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The Relationships Among Caregiver Training, Mentoring, and Turn-Taking Between Caregiver and Child in Family Child Care

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THE RELATIONSHIPS AMONG CAREGIVER TRAINING, MENTORING, AND

TURN-TAKING BETWEEN CAREGIVER AND CHILD IN FAMILY CHILD CARE

by

Carrie L. Ota

A dissertation submitted in partial fulfillment
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of

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in

Family and Human Development

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ABSTRACT

The Relationships among Caregiver Training, Mentoring, and Turn-taking Between

Caregiver and Child in Family Child Care

by

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Utah State University, 2010

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Basic communication skills are foundational for children's success in school and are dependent largely on their language experiences early in life. The purpose of this study was to examine two professional development models and family child care providers' use of turn-taking strategies that promote language in young children. The first professional development model consisted of a 10-hour nonformal training focused on supporting early language development. The second included the nonformal training and on-site mentoring. The 48 family child care programs were randomly assigned to one of the professional development models or a control group. Hierarchical linear modeling was used to examine the average increase in the frequency of providers' use of turn-taking strategies over three observations. Results indicate that both forms of professional development support increased use of language promoting turn-taking strategies as compared to a control group. Professional development that includes on-site mentoring support appears to be related to greater increases in providers' use of informational talk and didactic utterances over training only.

(139 pages)

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The effectiveness of teaching and mentorships were evaluated through this study. Ironically, the success of this dissertation is due to my mentor and major professor, Ann Austin. Her guidance and supervision helped me navigate earning this degree. This research would not have been completed without her confidence and support.

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My friends and family encouraged me along the way and provided steadfast support. My achievement is a culmination of their love. The process of completing this

degree has tempered bonds. People that have been close to me seem even closer now. I have met new life-long friends and am excited to work with them in the future. My family has supported me with prayer and personal sacrifice. My parents have been steadfast in encouraging me to continue growing and pursuing this degree. I pray that my future will continue to honor all of them.

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Carrie L. Ota

CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

In the United States, the number of young children who are cared for by non-parental caregivers continues to rise with 61% of children attending some kind of child care (Federal Interagency Forum on Child and Family Statistics, 2006). With so many children spending a number of hours each week in non-parental care there is a focus by researchers on caregiver-child interactions and outcomes for children (e.g., National Institute of Child Health and Development [NICHD], 1996, 2005). A more specific focus is the language contribution caregivers provide to children in their care. Even though Sandra Scarr (1997) put forth the idea that variations in child care quality have minimal impact on children's development, the majority of researchers believe and accept that the interactions between caregiver and child in non-parental settings are critical for supporting learning and development (Rimm-Kaufman & Ponitz, 2009).

Humans are social beings. Adults and children spend significant portions of their day interacting with others. Daily conversations happen so smoothly and frequently that we often do not stop to think about the rules of conversation or how we learned these rules. These interactions include the quality and quantity of language input children receive while in proximity to caregivers (NICHD, 1996, 2005; Peisner-Feinberg et al., 2000). Of concern is that caregiver interactions with the children in their care are often not as rich and stimulating as one would hope (Dowsett, Huston, Imes, & Gennetian, 2008; Massey, 2004; Turnbull, Anthony, Justice, & Bowles, 2009). The specific kinds of conversations that caregivers and children have in child care are a greater predictor of

later language and literacy than the program environment (i.e., curriculum) itself (Dickinson & Tabors, 2002).

Frequency of conversational turn-taking is one indication of the quality of the language environment. Children develop higher confidence and autonomy when caregivers respond to their verbal communications and this increases the desire to continue the interaction as well as to communicate verbally (Risley & Hart, 2006; Tomasello, Conti-Ramsden, & Ewert, 1990). In an exploratory study on caregiver language input, Girolametto and Weitzman (2002) found that interaction promoting strategies (i.e., turn-taking) were positively related to the toddlers' and preschoolers' expressive language development. These researchers found that caregivers use the same turn-taking strategies regardless of the child's age or language abilities. It seems that exposure to the opportunity to verbally take turns in conversation is important, at least through the early childhood years.

Basic communication skills are foundational for children's success in school and begin to be formed in the early months of life. Extant research shows that these skills are dependent largely on a child's language experiences in the first three years of life. By the age of three, children who are engaged in less conversation hear fewer words and generally have smaller vocabularies than children with richer language experiences (Hart & Risely, 1995; Tamis-LeMonda, Bornstein, & Baumwell, 2001). A large vocabulary underpins literacy which is a predictor of academic achievement (Hay & Fielding-Barnsley, 2009; Snow, 1983).

Interaction in social situations between caregiver and child is essential (Vygotsky, 1982) for promoting language acquisition and use (Girolametto & Weitzman, 2002;

Tamis-LeMonda et al., 2001). Conversations have a seemingly natural "back and forth" rhythm, called conversational turn-taking, as participants take alternating turns for speaking and listening. Turn-taking is a basic form of organization for conversation and serves as a foundation to the social exchange that underlies communication (Owens, 2007). The ability to take turns promotes the continuation of the conversation which is important in all types of relationships, whether professional or personal. A person is not likely able to explain where they learned the turn-taking rules of conversations as this learning began long before their earliest memories (Bloom, 1988; Haslett, 1984a, 1984b; Snow, 1983; Stern, 1974).

When caregivers verbally acknowledge children's communications, ask questions, and in other ways expand on the topic, they encourage children to continue talking by taking another turn. Caregivers need to look for opportunities to create these interactions with children, pay close attention to child speech, and be ready to respond (Copple & Bredekamp, 2009). Caregivers who do these things usually have more talkative children (Girolametto & Weitzman, 2002) as they give support by providing opportunities for children to make verbal contributions, by drawing them into conversations, providing a well-cued framework for the exchange, showing children when to speak, and thereby developing cohesiveness between the speaker and the listener (Cicognani & Zani, 1992; Copple & Bredekamp, 2009; Girolametto & Weitzman, 2002). It is important that caregivers ask children to comment on objects and events within their experience while capitalizing on opportunities to expand in different ways or by adding new ideas and elaborating on them (Cicognani & Zani, 1992; Copple & Bredekamp, 2009; Girolametto & Weitzman, 2002).

Research looking at child care settings has found that caregivers generally provide verbal interaction such as turn-taking at a low rate, with only about 30% of the total interactions considered to encourage language use in children (Turnbull et al., 2009). More concerning is that family child care providers tend to provide less language stimulation for children from 24 to 54 months than do center care providers (Dowsett et al., 2008). Thus, there is a particular need to focus on ways to enhance the linguistic environment, including turn-taking, in family child care programs.

In the studies described above, language stimulation consisted of a variety of language inputs including turn-taking strategies such as giving choices and asking and answering questions. With findings that show that caregivers encourage turn-taking at low rates, there may be a lack of understanding of the importance of using these strategies when interacting with children (Yifat & Zadunaisky-Ehrlich, 2008). Clearly, there is a need for caregiver training that raises awareness of the various turn-taking strategies that can be used in conversation and why they are important in promoting child development.

To improve the interactions between caregivers and children in their care, including the development of turn-taking, most states require child care providers to attend ongoing yearly in-service trainings (Ackerman, 2003), also known as nonformal training (Merriam, Caffarella, & Baumgartner, 2007). These requirements are usually met through conferences and individual workshop sessions on various topics. Unfortunately, research on the effectiveness of training is mixed. Some have found benefits from nonformal training, including increased support of caregiver-child language (Burchinal, Howes, & Kontos, 2002; Clarke-Stewart & Allhusen, 2005; Dickinson,

Darrow, & Tinubu, 2008; Fukkink & Lont, 2007; Girolametto, Weitzman, & Greenberg, 2006; Kreader, Ferguson, & Lawrence, 2005; Wasik, Bond, & Hindman, 2006), while others have found formal education to be the most influential on caregiver practices (NICHD, 2005; Whitebook, 2003). However, the number of studies that focus on nonformal training as professional development alone, specifically looking at family child care, is very small. Additionally, family child care providers have been found to have the lowest rates of formal education, nonformal training, and outside support (such as technical assistance and mentoring; Dowsett et al., 2008; Fuligni, Howes, Lara-Cinisomo, & Karoly, 2009). In other words, there is a particular need for professional development through training and support for family child care providers.

Over the last decade, there have been few studies that have shown a link between nonformal training and caregiver interactions and the encouragement of language skills. Many of these studies have focused on early literacy skills which includes language (Dickinson & Caswell, 2007; Girolametto et al., 2006; Wasik et al., 2006). These studies have found favorable support for nonformal training for caregivers. However, few have looked specifically at the relationship between training and verbal turn-taking and none were found involving family child care providers.

Some of the challenges to researching nonformal trainings are the vast formats available to caregivers in their communities. In Utah, the Child Care Resource and Referral (CCR&R) agencies, throughout the state, each year conduct approximately 63,187 person-hours of training for 3,967 providers across the state. The topics are divided into workshops and are taken by caregivers in a series, completing 10 hours for

each topic. In general, one-shot workshops are discouraged when focusing on change in behavior.

The challenge with training is to change behavior and maintain that change over time. Although training developed to meet the needs of adult learners has been shown to change caregiver beliefs and attitudes, in many cases it is not successful in changing behavior (Joyce & Showers, 2002). Others have found that training does influence caregiver behaviors, but positive behaviors diminish over time (Ota, DiCarlo, Burts, Laird, & Gioe, 2006; Pence, Justice, & Wiggins, 2008). These findings indicate that nonformal training alone may not be enough to change caregiver practices long term (beyond a few months) even though it incorporates good pedagogical practices for adults (Honig & Martin, 2009).

There is some evidence that nonformal training, combined with on-site mentoring, increases change in caregiver behaviors (e.g., Norris, 2001), creating a call for further research by scholars in the field (Maxwell, Feild, & Clifford, 2005; see also, Dickinson et al., 2008). Though mentoring specifically related to increasing turn-taking was not found in the literature, a few studies have focused on mentoring as a way of helping caregivers support general language and literacy development in the classroom (Downer, Kraft-Sayre, & Pianta, 2009; Downer, Locasale-Crouch, Hamre, & Pianta, 2009; Jackson et al., 2006; Koh & Neuman, 2009; Landry, Anthony, Swank, & Monseque-Bailey, 2009; Landry, Swank, Smith, Assel, & Gunnewig, 2006). Mentoring is often viewed as providing caregivers with avenues to try new things with guided support and knowledge resources (Bellm, Whitebook, & Hnatiuk, 1997; International Reading Association & National Association for the Education of Young Children, 1998; Pavia, Nissen,

Hawkins, Monroe, & Filimon-Demyen, 2003). Mentoring has been shown to improve caregiver-child interactions, and mentoring support coupled with training can have a significant impact on caregiver behaviors leading to better experiences for children (Downer, Kraft-Sayre et al., 2009; Downer, Locasale-Crouch et al., 2009; Girolametto et al., 2006; Jackson et al., 2006; Koh & Neuman, 2009; Landry et al., 2006, 2009; Wasik et al., 2006). Compared to control groups, a handful of studies with center caregivers have found that caregivers who attend training and then receive ongoing on-site support from a mentor show increased positive caregiver-child interactions. Specifically, studies have found that mentoring is related to increases in the caregiver's practices that support language and literacy (e.g., expansion and extension; Girolametto et al., 2006; Jackson et al., 2006).

While these studies have similar findings, to date, no studies have been found that focus on nonformal training and mentoring intervention for family child care providers to increase the frequency of turn-taking with children in their care. The present study proposes to address this gap.

Adults, including non-parental caregivers in child care environments, play a major role in children's language development through verbal interactions. Children show stronger language growth when caregivers encourage them to continue talking such as through turn-taking (Dickinson & Tabors, 2001). There is insufficient research available which examined training and mentoring as possible ways to help caregivers encourage language development through conversational turn-taking, particularly with family home providers. This creates a need for exploring ways to increase the verbal interactions in this type of child care setting. Research has found that training and mentoring support for

caregivers can be a catalyst for positive change in practices (Joyce & Showers, 2002), and has been found to be a strong predictor in increasing caregiver-child interactions (Bromer, Van Haitsman, Daley, & Modigliani, 2009).

This study investigated the relationship between caregivers' turn-taking with children before and after participation in two different professional development models (10-hour nonformal training and 10-hour nonformal training with 12 weeks of on-site mentoring support), as compared to a control group. The specific research questions were as follows:

1.   Is there a significant difference in family child care provider-child conversational turn-taking after caregiver participation a 10-hour training program as compared to a control group?

2.   Is there a significant difference in family child care provider-child conversational turn-taking after caregiver participation in a 10-hour training program combined with onsite mentoring as compared to a control group?

3.   Which model (training or training plus mentoring) correlates with the greatest increase in the frequency that caregivers and children engage in conversational turn-taking in family child care programs?

CHAPTER II

REVIEW OF LITERATURE

This chapter includes a review of related literature that focuses on caregiver-child verbal turn-taking, training, and mentoring of child care providers. This study's primary goal is to investigate the relationship between professional development in the form of nonformal training and mentoring and caregiver-child turn-taking. Nonformal training for child care providers is commonly used to describe group training provided in the local community. Formal training, on the other hand, refers to classes or courses provided by higher education institutions (e.g., Merriam et al., 2007).

The way professional development is defined and carried out for caregivers working with young children has changed over the last several years. Previously, nonformal training and experience were seen as the best professional development for caregivers (Strickland & Riley-Ayers, 2006). Today there is a growing belief that professional development, as nonformal training alone, may not be effective in changing caregivers' behaviors and practices (Kreider & Bouffard, 2006). Professional development has shown to be more effective when it is continuous with mentoring support for newly acquired skills and practices. Studies looking at a combination of training and mentoring with varying designs have found more favorable results (e.g., Dickinson et al., 2008; Girolametto & Weitzman, 2002) than studies looking at nonformal training alone. Consistent with adult learning theories, it is beneficial for professional development to include verbal learning from direct instruction, observational learning from modeling, and self-constructed knowledge from action and reflection

(Riley & Roach, 2006). Training plus mentoring appears to address all aspects of this model. The literature review will cover the following themes. First, turn-taking (how caregivers support turn-taking and pertinent research related to turn-taking) will be addressed. This will be followed by a discussion of caregiver professional development, and the research and findings related to nonformal training and mentoring. Finally, this literature will be summarized.

Caregivers Supporting Turn-Taking

Caregivers use many different techniques to promote children's language use. When talking to young children, caregivers have been found to use varied intonation, additional utterance prefixes (i.e., 'well' and 'now') to help children understand a response is coming, and redundant utterances to acknowledge and reassure. These techniques encourage children to use language without disrupting the child's communication (Owens, 2007). Research on the manner whereby caregivers verbally take turns with children during the day has been found to be related to children's language development. Studies looking at different interactions promoting turn-taking strategies include asking questions, providing conversational extensions (Dickinson et al., 2008; Girolametto & Weitzman, 2002; Turnbull et al., 2009), revoicing (Yifat & Zadunaisky-Ehrlich, 2008), and language modeling (i.e., label, comment; Girolametto, Weitzman, & Greenberg, 2003). These strategies have been found to promote language use through conversations for toddlers and preschoolers.

Turn-taking in adult-child conversations is different than that of two adults in conversation. Where adults are often working to gain a turn in the conversation, in adult-

child conversation, the adult is usually working to get the child to take a turn. Caregivers use multiple techniques to enhance turn-taking and the success of each is highly dependent on the age of the child (Owens, 2007).

Questioning is one example that is used at all ages to serve as a response and an encouragement of a turn for the child. There are several types of questions including, 'wh' questions, tag questions, clarifications, I wonder statements, fill-in, and extension and expansion that promote turn-taking (Owens, 2007). Even though verbal interactions, such as turn-taking by caregivers, occurs at low rates in child care, research has found that asking questions and extending the topic is most likely to be present (Dickinson et al., 2008).

One study conducted by Polyzoi (1997) on caregiver-child turn-taking looked at 15 randomly selected preschool children in center care. Using videotaped sessions of classroom interactions between caregivers and children, they found that children take more turns with an adult, but produce fewer utterances per turn and fewer words per utterance than interactions with peers. The researcher concluded that this difference was due to the children performing less self-talk during interactions with adults as compared to interactions with peers. With a caregiver present and engaging in conversations, children usually participate, thus their language and learning is supported.

Another study, by Yifat and Zadunaisky-Ehrlich (2008), involving caregivers in 10 preschools and 10 kindergartens, found that caregivers play a large role in children's language development through turn-taking in circle-time. The authors describe this process as an initial turn by the caregiver, usually a question with a known answer, a response from the child, and a follow-up turn from the caregiver. These researchers

concluded that caregivers need to understand the pedagogical underpinnings of conversation techniques they use as they interact with children in order to promote additional turn-taking.

Parent-Child Turn-Taking

Much of the research on caregiver-child turn-taking is focused on mother and child interactions. One seminal study by Hart and Risley (1992) showed children learn to talk through casual social interactions with caregivers. The authors used direct observation of 40 families from a range of economic backgrounds to examine the development of communication. Each month, parents and children were observed for one hour during everyday play activities beginning when the children were nine months old until the age of three years. Behaviors measured during observations included: time present with the child, joint activities, response to child's initiations, prohibitions, mean length of utterances, different words used, questions, and turn-taking. Overall, these researchers found that parents who spoke more to their children also used questioning, repetition, and elaboration as turn-taking strategies more often than parents who spoke less. These findings were all linked to the child's subsequent IQ measures on the Standford-Binet IQ test.

Hoff-Ginsberg (1991), looking at mothers and their two- to three-year-olds, examined maternal turn-taking (defined as topic-continuing replies) that immediately followed the child's speech and referred to the child's prior speech. It was found that mothers who used more continuing replies also spoke more to their children and elicited more conversation with their children. Mothers performed highest with topic-continuing replies while reading with their children. Mothers who followed their child's lead in

daily interactions tended to talk more with their children, which has been shown to have positive effects on language development (Hart & Risley, 1995). This study further supports the impact of turn-taking on language development in children.

Similar to the previous study, Bornstein, Tamis-LeMonda, and Haynes (1999) found that when mothers practiced turn-taking by commenting in a way that was related to the child's behavior, it was predictive of the child's vocabulary development. Moreover, mothers' strategies for commenting in this way with their 13-month-olds were predictive of their child's language development at 20 months of age. These findings suggest that mothers who use turn-taking to maintain and extend their children's interest and vocalization, promote language development in their children. This further illustrates the importance of turn-taking as a key component in language development. For this reason, this study looked at the responses made by caregivers to maintain and extend the topic and promote turn-taking with children.

Non-Parental Caregiver-Child Turn-Taking

Unfortunately, research on caregiver-child verbal interactions has found that the frequency of caregiver-child conversation is very low (e.g., Dickinson & Tabors, 2001; Massey, 2004). de Rivera, Girolametto, Greenberg, and Weitzman (2005) found that infant/toddler caregivers often do not use strategies that promote language during conversations. Through videotape analysis of 20 caregivers during regular classroom activities, caregivers failed to expand on 78% of children's utterances, did not maintain topics over 65% of turns, and used directive and complex language on 70% of turns. Girolametto and Weitzman (2002) collected data on the types of interactions between 26 center-based caregivers and four typically developing toddler or preschool (18 months

and older) children from each classroom. Researchers recorded the caregivers interacting with the four children in a book reading activity and a play-dough activity and used the Teacher Interaction and Language Rating Scale (Girolametto et al., 2000) to rate the type and quality of caregiver interactions. Focusing on caregiver verbal interactions and the children's use of language, the researchers found that caregivers' responsiveness, including turn-taking, had a significant impact on preschoolers' use of expressive language (i.e., number of utterances, different words, multi-word utterances). In particular, when caregivers used the turn-taking strategies of modeling language and promoting peer interactions, the children demonstrated a significant increase in their total number of utterances, number of different words, and multi-word utterances used in conversations. These researchers concluded that regardless of child's age or language abilities, caregivers use the same type of turn-taking strategies (i.e., asking questions, extension).

Another group of researchers used 90-120 minute videotaped segments of 28 center caregivers' interactions with children (Turnbull et al., 2009) and found that preschool caregivers' various turn-taking strategies were low: only about one-third of the utterances heard by the children were turn-taking strategies that promoted language. Notably, these results emerged after controlling for group size and current activity. Similarly, Dickinson (2001) reported that three-year-old children were engaged in sustained talk with a caregiver during 21% of free play time. For four-year-olds, sustained talk with a caregiver occurred during 17% of free play time. The researcher concluded that these percentages were very low with 59% of the time absent of talking completely during free play. Free play time in child care accounts for a large portion of

children's child care experience, making conversation during this type of activity important.

All of the previously mentioned studies indicate that caregivers are infrequently engaged in turn-taking, however, it is unclear from extant literature just how much turn-taking time is optimal or even necessary in the child care setting. It appears likely, nonetheless, that caregivers might not be taking full advantage of turn-taking opportunities. This observation supports the need for caregivers to have a better understanding of the importance of turn-taking and how engaging in conversations encourages children to use more language.

Research Methods Useful to Explore Turn-Taking

Traditionally, the research methods for looking at conversational turn-taking in child care have been tedious and time consuming. Gathering data on specific types and frequencies of conversational tactics, such at turn-taking, has consisted of video- or audio-taped sessions in natural or laboratory settings. These sessions have varied from study to study, but often were 10-60 minutes in length for each taping. Each recording was then transcribed and coded. In the often cited Hart and Risley study (1995), each transcript was divided into interactional episodes defined by a delay in speaker response that was more than five seconds. The next turn occurrence was recorded as the next episode. Each episode was noted along with the current activity and the proximity of the caregiver. Each utterance and nonverbal behavior was assigned to a speaker along with a condition for the utterance (i.e., initiation, response, or continue to hold floor). With this

method, inter-reliability for transcription and or coding was tested for a percentage of tapes.

Using the results from the Hart and Risley study (1995) as the foundation and motivation, the LENA Foundation developed a way to collect language data from interactions through unobtrusive technologies. The LENA (Language ENvironment Analysis) system utilizes signal processing technologies to monitor the natural language environment of children. This device is a small, light weight, digital recorder (DLP- digital language processor) and is worn in the pocket of a child's specially designed shirt. The DPL can hold 16 hours of recordings of all the sounds in the child's environment and yields data on adult and child word-count, adult-child turn-taking count, and TV time. This device provides the opportunity to record a child's daily interactions and is less disruptive than other methods. It appears to work well in collecting data in child care programs.

The audio recordings were loaded into a software system in order to look at the details of caregiver-child turn-taking and categorize them into strategies using a coding system. One system found in the literature, the Polyzoi system (Polyzoi, 1997), identified six main codes for conversational analyses. The six coded areas include frequency of turn-taking (i.e., turns and word counts, conversational gaps-silence for more than 3 seconds), type of utterance or strategy (i.e., factual statement providing information, question, expressive utterance consisting of emotive speech, directives, and didactic utterance with a purposes of instruction), conversational cohesiveness (i.e., contingent/non-contingent responses), overlapping utterances, and self-talk. Through this coding system a frequency count was made of each strategy used in adult-child

conversation. The strategies identified in this coding system are those that promote child

language development as indicated by research. To add to the ease of coding, this system

records frequency of strategies while others use a more complex Likert-type scale to

categorize utterances (see Girolametto et al., 2000). Some scales, like the Teacher

Language and Interaction Scale, are designed to take into account observable behaviors

related to conversation such as non-verbal communication and classroom activity and

location, but those behaviors were not examined for this study. In this study, a

modification of the Polyzoi (1997) system was utilized. Not all codes used by Polyzoi

were retained. The codes used included number of turns by child, strategies used by the

caregiver, including (i.e., factual statements, questions, expressive utterance, directives

and didactic utterances), and the cohesiveness of the caregiver's turns as defined by the

extent the content of the subsequent turn is contingent on the content of the previous turn.

Research on the Effectiveness of Training

Early childhood literature provides insight into the issues of training as

professional development for caregivers of young children. Some studies have shown

that training can make a difference in teacher skills and practices (e.g., Rhodes &

Hennessey, 2000). Additionally, studies have found that caregivers want training (i.e.,

large group workshops; Rusby, 2002). Findings like these continue to support the

importance of training (Girolametto et al., 2003), even though results on the efficacy of

nonformal training are equivocal. A few studies question the relationship between

nonformal training and behavior change (e.g., Whitebook, 2003), but others argue that

change in knowledge is likely through nonformal training (e.g., Joyce & Showers, 2002).

Researchers have studied the efficacy of nonformal trainings by collecting data before and after training sessions (pre-post design) to find relationships between training and caregiver interactions. In general, many studies have found support for the notion that training influences classroom behaviors. Burchinal, Cryer, Clifford, and Howes (2002) found that children with caregivers who reported participating in more nonformal training through community agencies (as opposed to in-service in their program or professional meetings) had more advanced language skills. In another study with 70 family child care providers, Norris (2001) found that caregivers who participated in ongoing nonformal training of any type (as opposed to intermittent) scored higher on the Family Day Care Rating Scale (FDCRS), including the language and reasoning scale. This scale focuses on caregiver behaviors that promote language in children.

Of importance is a meta-analysis of 17 studies looking at caregiver nonformal training for 1980-2005 (Fukkink & Lont, 2007). These studies included a few explanations of turn-taking and language in children. Training was found to relate to an increase in caregivers' competency in terms of knowledge, attitude, and skills. Moreover, caregivers' training was related to positive outcomes for children including language development. It appears that nonformal training can be valuable for caregivers and children.

Training Delivery Methods

Researchers have studied many different formats of in-service training to examine the effectiveness of changing caregiver behaviors in the childcare setting. Varying lengths and types of in-service have produced changes in caregiver behaviors

(Girolametto et al., 2003; Girolametto, Weitzman, & Greenberg, 2004; Rhodes &

Hennessey, 2000; Wasik et al., 2006) while others have not found formal education to be

more beneficial (Howes, 1997; Whitebook, 2003; Whitebook, Howes, & Phillips, 1989).

Caregivers in ten Head Start programs attended two-hour sessions once a month for nine

months. The training was focused on teaching the caregivers specific strategies to use

during book reading. Using an observational pretest-posttest design researchers found

that the training related to an increase in caregivers' use of turn-taking strategies

including informational talk, questions, and didactic utterances (Wasik et al., 2006).

Supporting these findings, researchers found similar results when caregivers in a child

care center participated in a 120 hour course on caregiver-child interactions (Arnett,

1989). Following the training, the caregivers showed significantly higher levels of

caregiver sensitivity including verbal responding through turn-taking compared to the

control group.

Another study found positive results when center caregivers participated in three

150 minute long group sessions for six weeks (Girolametto et al., 2004). They found

positive results on caregiver turn-taking, specifically related to turns promoting peer

interactions including prompts, interpretations, and informational utterances. Caregivers

who received this training used more turn-taking than caregivers in the control group.

This study provides further support for the notion that caregiver-child turn-taking can

increase following nonformal training.

Some nonformal training of shorter duration have also been found to have success

in increasing positive language strategies. Caregivers who participated in a two-day

nonformal training (12 hours total) demonstrated better use of strategies that promote

language and literacy than participants in the control group. Interactions were videotaped and coded for the types of language used (Girolametto, Weitzman, Lefebvre, & Greenberg, 2007). Research found initial change in caregiver's behaviors after attending brief nonformal trainings session as well (e.g., Wasik et al., 2006). Honig and Martin (2009) conducted a study with 42 caregivers from 14 centers who attended a one-time 150 minute training session on caregiver verbal turn-taking. Caregivers were audio-taped prior to training, and then again two and four weeks following the training to assess frequency of turn-taking. The researchers found that this short training session did increase caregiver frequency of turn-taking initially, but the change was not found at four weeks post training. Based on this study, one might make the assumption that a one-time training session may not be enough to sustain any behavior changes that initially occur after attending training.

These short sessions were found to make some difference, even though a lack of longevity was noted in the practice of the newly acquired behaviors. Findings like these provide support for continued professional development in the form of nonformal training, but it is important to consider ways to better support new or increased frequency of caregiver behaviors. One-session workshops may not be as successful as longer forms of nonformal training. Professional development can make a difference, but there is evidence that some professional development models are not effective.

Adult Learning and Mentoring

Adult development theories provide a framework for understanding how adult learners are different from child learners, while providing insight into designing better

professional development programs (Trotter, 2006). Much of the theoretical basis related

to mentoring as a learning process can be drawn from adult learning theories. It is also

important to understand the specific personal experiences adult learners have during the

learning process.

Models and theories such as those by Knowles, Swanson, and Holton (2005) and

Jarvis (2004) have more recently been used as a general foundation to build more specific

models for individual fields. Riley and Roach (2006) offer a constructivist model of staff

development for caregivers. These researchers view professional development as a

process of teaching and learning which incorporates processes of change including verbal

learning through training, observational learning through mentoring, and self-constructed

knowledge. Verbal learning is learning that the caregivers receive and it can be formal

(college courses) or nonformal (e.g., conferences and community workshops).

Observational learning consists of mentoring or technical assistance that is provided to

the caregiver. Lastly, self-constructed knowledge is from action and reflection (e.g.,

emergent curriculum) through feedback based on caregivers' own understandings.

> At the core of the constructivist approach to staff development is
> recognition that teachers grow from a relationship with a trusted
> confidant, another early childhood professional with whom they can
> create a continuing conversation about their understandings of early
> childhood practices. (Riley & Roach, 2006, p. 364)

The constructivist model includes six teaching elements as follows: (1) build a trusting

relationship, (2) shape promising practices, (3) generalize effective practices, (4) provide

conceptual labels, (5) link practices with research-based knowledge, and (6) encourage

caregiver's self-exploration.

Mentoring in child care settings is becoming more prominent in research as more children enter non-parental care and the need for professional development to help children have quality experiences in this care continue to be a focus. Through the evaluation of this constructivist model using mentoring, promise for changing caregiver behaviors is found. In a study one year after implementation of this constructivist model, the researchers found that observed quality in classrooms increased significantly above the control group. The quality increased in areas of caregivers' beliefs, positive interactions with children, and environment quality (Roach, Riley, Adams, & Edie, 2005). Moreover, at a three-year follow-up, 92% of the centers that had participated in the intervention based on this constructivist model had achieved accreditation (Roach, Kim, & Riley, 2006). One might conclude that adults, like children, can benefit from a constructivist approach where they are provided new information, shown how to apply the new knowledge, and have access to support. Accordingly, support and supervision are provided to mentor specialists to assist them in implementing this model while working with caregivers in the field.

Research on Professional Development Models with Mentoring

A growing body of research shows the benefits of various professional development models combined with mentoring support for caregivers (Dickinson et al., 2008; Girolametto & Weitzman, 2002). On-site mentoring, in general, has been shown to have an advantage as mentors and caregivers focus can be on the current issues and needs (Black, Molseed, & Sayler, 2003). Additionally, it allows for the mentor specialist to

model and guide behaviors and practices which can lead to an increase in behavioral change (Joyce & Showers, 2002; Poglinco & Bach, 2004).

A study by Howes, James, and Ritchie (2003) conducted observations and interviews looking at the teaching effectiveness of 80 center caregivers. Findings supported formal education in a child-related field; however, support was found for alternative pathways to reach the same level of practice as those with a degree. Caregivers without formal education who had a mentor early in their career were found to be no different in responsiveness and emergent literacy practices than those with formal education. While the details of the mentoring were not reported, this provides support for mentoring, especially for caregivers without formal education in early childhood. Similarly, The Family Child Care Network Impact Study included 150 family child care programs in the Chicago area. Findings from interviews of this matched group design found that the greatest positive predictor of quality in family child care programs was participation of the caregiver with a mentoring specialist. In this study, the mentoring varied between the different community agencies providing the services, but 83% of providers reported having at least one on-site visit in the last six months, 48% reported having monthly visits, and 29% reported more than one visit per month (Bromer et al., 2009).

Delivery Methods

Research using mentoring with training has generally found positive relationships between concurrent training, mentoring support, and caregiver behaviors regardless of the delivery method of the mentoring. A few studies have looked at mentoring with this model. One study examined Head Start classrooms with 22 caregivers who received

three days training on literacy and social-emotional development (Domitrovich, Gest, Gill, Jones, & DeRousie, 2009). Mentors spent an average of three hours per week with caregivers over a one-year period finding an increase in the targeted teaching strategies related to social-emotional and language-literacy curriculum practices. However, in this study, teachers' years of education were still a strong predictor of language richness in the classroom.

There is evidence that shorter mentoring durations, such as over 14 weeks, also correlate with more positive caregiver behaviors. In one quasi-experimental study, caregivers attended eight 150 minute training sessions on early literacy (Girolametto et al., 2006) with six individual video feedback sessions from a mentor. After the intervention, caregivers displayed better language facilitation strategies and verbal supports including some turn-taking strategies such as verbally following the child's lead, asking questions, expanding and extending the child's utterances.

The differences in mentoring models can make it hard to pinpoint what will make the best model of mentoring. However, Jackson et al. (2006) used a three group pre-post design where caregivers attended a 15-week satellite training on literacy practices. In addition to group training, caregivers received four to six on-site visits which were 2-4 hours long toward the end of the training. This study found less impact from mentoring than other researchers. These authors note that this may be due to the fact that the mentoring occurred after most of the training was complete rather than concurrent with training to help caregivers integrate new information into practice. Thus, mentoring may be more successful if mentoring and training are concurrent.

These previous studies provide support for mentoring as the findings are positive even without consistent mentoring methods across studies. These studies look at overall quality, interactions, and other classroom practices, however, evidence on the effectiveness of mentoring as a way to improve caregiver's turn-taking with children is very minimal. Studies implementing a mentoring program usually combine it with formal or nonformal training. As with training, mentoring is administered in various durations and frequencies in the absence of research that defines what is optimal. Through a review of literature, there is evidence that mentoring programs of varying lengths can be helpful to caregivers as a form of professional development. Research has found success in improving caregivers' literacy practices with a mentoring program lasting 8 weeks (Jackson et al., 2006), 16 weeks (Koh & Neuman, 2009), and throughout a 9-month school year (Domitrovich et al., 2009). Additionally, the frequency of visits vary from a set number of visits in a defined amount of time (e.g., four to six visits over 2 months) to weekly visits for the course of the study; however, the length of the on-site visit is narrower in spread with mentors visiting on average from 1-3 hours per session. All this suggests that at minimum, a mentoring program could include durations from 8-16 weeks, with bimonthly to weekly visits for 1-3 hours per visit.

Therefore, this study incorporated training and mentoring together throughout a 12-week period. In keeping with the trend of the literature, the mentoring program for this study provided on-site, bi-monthly sessions. Each of these on-site sessions were 1-3 hours in length. Additionally, mentor specialists were available for off-site assistance by phone or e-mail for support and questions.

Summary

Research shows caregivers play a critical role in children's language development through turn-taking. The impact that caregivers have on children in their care has prompted policies that call for more and better professional development of caregivers of young children. Looking at the current research on professional development models for caregivers and current research findings, it seems that a model that combines training with mentoring support may have a greater influence on desirable caregiving behaviors like turn-taking. Little research is available that addresses the relationship between training and mentoring and verbal turn-taking between caregivers and children in child care and especially family child care.

Thus, the focus of this study was on the relationship between professional development, in the form of training and mentoring, and caregiver-child turn-taking in family child care. The research questions are as follows:

1.   Is there a significant difference in family child care provider-child conversational turn-taking after caregiver participation a 10-hour training program as compared to a control group?

2.   Is there a significant difference in family child care provider-child conversational turn-taking after caregiver participation in a 10-hour training program combined with onsite mentoring as compared to a control group?

3.   Which model (training or training plus mentoring) correlates with the greatest increase in the frequency that caregivers and children, engage in conversational turn-taking in family child care programs?

CHAPTER III

METHOD

This chapter describes the research methodology for this study. A nested design was employed where providers and children were nested within programs. First, a description of the regions selected and the recruitment process of programs within regions is discussed. Second, a description of the selection process for children and providers within programs is discussed. Third, the professional development intervention, training and mentoring is discussed. Finally, outlined are the procedures followed for gathering turn-taking data and the measures used in analyzing turn-taking data.

Participants

In the state of Utah, under the auspices of the Utah Office of Child Care, there are six Child Care Resource and Referral Agencies (CCR&R) which provide services to providers and parents in a set region including provider lending libraries, parent referrals, and ongoing provider training. Additionally, each of the CCR&Rs has a mentor specialist on staff working to provide resources and technical assistance to family child care providers with the purpose of increasing retention and quality of family child care programs in the state of Utah. To assist with continuity, all mentors received four initial 5-hour group trainings focused on recommended practices for mentoring (e.g., Riley & Roach, 2006; see also, Johnston & Brinamen, 2006) and ongoing support and supervision as needed through individual meetings and frequent contact via telephone and email. The

training, support, and supervision for the mentors were contracted to the Consultation and

Training Director from The Children's Center by the Office of Child Care (OCC) as part

of the state mentoring program. The contracted professional had a graduate degree in

early childhood education and has worked in the child care field for over 30 years in

varying capacities, currently overseeing programs that provide on-site support to

caregivers.

Programs Selected Within Regions

For this study, four of the larger regions were selected based on their similar

numbers of family child care programs. Each of the selected four regions had a large

number of licensed family child care providers ranging from 144-238. These included

Bridgerland, Metro, Mountainland, and Northern. Bridgerland is located in the northern

most part of Utah and includes Box Elder, Cache, and Rich counties. Metro includes Salt

Lake and Tooele counties and is south of the Bridgerland Region. Southeast of

Bridgerland, the Northern region includes Davis, Morgan, and Weber counties.

Mountainland is east of Metro and Northern regions and encompasses Summit, Utah, and

Wasatch counties. See Appendix A for a map of the regions.

Family child care is a home-based type of non-parental care that is subject to state

regulation and licensing. Family child care refers to child care provided by unrelated

adult caregivers to children, often of different ages, in the caregiver's own home. There

are two types of family child care, family child care homes and family child care groups

with two defining differences being the number of children they can care for at one time

and the number of providers in the home. In Utah, one licensed family home provider

can care for up to eight unrelated children in their home and a licensed family group, with

two full-time providers, can care for up to 16 unrelated children in their home.

Recruitment efforts included the use of postcards sent by mail and phone calls

made to licensed providers. Postcards were sent to 800 providers and announced an

opportunity for English-speaking providers to volunteer in a research study on verbal

language in family child care (see Appendix C). Response to the postcards was limited

so researchers continued to recruit through making phone calls to these providers. Table

3-1 shows an overview of the recruitment effort's results. Researchers spoke to 238

family child care homes (30% of the 800 total programs). One-hundred-ninety met the

criteria for participation, but were not interested, with 50 interested and meeting the

criteria in participating (21%). Interested providers were assigned to one of the three

groups randomly. As contact was made with potential providers, they were assigned to a

group sequentially from a random starting point.

Table 3-1

Summary of Recruitment Efforts

Method	Bridgerland	Metro	Mountainland	Northern
Postcards				
Not interested	5	3	0	1
Criteria not met	1	1	0	1
Participated	9	2	0	5
Calls				
Not interested	26	46	15	94
Criteria not met	16	34	11	78
Nonworking #	0	3	0	9
No return call	7	24	0	21
Participated	12	6	12	2

Fifty family child care programs over the four regions in Utah volunteered to participate, 17 were assigned to the training group, 16 were assigned to the mentoring and training group, and 17 were assigned to the control group. For an overview of demographics in each region see Table 3-2. The final sample included 48 family childcare programs, representing an overall attrition rate for the entire study of 4% with two programs withdrawing—one from the training group and one from the control group—leaving the final sample with 16 programs in each of the treatment groups. Family child care programs were selected by using a statewide database to obtain a listing of all licensed family child care programs in the targeted regions. These included family child care home and family group child care programs.

Participants Within Programs

Informed consent was obtained from all providers volunteering to participate in this study (see Appendix D for provider informed consent form). All providers gave informed consent and with the exception of the control group, all primary providers involved with intervention were expected to attend the training.

Table 3-2

Number of Licensed Family Child Care Programs by CCR&R Region

Region	General demographics		Program type		Group assignment		
	Licensed FCC	Child pop	Family home	Family group	Control	Train only	Training + mentor
Bridgerland	144	16,040	11	10	8	8	5
Northern	220	48,393	3	5	1	2	4
Mountainland	198	61,197	10	3	4	4	4
Metro	238	98,014	3	5	3	2	3

Parent permission was sought from all parents of children who were enrolled in the selected programs (see Appendix E for parent permission form). Four children from each program were selected to be participants provided they met the following qualifications: their parents had given signed informed consent; they attend the family child care program a minimum of 30 hours a week; they were between two- and four-years-old; they had no diagnosed or frank cognitive or linguistic delays.

The economic situation in the U.S. has impacted the family child care programs. Most programs reported low enrollment and expected or recent withdrawals due to parent job loss and financial constraints. The mean number of children across the programs that attended more the 30 hours per week in the programs was seven, range, 4 – 14. Therefore, in 16 (32%) of the programs, the enrollment consisted of only four children that met the requirements for this study. Ten (21%) programs had enough children of both genders to randomly draw two males and two females. In the remaining programs, random drawing was implemented for either gender when applicable (i.e., a program with one eligible male and four eligible females; the male was selected and three females were drawn to participate).

Intervention

Training Procedures

The following groups are identified as follows:

- Group 1: Control; This group maintained "business as usual," which included other nonformal trainings that caregivers attended as part of their normal professional development.

- Group 2: Training only; Professional development in the form of the prescribed group training for this study (i.e., 10-hour training in language development and verbal interactions through the curriculum, *First Steps: Supporting Early Language Development* [Educational Productions, 1995]).

- Group 3: Training plus Mentoring; Professional development in the form of the prescribed group training for this study (i.e., 10-hour training in language development and verbal interactions through the *First Steps: Supporting Early Language Development* [Educational Productions, 1995]). Group 3 received six on-site mentoring visits, made every other week for 12 weeks, and weekly phone calls initiated by the mentor.

Utah requires providers to attend on-going training to maintain their license. Due to the nature of training registration and availability in Utah, many caregivers pre-pay/register for training sessions months in advance. This led to participants attending trainings not related to this study. Caregivers reported the trainings they have received or were planning to attend on the demographic survey. During the duration of the study, the average number of non-study related training hours received by participants was similar across experimental groups (Control, $M = 10.00$; Training Only, $M = 9.22$; Training plus Mentoring, $M = 9.06$).

The provider training for this study consisted of four 150 minute sessions over a 6-week period. Each region received training delivered by one of four early care and education specialists employed to deliver trainings within each region. Providers were required to attend all four sessions, arrive on time, and stay for the full duration of the

training. Compliance was expected because the training counted toward the Utah Early

Child Career Ladder for providers. The career ladder is a voluntary statewide training

certification program for child care providers. Because the caregivers participating in the

program receive cash bonuses for each level of training they complete, they were

required to follow the attendance expectations described above. The training participant

expectations were the same across regions. In the cases where providers had unavoidable

circumstances (i.e., illness) and had to be absent from a training session, they were

offered the opportunity to attend the session in a different region. If this was not

possible, the provider was sent an overview of the training session content in the mail. A

trainer made follow-up contact with these providers via phone or face-to-face in the

following training to answer questions and clarify content. Table 3-3 is an overview of

sessions missed by providers. See Appendix F for a sample of the participant

expectations.

Table 3-3

Training Participants and Absences

Region	Study participants	Training absences			
		Session 1	Session 2	Session 3	Session 4
Bridgerland	15	1	2	1	3
Metro	7	0	0	2	0
Mountainland	10	0	1	2	0
Northern	8	2	0	0	0

The Training Intervention

The training intervention consisted of group training for providers in verbal interactions (oral language strategies such as turn-taking). *The First Steps: Supporting Early Language Development (*Educational Productions, 1995) had been selected for the training program. It was developed by Educational Productions staff Linda Freedman and Rae Latham, with lead consultant Carrie Sharp, MS, CCC-SP. The research base of the *First Steps* programs and the strategies used in the curriculum and videos align to Early Childhood best practices and Head Start Standards (M. Connors, personal communication, July 29, 2009). *First Steps* is designed to help caregivers understand the importance of verbal strategies and how to use them with young children. This series was selected because of its direct focus on verbal conversational strategies with children and because the curriculum and related activities follow basic tenets of adult learning philosophies and recommended practices for group training (i.e., relevant information, balance between learning strategies; e.g., Knowles et al., 2005; McKeachie & Svinicki, 2006).

The first session of *First Steps* focused on the topic of language connections, the importance of adult responses to young children, and the necessity of appreciating each child's unique path in language development. The remaining three training sessions (150 minutes each) centered on talking with young children and building conversations. "Talking with young children" included learning how to identify, understand, and incorporate language in interactions with children. "Building conversations" focused on understanding the opportunities conversation provides to children and techniques to facilitate conversations (i.e., turn-taking). See Appendix G for further description of the

nonformal training. The training content was approved by the Office of Child Care

(OCC) for Career Ladder Credit. To be part of the Career Ladder training offerings, the

OCC confirms appropriateness and relevance of training content, appropriateness and

variety of activities, objectives, and a delivery schedule that is consistent with training

offered in Utah. Each training class had availability of 20 participants. Open spaces in

the trainings were advertised to the community and available slots were filled with child

care providers (center and family child care). Training classes were open to community

child care providers

Trainers. In each of the four regions, trainings were administered by an early

care and education specialist working in that region. All specialists had a four-year

degree in an early childhood related field, and all had experience as a child care provider,

program administrator, and child care provider mentor. They hold several training

certifications such as the Program for Infant and Toddler Caregivers (PITC), and are

registered trainers with the state of Utah.

The trainers participating in this study were familiar with the *First Steps* training

curriculum. Each trainer was provided the trainer's manual which includes training

resources, activities, lecture notes, discussions, and DVD video clips for interactive skills

practice. The trainers attended a 2-hour orientation with the researcher to discuss the

training expectations related to this research project. At no time was the purpose of the

study or the research questions shared with the trainers. Trainers were allowed to follow

the group and meet their learning needs in discussion, but were asked to address each

main point and to use all of the activities on the training agenda for each session. To

increase uniformity of this training across all regions the researcher recorded one session

of each trainer. The researcher certified that the training activities were aligned with the *First Steps* curriculum, that the trainer covered the topics assigned for the session, and that the session was the designated length. Additionally, individual phone calls were made to each trainer following each of the four sessions to see if there were any questions, problems, or concerns from the recent training.

In sum, professional development for this study consisted of a10-hour training on language stimulation and verbal turn-taking interactions taught by four experienced early care and education specialists. Content of the training was from the *First Steps* curriculum for providers that incorporated learning strategies that are recommended for adult learners including a variety of training activities and methods. Specifically, the training focused on developing the participants' knowledge in verbal strategies that support children's language through talking with young children and encouraging conversations.

Mentors. Mentors for this program all entered the role with child care and mentoring experience and an understanding of recommended practices in child care. See Table 3.4 for the mentor background summary. Additionally, after their initial training, the mentor specialists received individual specialized training, ongoing guidance and coaching via contracted services with the Children's Center Early Childhood Consultation and Training Program as part of the state mentoring program. For a sample agenda from one of the group mentor trainings, see Appendix H. Mentors were trained to address six elements (see Riley & Roach, 2006) as they work with providers: (1) build a training relationship, (2) shape promising practices, (3) generalize effective practices, (4) provide

conceptual labels, (5) link practices with research-based knowledge, and (6) encourage

caregiver's self-exploration.

The mentoring for this study included both off-site and on-site components

described below:

1.   On-site: A large portion of the mentoring was provided in the child care

setting during everyday activities and routines. Mentors provided consultative services in

direct, "hands on" fashion in the family provider's home during operating hours. Thirteen

providers received six 1-2 hours sessions over 12 weeks. Due to scheduling conflicts,

three providers received five 1-2 hours visits over twelve weeks. See Table 3-4 for

overview of mentoring.

2.   Off-site: Mentors contacted providers by phone and were available for

providers to call or email during working hours. Phone calls and email were logged by

the mentor in a computer database.

Table 3-4

Mentor Characteristics Including Degree, Years of Experiences, Number of Providers
Mentoring, and Mean Length of Visit/Provider

Mentor	Degree		Years experience		Mentoring	
	Type	Child-related	Child care	Mentor	Providers	Mean visit length
Bridgerland	None	No	17	2	4	65 min
Metro	4 yr	Yes	18	1	3	65 min
Mountainland	4 yr	Yes	25	12	4	99 min
Northern	4 yr	Yes	12	2	5	61 min

To monitor consistency in mentoring, mentors brought an audio recorder with them to 20% of their visits (approximately two visits per provider), and the entire session was recorded. The visits were randomly selected by the researcher. The recordings were reviewed for length of visit, discussion, and technical assistance topic areas for all mentors. Mentors kept a detailed log of on-site visits, telephone conversations, and email conversations (see Appendix I). Surveys were also given to providers that received mentoring at the end of the study. The surveys focused on content, length, and general feelings about the mentoring experience. Providers reported information consistent with Mentors on content and length of visits. Additionally, providers' feelings about the mentoring experience were positive with 14 stating an interest in future work with the mentor.

All providers, regardless of group, received free training and materials for their program; however, the control group providers received their training and materials after the data had been collected for this study. Providers received materials from the Lakeshore Learning Company. Mentor specialists used these new materials to support the technical assistance process. Upon completion of the study, providers in the Training Only (Group 2) and Control group (Group 1) were given the opportunity to receive a mentor. The control group also received a training voucher to attend a 10-hour training series of their choice through their local CCR&R, free of charge.

Instruments

Demographics. Providers' demographic information was collected once they agreed to participate in this study. This information was self-reported by the providers in a questionnaire form, and included the following variables: education level, training

hours completed, years of experience, ages of children in care, and number of children

enrolled. See Appendix J for the demographic form.

LENA. The LENA (LENA Foundation, Boulder, CO) is an automatic speech

recording and analysis tool. Speech was recorded by a small digital recorder called a

digital language processor (DPL), which fit into a pocket on a specially designed T-shirt

worn by the child. The DPL weighed about 2 oz. and held 16 hours of recorded sound.

The software that accompanied the DPL consisted of a digital sound analyzer that

produced estimates of sound in the child's environment (i.e., adult speech, child speech)

during the recording period. Reliability for adult speech and child vocalizations is found

in the literature to range from .65-.92 (Xu, Yapanel, & Gray, 2009; Zimmerman et al.,

2009). The software transferred a file of the full audio recording to a computer where it

was then reviewed and coded for this study. Thereafter, the researcher and the research

assistant coded the recordings according to the coding system. Both researcher and the

research assistant coded the recordings without knowing the child or provider to whom

the recordings belonged or the experiment/control group status of the provider.   See

Appendices K and L for coding system and data sheet.

Turn-taking code system. Two participating children in each program were

selected for participation. Age and gender were balanced across the participating

programs; in each age group there were 16 boys and 16 girls. For the target children, the

first ten minutes of recorded utterances were ignored to allow caregivers and children

time to transition into free play, then the next 15 minutes were coded.

General conversational turns were counted when an adult spoke and a child

responded or vice versa with no more than five seconds delay before the next turn.

Utterances were also coded using three main categories, frequency of child turns, caregiver turn-taking strategies, and cohesiveness of caregiver responses. The coding system was modified from Polyzoi (1997) and contained the following categories of coding: (1) frequency of child turns, (2) frequency of informational statements, questions asked, expressive utterances, directives, and didactic utterances by the caregiver, and (3) conversational cohesiveness for the caregiver, where cohesiveness is described as the number of contingent and non-contingent responses including the extent to which the content of one turn in a conversation is contingent on the content of the previous turn.

Inter-rater reliability was assessed on a randomly selected 22% of all recordings (i.e., 64 recordings; 960 minutes; see Table 3-5). Prior to using the coding system, a graduate student in family and child related studies was trained to 90% agreement with the researcher using five 10-minute recordings that were not part of this study. Inter-rater reliabilities were calculated as a simple percentage rate of agreement. These showed overall reliability figures between 79% and 100%, indicating acceptable reliability between the raters. Additionally, interclass correlations (ICC) were calculated. These showed overall correlations from .65 to 1.00, also indicating acceptable reliability.

Data Collection

Prior to the professional development training, baseline data on turn-taking for the intervention groups was collected with the selected participant children wearing the LENA DLP. Each child wore the DPL one day during free choice play. Additional t-shirts and mock DLP units were provided for the remaining children to wear. The total recording time varied from program to program depending on their free play schedule; however, a minimum of 30 minutes was required. Programs that had less than 30

minutes of free play were asked to extend their free play to meet the 30-minute minimum.

All programs complied with this request.

Table 3-5

Inter-rater Reliability Summary

Recording time	Number dual coded	Total # of recordings	Overall mean %	ICC
Baseline	22	100	87	.98
Information talk			82	.97
Questions			87	.97
Expressive utterance			73	.67
Directives			89	.96
Didactic utterances			100	.89
Contingent responses			86	.97
Noncontingent responses			95	.66
Child turns			88	.98
Intervention	21	96	90	.91
Information talk			91	.96
Questions			91	.98
Expressive utterance			78	.65
Directives			87	.99
Didactic utterances			100	.98
Contingent responses			90	.98
Noncontingent responses			100	1.00
Child turns			90	.97
Post Intervention	21	96	91	.98
Information talk			88	.99
Questions			87	.98
Expressive utterance			95	.99
Directives			83	.92
Didactic utterances			100	.89
Contingent responses			88	.98
Noncontingent responses			100	1.00
Child turns			84	.99

A second recording was collected after the completion of the training six weeks after baseline. The actual mean elapsed time in days was 41 for control group, 42 for training only group, and 41 for training plus mentoring group. Post intervention data for all three groups was collected upon completion of the mentoring intervention, 12 weeks after baseline. Mean elapsed time by group in days was 41 for control, 40 for training only, and 41 for training plus mentoring. The same data collection procedures were followed at intervention and post intervention as were used in the baseline condition.

CHAPTER IV

RESULTS

Statistical Analysis Method

Both descriptive (e.g. mean, standard deviations, percentages) for participants'

demographic characteristics and inferential statistics (e.g. analysis of variance, repeated

measure analysis of variance, hierarchical linear modeling) for hypothesis testing were

used for analysis. The alpha level was set at .05 for each analysis. A description of each

phase of analysis follows.

Descriptive Analysis

The 48 participants in each of the three treatment groups ($n = 16$ per group) came

from four CCR&R regions (Bridgerland, Metro, Mountainland, and Northern). Numbers

of participants by program type and group assignments are presented in Table 4-1. This

table shows a few cells that have cases below five, reflecting the impact of the adverse

economy on the child care industry creating lower participation than was desired for this

study design.

Table 4-1

Provider Participation by Region, Program Type, and Group Assignment

Region	Program type		Group assignment			Attrition
	Family home	Family group	Control	Training only	Training + mentoring	
Bridgerland	11	10	8	8	5	
Mountainland	10	3	4	5	4	1
Metro	3	5	3	2	3	
Northern	3	5	2	2	4	1

As shown in Table 4-2, roughly half of the participants in each group did not hold a college degree (Group1 = 56%; Group 2 = 44%; Group 3 = 50%). The remaining half held a 2-year degree or more. Using the chi-square statistic, there were no significant differences found in education level by across three groups, $\chi^2_{(10)} = 17.40$, $p = .50$.

The years of experience of the program owner/main provider are found in Table 4.3. More than 50% participants in both control and training only groups had more than 10 years of experience, with a mode of more than 15 years of experience. The training plus mentoring group had the lowest percentage (31.25%) of providers with over ten years experience but had the highest percentage of providers with less than 5 years of experience as a provider. Results from cross tab analyses using the chi square statistic indicated that differences in years of experience by treatment group were not significant, $\chi^2_{(8)} = 10.02$, $p = .26$.

Table 4-2

Provider Education Level (N = 48)

	Group 1 control (%)	Group 2 training only (%)	Group 3 training + mentor (%)
Provider education	($n = 16$)	($n = 16$)	($n = 16$)
High school	3 (18.75)	-	1 (6.25)
Child dev. assoc. credential	4 (25.00)	4 (25.00)	2 (12.50)
College courses	2 (12.50)	3 (18.75)	5 (31.25)
2-year degree	2 (12.50)	3 (18.75)	-
4-year degree	1 (6.25)	3 (18.75)	5 (31.25)
Graduate degree	2 (12.50)	2 (12.50)	3 (18.75)

Table 4-3

Primary Provider Years of Experience (N = 48)

	Group 1 control (%) (*n* = 16)	Group 2 training only (%) (*n* = 16)	Group 3 training + mentor (%) (*n* = 16)
Experience			
< 1 year	1 (6.25)	1 (6.25)	2 (12.50)
2-5 years	3 (18.75)	1 (6.25)	7 (43.75)
5-10 years	1 (6.25)	4 (25.00)	2 (12.50)
10-15 years	4 (25.00)	4 (25.00)	2 (12.50)
>15 years	7 (43.75)	6 (37.50)	3 (18.75)

Table 4-4, indicates that approximately half of participants in all treatment groups reported they planned to be a provider for 5-10 years more (Group 1 = 50%; Group 2 = 44%; Group 3 = 44%). Around one third of the participants in the control and training only groups reported they planned to stay in the field more than 15 additional years (Group 1 = 38%; Group 2 = 31%). A small percentage anticipated leaving the profession in less than 5 years (Group 2 = 19%). The group that received training and mentoring had a lower percentage of those who planned on being a provider for more than 15 years (13%) and a greater percentage for being a provider for less than five additional years (25%). Years participants intended to continue being a provider did not differ significantly by treatment group using a chi square statistic, $\chi^2_{(8)}$ = 12.49, *p* = .25.

As shown in Table 4-5, participants' mean accrued number of training hours and highest level achieved on the Career Ladder System was higher for those in the training only group (Training hours, *M* = 248.22, *SD* = 144.05; CLL, *M* = 6.13, *SD* = 3.46) than the other two groups. The control group also had greater number of training hours and

Career Ladder System achievements (Training hours: $M = 206.16$, $SD = 164.99$; CLL achieved: $M = 4.25$, $SD = 3.84$) than the training and mentoring group (Training hours, $M = 138.66$, $SD = 121.94$; CLL, $M = 3.38$, $SD = 3.42$). A one-way ANOVA showed that training hours accrued $F(2,45) = 2.33$, $p = .11$, and highest CCL achieved $F(2,45) = 2.47$ $p = .10$ did not differ significantly among groups. The small sample size may contribute to the non-significant findings with these two variables as the mean difference between groups appears to be different with the control group having higher training ours and the training only group having complete higher levels of the career ladder.

Table 4-6 shows overall means and standard deviations for frequency of strategies by group at baseline used over a 15 minute time period. Due to the nested nature of this data set, without independent observations, typical comparisons between groups (i.e., ANOVA) at baseline were not made. However, an overall look at the means across groups for each strategy shows similar frequencies prior to treatment. Mean didactic utterances (range, .44 - .75) and expressive utterances (range, 2.81 - 4.25) had the lowest

Table 4-4

Expected Continued Years as Provider (N = 48)

	Group 1 control (%)	Group 2 training only (%)	Group 3 training + mentor (%)
Expected years	($n = 16$)	($n = 16$)	($n = 16$)
< 1 year	-	-	2 (12.50)
2-5 years	-	3 (18.75)	2 (12.50)
5-10 years	8 (50.00)	7 (43.75)	7 (43.75)
10-15 years	1 (6.25)	1 (6.25)	3 (18.75)
>15 years	6 (37.50)	5 (31.25)	2 (12.50)

occurrence across groups. Providers mean use of questions (range, 13.81 - 19.75) and

Directives (range, 12.00 - 15.75) were used most frequently. Provider mean use of

contingent responses were frequent (range, 9.25 - 14.75) as compared to noncontingent

responses that occurred rarely (range, 0.13 - 0.74). Mean child turns ranged from 12.00 -

17.75.

Table 4-5

Provider Training Hours Accrued and Highest CLL Achieved (N = 48)

	Group 1 control (n = 16)		Group 2 training only (n = 16)		Group 3 training + mentor (n = 16)	
Training and CLL	*M*	*SD*	*M*	*SD*	*M*	*SD*
Training hours	206.16	164.99	248.22	144.05	138.66	121.94
Career ladder level	4.25	3.84	6.13	3.46	3.38	3.42

Table 4-6

Means and Standard Deviations for Turn-Taking Strategies at Baseline

	Control (group 1)		Training only (group 2)		Training + mentor (group 3)	
Strategy	*M*	*SD*	*M*	*SD*	*M*	*SD*
Information talk	11.63	11.32	9.06	7.23	8.31	8.34
Questions	19.75	15.08	16.19	15.68	13.81	11.07
Expressive utterance	4.06	0.44	4.25	0.75	2.81	0.44
Directives	15.75	12.16	12.00	7.44	13.25	14.08
Didactic utterance	0.44	1.26	0.75	2.02	0.44	1.09
Contingent responses	13.31	16.06	14.75	14.89	9.25	7.54
Noncontingent responses	0.13	0.34	0.13	0.34	0.75	3.00
Child turns	16.06	15.91	17.75	14.36	12.00	6.61

Inferential Analysis

In addition to basic descriptive analysis of the data, inferential statistics were used. If hierarchical data is analyzed as a single level, interpretation and statistical errors occur. Hierarchical Lineal Modeling (HLM) can address these issues by taking into account the dependencies by estimating variance associated with group (i.e., programs), differences in average responses (intercepts), and group differences in association (slopes) between predictors and DVs (e.g., group difference between treatments). This is accomplished by declaring intercepts and/or slopes to be random effects. Figure 1 shows the layout of this design. To address the three research questions, HLM was computed to assess the relationship of the intervention with caregiver-child turn-taking. First developed and implemented by Bryk and Raudenbush (1992), HLM is a generalization of multiple regressions for nested data and the models produced can be viewed as generalizations of analysis of variance for repeated measure designs (Raudenbush & Bryk, 2002). Therefore, this study used HLM appropriate to the research questions associated with the relationship between training and/or mentoring and verbal turn-taking between caregivers and children in family child care.

Figure 1. Layout of data analyzed in this study.
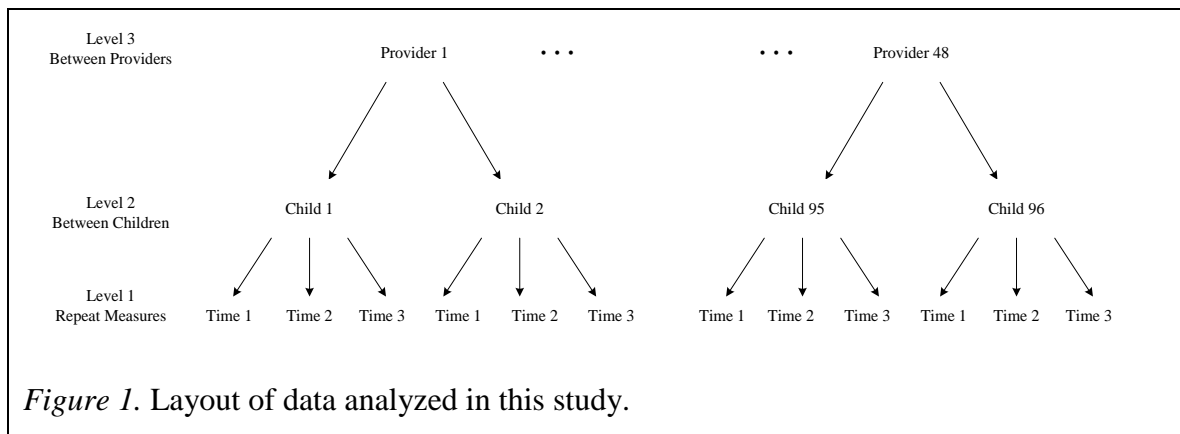
The specific technique used for this analysis was Poisson HLM regression (Raudenbush & Bryk, 2002; Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2004) using HLM 6.08. Poisson is typically the most applicable distribution when data are counts with relatively small frequencies. The expounded coefficients correspond to mean levels of turn-taking strategies used by family child care providers. A three-level HLM was employed to estimate initial frequencies of turn-taking strategies (intercept) and linear change (slope) across three observations through treatment, as well as to test associations between these estimates and characteristics of children and providers.

In these analyses, the model included fixed and random effects and specified intercept and linear slope such that both group and individual estimates for initial turn-taking frequencies and change were computed. The Level-1 model denotes behavior changes over time. Level-2 coefficients describe the behavior difference across children within programs as a function of demographic variables. At Level-3, the parameters describe provider differences between the three experimental groups. First-level units were provider turn-taking strategies measured at three separate time points in relation to the treatments being employed. Second-level units were the 96 children from 48 family child care programs participating in one of the three third-level treatment groups.

Hierarchical Modeling

To answer the three research questions, first a null model was run. Only one predictor, time, initially was entered in Level-1 as a fixed effect based on the assumption that provider-child interactions will be changed over the time points. Table 4-7 presents the results from this null model which indicates the average change in frequency of each

strategy across time. The results show the provider use of specific turn-taking strategies not only had grand means, in terms of start points, significantly different from zero but also the slope, in terms of change over time, was significantly different from zero. The expounded coefficients represent the average number of turns the provider used that specific strategy. In this case, the average expected counts of strategies was 7.85 units for information talk, 14.73 units for questions, 2.77 units for expressive utterances, 13.54 units for directives, and .34 units for didactic utterances.

The positive slope values indicate that overall behaviors increased over time with information talk, questions, expressive utterances, and didactic utterances having significant slope increases over the three observation times. Except for the slope for directive behaviors which was non-significant Exp $(\gamma) = 1.06$, $p = .320$ in terms of change over time, the other behaviors significantly changed over three time points Exp (γ) from 1.26 to 2.27, $p < .001$. The variance components or random effects for the null model are reported in the bottom part of Table 4-7. The variance components show that there is significant amount of variance in behavior changes not explained by time alone indicating there is a need to further identify variables that may explain this variance. For further details related to the HLM analyses see Appendix M.

Addressing the Research Questions

An additional HLM model was utilized and reviewed to address this study's the three research question: (1) Is there a significant difference in family child care provider-child conversational turn-taking after caregiver participation a 10-hour training program as compared to a control group? (2) Is there a significant difference in family child care

provider-child conversational turn-taking after caregiver participation in a 10-hour

training program combined with onsite mentoring as compared to a control group? and

(3) Which model (training or training plus mentoring) correlates with the greatest

increase in the frequency that caregivers and children engage in conversational turn-

taking in family child care?

Full Model

The Level-1 predictor is time (i.e., each of the three observation times) capturing

the frequency of strategy use by providers over time. Level-2 did not have a predictor to

portray variations and differential patterns of provider-child interactions across children.

Level-3 predictor is experimental group membership (treatment versus non-treatment) to

explain the contextual differences between providers.

Equations

In the equations, L represents the variability within person overtime, P is the

variability within providers between children, B is variability between experimental

groups, 0 refers to the intercepts and 1 refers to the slopes.

Level 1 Equation

$$\log[L] = P0 + P1*(TIME)$$

Level 2 Equations

$$P0 = B00 + R0$$

$$P1 = B10 + R1$$

Level 3 Equations

$$B00 = G000 + G001(GROUP2) + G002(GROUP3) + U00$$

$$B10 = G100 + G101(GROUP2) + G102(GROUP3) + U10$$

Except for the domain of information talk, there were significant mean differences

across domains of behaviors in terms of provider-child turn-taking interaction. When

comparing the training and mentoring group (group 3) to control (group 1), the training

plus mentoring group had significantly lower frequencies at the starting point in

expressive utterances Exp (γ) = .41, p = .034 and didactic utterances Exp (γ) = .29, p =

.001 (see Table 4.8). In addition, when comparing training group (group 2) to the

training plus mentoring group (group 3), the training group had significantly higher

frequencies in the beginning in the domain of didactic utterance Exp (γ) = 4.04, p = .006

(see Table 4-9).

Comparing the slopes to the control group (Group 1), both training group (Group

2) and training plus mentoring group (Group 3) had significantly higher odds of

increasing behaviors over time, for information talk (Group 2: Exp (γ) = 1.66; Group 3:

Exp (γ) = 2.12, p < .001); questions (Group 2: Exp (γ) = 1.58 p = .001; Group 3: Exp (γ)

= 1.85, p < .001); expressive utterances (Group 2: Exp (γ) = 1.83, p < .001; Group 3: Exp

(γ) = 2.24, p < .001); and didactic utterances (Group 2: Exp (γ) = 1.76, p = .090; Group 3:

Exp (γ) = 2.88, p = .003).

The average slope of the control group (group 1) was not significantly different

from zero except for asking questions Exp (γ) = .83, p = .042. On the other hand, the

average slopes of the training group (group 2) for directives Exp (γ) = 1.11, p =.167 was

not significantly different from the control group (group 1) while information talk Exp (γ)

= 1.66, p = .003, questions Exp (γ) = 1.58, p = .003, and expressive utterance Exp (γ) =

1.83, p = .001 were significantly different (see Table 4-8).

The average slope of the training plus mentoring group (group 3) was significantly different from zero for all strategies Exp (γ) from 1.52 to 3.43, *p* level all less than .001 level except for directives Exp (γ) = 1.03, *p* = .798. Moreover, the training group (group 2) had significantly lower frequency increases than the training plus mentoring group (group 3) in information talk Exp (γ) = .78, *p* = .009 and didactic utterances Exp (γ) = .61, *p* = .014 (see Table 4-9).

Because there is a difference in goodness of fit between the null and full model in this study, the between-providers variance was calculated for each domain of behaviors. Except for the directive behaviors, the two predictors (i.e., time and group) had decreased the residual variance of provider-level averages by approximately 62% for information talk, 41% for questions, 40% for expressive utterances, and 12% for didactic utterances (see Table 4-10).

Alternative Analyses

Alternative analyses were conducted to explore the nature of the three variables that would not converge in the HLM models and possible mentor effects. These variables include contingent and non-contingent provider responses. These variables are of interest as the cohesiveness of provider response to child turns has been found to be related to child language use and development. The third variable that did not converge was frequency of child turns. Previous research has found that the turn-taking strategies used in this study promote child language use. Therefore this variable was explored to see whether the frequency of child turns increased as providers increased their use of strategies.

Table 4-7

Null Model Poisson HLM Regression Coefficients and Variance Components

	Information talk		Questions		Expressive utterance		Directive		Didactic utterance	
	γ	OR	γ	OR	γ	OR	γ	OR	γ	OR
Fixed effects										
Intercept	2.06 *** (7.83)	7.85	2.69*** (.13)	14.73	1.02*** (.16)	2.77	2.61*** (.15)	13.54	-1.09* (.25)	.34
Slope	.41*** (.05)	1.51	.23*** (.05)	1.26	.37*** (.07)	1.45	.06 (.06)	1.06	.82*** (.09)	2.27
Random error components										
Intercept all cases *R0*	.09***		.04		.03		.10**		1.55	
Slope all cases *R1*	.02***		.01		.01		.02**		.18	
Intercept all groups *U00*	1.17***		1.06***		1.78***		.79***		8.18***	
Slope all groups *U10*	.21***		.22***		.35***		.10***		1.46***	

Note. γ stands for Coefficient whereas OR stands for Odds Ratio. Standard error of each coefficient was provided in the parenthesis.
** $p < .01$, *** $p < .001$.

Table 4-8

Full Model Poisson HLM Regression: Coefficients and Odds Ratios

Fixed effects	Information talk		Questions		Expressive utterance		Directive		Didactic utterance	
	γ	OR	γ	OR	γ	OR	γ	OR	γ	OR
DV intercept										
Control	2.47	11.90	3.07***	21.52	1.55***	4.71	2.76***	15.81	-.69**	.50
G000	(.24)		(.26)		(.35)		(.25)			
Training only	-.22	.80	-.33	.72	-.36	.70	-.27	.76	.15	1.16
G001	(.28)		(.36)		(.48)		(.30)			
Training + mentor	-.65+	.52	-.58	.56	-.89*	.41	-.18	.83	-1.24**	.29
G002	(.33)		(.36)		(.49)		(.43)			
DV slope										
Control	-.12	.89	-.19*	.83	-.20	.82	.01	1.01	.17	1.19
G100	(.11)		(.09)		(.14)		(.07)			
Training only	.50***	1.66	.45**	1.58	.60***	1.83	.11	1.11	.57+	1.76
G101	(.13)		(.13)		(.19)		(.11)			
Training + mentor	.75***	2.12	.61***	1.85	.81***	2.24	.02	1.02	1.06**	2.88
G102	(.12)		(.13)		(.19)		(.14)			

Note. γ stands for Coefficient whereas OR stands for Odds Ratio. Standard error of each coefficient was provided in the parenthesis.
+ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4-9

Full Model Poisson HLM Regression (Comparisons between 3 vs. 2 and 3 vs. 1): Coefficients

Fixed effects	Information talk		Questions		Expressive utterance		Directive		Didactic utterance	
	γ	OR	γ	OR	γ	OR	γ	OR	γ	OR
DV intercept										
Training + mentor	1.83***	6.21	2.49***	12.09	.66*	1.94	2.58***	13.18	-1.93***	.14
G000	(.23)		(.26)		(.29)		(.35)		(.28)	
Training only	.43	1.54	.24	1.28	.53	1.70	-.09	.91	1.40**	4.04
G001	(.27)		(.36)		(.39)		(.39)		(.48)	
Control	.65+	1.92	.58+	1.78	.89*	2.43	.18	1.20	1.24**	3.47
G002	(.33)		(.36)		(.42)		(.43)		(.34)	
DV slope										
Training + mentor	.63***	1.88	.42***	1.52	.61***	1.83	.03	1.03	1.23***	3.43
G100	(.06)		(.08)		(.09)		(.12)		(.14)	
Training only	-.24**	.78	-.16	.85	-.21	.82	.09	1.09	-.49*	.61
G101	(.09)		(.12)		(.15)		(.15)		(.19)	
Control	-.75***	.47	-.61***	.54	-.81**	.45	-.02	.98	-1.06**	.35
G102	(.13)		(.12)		(.23)		(.14)		(.33)	

Note. γ stands for Coefficient whereas OR stands for Odds Ratio. Standard error of each coefficient was provided in the parenthesis.
+ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4-10

Full Model Poisson HLM Regression: Error Variance Components

Random effects	Information t	Questions	Expressive utterance	Directive	Didactic utterance
Intercept all cases *R0*	0.09*	0.03	0.03	0.10**	1.55
Slope all cases *R1*	0.02**	0.01+	0.01	0.02**	0.18
Intercept all groups *U00*	1.04***	0.97***	1.61***	0.77***	7.63***
Slope all groups *U10*	0.08***	0.13***	0.21***	0.10***	1.28***
R^2	.619 (61.9%)	.409 (40.9%)	.400 (40.0%)	0.00 (0.0%)	.123 (12.3%)

Note. R^2 are computed only for the between-providers variance (i.e., level 3) using the formula (μ_{10NULL} - μ_{10FULL})/μ_{10NULL}.
+ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Exploratory analyses were conducted to further look at the training plus mentoring group. Only two strategies showed significantly higher frequencies for those receiving mentoring over training only, the differences between individual mentors were explored to better understand professional development that includes nonformal training and mentoring support.

Repeated Measures ANOVA

Three outcome variables, contingent responses, non-contingent responses, and child turns, did not converge in the hypothesized full model in hierarchical linear modeling. A lack of convergence is often associated with trying to estimate random coefficients which are close to or equal to zero or from a sample that is too small. To explore possible differences between control and treatment groups, these variables were analyzed in two-way repeated-measure ANOVAs, as an alternative method. Frequency analysis showed that the rate that providers used non-contingent responses was very low. For each observation time, there were less than three non-contingent responses across all 48 providers. Therefore, this variable was not analyzed any further. Accordingly, two-way repeated-measures (RM) ANOVAs were conducted to look at treatment group effects on provider contingent responses and number of child turns over three times of observation. ANOVA requires independent observations/cases; to meet this requirement, one child was randomly selected from each program. Using only one child from each program lessens the accuracy of the mean differences found so findings should be cautiously interpreted. The means and standard deviations for these two variables are presented in Table 4-11.

In the repeated measures ANOVAs, treatment group was the repeated measure factor and the two variables measured at three time points, baseline, intervention, and post intervention, were the dependent variables. Mauchly's test of sphericity indicated the assumption of sphericity was not met for the variable child turns so the p value cannot be considered reliable.

The results for the ANOVA for child turns with adults were organized into a summary table, Table 4-12. The main effect of treatment group, $F(2, 90) = 9.60$, $p < .001$, the time main effect, $F(2, 45) = 8.20$, $p = .001$, and the interaction effect of time and group, $F(4, 90) = 9.60$, $p < .001$, were significant. The Bonferroni post hoc test was used to explore group differences. The results showed that there were significant differences between training only (group 2, $M = 21.50$; $SD = 15.21$) and control group ($M = 12.08$; $SD = 13.58$) and also between training and mentoring group (group 3, $M = 19.60$; $SD = 16.09$) and the control group (group 1, $M = 12.08$; $SD = 13.58$). There was no significant difference between training only group and training and mentoring group. Generally, the frequency of child turns increases overtime for the providers participating in professional development (training and training plus mentoring) compared to the control group.

The results for the ANOVA for provider contingent responses are organized into a summary table, Table 4-13. The main effect of time was significant, $F(2, 90) = 12.58$, $p < .001$. The main effect of treatment group was significant, $F(2, 45) = 7.51$, $p < .001$; and the interaction effect of time and group was significant, $F(4, 90) = 9.37$, $p < .001$. Bonferroni post hoc tests were used for evaluating group differences. The results showed that there were significant differences between training only (group 2, $M = 27.67$; $SD = 18.31$) and control group (group 1, $M = 15.40$; $SD = 14.11$) and also between training and

mentoring group (group 3, *M* = 26.29; *SD* = 19.83) and control group (group 1, *M* =

15.40; *SD* = 14.11). There was no significant difference between training only group and

training and mentoring group. In general, the frequency of providers' contingent

response increases overtime for the providers participating in professional development

(training and training plus mentoring) compared to the control group.

Table 4-11

Means and Standard Deviations for Contingent Responses and Child Turns

		Contingent Responses		Child Turns	
Group	*n*	*M*	*SD*	*M*	*SD*
Control					
Baseline	16	12.44	15.89	15.38	16.37
Intervention		9.37	9.90	12.44	11.27
Post intervention		8.50	13.46	12.38	15.46
Training only					
Baseline	16	15.94	15.90	19.56	16.51
Intervention		30.56	14.61	37.50	17.51
Post intervention		21.50	13.06	26.87	16.90
Training and mentoring					
Baseline	16	8.44	5.81	11.25	6.80
Intervention		25.50	11.13	33.06	15.36
Post intervention		30.38	13.28	39.63	17.63

Table 4-12

Differences Between Treatment Groups over Time for Child Turns

Source	SS	df	MS	F	p
Group	6805.56	2	3402.78	8.20	.001
Error (group)	18666.10	45	414.80		
Time	4338.93	2	2169.47	15.37	< .001
Time*group	5419.69	4	1354.92	9.60	< .001
Error (time)	12706.71	90	141.19		

Table 4-13

Differences Between Treatment Groups over Time for Provider Contingent Responses

Source	SS	df	MS	F	p
Group	4307.63	2	2153.81	6.91	< .001
Error (group)	14032.15	45	311.83		
Time	1357.51	2	1357.51	16.58	< .001
Time*group	2521.08	4	1260.54	15.39	< .001
Error (time)	3684.91	90	81.89		

Mentor Effects

A series of two-way repeated-measures (RM) ANOVAs were conducted to look at mentoring effects on the turn-taking strategies that were found to be significantly different from the control group in the HLM models for providers in the training and mentoring group. In the (RM) ANOVAs mentor was the RM factor and verbal language strategies measured at three time points, baseline, intervention, and post intervention, were the dependent variables. Mauchly's test of sphericity indicated the assumption of

sphericity was met in this dataset; thus the variances of differences in frequencies among

all levels of the factor (i.e., mentor) are equal. The means and standard deviations for the

turn-taking strategies of providers who received mentoring are presented in Table 4-14.

ANOVA requires independent measures. To meet this requirement, one child was

randomly selected from each program. Using only one child from each program lessens

the accuracy of the mean differences found so the findings related to mentor effects

should also be cautiously interpreted.

The results for the ANOVA for the turn-taking strategy showed a significant main

effect for time for information talk, $F(2, 24) = 27.349$, $p < .001$, partial $\eta^2 = .695$. There

was a non-significant mentor main effect, $F(3, 12) = 2.30$, $p = .129$, partial $\eta^2 = .365$, and

a nonsignificant time-by-mentor interaction effect, $F(6, 24)=1.60$, $p =.190$, partial $\eta^2 =$

.286 (see Table 4-15). Providers receiving mentoring increased their use of informational

statements over time. The individual mentor contribution of this change was not

statistically significant; however, the individual mentor accounts for 37% of the variance

in providers' increased use of information talk.

Table 4-15

Differences Between the Four Mentors over Time for Use of Information Talk

Source	SS	df	MS	F	p	Partial η^2
Mentor	4158.48	3	1386.61	2.30	.129	.365
Error (mentor)	7233.43	12	602.79			
Time	6639.78	2	3319.89	27.35	< .001	.695
Time*mentor	1165.43	6	194.24	1.60	.190	.286
Error (time)	2913.40	24	121.40			

Table 4-14

Means and Standard Deviations for Turn-Taking Strategies

Mentor	n	Information talk		Questions		Expressive utterance		Directive		Didactic utterance	
		M	SD	M	SD	M	SD	M	SD	M	SD
1											
Baseline	4	3.75	5.19	12.00	12.52	3.00	2.00	8.50	11.09	0.00	0.00
Intervention		22.50	10.15	30.75	18.68	7.00	4.76	8.75	4.79	3.25	4.27
Post intervention		24.00	9.56	32.75	10.05	6.50	3.11	9.50	4.51	10.75	12.74
2											
Baseline	3	4.00	1.73	8.67	3.22	0.67	0.58	6.00	4.36	1.33	2.31
Intervention		26.33	8.96	49.00	26.46	3.67	2.52	12.67	6.03	0.67	0.58
Post intervention		16.67	7.51	24.00	13.00	8.00	3.47	6.33	1.53	0.00	0.00
3											
Baseline	4	6.50	3.87	9.50	5.75	2.25	1.71	6.00	1.83	0.50	1.00
Intervention		27.00	22.40	27.25	13.60	4.00	2.94	10.50	5.76	0.00	0.00
Post intervention		43.75	24.21	46.50	24.08	14.00	9.56	13.50	17.77	1.25	2.50
4											
Baseline	5	15.00	10.79	18.00	13.46	5.00	3.16	23.00	18.60	0.20	0.45
Intervention		45.80	21.14	35.80	31.96	12.20	9.07	30.80	20.90	0.40	0.55
Post intervention		53.40	30.16	35.20	20.22	16.80	10.31	23.80	19.61	7.40	4.98

The results for the ANOVA for questions are organized into a summary table, Table 4-16. The main effect of time was significant, $F(3,12) = 17.33$, $p < .001$, $\eta^2 = .591$. The main effect of mentor was nonsignificant, $F(3,12) = .46$, $p = .72$, $\eta^2 = .103$. The interaction between time and mentor was nonsignificant, $F(6,24) = 2.06$, $p = .097$, $\eta^2 = .339$). Provider receiving mentoring increased their use of questions over the three recordings. The individual mentor contribution accounts for only 10% of the variance in providers' increased use of questions.

The results for the ANOVA for expressive utterances were organized into a summary table, Table 4-17. The main effect for time was significant, $F(3,12) = 12.58$, $p < .001$, $\eta^2 = .512$. The main effect for mentor was non-significant, $F(3,12) = 2.15$, $p = .147$, $\eta^2 = .350$. The interaction between time and mentor was nonsignificant, $F(6,24) = 1.20$, $p = .339$, $\eta^2 = .231$. Providers receiving mentoring increased their use of expressive utterances over time. The individual mentor contribution of this change was not statistically significant; however, the individual mentor accounts for 35% of the variance in providers' increased use of expressive utterances.

Table 4-16

Differences Between the Four Mentors over Time for Use of Questions

Source	SS	df	MS	F	p	Partial η^2
Mentor	879.17	3	293.06	.46	.72	.103
Error (mentor)	7651.47	12	637.62			
Time	6882.86	2	3441.43	17.33	< .001	.591
Time*mentor	2447.50	6	407.92	2.06	.097	.339
Error (time)	4765.04	24	198.54			

Table 4-17

Differences Between the Four Mentors over Time for Use of Expressive Utterances

Source	SS	df	MS	F	p	Partial η^2
Mentor	377.78	3	125.93	2.15	.147	.350
Error (mentor)	702.14	12	58.51			
Time	573.03	2	286.51	12.58	< .001	.512
Time*mentor	164.29	6	27.38	1.20	.339	.231
Error (time)	546.54	24	22.77			

The results for the ANOVA for didactic utterances were organized into a summary table, Table 4-18. The main effect for time was significant, $F(3, 12) = 4.75$, $p =.018$, $\eta^2 = .284$. The main effect of mentor was nonsignificant, $F(3, 12) = 2.14$, $p =.148$, $\eta^2 = .349$. The interaction effect between time and mentor was nonsignificant, $F(6,24) = 1.76$, $p =.150$, $\eta^2 = .306$. Providers receiving mentoring increased their use of didactic utterances over the three recordings. The individual mentor contribution of this change was not statistically significant; however, the individual mentor accounts for 35% of the variance in providers' increased use of didactic statements.

Figure 2 shows the plots from the repeated measures ANOVAs for individual mentors and observations over time. These provide an approximated overall picture of differing mentor effects across time for provider turn-taking strategies. Looking at the plots for information talk, the behaviors increase between time 1 and time 2 across all mentors and decrease for provider use of this strategy between time 2 and 3 for mentor 2. Asking questions increased for all providers across all mentors between time 1 and time 2. The frequency of asking questions seemed to plateau for provider working with

mentor 1 and 4 between time 2 and time 3, continued to increase for those working with

mentor 3, and decreased for those working with mentor 2. Providers' use of expressive

utterances showed an increase over time for across mentors 2, 3, and 4. Mentor 1 showed

an increase between time 1 and time 2 and a slight decrease between time 2 and time 3.

Providers' use of didactic utterances appeared to be fairly stable across all mentors

between times 1 and 2. However, there appeared to be a steep increase for providers

working with mentor 1 and 2 between time 2 and time 3. Aside from expressive

utterances, providers working with mentor 2 had increases between time 1 and 2 but

diminished between time 2 and 3. Providers working with mentors 1, 3, and 4 show

general increase over time on information talk, questions, expressive utterance, and

didactic utterances. However, the providers working with mentor1 seem to display a

plateau in frequency of use for information talk, questions, and expressive utterances

between time 2 and 3.

Table 4-18

Differences Between the Four Mentors over Time for Use of Didactic Utterances

Source	*SS*	*df*	*MS*	*F*	*p*	Partial η^2
Mentor	128.56	3	42.85	2.14	.148	.349
Error (mentor)	240.25	12	20.02			
Time	172.36	2	86.18	4.75	.018	.284
Time*mentor	191.97	6	31.99	1.76	.150	.306
Error (time)	435.53	24	18.15			
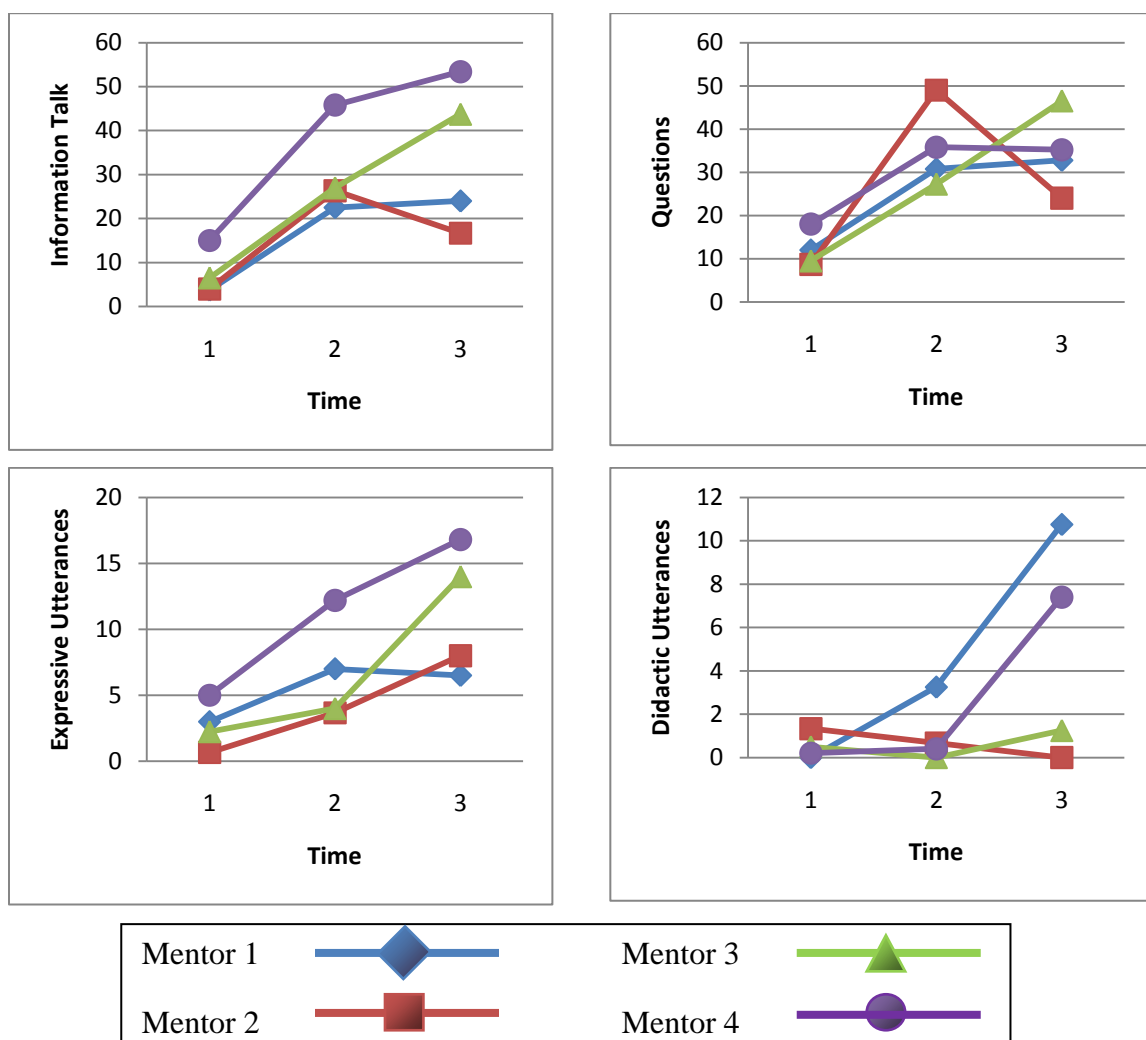
Figure 2. Mean plot of time changes and provider strategies between mentors.

Summary of Findings

To answer the first and second research questions regarding the comparison of the two treatment groups on provider turn-taking relative to a control group, results from these analyses indicated that professional development in the form of nonformal training with or without mentoring can promote behavior change in family child care providers over that of those in a control group. Providers in this study showed an increase in turn-

taking strategies that have been reported in previous research as occurring at low rates in family child care programs. These strategies are those that have been found to promote language use in children (i.e., information talk, questions, expressive utterances, didactic utterances). It appears from this sample that there are some behaviors that are more likely to increase when the provider is supported by a mentor. Comparing the two treatment groups to answer research question 3, the providers that received training plus mentoring support had greater increases in frequencies of all strategies (except directives) with significant increases in information talk and didactic utterances.

There were three variables that would not converge in the HLM models. Randomly selecting one child from each program, alternative analyses with repeated measures ANOVAs were used to examine two of these variables across treatment and control groups. The two variables were contingent responses and child turns. Results from these analyses showed that both professional development models were related to an increase in providers' contingent responses to child turns compared to the control group. Additionally, the frequency of child turns increased over time for children in programs where the provider was participating in one of the professional development models. However, the results did not show a difference between the two professional development models on either contingent responses or child turns.

This study had four mentor specialists providing on-site support to providers. Repeated measure ANOVAs were used to explore the possible differences between specific mentors. The main effects for mentors were nonsignificant for all turn-taking strategies used in the HLM models. Due to the small sample size ($n = 16$ FCC programs; $n = 4$ mentors) partial eta-squared was calculated to look at estimated variances

accounted for by the specific mentor. The partial eta-squared for the turn-taking

strategies were moderate, .37 for information talk; .10 for questions; .35 for expressive

utterances; and .35 for didactic utterances. Remembering that the interpretations for

these analyses should be done cautiously, the variances in increases in providers' turn

taking strategies that might be due to the specific mentor with whom the provider worked

range from 10 - 37%.

CHAPTER V

DISCUSSION

In this chapter a discussion of the results found in this study will be reviewed. First, the study's purpose and general findings are reviewed. Then a review of the implications, limitations of this study, and future directions are explored.

Overview and General Findings

With the number of children in non-parental care growing in the US, there has been a focus on the experiences that children have in care and how to help provide children with highly positive experiences. One strategy to that end is to distribute information on best practices to caregivers in hopes of them implementing it in their programs. States generally believe in the process of nonformal training to help increase quality practices in child care. This is evident as most require and fund this type of training for caregivers. With varying research support for the effectiveness of training, specifically in changing and/or increasing caregiver behaviors, states, communities, and programs have turned attention to additional ways to support caregivers to provide the best environment for young children. One of these additional strategies is mentoring. Mentoring is often used to support, encourage, and model behaviors. As such, this study examined two different professional development models for family child care providers. The first model included a nonformal training on language development in young children focused on adult-child turn-taking. The second model included the same nonformal training with on-site mentoring support for the provider. Both models were compared to a control group.

The findings in this study resembled that of other research, but also showed different patterns. Similar to previous research (Dickinson et al., 2008; Dowsett et al., 2008; Turnbull et al., 2009), the frequency of desired language promoting strategies used by providers prior to professional development was relatively low. The most frequent turn-taking strategy used by providers in this study, prior to professional development, was asking questions. Consistent with previous research, asking questions encourages a child to take a turn in the conversation and is the most frequently used turn-taking strategy by providers (Dickinson et al., 2008). The second most frequently used turn type in this study was directives. Directives are those turns that communicate something essential towards the child. Generally, directives do not promote as much child language use as other turn strategies because they often require no response. This is consistent with other research findings that most adult turns in child care are those that do not promote language use in children (Dickinson, 2001; Turnbull et al., 2009). Just as de Rivera, Girolametto, Greenberg, & Weitzman (2005) found that as many as 70% of the adult's turns did not encourage children to take a conversation turn, this study found high frequencies of directives that did not promote language use in children.

One finding that differed from previous research was related to the cohesiveness of provider responses to child turns. In this study, providers' responses to children were contingent, meaning that they maintained the topic of the child's turn when responding to their turn utterance. The occurrence of a non-contingent response, defined as responding with a topic that was not consistent with the topic of the child's turn, was very low with only 12 occurrences across all providers and all observations. However, cohesiveness of adults' responses in child care centers have been found to be low with 65% of responses

not maintaining the child's turn topic (de Rivera et al., 2005). In other words, often when caregivers take a turn after a child, they proceed with a different topic. It is possible that the difference is between center child care and family child care. Child care centers and family child care have many structural differences including mixed age groups and varying space availability. Also unexplored in extant literature is the possibility that center providers and home providers differ in their assumptions about child care and their definition of professionalism. Both may see themselves as professionals, but they may differ in the way they feel professionals "act."

Some of these differences could contribute to the differences found in this study. Additionally, the total number of training hours achieved by the providers prior to the study averaged approximately 200 for the overall sample. These prior trainings cover basic child development topics which can include language development. With providers attending regular training, they may already have an awareness of the importance of responding to children in a way that maintains the topic. After a review of the main statewide training class curriculums offered, three were identified as having a segment dedicated to activities and/or discussions related to language development and talking to young children. Providers were asked to report the trainings completed on the demographic form. Based on this provider self-report, 25 providers reported that they had taken all three of the identified trainings. Two providers reported attending two of these specific trainings, eight reported taking one of the classes, and 10 reported that they had not yet taken these identified trainings. This supports the assumption that many of these providers had been introduced earlier to some of the basics of maintaining children's topics.

Training Increased the Frequency
of Turn-Taking Strategies That
Are Thought to Promote Language

The first research question asked whether there was a significant difference in family child care provider-child turn-taking after caregiver participation in 10-hour training compared to a control group. The results of this study indicate that professional development in nonformal training increased family child care providers' use of specific turn-taking strategies that have been found to promote language use in young children. These providers increased their use of information talk, questions, and expressive utterances. There were minimal changes in didactic utterances and no changes in the frequency of directives. The lack of change in didactic utterances could be due to the training curriculum. It is possible that the participants did not see the importance or fully understand how to implement this strategy from only attending the training. Didactic utterances are defined as a teaching instruction and may have seemed contradictory to the providers' personal definition of "free play."

The lack of increase in the use of directives can be viewed positively. Directives often do not encourage children to use language or take a turn in the conversation. This study's findings add to the literature supporting professional development in the form of nonformal training. Research supports the importance of training (Girolametto et al., 2003) and some have found that providers increase their knowledge through attending training (i.e., Joyce & Showers, 2002), but others question whether behavior change is possible (e.g., Whitebook, 2003). In this case, the findings support the assumption that nonformal training is related to provider increases in the frequencies of turn-taking strategies that encourage child language use.

Training Plus Mentoring Increased
the Frequency of Turn-Taking
Strategies That Are Thought to
Promote Language

Research question two asked whether a significant difference was present in family child care provider-child conversational turn-taking after caregiver participation in a 10-hour training program combined with onsite mentoring as compared to a control group. When provided with mentoring support in addition to attendance in nonformal training, providers used information talk, questions, expressive utterances, and didactic utterances more frequently than those not participating in the specific professional development opportunities. On-site mentoring has been shown to be help providers to focus on current issues and needs (Black et al., 2003). In this study, mentoring was given in support of language development and any needs the provider had that would help them to this end. From these findings it appears a professional development model that includes nonformal training and on-site mentoring support is successful in increasing turn-taking strategies used by providers. These results contribute to the current mentoring research that on-site mentoring allows for the mentor specialist to model and guide behaviors and practices taught in training which can lead to an increase in behavioral change (Poglinco & Bach, 2004; Joyce & Showers, 2002).

Comparing the Two Professional
Development Models: Training
Versus Training Plus Mentoring

Research question three asked which professional development model (training or training plus mentoring) correlates with the greatest increase in the frequency that caregivers and children engage in conversational turn-taking in family child care

programs. Both treatment groups had increases in information talk, questions, expressive utterances, and didactic utterances, the training plus mentoring group had a greater increase in the frequency of these strategies. The training plus mentoring showed a significantly greater increase in information talk and didactic utterances. These findings suggest that some turn-taking strategies may be more easily learned and implemented, such as asking questions and using expressive utterances than turn-taking strategies such as information talk and didactic utterances. Asking questions, consistent with other study findings (e.g., Turnbull et al., 2009), had the highest occurrence at baseline. Considering providers use questions with the highest frequency in their current verbal interactions with children, this may mean that providers can more easily increase the frequency when the importance of it is expressed to them through group training sessions. Other strategies, like practicing information talk and didactic utterances, may need additional information and support for providers to implement them into their interactions with children. The mentoring approach employed in this study consisted of biweekly 1-2 hours visits. This approach is fairly low-stress which includes relatively limited hands-on involvement making the cost of such an intervention fairly inexpensive.

When looking at directive turns, it was anticipated that, as providers implemented increased frequencies of turn-taking strategies that promote children to take a turn in a conversation, the frequency of directives would decrease. This, however, was not the case in this study. The use of directives stayed fairly consistent across time regardless of professional development participation. It seems from these results that directives may not be influenced by professional development or increases in other strategies. They may be an expression of philosophies of management or indicative of providers' sense of

responsibility to maintain the group routine. The lack of change could be that the providers' directives are a necessary part of routines (i.e., washing hands, toileting routines) that do not change in frequency. Providers each have their own philosophy for caring for children and specific personalities that may contribute more to how often directives are used outweighing knowledge gain or modeling observed. Maybe directives are not all that limiting to language development; maybe they are devices for maintaining order or necessary for conveying social conventions.

The individual mentors' contribution to the increases in providers' turn-taking appeared moderate. It seems that the individual characteristics and practices used by mentors to support providers were different or perceived differently by the provider. To better understand to what degree mentoring is related to the increase in frequencies of provider behaviors, the differences between mentors' practices and approaches need to be more consistent. If there is consistency in the mentoring practices then other variables on the provider level can be explored for additional differences. This could be done through a more defined curriculum. A "one-size-fits-all" approach does not consider the individual needs of providers; however, an open-ended curriculum with a general framework to guide providers in reaching their goals could be beneficial.

Overall, this study extends our current knowledge of professional development for family child care providers related to positive turn-taking behaviors. These findings suggest that nonformal training on supporting children's language development is related to an increase in providers' use of turn-taking strategies. Professional development that includes nonformal training on supporting children's language development with on-site mentoring is related to an increase in providers' use of turn-taking. Moreover, providers

77

use the turn-taking strategies, informational talk and didactic utterances more frequently when they are supported by a mentor than if they receive nonformal training only.

Limitations

The findings from this study provide support for professional development in the form of nonformal training and mentoring as a way to increase providers' use of turn-taking strategies. While these findings are encouraging, there are several limitations that need to be noted.

Providers in the study were randomly assigned to treatment or control groups. However, each provider in the study volunteered to participate. Consideration should be made for the possibility that providers who volunteered for this study are different than those who were not interested in participating. It is possible that providers who volunteered are more open to the idea of training and mentoring or already seeking ways to improve which could have contributed to their change in behavior.

An additional limitation of this study is the absence of a treatment that included only mentoring. Having a group that received only professional development in the form of mentoring would allow comparisons to be made in the absence of the nonformal training. This additional group, to examine mentoring as an isolated treatment, would have provided better estimates of the two different forms of professional development and the combination of the two as it related to increases in desired behaviors.

Lastly, consideration should be given to the possibility of Hawthorne and Novelty effects related to the mentoring. It is possible that the special attention given to the providers by the mentor could have improved their performance. Family providers often

work as the sole adult in their child care program. Having a mentor come into their program to focus on supporting their learning and needs could have, in itself, motivated providers to implement new practices. Moreover, being that this was the first time for the providers to receive this type of professional development support, this novelty could have caused the providers to experience excitement and enthusiasm in response to the support provided through this new intervention. This could lead to change in behaviors that relate to the novelty as opposed to improving practice.

Implications

The results from this study are valuable to the child care field. To begin, training specialists who provide training for child care providers should be interested in these findings as they support the importance of nonformal professional development. Understanding an increase in the frequencies of positive behaviors is possible, training specialists can develop, plan, and implement curriculum with a direct focus on essential behaviors. These results support training curriculums that consider adult learning needs and focus on specific details and behaviors of broader topics (i.e., turn-taking as a support for language development). Training focused on explicit practices might be explored and incorporated to additional training curriculums.

State and community programs should be interested in these findings as they develop new programs to support child care providers and they allocate funding for child care initiatives. It appears that different forms of professional development provided in combination have greater positive outcomes from increasing certain desired behaviors than nonformal training alone. While training alone seems to be valuable in helping

providers implement certain practices more often, training in combination with mentoring may be needed to see increases in some essential behaviors. Additionally, some professional development, when carefully considering adults needs, is better than none at all. As funding and resources become restricted during these economic challenges in the US, it is of great importance that providers receive professional development. As support programs are being designed and funded, these results should be considered.

Those entities that provider funding for mentoring programs should also be interested in the finding of this study. The differences between individual mentors plays a role in the overall change in provider behaviors. Each mentor presumably has their own approach to similar provider situations and needs. The implementation of regular small group meetings seems important. Being able to bring mentors together to share, discuss, and reflect on current practices and future directions would allow the mentors to develop a collaborative conglomeration of mentoring. Documentation of this process could serve as the basis for an emergent mentoring curriculum to develop. Having a curriculum based on real experiences and the overall philosophy of the program that includes practices from all involved seems beneficial for consistency to explore the relationship between mentoring and provider behavior change.

Future Directions

There are several directions for future research that are apparent from these study findings. First, an examination of the contribution of mentoring as a standalone treatment is necessary. This may have value for training specialists and community and state agencies as there are many providers who cannot or do not participate in

professional development in the form of nonformal training. Understanding how professional development through mentoring aside from other professional development could provide ways to reach new provider populations, such as those in rural areas or those providing extended care, or those with transportation limitations.

The current economic downturn in the US has created an increased challenge to securing money for programs. Government and private organizations have to reevaluate how to serve the most people in a beneficial way more scrupulously than in recent years. With this in mind, another area for future research is to examine whether professional development in the form of nonformal training spread out over a longer duration, where trainers provide feedback and facilitate discussions related to curriculum content and current practices, would create a similar context to mentoring. Being that this on-site mentoring consisted of feedback and reflection through discussion, adding these components to nonformal training should be examined to fully understand the mentoring contribution, and ways to incorporate the successful components in the most cost and time efficient way.

Lastly, long term studies looking at specific child outcomes are needed. It is important for studies to look at if and how increased positive provider behaviors are related to positive child outcomes. It is necessary to understand what works, to what extent, under what conditions, and what this means for children in non-parental care. To do this there is a need for longitudinal studies using varying multi-level approaches.

Benjamin Franklin once said, "Tell me and I forget. Teach me and I remember. Involve me and I learn." It is easy to relate this quote to children's learning. This study helps us see that learning opportunities for adults should be developed using the same

foundation.   Curriculum for providers needs to be evaluated carefully to determine how to effectively teach providers so they gain essential knowledge and how to involve them so they will learn to incorporate the desired practices into caregiving.

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APPENDICES

Appendix A.

Map of CCR&R Region Boundaries

Bridgerland CCR&R
1-800-670-1552
435-797-1552
www.usuchild.usu.edu

Cache
Rich

Northern CCR&R
1-888-970-0101
801-626-7837
programs.weber.edu/ccrr/

Weber

Box Elder

Davis   Morgan

Daggett

Metro
CCR&R
1-866-438-4847
801-355-4847
www.cssutah.org/childcare

Salt Lake   Summit

Wasatch

Mountainland
CCR&R
1-800-952-8220
801-863-8220
www.uvsc.edu/ccrr/

Utah

Tooele

Duchesne

Juab

Carbon   Uintah

Western
CCR&R
1-888-344-4896
1-800-543-7527
www.childcarehelp.org

Emery   Grand

Sanpete

Sevier

Eastern
CCR&R
1-888-637-4786
435-613-5619
www.ceu.edu/childcare/

Millard

Beaver   Puite   Wayne

San Juan

Iron   Garfield

Washington   Kane

Appendix B.

Research Volunteer Postcard

Family Child Care

Volunteers wanted for a Research Study

Utah State University, Family, Consumer, and Human Development, seeks licensed family child care providers to participate in child care related training. Providers will receive free materials, and audio recordings of free-play will be made. These recordings will give providers an important window on the development of the children in their care.

Career ladder training will be provided at no cost.

To learn more about this research contact Carrie Ota, graduate student:
c.l.ota@aggiemail.usu.edu

Appendix C.

Director, Mentor, and Trainer Informed Consent

Dear Directors, Mentor Specialists, and Training Specialists,

Introduction/Purpose: The purpose of this letter is to invite you to participate in a research study on professional development and verbal language in family child care programs. Your participation and support will allow us to learn more about the ways that we can support child care providers in their work with young children and their parents. If, through this research project, we learn additional ways to support child care providers as they provide quality child care, you will benefit as we bring this new information back to you. In total, approximately 60 providers, 4 mentors, 4 trainers, and 120 children will be involved in this study.

Procedures: If you agree to participate, professional development support in the form of training and mentoring will be assessed in family child care programs. Providers will be randomly assigned to participate in one of three types of professional development in training, training and mentoring, or control groups. Audio recordings and verbal language in family child care programs will be assessed through a digital recorder worn by four children in each program. The recordings will be taken during free-play on two separate days. During data collection, there will be no disruption of the daily schedule of events. Children and caregivers will participate in activities as usual.

Training Specialists. Training will be provided to the intervention groups. Trainers will deliver the *First Steps* curriculum in four 2½ hour evening sessions in one of the four selected CCR&R regions (i.e., Bridgerland, Mountainland, Metro, and Northern). Each trainer will be asked to attend an orientation session prior to the study. Trainers will have the ability to follow the participant's interests and questions as they facilitate this curriculum, however, all planned activities and key concepts for each session will be addressed. A researcher will make one unannounced training visit in each region over the course this study to monitor adherence to the curriculum topics and activities.

Mentoring Specialists. As part of this research, the mentoring program implemented by the state of Utah will provide on- and off-site technical assistance as needed to providers assigned to the training plus mentoring group. Mentors will be familiar with the content of the training to adequately answer the providers questions. Additionally, two mentoring visits in each region will be recorded to provide an overall view of topics frequently discussed in the on-site visits.

Mentors will be asked to fill out a survey at the completion of this study. This survey contains information about experiences as a mentor in this study. It will take about 10 minutes to complete the survey.

New Findings: During the course of this research study, you will be informed of any significant new findings (either good or bad), such as changes in the risks or benefits resulting from participation in the research, or new alternatives to participation that might cause you to change your mind about continuing in the study. If new information is obtained that is relevant or useful to you, or if the procedures and/or methods change at any time throughout this study, your consent to continue participating in this study will be obtained again. A copy of the final report will be made available to you upon request.

Risks/Benefits: There is minimal risk in participating in this study. There is a possibility of some disruption to the current activity as you will need to put the special shirt and recorder on the children prior to free play. There may be a direct benefit to future parents, children, and child

care providers from the results of this study. The researchers may learn more about verbal language in family child care and better ways to support providers.

Explanation & Offer to Answer Questions: If you have any questions or if you would like to meet with the researchers about this project, please contact Carrie Ota at 435.797.1552 or Ann Austin at 435.797.1527.

Voluntary Nature of Participation and Right to Withdraw without Consequence: Participation in research is voluntary. You may refuse to participate or withdraw at any time without consequences or loss of benefits. To withdraw, contact Carrie Ota at 435.797.1552.

IRB Approval Statement: The Institutional Review Board for the protection of human participants at USU has approved this research study.   If you have any pertinent questions or concerns about your rights or a research-related injury, you may contact the IRB Administrator at 435.797.0567 or email irb@usu.edu. If you have a concern or complaint about the research and you would like to contact someone other than the research team, you may contact the IRB Administrator to obtain information or to offer input.

Copy of Consent: You have been given two copies of this Informed Consent. Please sign both copies and retain one copy for your files.

Investigator Statement: "I certify that the research study has been explained to the individual, by me or my research staff, and that the individual understands the nature and purpose, the possible risks and benefits associated with taking part in this research study. Any questions that have been raised have been answered."

Signature of Principle Investigator & Student:

_____   _____
Ann M. Berghout Austin   Carrie L. Ota
(435-797-1527)   *(435-797-1552)*

Signature of Professional   By signing below, I agree to participate.

_____   _____
Participant's signature   Date

Appendix D.

Provider Informed Consent

Introduction/ Purpose: The purpose of this letter is to invite you to participate in a research study on professional development and verbal language in family child care programs. Your participation will allow us to learn more about the ways that we can support child care providers in their work with young children and their parents. If, through this research project, we learn additional ways to support child care providers as they provide quality child care, you will benefit as we bring this new information back to you. In total, approximately 60 providers in Utah will be involved in this study.

Procedures: If you agree to participate, verbal language in your program will be assessed through a digital recorder worn by four children in your care. The recordings will be taken during free-play on two separate days. During data collection, there will be no disruption of the daily schedule of events. Children and caregivers will participate in activities as usual. A researcher will bring the recorders to your home and assist you in using the device. After the recordings a researcher will pick-up the recorders of provide you with a prepaid USPS envelope to return them by putting them in your mailbox at your home.

As part of this research you may be asked participate in professional development opportunities. This study has three groups of providers receiving professional development. All providers will be assigned to groups randomly. If you are assigned to group 1 you will received a voucher to attend a 10 hour career ladder training of your choice through your local CCR&R and have first opportunity for a mentor upon the completion of this study. If selected for group 2 you will be asked to attend a10 hour training on language in young children. This training is eligible for career ladder credit and will be delivery in your area in evening 2½ hour sessions. You will have first opportunity for a mentor at the completion of the project. If selected for group 3 you will be asked to attend the 10 hour language training in addition to working with a mentor who will come to your program bimonthly.

In addition to the audio recordings and professional development, you will be asked to fill out a survey upon agreeing to participate and at the completion of this study. These surveys contain general information about you, your program, and experiences in this study. It will take about 10 minutes to complete the each survey.

New Findings: During the course of this research study, you will be informed of any significant new findings (either good or bad), such as changes in the risks or benefits resulting from participation in the research, or new alternatives to participation that might cause you to change your mind about continuing in the study. If new information is obtained that is relevant or useful to you, or if the procedures and/or methods change at any time throughout this study, your consent to continue participating in this study will be obtained again.

Risks/Benefits: There is minimal risk in participating in this study. There is a possibility of some disruption to the current activity as you will need to put the special shirt and recorder on the children prior to free play. There may be a direct benefit to future parents, children, and child care providers from the results of this study. The researchers may learn more about verbal language in family child care and better ways to support providers.

Explanation & Offer to Answer Questions: If you have any questions or if you would like to meet with the researchers about this project, please contact Carrie Ota at 435.797.1552 or Ann Austin at 435.797.1527.

Voluntary Nature of Participation and Right to Withdraw without Consequence:
Participation in research is voluntary. You may refuse to participate or withdraw at any time without consequences or loss of benefits. To withdraw, contact Carrie Ota at 435.797.1552.

Confidentiality: Research records will be kept confidential. Only Ann Austin and Carrie Ota will have access to the data. Any personal identification will be omitted so that you will not be identifiable in the written analysis. Any reference to programs will be anonymous. All information regarding this study will be kept in a locked file cabinet and computer with password protection. To protect your privacy and confidentiality, your name on the questionnaire will be replaced with a code. The code will be kept separate from the data collected and stored in a locked file cabinet in a locked room. All information will be destroyed at the conclusion of the study and data analysis (approximately two years). Any information obtained from you for this study will not affect any services you are now receiving or may receive in the future. A copy of the final report can be made available to you upon request.

IRB Approval Statement: The Institutional Review Board for the protection of human participants at USU has approved this research study. If you have any pertinent questions or concerns about your rights or a research-related injury, you may contact the IRB Administrator at 435.797.0567 or email irb@usu.edu. If you have a concern or complaint about the research and you would like to contact someone other than the research team, you may contact the IRB Administrator to obtain information or to offer input.

Copy of Consent: You have been given two copies of this Informed Consent. Please sign both copies and retain one copy for your files.

Investigator Statement: "I certify that the research study has been explained to the individual, by me or my research staff, and that the individual understands the nature and purpose, the possible risks and benefits associated with taking part in this research study. Any questions that have been raised have been answered."

Signature of Principle Investigator & Student

_____   _____
Ann M. Berghout Austin   Carrie L. Ota
*(*435-797-1527)   (801-682-6401)

Signature of Participant By signing below, I agree to participate.

_____   _____
Participant's signature   Date

Appendix E.

Parent Permission

Dear Parent,

Introduction/Purpose: The purpose of this letter is to let you know that your provider has volunteered to participate in a research study looking at verbal language. We are asking for your permission to include your child in classroom audio recordings. Approximately 60 providers and 120 children will be involved in this study.

Procedures: If you agree for your child(ren) to participate in this project, your child may be selected to wear a digital recorder during free-play. Audio recordings will be taken on three separate days over an 8 month period. The audio recordings will not disrupt the daily schedule of events. Children will participate in activities as usual.

Risks/Benefits: There is minimal risk in participating in this study. There is a possibility of some disruption to the current activity as a shirt and recorder will need to put the selected children prior to free play. There may be a direct benefit to future parents, children, and child care providers from the results of this study. The researchers may learn more about verbal language in family child care and better ways to support providers.

Explanation & Offer to Answer Questions: If you have any questions or if you would like to meet with the researchers about this project, please contact Carrie Ota at 435.797.1552 or Ann Austin at 435.797.1527.

Voluntary nature of participation and right to withdraw without consequences: Participation in research is voluntary. You may refuse to participate or withdraw at any time without consequences or loss of benefits.

Confidentiality: Research records will be kept confidential. Only Ann Austin and Carrie Ota will have access to the data. All information regarding this study will be kept in a locked file cabinet and computer with password protection. To protect your privacy and confidentiality, your name on the survey will be replaced with a code. The code will be kept separate from the data collected and stored in a locked file cabinet in a locked room. Children's names or other identifying information will not be recorded for this research study.   All information will be destroyed at the conclusion of the study and data analysis (approximately two years). Any information obtained from you for this study will not affect any services you are now receiving or may receive in the future.

IRB Approval Statement: The Institutional Review Board (IRB) for the protection of human subjects at Utah State University has reviewed and approved this research project. If you have any concerns or questions about your rights, you may call the IRB office at 435.797.1821.

Copy of Consent: You have been given two copies of this Informed Consent. Please sign both copies and retain one copy for your files.

Investigator Statement: "I certify that the study has been explained to the individual indentified as the subject in this next section, and that the individual understands the nature and purpose, the possible risks and benefits associated with taking part in this research study. Any questions that have been raised have been answered." We are so excited about this opportunity and hope you take advantage of this experience and consent to work with us!

_____   _____   _____   _____
Ann M. Berghout Austin, Ph.D.   Date   Carrie L. Ota   Date
Principle Investigator   Student Researcher
(435) 797-1527   (435) 797-1552

Parent/Guardian Permission: By signing below I agree to participate and I give permission for my child to be audio-recorded while participating in free-play activities.

_____   _____
Parent / Guardian Signature   Date

Appendix F.

Training Participant Code of Conduct

- **Punctuality / Attendance:** I understand that I must be in class at or before the time scheduled for class to begin in order to obtain credit for the class. If I arrive after the time that class is scheduled to begin, I can use the time that I was actually in attendance for licensing credit, but I will have to repeat the full 2 ½ hour session to get Career Ladder credit for the course. Class will begin when the trainer determines that it is time to start. I understand that if I am not present and attentive during the entire class period, that I will not receive Career Ladder for the session, and will have to repeat the full 2 ½ hour session in order to receive credit for the course.

- **Disruptive Behavior:** I will be respectful to the trainer and to all others in attendance during each class session. I will not use obscene, profane, threatening, discriminatory, harassing or abusive language. I will not engage in any conversation or behavior that is disruptive or disrespectful to the trainer or other participants in the class. I will attentively participate in class. I will not text message or make cell phone calls during class time. I understand that I am required to turn my cell phone and/or other electronic devices off or turn them to vibrate during class time. I will limit all cell phone calls to break time or after class time. I will not engage in private conversations during class time. If I must bring food or drink to class, I will eat quietly and will not allow food or drink to become disruptive or distracting to the trainer or other class participants.

- **Illegal Activity / Health & Safety:** I understand that any illegal activity, including behavior that threatens the health or safety of the trainer or another class participant before, during or after class will be cause for my immediate expulsion from class and permanent suspension from participation in the Career Ladder and the Training and Longevity Supplement, and that such behavior may be reported to law enforcement.

- **Children:** I understand that adult training classes are not a developmentally appropriate environment for children. I will not bring children to class.

- **Class Roll:** I understand that in order to receive credit for each class session, that I must sign the roll before class begins. I understand that failure to do so will result in my not receiving credit for the class session. I understand that I may not sign the roll for someone else.

- **Refunds:** I understand that class registration fees are non-refundable. I understand that if I notify the CCR&R a minimum of three days in advance that I am unable to attend a course for which I am registered, that my registration fee may be able to be credited toward another class. I understand that it is my responsibility to contact the CCR&R to make these arrangements.

- **Non-Compliance:** I understand that, in cases of infractions of a minor severity (behavior that has been determined to be disruptive but not illegal), that I will be allowed one issued verbal warning upon the first violation of the above listed rules. I understand that upon the second such infraction, I will be suspended from participation in the Career Ladder and Training and Longevity Supplement for one year from that infraction date. I understand that upon the third such infraction I will be permanently barred from participation in the Career Ladder and Training and Longevity Supplement. I understand that upon the first incident of any violation in which I engage in illegal activity (including threatening or intimidating behavior), that I will be permanently banned from participation in the Career Ladder and Training and Longevity Supplement, and that such action may be cause for intervention by law enforcement and/or other legal action.

Appendix G.

Training Intervention

Session	Topic/Title	Content
1	Beginning Language	Communication begins at birth
	Understanding the Communication Link	Importance of language in overall development
	Responding to Children's Messages	Adult responses to children's communication efforts are critical
	Accepting Children's Differences	
2	Talking with Young Children	Identifying information talk
	Practicing Information Talk	Understand being on the child's level, using expression, and matching words to experience
	Finer Points of Information Talk	
		The value of using Information talk to build a child's understanding of language
3	Building Conversations	Understand that conversations provide young children with opportunities to practice their emerging language skills
	Taking Turns and Following the Child's Lead	
		Use techniques to facilitate conversation: taking turns and following the child's lead
		Understand that conversation with young children may be difficult because of their unclear words, incomplete messages, and abrupt changes
4	Building Conversations continued	Understand the value of games in language learning
	Playing Games that Support Language	Understand the value of books in supporting language development
	Using Books to Support Language Development	

Appendix H.

Sample Agenda for Initial Mentor Training

Early Childhood Consultation and Training Program

- I. Welcome and introductions
    - A. Agenda
    - B. Contact information and list
- II. Mentoring Support and Feedback
    - A. Challenges in FCC/Benefits
    - B. Focusing of the positive
    - C. Need for relationship building
    - D. Changing adult behavior
- III. Review and discuss readings
    - A. How does this relate to family child care?
    - B. What does this have to do with parallel process? Mutuality of endeavor?
    - C. Or other elements of consultation?
    - D. What does this mean for our work with mentors?
- IV. Discussion--Elements of Consultation – Round table
    - A. Examples of "Parallel Process"
    - B. Examples of "Mutuality of Endeavor"
- V. Presentation --Two more Elements of Consultation
    - A. "Centrality of Relationships"
    - B. "Understanding Another's Subjective Experience"
- VI. Lunch
- VII. "Menu of options"—what do we have to offer?
    - A. Needs assessment
    - B. Brainstorming
- VIII. Presentation --Reflective Supervision
    - A. Questions/Reflections
- IX. Assignments
    - A. Biography
    - B. Menu of options
    - C. Watch for examples of the four elements of consultation which we have discussed so far. Make a computer document where you can list these examples so that we can discuss them in reflective supervision or our next program consultants' meeting
    - D. Read article *Reflective Supervision*; complete e-mail assignment

Appendix I.

Sample Mentor Log Entry

Consultant _____   Date_____

Provider _____

Contact Type and Minutes

Telephone:	On-Site Training:
On-Site mentoring: Observation: 10:45 a.m. - 11:55 p.m.	Other: follow-up mtg.: 1:00 p.m. - 2:30 p.m.
Walk-In:	E-Mail:

Purpose of Contact

Observation and follow-up to observation.   preparing afternoon snack as we discuss.

3 recommendations from observation: 1.   spend time with toddlers at lunch to meet their needs.

2.   - during preschool activities can take toddlers to an area to play with toys or to the side room to do activities

that are last no more than 5 min. unless they are involved. 3. When possible make a cozy/library space under

the stairwell. During observation, the children were very engaged and interested in all facets of activities.

Discussion/Activity

I will e-mail   the written observation. Jana had a parent pick up a child during our mtg. Jana informed the parent about the child's day.

          attended the bidders conference (2 hrs.) Watch DVD's (Harvey Karp - 3 hrs.)

Prep time for observation and grant (2 hrs.)

          is applying for the QI Grant from OCC.

          will e-mail web site for computer tech materials to

Follow-up

     a has completed over 40 hrs. for a TEAM Grant. Even though we are finished,   can call anytime she needs support or mentor needs.

_____

_____

_____

_____

Date/Time of Next Contact *last formal visit*

Appendix J.

Demographic Form

Program Name:_____

Provider Name:_____

Site Address:_____
      Street

_____
   City   State Zip Code   County

Telephone:_____E-mail:_____

Personal Information

Gender: M____ F_____

Please indicate the schedule/services of care provided.

__ Graduate degree in _____   __ 4 year degree in_____

__ 2 year degree in_____   __ College courses in _____

__ CDA (Child Development Credential)   __ High School Diploma

Please indicate the number of years you have been a provider:

__ <1   __ 2-5   __ 5-10   __ 10-15   __ 15+

Program Description

Please check the program type that describes your child care services.

__ Family Group Child Care   __ Family Child Care   __ Other _____

Please indicate the schedule/services of care provided.

__ Full-time   __ Sick Child Care   __ Evening Care   __ Drop-in Care

__ Part-time   __ Summer Programs   __ Camps   __ After-School Care

Enrollment capacity _____

How many children are currently enrolled in your program? _____

How many attend full time (30+ hours a week)? _____

How many attend part time (<30 hours a week)? _____

Current number of children served with disabilities _____

Do you have any children that you feel concerned for their language development? _____

Training

How many hours of training have you completed this year? _____Overall training hours?_____

Please check all trainings that you have attended; circle the trainings you plan to attend in the next 4 months:

___ First aid& CPR certification   ___ Advanced Child Development

___ Child Development - Healthy Care   ___ Looking to Learn

___ Child Development - Ages & Stages   ___ Working Together

___ Child Development-LEY   ___ Creating Good Child Care

___ A Great Place for Kids!   ___ More Than Babysitting

___ Strong & Smart!   ___ Other: _____

___ Learning to Get Along

Appendix K.

Turn-Taking Definitions for Coding

Code	Definition
1. Turn-taking	Frequency for caregiver and child
Turns	Verbal utterances from the time that one partner begins speaking until the time that the other begins speaking
2. Type of Utterance	Frequency for caregiver
Informational Talk	An utterance intending to convey information
Questions	An interrogative utterance anticipating a response for the other participant
Expressive Utterance	An utterance consisting of emotive speech
Directives	A necessary directed to the other partner
Didactic Utterance	Teaching/Coaching to the other participant (sometimes called teacher talk)
3. Conversational Cohesiveness	Frequency for caregiver
Contingent/non-contingent responses	The extent to which the content of a subsequent turn in an exchange is contingent on the content of the previous turn

Note. Adapted from "Quality of Young Children's Talk with Adult Caregivers and Peers during Play Interactions in the Day Care Setting," By E. Polyzoi (1997). *Canadian Journal of Research in Early Childhood Education, 6*(1), p. 24.

Appendix L.

Coding Sheet

Coding Sheet for Caregiver Turn-Taking Strategies

Reliability   Y _____   N _____

Recording Date _____   Program ID # _____

Coding begins at minute 10 and proceeds for 15 minutes in 5 minute sections.

Adults: Coding for the caregiver will include two passes through the recording. On the first pass, each turn that the caregiver takes code the turn by the strategy used. For programs that have two caregivers use the top half of the square for one caregiver and the bottom for the other. On the second pass, code each caregiver response to a child's turn for cohesiveness.

Child: When coding turns for the target child, mark all turns under the child turns column.

Begin	Informational Talk	Question	Expressive Utterance	Directive	Didactive Utterance	Other	Contingent Response	Noncontingent Response	Child Turns
1	IT	Q	EU	D	DU		CR	NCR	
2	IT	Q	EU	D	DU		CR	NCR	
3	IT	Q	EU	D	DU		CR	NCR	
End									
Total									

Appendix M.

HLM Table Details

Symbol	Meaning
Level 1 Equation	
$\log[L] = P0 + P1*(TIME)$	
Log (L)	The logit expected frequencies of a case across time
P0	The intercept of the expected frequencies for each case
P1	The slope for each case for the relationship between the dependent variable and time
Level 2 Equations	
$P0 = B00 + R0$	
$P1 = B10 + R1$	
B00	The overall intercept, the grand mean of the dependent variable across all groups
B10	The average slope between time and the dependent variable across all groups
Level 3 Equations	
$B00 = G000 + G001(GROUP2) + G002(GROUP3) + U00$	
$B10 = G100 + G101(GROUP2) + G102(GROUP3) + U10$	
G000	The intercept of dependent variable for group 1 (control group), when all predictors = 0
G001	The intercept of dependent variable for group 2 (training group), when the other predictors = 0
G002	The intercept of dependent variable for group 3 (training & mentoring group), when other predictors = 0
G100	The slope of dependent variable for group 1, when all predictors =0
G101	The slope of dependent variable for group 2 (training group), when the other predictor = 0
G102	The slope of dependent variable for group 3 (training & mentoring group), when other predictors = 0
Random Error Components	
R0	The deviation from the average intercept for all cases
R1	The deviation from the average slope for all cases
U00	The deviation from the average intercept for all groups
U10	The deviation from the average slope for all groups

CURRICULUM VITAE

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Education

2010	Doctorate of Philosophy, Family and Human Development; Early Care and Education / Child Development, Utah State University, Logan Utah
	Dissertation: The relationship among caregiver training, mentoring, and turn-taking between caregiver and child in family child care.
	Major Advisor: Ann M. Berghout Austin
2005	Master of Science, Family, Child, and Consumer Science; Early Childhood Education, Louisiana State University, Baton Rouge, Louisiana
	Thesis: The impact of training on caregiver responsiveness
	Major Advisor: Cynthia DiCarlo
1997	Bachelor of Science, Health and Human Development; Child Development, Montana State University, Bozeman Montana

Professional Experience

2009	Utah State University – Logan, Utah – Lecturer
2007 – Present	Utah State University – Aggie CARE, Logan, Utah – Research Coordinator
2006 – Present	Utah Child Care Resource and Referrals Agencies, Northern and Bridgerland Regions – ECE Trainer
2005	Louisiana State University, Baton Rouge, Louisiana – Graduate Assistant
2002 – 2004	The Fund for Child Care Excellence, Austin, Texas – Training Coordinator
1998 – 2002	The Children's Courtyard, Austin, Texas – Assistant Director
1996 – 1998	Grand Avenue Daycare, Bozeman Montana – Director Assistant / Head Teacher

Publications

Ota, C., DiCarlo, C.F., Burts, D., Laird, R., & Gioe, C. (2006). Training and the needs of adult learners. *Journal of Extension*, *44*(6), Article 6TOT5.

Ota, C., DiCarlo, C.F., Burts, D., Laird, R., & Gioe, C. (2006). The Impact of Training on Caregiver Responsiveness. *The Journal of Early Childhood Teacher Education*, *27*(2), *149-160.*

Papers in Review

Austin, A.M., Blevins-Knabe, B., **Ota, C.**, Rowe, T., & Knudsen Lindauer, S. *Preschoolers' early mathematics concepts and psychosocial skills.*

DiCarlo, C.F., Baumgartner, J., Pierce, S.H., **Ota, C.**, & Harris, M.E. *Whole Group Instruction Practices and Young Children's Attention: A Preliminary Report*.

Manuscripts in preparation

Ota, C., & Austin, A.M. *Provider Stress and Active Engagement in Child Care.*

DiCarlo, C. F., Vagianos, L, & **Ota, C**. *Using Preferences to Increase Play across Interest Areas in Early Childhood Classrooms.*

DiCarlo, C.F., & **Ota, C**. *Promoting Positive Behavior in the Preschool Classroom.*

Courses Taught

Ota, C. (Fall, 2009). Parenting and Child Guidance (FCHD 2610). Utah State University, Logan, UT. Blended format.

Ota, C. (Spring, 2009). Parenting and Child Guidance (FCHD 2610). Utah State University, Logan, UT. Face-to-Face format.

Consultation

Ota, C. (2005). Coordinator, NAEYC Accreditation. Louisiana State University Child Care Center, Baton Rouge, LA.

Ota, C. (2005). Specialist, Quality Child Care. Campbell County Memorial Hospital, Gillette, WY.

Invited Lectures

Ota, C. (November, 2008). Childhood Fears. Invited lecture at Utah State University, Logan, UT.

Ota, C. (October, 2008). The Search for Quality Child Care. Invited lecture at Utah State University, Logan, UT.

Ota, C. (November, 2005). The Impact of Training on Caregiver Responsiveness. Invited lecture for LSU Graduate Seminar, Baton Rouge, LA.

Ota, C. (October, 2005). Writing Following the American Psychological Association Guidelines. Invited lecture at Louisiana State University, Baton Rouge, LA.

Ota, C. (October, 2005). Attachment in Infant and Toddler Group Care Settings. Invited lecture for Louisiana State University, Baton Rouge, LA.

Ota, C. (February, 2005). Americans with Disabilities Act in Early Childhood Education. Invited lecture at Louisiana State University, Baton Rouge, LA.

Invited Presentations

Ota, C., & Austin, A.M. (March, 2010). Provider Stress and Active Engagement in Family Child Care. Society for Research in Human development, San Antonio, TX.

Anderson, S. & **Ota, C.** (October, 2009). Efficient, Effective Staff Motivation: The Butterfly Effect. Child Care Professional Development Institute (CCPDI), Salt Lake City, UT.

Hess, J., Williamsen, M., & Wynn, B. (April, 2008). Marital Quality, Family Rituals, and Parent-School Interactions: Contributors to Child Development. Society for Research in Human Development, Little Rock, AR - **Ota, C.,** Moderator

Ota, C. (August, 2007). Working Through Differences – Relationships with Parents, Hill Air Force Base, Layton, UT.

Ota, C. (August, 2007). Infant and Toddler Curriculum, Hill Air Force Base, Layton, UT.

Ota, C. (May 2005). Early Literacy with Infants and Toddlers. LSU Child Care Center, Baton Rouge, LA.

Ota, C. (May 2005). The Road to NAEYC Accreditation. LSU Child Care Center, Baton Rouge, LA.

Plyler, S., **Ota, C**., & Taylor, J. (April 2004). Retaining Staff through Motivation and Positive Reinforcement. Director's Symposium, Austin, TX.

Ota, C. (September 2004). Individualizing Care. Open Door, Austin, TX.

Ota, C. (September 2004). Designing Creative Classrooms. Open Door, Austin, TX.

Ota, C. (August 2004). Planning Creative Curriculum. Open Door, Austin TX.

Ota, C. (August 2004). Increasing Self-Esteem in Young Children. Open Door, Austin, TX.

Hillman, P., Koenig, L. & **Ota, C.** (April, 2003). The Staffing Crisis: Recruitment and Retention. Director's Symposium, Austin, TX.

Grants

Ota, C. (2008). Caregiver Readiness to Change. Child Care Research Scholars, Administration for Children and Families, $15,000 *(not funded)*.

Professional Service

2009	Textbook Revision Updates
	R. Charlesworth, (Ed.) (2010). *Understanding Child Development.* Wadsworth: Belmont, CA.
2009	Training Curriculum Development
	Utah Office of Child Care
	Child Care Professional Development Institute
	School Readiness, Course 1: Language & Literacy
	School Readiness, Course 2: Early Math & Science
	School Readiness, Course 3: Physical School Readiness
	School Readiness, Course 3: Social & Emotional School Readiness

Professional Societies

American Psychological Association, 2008 – present.

National Association for the Education of Young Children, 1996 – present.

Austin Association for the Education of Young Children, 1999 – 2005.

Utah Association for the Education of Young Children, 2006 – present.

Society of Research in Child Development, 2007 – present.

Society of Research in Human Development, 2008 – present.