and will take measures to become familiar with the educators and infants in the room before the video-recording commences.

Privacy

Any information or personal details gathered in the course of the study are confidential (except as required by law). No individual will be identified in any publication of the results nor will any information be shared with anyone else within your centre. Only ourselves and our Research Assistants will have access to the data. A summary of the findings will be sent to your centre on the completion of the research.

Consent

Participation in this study is entirely voluntary: you are not obliged to participate and if you decide to participate, you are free to withdraw at any time without having to give a reason and without consequence. Your decision regarding participation in this research will not influence any ongoing or future relationship you may have with the Institute of Early Childhood, Macquarie University or Charles Sturt University.

We do hope that you will consider participating in this study. Please feel free to contact Sheila Degotardi using the contact details over the page, should you have any questions.

Yours sincerely

Dr Sheila Degotardi. Associate Professor Jane Torr. Professor Ben Bradley

I, …………………………………..(*participant's name*) 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 from further participation in the research 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:_____

Investigator's Name: _____Sheila Degotardi_____

Investigator's Signature: _____ Date:5/1/2015

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 and Integrity (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.

Dr Sheila Degotardi
Macquarie University
Phone 9850 9895
Email:
sheila.degotardi@mq.edu.au

Associate Professor Jane Torr
Macquarie University
Email: jane.torr@mq.edu.au

Professor Ben Bradley
Charles Sturt University
Email: bbradley@csu.edu.au

Research Project: *Talk and Interactions in the Infant Room*

General Information for Parents

Dear Parents,

This letter is to advise you of an Australian Research Council funded study of the talk and interactions that occur in long day care infant rooms that will be taking place in your centre. The purpose of the study is to explore the characteristics of educator – infant interactions as well as how infants interact with each other. Your centre, and the educators in your child's room have kindly agreed to participate in this Research Project. As the first comprehensive Australian study of this topic, the study aims to develop a deep understanding of how educators and infants communicate and to determine the kinds of interactions and contexts that are most supportive of infant language development. We are therefore very pleased that your centre will directly contribute towards increasing knowledge in this important area. This letter is to provide you with information about the video recording and to ensure that you are comfortable with the procedures that are involved.

The study is being conducted by Dr Sheila Degotardi, Associate Professor Jane Torr, both of the Institute of Early Childhood, Macquarie University, and Professor Ben Bradley, of Charles Sturt University. All are experienced lecturers and researchers with a particular interest in providing optimal environments for infants and toddlers. Please see our contact details at the top of this letter.

What will the research process involve?
A researcher will visit your child's room 4 times, during which time she or he will take video and audio recordings of the talk and interactions that take place in the room. An educator and another child in the room are going to be the focus of these recordings. However, as we are trying to obtain as natural footage as possible, it is possible that your child may also be playing with or near to his/her educator or peer, and therefore may also be captured on the video footage.

The visits will occur at a time to suit both the educators and children. The person doing the video recording will endeavour to be as unobtrusive as possible and will

take measures to become familiar with the educators and infants in the room before the video recording commences. We would like to capture the everyday spontaneous conversations and activities, without your child doing anything special or different from his or her normal activities.

Please note that we all have extensive experiencing researching infants and their educators, so are sensitive to any signs of upset. Should any child become upset by the methods used in this study, we will stop our data collection and will not recommence until we have discussed with the educators about how best to proceed. Please feel free to contact Sheila Degotardi should you have any questions or concerns.

What will happen to the recordings?
The recordings will be used for the purpose of this Research Project only, and will be stored on a password protected computer at the Institute of Early Childhood, accessible only to the Research Team. Your child will not be the focus of this analysis so no identifying details, such as your or your child's name and address are required. The video or audio recordings *will not* be played in any presentations, and in any transcripts used for publications we will always use pseudonyms to refer to the children, educators and your centre. A summary of the findings will be sent to your centre on the completion of the research.
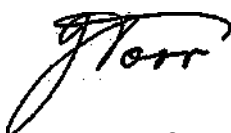
Consent:
If you consent to your child's interactions being captured by this video-recording process, you need take no further action other than to keep this letter for your own records. ***However, if you DO NOT wish your child to be captured on the video or audio footage***, please sign the form below and return it to your child's educator as soon as possible. We will then take all measures possible to ensure that your child is not recorded, and, in the event of such inadvertent recording, will not use this footage in our analysis.

With kind regards,

Dr Sheila Degotardi.   Associate Professor Jane Torr.   Professor   Ben Bradley

Please only sign this section if you DECLINE TO CONSENT.

I, ………………………….. *(name)* 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 **DO NOT WISH** my child to be video or audio-recorded during his/her room's participation in this Research Project. I have been given a copy of this letter to keep.

Child's Name:_____

  (Block letters)

Parent/guardian's Signature: _____ Date:_____

Investigator's Name: _____Sheila Degotardi

Investigator's Signature:_____ Date: 5/1/2015

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 and Integrity (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.

Appendix B: Ethical Approval

Office of the Deputy Vice-Chancellor (Research)

Research Office
C5C Research HUB East, Level 3, Room 324
MACQUARIE UNIVERSITY NSW 2109 AUSTRALIA

Phone   **+61 (0)2 9850 7850**
Fax   +61 (0)2 9850 4465
Email   ethics.secretariat@mq.edu.au

16 May 2014

Dr Sheila Degotardi
Institute of Early Childhood
Faculty of Human Sciences
Macquarie University
NSW 2109

Dear Dr Degotardi

Re: 'Investigating educator-infant talk and infant-peer interactions in Long Day Care'

Thank you for your recent correspondence. Your response was considered by the Executive of the Human Research Ethics Committee (Human Sciences and Humanities).

This research meets the requirements set out in the *National Statement on Ethical Conduct in Human Research* (2007) and your application has been approved.

Details of this approval are as follows:

Reference No: 5201400388

Approval Date: 16 May 2014

This letter constitutes ethical approval only.

The following documentation has been reviewed and approved by the HREC (Human Sciences and Humanities):

Documents reviewed	Version no.	Date
Macquarie University Human Research Ethics Application	2.3	Jul 2013
Correspondence from Dr Degotardi addressing the HREC's feedback		09 May 2014
Educator Survey		
Educator Interview		
Initial Centre Information Letter	2	08 May 2014
Information & Consent Form- Centre	2	08 May 2014
Information & Consent Form- Focus Educator	2	08 May 2014
Information & Consent- Other Educators	2	08 May 2014
Information & Consent Form- Parents of Focus Infants	2	08 May 2014

1

Information for Parents of Other Infants in the Room	2	08 May 2014
General Information about Focus Child and Infant Room Table		
Room Educator Qualifications & Experience Table		
Permission to Use Images for Conference Presentations or Publications	2	08 May 2014

Please ensure that all documentation has a version number and date in future correspondence with the Committee.

Standard Conditions of Approval:

1. Continuing compliance with the requirements of the *National Statement,* which is available at the following website:

http://www.nhmrc.gov.au/book/national-statement-ethical-conduct-human-research

2. Approval is for five (5) years, subject to the submission of annual reports. Please submit your reports on the anniversary of the approval of this protocol.

3. All adverse events must be reported to the HREC within 72 hours.

4. Proposed changes to the protocol must be submitted to the Committee for approval before implementation.

It is the responsibility of the Chief investigator to retain a copy of all documentation related to this project and to forward a copy of this approval letter to all personnel listed on the project.

Please do not hesitate to contact the Ethics Secretariat should you have any questions regarding your ethics application.

The HREC (Human Sciences and Humanities) wishes you every success in your research.

Yours sincerely

Dr Karolyn White
Director, Research Ethics & Integrity
Chair, Human Research Ethics Committee (Human Sciences and Humanities)

---------- Forwarded message ----------
From: **Ethics Secretariat** <ethics.secretariat@mq.edu.au>
Date: 10 March 2015 at 14:23
Subject: New Personnel approved - Degotardi (Ref: 5201400388)
To: Sheila Degotardi <sheila.degotardi@mq.edu.au>
Cc: Susan Reade <susan.reade@mq.edu.au>

Dear Sheila,

Thank you for your Amendment Request. The following personnel changes have
been approved on the above project:

The addition of the following Research Assistants:
1. Ms Deborah Garrett
2. Ms Jianbo Hu
3. Ms Jan McFarlane
The following student will be working with the secondary data and will not be carrying
out data collection:
• Ms Jing Han - student - secondary data (no data collection)
Please don't hesitate to contact the Ethics Secretariat if you have any concerns.

Kind regards,

Michelle thorpe

Appendix C: Teacher Interaction and Language Rating Scale (TILRS)

The Hanen Program.
HELPING CHILDREN COMMUNICATE
The Hanen Centre
1075 Bay Street, Suite 515, Toronto, ON, M5S 2B1
Tel: 416 921-1073 ■ Fax: 416 921-1225

TEACHER INTERACTION AND LANGUAGE RATING SCALE

Developed by Luigi Girolametto, Elaine Weitzman and Janice Greenberg

Instructions for Use:

This rating scale is designed to evaluate teachers' interaction prior to and following participation in a training program. Please read over the instructions, scoring system, and scale items carefully before rating. It is important to be familiar with the scale before using it.

1. Observe the videotaped interaction once all the way through, without stopping. Use the "Comments" column for jotting down your frequency observations as you are watching the tape. At the end of the tape, use these comments to guide you in rating each of the 11 items on the rating scale.

2. Observe the videotape a second time all the way through without stopping. Focus on those items about which you feel you need more information. You may use your "Comments" sheets for jotting down your observations as you are watching the tape. Then complete the rating of any of the 11 items you did not previously rate.

3. This is a 7-point scale. A rating of "1" indicates that the teacher almost never uses the technique, whereas a rating of "7" indicates that the teacher consistently uses the technique.

4. Ratings of 1–3 indicate that the teacher's use of the technique needs improvement and would definitely be a program goal for future interactions.

5. A rating of "4" indicates that fine tuning of the technique is required to achieve a rating of "5" or "Frequently." Therefore, this would be a program goal. If you think that a teacher definitely needs improvement on a particular technique, assign a rating of 3 or below. If the teacher definitely does not need improvement, assign a rating of 5 or above.

6. A rating of 5–7 indicates that the teacher's use of a technique achieves expectations. A rating of 5 or 6 is quite acceptable and the item should not be a goal for the program. However, improvement to a rating of 7 is possible after participation in a program if a teacher is very motivated and makes outstanding changes across a number of techniques.

7. Some items have two or more skills within their definitions. For example, Item 1, Wait and Listen includes both waiting and listening as skills to rate. If a teacher uses some aspects of an item frequently (i.e., "5") and others only sometimes (i.e., "3"), you may assign an in between score (in this case, a "4").

8. A rating of N/A should be used rarely. If there are very few examples of a technique or no examples of a technique you should use ratings from 1–3. That is, the assumption is that opportunities for using the technique were missed. N/A should be used only in circumstances where:
   (a) the technique is not appropriate to rate because of the activity (e.g., book reading is not conducive to joining in and playing), or
   (b) the child is beyond the age at which a particular technique is helpful (e.g., imitation for a preschool-aged child), or
   (c) the teacher does not need to use the skill (e.g., all children are participating and interacting making "scanning" unnecessary).

9. If rating a book-reading situation, do not rate teacher's reading of text since this does not constitute spontaneous communication.

10. *Note:* if the child is using sign language, a picture communication system or some other alternative or augmentative communication device, please interpret the words "gestures, sounds, words" to include these forms of communication.

Copies of this scale can be obtained from:
The Hanen Centre,
1075 Bay Street, Suite 515
Toronto, Ontario, M5S 2B1, Canada
TEL: 416 921-1073 – FAX: 416 921-1225
E-mail: info@hanen.org

TEACHER INTERACTION AND LANGUAGE RATING SCALE – *page 1*

TEACHER INTERACTION AND LANGUAGE RATING SCALE		NEEDS IMPROVEMENT: GOAL FOR PROGRAM	NEEDS FINE-TUNING: GOAL FOR PROGRAM	SATISFACTORY: NOT A PROGRAM GOAL			

1. Wait and Listen

	ALMOST NEVER		SOMETIMES		FREQUENTLY		CONSISTENTLY	
	1	2	3	4	5	6	7	N/A

Teacher encourages most of the children in the group to initiate verbally and/or nonverbally by:
- waiting expectantly for initiations
- using slow pace which allows lots of time for children to initiate
- listening to allow children to complete their messages

Comments:

2. Follow the Children's Lead

	ALMOST NEVER		SOMETIMES		FREQUENTLY		CONSISTENTLY	
	1	2	3	4	5	6	7	N/A

When the children initiate verbally or nonverbally, teacher follows their lead by:
- responding verbally to their initiations
- using animation
- avoiding commands and vague acknowledgements (e.g., uh huh, yeah, that's right)

Comments:

3. Join in and Play

	ALMOST NEVER		SOMETIMES		FREQUENTLY		CONSISTENTLY	
	1	2	3	4	5	6	7	N/A

Teacher actively joins in the children's play as a partner by:
- building on their focus of interest
- playing without dominating

Comments:

4. Be Face to Face

	ALMOST NEVER		SOMETIMES		FREQUENTLY		CONSISTENTLY	
	1	2	3	4	5	6	7	N/A

Teacher adjusts her physical level by:
- sitting on the floor or in child-sized chair
- leaning forward to facilitate face to face interaction
- if above children's level, bending to be close whenever possible

Comments:

5. Use a Variety of Questions

	ALMOST NEVER		SOMETIMES		FREQUENTLY		CONSISTENTLY	
	1	2	3	4	5	6	7	N/A

Teacher encourages conversation with most of the children in the group by:
- asking a variety of WH questions
- only using Yes/No questions to obtain information and clarify messages
- waiting expectantly for a response
- avoiding test and rhetorical questions

Comments:

TEACHER INTERACTION AND LANGUAGE RATING SCALE – *page 2*

	ALMOST NEVER		SOMETIMES		FREQUENTLY		CONSISTENTLY	
6. Encourage Turn-Taking	1	2	3	4	5	6	7	N/A

Teacher encourages extended verbal turn-taking by:
- linking comments and questions to invite children to take turns
- responding with animation
- waiting expectantly for a response
- balancing the number and length of adult to child turns
- using sentence completion only with children at one word stage

Comments:

Note: must achieve four or more turns on a topic with one or more children for a score of 5

	ALMOST NEVER		SOMETIMES		FREQUENTLY		CONSISTENTLY	
7. Scan	1	2	3	4	5	6	7	N/A

Teacher facilitates the participation and interaction of all children in group activities by:
- encouraging uninvolved children to participate and/or interact
- ensuring that no one child dominates the interaction

Comments:

	ALMOST NEVER		SOMETIMES		FREQUENTLY		CONSISTENTLY	
8. Imitate	1	2	3	4	5	6	7	N/A

(Evaluate only if children are preverbal or at one word stage)
Teacher imitates the actions, gestures, sounds or words of most of the children in the group.

Comments:

	ALMOST NEVER		SOMETIMES		FREQUENTLY		CONSISTENTLY	
9. Use a Variety of Labels	1	2	3	4	5	6	7	N/A

Teacher uses a variety of vocabulary (nouns, verbs, adjectives, adverbs) by:
- emphasizing key words
- repeating words
- labeling objects, actions, attributes, events
- avoiding non-specific words (e.g. it, this, that, there, thank you)
- adjusting complexity of vocabulary for different children in the group

Comments:

	ALMOST NEVER		SOMETIMES		FREQUENTLY		CONSISTENTLY	
10. Expand	1	2	3	4	5	6	7	N/A

Teacher expands by:
- repeating the children's words and correcting the grammar
- repeating the children's words and adding another idea

Comments:

	ALMOST NEVER		SOMETIMES		FREQUENTLY		CONSISTENTLY	
11. Extend	1	2	3	4	5	6	7	N/A

Teacher provides information related to the children's topics or the ongoing activity by:
- using comments and questions to inform, project, pretend/imagine, explain, talk about the future, talk about feelings

Comments:

Note: to obtain a rating of 5 adult must extend frequently and include at least two functions other than Informing

TEACHER INTERACTION AND LANGUAGE RATING SCALE – *page 3*

Appendix D: Additional Criteria

Here are the specific percentage of 7 points scale: 1: Almost never (<10%); 2: Occasionally (10%-30%); 3: Sometimes (30%-50%); 4: an amount of (50%); 5: Frequently (50%-70%); 6: Very Frequently (70%-90%); 7: Consistently (>90%). The additional criteria for 8 items are listed as follows:

Wait and Listen:

(Overall: 1-3: educators passively wait or respond without expectancy; 4: educators do 'Wait and Listen' well; 5-7: educators show sensitive observation and pay partial or full attention.)

1: Educators passive wait for children to finish food (e.g., focusing on supervision instead of language interactions)

2: Educators frequently shift because of being up and down or distributing food, which leads to quickly respond to children without waiting time.

3: Educators perform 'Wait and Listen' quite well, but unbalance the use of this strategy (e.g., only doing well in the latter part of the snack time).

4: Educators wait with clear effort and listen to children's initiations and responses but lack consistency. In order to get a score of 5, educators need to improve their use of strategy (e.g., increasing consistency).

5: Educators respond to children's initiations quickly because of sensitive observation, but sometimes they are up and down, which leads to split attention.

6: Educators respond to children's initiations quickly because of sensitive observation and pay full attention to children.

7: Educators meet the requirements of the score of 6 and have a consistency over 90%.

Follow the Children's Lead:

(Researchers need to check individual case for this item. 1-3: educators lose over 50% initiations; 4: educators catch the most obvious initiations but respond to children vaguely; 5-7: educators catch over 50% initiations.)

1: Educators are up and down frequently, which leads to catching less than 10% of children's initiations.

2: Educators are up and down frequently, which leads to catching 10% - 30% of children's initiations.

3: Educators are up and down frequently, which leads to following two situations: (a) educators try to catch 30% to 50% of children's initiations but still lose many. They show the efforts to do 'Follow the Children's Lead'; (b) educator is able to catch most obvious initiations (e.g., over 50%), but they catch initiations in a passive way.

4: Educators are up and down, while they are able to catch most obvious initiations (e.g., over 50%) and with positive attitudes. However, educators respond to children with improper language (e.g., using vague acknowledgement such as "uh", "yeah", "that's right").

(Notes: after comparing the criteria of 3 and 4, it concludes that educator' catching initiations and positive attitudes are more important than proper responses.)

5: Educators catch initiations positively (with animation) or sensitively.

6: Meet one of the following criteria: (a) Educators catch initiations positively (with animation) or sensitively; (2) Educators catch all initiations, regardless of their attitudes.

7: Educators meet the criteria for the score of 6 and have a consistency over 90%.

(Notes: Positive attitudes here assume to be an encouraging voice (e.g., using animations), which often influences children's to have active feedback.)

Be Face to Face:

(Overall: 1-3: educators are constantly up and down, and are rarely face-to-face with children; or educators sit with children passively; 4: educators sit with children to facilitate language learning, but sometimes get up to distribute food or talk to children without eye contact; 7: Educators sit with children all the time and facilitate their language learning positively.)

1: Educators are constantly up and down over 50% of the time and never have eye contact

with children.

2: Educators are constantly up and down over 50% of the time and sometimes facilitate language interaction through being face-to-face with children.

3: Educators are up and down less than 50% of the time; or they sitting most of the time but in a passive way, which means they do not support language facilitation through being face to face.

4: Educators sit with children and try to facilitate language interactions through being face to face, but they make some mistakes (e.g., not leaning forward to children).

5: Educators sit with children and facilitate language with the strategy of 'Be Face to Face' with a consistency over 50%.

6: Educators sit with children and facilitate language with the strategy of 'Be Face to Face' with a consistency over 70%.

7: Educators sit with children and facilitate language with the strategy of 'Be Face to Face' with a consistency over 90%.

Use a Variety of Questions:

(Overall: 1-4: educators ask children with only Y/N questions; 5-7: educators use both Wh-questions and Yes/No questions.)

1: Educators adopt only one function of Yes/No questions (e.g., asking for children's needs) and do not ask any Wh-question.

2: Educators adopt only one function of Yes/No questions (e.g., asking for children's needs and clarification) and do not ask any Wh-question.

3: Educators adopt over two functions of Yes/No questions (in addition to asking for children's needs and clarification, educators also ask specific question, for example: which would you like? milk or water?) and seldom ask Wh-questions (e.g., one or two times).

4: Meet one of the following criteria: (a) educators frequently adopt a variety of

conversational Yes/No questions to obtain information from children (more than two functions), but do not ask any Wh-question; (b) educators frequently adopt a variety of conversational Yes/No questions and sometimes use WH questions, but occasionally use test questions.

5: Educators sometimes use a variety of conversational Yes/No questions (more than two functions), and use Wh-questions for one or two times.

6: Educators often use a variety of conversational Yes/No questions (more than two functions), and use Wh-questions for more than two times.

7: Educators frequently use a variety of conversational Yes/No questions (more than two functions), and use Wh-questions for more than two times.

Encourage Turn-Taking:

(Overall: 1-4: educators are constantly up and down; 5-7: educators have conversations comprising more than four conversational turns or 4+ conversations)

1: Educators are constantly up and down for distributing food, seldom leading to 4+ conversations occur. Educators have no willingness to have extended conversations with children (e.g., responding with simple acknowledgement).

2: Educators are constantly up and down for distributing food, sometimes leading to 4+ conversations occur. Educators have no willingness to extend conversations with children.

3: Educators are constantly up and down for distributing food, sometimes leading to 4+ conversations occur. Educators have no willingness to maintain conversations with children.

4: Educators are constantly up and down for distributing food, sometimes leading to 4+ conversations, while educators have strong willingness to extend conversations (e.g., one or two successful cases in the video).

5: There are often 4+ conversations occur between educators and children. Educators make strong effort to maintain conversations by raising questions, waiting expectantly and

commenting on children's responses with a consistency of over 50%.

6: There are often 4+ conversations occur between educators and children. Educators make strong effort to maintain conversations by raising questions, waiting expectantly and commenting on children's responses with a consistency of over 70%. However, if educators' language sounds not natural, the score would still be 5.

7: There are often 4+ conversations occur between educators and children. Educators make strong effort to maintain conversations by raising questions, waiting expectantly and commenting on children's responses with a consistency of over 90%. However, if educators' language sounds not natural, the score would still be 6.

Use a Variety of Labels:

(Overall: 1-4: educators only talk about food and behavior; 5-7: educators use a variety of topics and vocabulary.)

1: Educators only talk about food and behavior, and they use vague language to respond to children (e.g., "it"). The frequency of language input is low.

2: Educators only talk about food and behavior, and they use plain language to respond to children without any description (e.g., saying "this is an orange" instead of "this is a juicy orange"). The frequency of language input is low.

3: Educators only talk about food and behavior, and they use simple words repeatedly to respond to children. The frequency of language input is low.

4: Meet one of the following criteria: (a) educators only talk about food and behavior, but they use a variety of vocabulary; (b) educators talk more than two topics occasionally, but talk with simple words.

 (Note: after comparing 3 and 4, it seems talking with a variety of topics is more important than using a variety of language.)

5: Educators occasionally talk more than two topics and use a variety of vocabulary in a

natural tone with a consistency of over 50%.

6: Educators sometimes talk more than two topics and use a variety of vocabulary in a natural tone with a consistency of over 70%.

7: Educators talk with a variety of topics and use a variety of vocabulary in a natural tone with a consistency of over 90%.

Expand:

(Overall: 1-3: educators have awareness of expansion, but cannot expanding children's language well; 4-7: educators have both awareness and skills of expansion.)

1: Educators do not expand children's language at all.

2: Educators sometimes expand children's language, but lack of consistency because of being up and down. Educators do not have awareness of expanding children's language.

3: Educators sometimes expand children's language, but lack of consistency because of being up and down. Educators have awareness of expanding children's language.

4: Educators expand topics with varied vocabulary or long utterances, but they are not balanced.

5: Educators expand most topics with a variety of language and long utterance with a consistency of over 50%.

6: Educators expand most topics with a variety of language and long utterance with a consistency of over 70%.

7: Educators expand most topics with a variety of language and long utterance with a consistency of over 90%.

Extend:

(Overall: educators need to use at lease three functions, and twice for each function, to get a score of or above 5)

1: Educators have a good use the function of informing (over twice). There is no second

function occurs. There is no third function occurs.

2: Educators have a good use of the function of informing (over twice). Educators use the second function for one or two times. There is no third function occurs.

3: Meet one of the following criteria: (a) educators have a good use of the function of informing (over twice). Educators have a good use of the second function (e.g., function of explaining for over twice). There is no third function occurs; (b) educators have a good use of the function of informing (over twice). Educators use the second function for one or two times. Educators use the third function for one or two times (e.g., projecting future plans).

4: Educators have a good use of the function of informing (over twice). Educators have a good use the second for one or two times. Educators use the third function for one or two times

5: Educators have a good use of the function of informing. Educators have a good use of the second function. Educators use the third function for one or two times. Or educators combine three functions together.

6: Educators have a good use of the function of informing. Educators have a good use of the second function. Educators use the third function for one or two times. And educators combine three functions together.

7: Educators have a good use of the function of informing. Educators have a good use of the second function. Educators use the third function for one or two times. And educators combine three functions together with a consistency of over 70%.