PARENTING BEHAVIORS LINKED TO CHILD LANGUAGE

DEVELOPMENT: ASSOCIATIONS AMONG VOCABULARY,

PARENT INTERACTIONS, AND PARENTS'

KNOWLEDGE OF CHILD DEVELOPMENT

IN HIGH INCOME HOUSEHOLDS

A Thesis Presented to the Faculty
of
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In Partial Fulfillment
of the Requirements for the Degree
of Master of Arts in Psychology

By
Brittney M. Young
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CERTIFICATION OF APPROVAL

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DEDICATION

   To all of the families that participated in this project, you are a blessing. I was given the chance of meeting 40 great and loving families, and I will forever be grateful of them for helping me complete my thesis.

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TABLE OF CONTENTS

LIST OF TABLES

ABSTRACT

This study aimed to examine the relationship among parents' knowledge of

child development, parent-child interactions, and child's language ability in upper-

middle class to high-income households. This study examined which specific

parenting behaviors during parent-child interactions were related to parents'

knowledge of child development and child language ability. This study further

examined how the gender of the child was related to the parent behaviors shown

during parent-child interactions. Children were between 3 and 6 years old and

primarily spoke English. Parents filled out a parenting knowledge and demographics

assessment, child vocabulary was assessed, and the parent and child interacted for

ten minutes while being video-recorded. The video was later coded for parent

behaviors. Results showed that parents' knowledge of child development was related

to smiling more often and asking the child for information during an activity. There

was no significant relationship between parents' knowledge and child vocabulary

scores, nor between parent behaviors and child vocabulary score for either females

or males. However, several parenting behavior items were correlated with male

children's vocabulary scores, suggesting that the variability in the vocabulary scores

may be related to the differences in experiences each child has.

CHAPTER I

INTRODUCTION TO THE STUDY

Language is the foundation of how individuals communicate and begin

learning in early childhood. Early language development is associated with academic

achievement later in life (Hart & Risley, 1995; Magnuson & Duncan, 2006). Since

language ability develops in early childhood, it is important to understand which

parenting behaviors can influence language development. Most parents know that

talking, reading, and singing to their children is important; however, many may not

know which specific parenting behaviors promote language learning during

interactions with their children. These behaviors may include smiling at the child,

responding to the child's emotions, verbally encouraging the child's efforts, and

talking to the child about characteristics of objects (Roggman, Cook, Innocenti,

Norman, & Christiansen, 2013).

Lev Vygotsky's sociocultural theory states a child's characteristics, values,

cognitive skills, and beliefs are obtained through interactions with adults or more

advanced peers (Shaffer, 2009; Wertsch & Tulviste, 1992). Vygotsky believed that

children learn language through social interactions, and it is an interdependent

process between the parent and child (Wertsch & Tulviste, 1992). Interactions with

individuals who are more knowledgeable than the child can foster the child's

development through scaffolding in the zone of proximal development. The zone of

proximal development is the area between an individual's current level of

development and the individual's potential development and what can be achieved

through interactions with these individuals (Shaffer, 2009; Wertsch & Tulviste, 1992). Scaffolding occurs when an adult helps a child complete a task while only providing necessary guidance. This helps the child successfully complete the task and learn how to solve it on his or her own in the future (Shaffer, 2009). In order to advance a child's language ability, it is recommended that parents use language that is challenging, but not so advanced that the child no longer understands. For example, research has shown that mothers who are more sensitive during interactions and use scaffolding have children with higher language comprehension (Laakso, Poijjeus, Katajamaki, & Lyytinen, 1999).

According to Roggman, Boyce, and Innocenti (2008), understanding where children are developmentally is vital to providing optimal developmental parenting. Developmental parenting occurs when parents engage in behaviors that support and value a child's development. It also involves changing these behaviors to adjust to the child's developmental level. Parents are able to support their children's development by being warm, responsive, encouraging, and communicative. Children are more likely to succeed in school and are ready to learn academic skills when they have the language ability to ask questions and communicate. On the other hand, children who are anxious, insecure, not comfortable in new situations, and have limited language ability are less likely to succeed in school (Roggman, Boyce, & Innoncenti, 2008).

Research has shown that the quantity of words spoken to children has been positively associated with children developing early language skills (Barnes, Gutfruend, Satterly, & Wells, 1983; Hart & Risley, 1995; Hart & Risley, 1999; Zimmerman et al., 2009). Thus, reading to a child has been known to help children

develop language (Raikes et al., 2006). More book reading between mothers and children at one year old is associated with higher vocabulary knowledge at two years old (Bingham, Jeon, Kwon, & Lim, 2015; Zimmerman et al., 2009). Hart and Risley (1999) also found that the quality of language spoken to a child is positively associated with the child's language development. In addition, they found that conversations that occurred during parent-child interactions were stronger predictors of language development compared to conversations with non-parents. This could be because parents may express different behaviors during one-on-one interactions that help their children develop language. While quantity and quality of language do influence language development, we are unaware of what other behaviors, such as smiling or praising the child, specifically influence language development.

A major factor that influences a child's language development is socioeconomic status (SES). Hart and Risley (1995) found the differences between children who have more advanced language and those who do not are due to children from low SES having fewer interactions involving language, thus having less opportunity to learn language. In a one-year span, children can have very different experiences with language. Children of parents on welfare were found to be exposed to three million words in one year, while children of working class parents were exposed to six million, and children of professional families were exposed to 11 million. Thus, children of parents on welfare have less than half the amount of language spoken to them compared to children of working class parents. There is more than a three million word gap between children of parents on welfare and children of working class parents each year. By the time these children turn five years

old there will be a 30 million word gap between children of parents on welfare and children in professional families. These findings concur with the results from Rowe (2008), which found that parents from higher SES households use more diverse vocabulary, use longer utterances, and talk to their children more than parents from low SES households.

Hart and Risley (1995) found that most children use language effectively by the time they are three years old. They also found that a child's vocabulary at age three was predictive of their scores on vocabulary and reading comprehension tests at ages 9-10. In another study, Cristofaro and Tamis-LeMonda (2011) found that vocabulary knowledge at three years old predicted children's school readiness at five years old, which is the age most children begin kindergarten. Taken together, these studies show that children's early language experiences can affect their academic performance.

There are four million children entering kindergarten each year in the United States (U.S. Department of Education, 2015), and the word gap between children of parents on welfare and children of working class and professional parents may continue to grow (Hart & Risley, 1995). In order to bridge the gap between these groups of children in their language and help each child be ready for school, we must understand which specific parenting behaviors can positively influence language development despite SES.

Early language development is correlated with later academic achievement (Hart & Risley, 1995; Magnuson & Duncan, 2006). Therefore, it is essential to investigate this topic to understand what parents can do to help their children succeed

in school. Being knowledgeable on this topic can help parents implement strategies to help their children better learn language. Currently, the research shows that parenting and language development are correlated, and most parents know that talking, reading, and singing to children is important for language development (U.S. Department of Education, 2017). Parenting behaviors such as affection, responsiveness, encouragement, and teaching, have also been shown to influence a child's language development (Roggman et al., 2013). This study examined which specific behaviors across these four domains are most strongly related to children's language development. It also examined the relationship between parents' knowledge of child development and their child's language ability. This study will help parents, teachers, and caregivers understand which specific behaviors can be implemented during interactions with children between three and six years old to help advance language development.

Self-report measures were used to examine the parents' knowledge of child development and sociodemographic characteristics. An observation-coding scale was used to examine parent-child interactions, and a direct assessment was administered to the child to determine child vocabulary.

CHAPTER II

REVIEW OF THE LITERATURE

Parents' Knowledge of Child Development

Individual differences may account for the variations we see among parents.
Parental goals, parental beliefs about parenting, and cultural differences all may
contribute to the differences in parents' knowledge (Huang, Caughy, Genevro, &
Miller, 2005). Maternal age, income, and education are all predictive factors of child
development knowledge (Benasich & Brooks-Gunn, 1996; September et al., 2015).

Parents who are more knowledgeable in child development may interpret
children's actions differently than those with less knowledge. Parents with more
knowledge in development are less dysfunctional in their parenting, more confident,
and have higher quality parent-child interactions (Conrad, Gross, Fogg, & Ruchala,
1992; Morawska et al., 2008; Winter, Morawska, & Sanders, 2012). Having more
knowledge in child development may help parents respond more appropriately to
their children, more accurately create engaging environments, and have higher quality
interactions because they are more sensitive to the child's developmental abilities
(Goodnow, 1988; Huang, Caughy, Genevro, & Miller, 2005; Miller, 1988). On the
other hand, parents who have less knowledge of development have lower quality
parent-child interactions (Conrad, Gross, Fogg, & Ruchala, 1992), and are more
dysfunctional in their parenting (Morawska et al., 2008; Winter, Morawska, &
Sanders, 2012). Parents may be more harsh and inconsistent with their discipline
when they have less knowledge of development. In fact, lack of understanding about
parents' responsibilities and the developmental process may be a predictor of child

maltreatment (Dukewich, Borkowski, & Whitman, 1996) and child abuse (Ertem et al., 2007).

The relationship between language development and parents' knowledge of child development has not been studied extensively. Rowe (2008) found that parents who have more knowledge in child development have longer utterances, speak more, and have a more diverse vocabulary, which in turn, is associated with children having a larger vocabulary size. Another study found a positive association between parents' knowledge of development at nine months and the child's language ability at four years old (Rowe, Denmark, Harden, & Stapleton, 2015). Although there have been few studies that have examined the relationship among these two variables, the current literature shows that children's language development and parents' knowledge of development are related (Rowe, 2008; Rowe, Denmark, Harden, & Stapleton, 2015). This knowledge may also be related to the ways in which parents interact with their children.

Parent Interactions

Parent-child interactions that involve affection, responsiveness, encouragement, and teaching are predictive of positive child outcomes. Engaging in these behaviors during one-on-one interactions supports the child developmentally in their cognition, sociability, and language (Roggman et al., 2013). These behaviors have also been found to be associated with children's attachment, exploration, and communication (Roggman, Boyce, & Innocenti, 2008). Supporting children during these interactions is considered developmental parenting.

Affection/Positive Affect

Affection can be expressed in many different forms. An individual may show affection for their child by speaking in a warm tone of voice, expressing enthusiasm about the child, or expressing positive regard (Fulgini & Brooks-Gunn, 2013, Maselko, Kubzansky, Lipsitt, & Buka, 2011). Early life experiences can influence individuals through adulthood. Thus, a secure, nurturing relationship with a caregiver early on is important for adult health later in life (Maselko et al., 2011).

Maselko et al. (2011) found that warmth and affection are able to moderate a child's stress response causing the child to become more resilient to distress, frustration, and other predicaments. Warmth and early nurturing have also been found to positively influence an individual's mental health in adulthood. Parents who express a positive affect while interacting with their children have been found to have children with higher language abilities (Hart & Risley, 1995). Although affection during parent-child interactions in childhood has been found to be associated with higher language ability, school readiness, and health in adulthood (Chazen-Cohen et al., 2009; Hart & Risley, 1995; Maselko et al., 2011), research lacks information on whether specific affectionate behaviors influence this development.

Responsiveness

Responsiveness involves reacting to the child's activities, interests, needs, or preferences (Fulgini & Brooks-Gunn, 2013; Tamis-LeMonda et al., 1996). Tamis-LeMonda and Rodriguez (2008) found that a parents' responsiveness is vital to children developing early language. Mothers' sensitivity and responsiveness were also found to be associated with children having better outcomes in cognition (Hirsh-

Pasek & Burchinal, 2006) and in their language ability, comprehension, and production (Laakso et al., 1999; Tamis-LeMonda, Bornstein, Baumwell, & Damast, 1996). This could be because when children are reinforced for their attempts at communicating, it instills positive feelings of support, motivation, and self-efficacy (Tamis-LeMonda et al., 1996).

Parents' responsiveness, warmth, and support have also been highly correlated with competence, feelings of love, and respect for one's parents through adolescence (Baumrind, 1991). This shows that even the early experiences individuals have with a caregiver's responsiveness can affect their lives in the future. Research shows that language ability and parents' responsiveness are associated with one another (Hirsh-Pasek & Burchinal, 2006; Laakso et al., 1999; Tamis-LeMonda et al., 1996); however, research lacks information on whether specific behaviors involved in responsiveness are associated with language ability.

Encouragement

Encouragement involves supporting the child in being autonomous and taking initiative (Deci & Ryan, 1987). Encouragement can also include providing suggestions on how to complete the task and using a warm tone of voice that conveys the person is there to help (Bernier et al., 2010). For example, parents may encourage autonomy in play, exploration, making choices, and taking initiative in everyday activities (Bornstein, Putnick, Suwalsky, & Gini, 2006). When mothers encourage their children to explore and learn about their environments, it fosters the development of language, cognition, and social emotional development (Bernier et al., 2010; Bradley, Caldwell, Rock, Ramey & Al, 1989).

More encouragement from parents is positively associated with children's academic achievement (Steinberg, Lamborn, Dornbusch, & Darling, 1992). This shows that the amount of encouragement children receive from their parents can affect how they develop language and how well they do academically. The current literature lacks information on specific encouraging behaviors that support language development.

Teaching

Teaching involves conversation, providing explanations, cognitive stimulation, and instances of joint attentional focus (Fulgini & Brooks-Gunn, 2013; Hart & Risley, 1995; Tomasello & Farrar, 1986). Joint attention is when two people are focused on the same object, which is demonstrated by pointing, looking at the object, or verbally indicating the attentional focus. Joint attention is believed to foster language development. When mothers attempt to teach children the word for an object that the child is focused on, the words are learned better than when mothers attempt to redirect their focus (Tomasello & Farrar, 1986). Tomasello and Farrar (1986) also found that mothers and children spoke more and had longer conversations while in joint attentional focus. Being in joint attentional focus is important for scaffolding and introducing early language.

Parents who are more knowledgeable about developmental norms and milestones have been found to have higher quality parent-child interactions while teaching their children (Huang et al., 2005). This shows that parents must understand where their children are developmentally in order to provide the most favorable teaching interactions. It is important to understand which parenting behaviors, in

addition to those that have already been identified, influence language development during teaching interactions, so parents can become more knowledgeable and engage in optimal teaching tasks with their children. This study also examined how the gender of the child influenced the parent behaviors.

Parent Interactions by Gender

There are few studies that discuss gender differences within parent-child interactions. Grebelsky-Litchtman (2014) had parents and children play a game together and found that males were less cooperative verbally and nonverbally than females. The females in the interaction did not break the rules, but the males challenged the rules of the game and created new rules. Another study on gender differences within parent-child interactions found that females were more positively engaged during the interactions than males (Nordahl, Janson, Manger, & Zachrisson, 2014). Females seem to be less challenging, more cooperative (Grebelsky-Litchtman, 2014), and more positively engaged during parent-child interactions than males (Nordahl, Janson, Manger, & Zachrisson, 2014). However, males receive more encouragement and more praise for being smart than females (Short-Meyerson, Sandrin, & Edwards, 2016). Parents may encourage and praise their sons more than daughters because they have a more difficult time getting their sons to cooperate and stay engaged during interactions. Therefore, parents may show more affection, responsiveness, encouragement, and teaching with their males because males are more likely to challenge the rules of the game and have shown they are not as engaged as females during one-on-one interactions. Consequently, parents may

engage in more positive parenting behaviors with their sons to get them to stay engaged and cooperate.

Moon and Hoffman (2008) had parents respond to a questionnaire assessing their parenting behaviors, and found that mothers engaged in more personal interactions and physical touch with their daughters compared to their sons. Whereas fathers engaged in more personal interactions and physical touch with their sons. However, there was no significant difference between the mothers and fathers interactions with their sons in relation to their personal interactions and physical touch. This shows that mothers and fathers are similar to one another in their parent-child interactions with their sons, but differ with their daughters. This study further examined how the gender of the child is related to the parent behaviors shown during one-on-one interactions. Parents' individual characteristics may account for differences we see during interactions.

Development during Interactions

Individual differences among families, such as culture and SES, cause parent-child interactions to differ and have unique qualities. Parent-child interactions can affect the child's optimum development through the nature of the interaction (Cerezo, Pons-Salvador, & Trenado, 2008). Malmberg et al. (2007) found when mothers and fathers have a change in their mood, it can change the child's mood. This shows that even the slightest changes in parents can affect their children. Understanding which specific parenting behaviors may influence a child's development through interactions can help parents use parenting behaviors that are more effective. Positive

parenting is essential for creating quality interactions between parents and children (September et al., 2015).

Language Development

One-on-one interactions enhance the development of language (Ramirez-Esparza, et al., 2014). Conversations during parent-child interactions are important because they help expose children to language (Hart & Risley, 1995). The everyday conversations children have, with people other than their parents, do not make as strong of an impact on their language development as conversations during parent-child interactions (Hart & Risley, 1999). This could be because parents engage in specific behaviors that promote children's language learning that others do not. Although most parents know talking, reading, and singing to children are important (U.S. Department of Education, 2017), having quality interactions with children may be necessary to develop primary language understanding (Hart & Risley, 1995). Differences during these early interactions with parents, and the variations found in children's language development, may be explained by specific parenting behaviors expressed during these interactions.

The quality of care children receive is associated with their language ability (Pancsofar & Vernon-Feagans, 2006; Chazen-Cohen et al., 2009). Factors such as sensitivity, responsiveness, and the frequency of language spoken to the child have all been associated with early language development (NICHD, 2000). When parents are more supportive and encourage learning in the home, children have higher vocabulary knowledge (Chazen-Cohen et al., 2009). While higher quality care is important for

children's language development, it is also important for their overall development (Pancsofar & Vernon-Feagans, 2006).

In a study by Goldstein, King, and West (2003), researchers had mothers respond to their infants' babbling either contingently, when the child makes sounds, or at a time specified by the researchers. They found that infants in the contingent condition had more vocalizations than the comparison group. In other words, when mothers respond to their infants in a contingent manner, it gives them social feedback and reinforces the instance of the babble. Thus, when mothers respond to their children's vocalizations contingently, it leads to children vocalizing more, which may help them learn language at a faster rate. This is supported by the research of Tamis-LeMonda, Bornstein, Baumwell, and Damast (1996) that found children reinforced for their attempts at communicating have better language development. It is not just the amount of words spoken to the child that is important for language development, but also the quality of the interaction and the responsiveness of the parent.

Socioeconomic Status

The role individual differences play in early language experiences, such as marital status, employment status, education, and occupational prestige, may also create more differences in development across the lifespan. Socioeconomic status (SES) is positively associated with language development. Research has found that individuals from a higher SES background have a larger vocabulary than individuals from a middle or low SES background (Hart & Risley, 1992; Hart & Risley, 1995; Hoff-Ginsburg, 1998; Rowe, 2008). Children from higher SES households have double the vocabulary size of children from low SES households. This could be

because children from higher SES households engage in thousands of more conversations than those from low SES households (Hart & Risley, 1995).

Sperry, Sperry, and Miller (2018) attempted to replicate Hart and Risley's (1995) study, which examined children's language development from professional, working class, and welfare families for 2.5 years. The results from Sperry et al. (2018) did not support Hart and Risley's claim regarding the 30 million-word gap between professional and welfare families; nor did they find a positive correlation between quantity of speech addressed to the child and social class status. However, Sperry et al. (2018) did not include participants from professional or higher SES households like Hart and Risley (1995) did; they also included overheard speech, when Hart and Risley did not. Not including professional or higher SES families and including overheard speech means that this study is not an exact replication (Golinkoff, Hoff, Rowe, Tamis-LeMonda, Hirsh-Pasek, 2018). This confirms that more research should be done on the specific parenting behaviors that may support language development despite SES.

Hart and Risley (1995) found that parents' supportiveness and the environment in the home is associated with fostering vocabulary development in children from low SES households. The findings from Chazan-Cohen et al. (2009) also support the claim that more supportive parenting is strongly associated with higher vocabulary knowledge. Mothers of higher SES households are more responsive to children's speech, they have longer conversations, and initiate more conversations with their children. Each child has a different language experience with their parents and these differences can be partially explained by SES (Hoff, 2002).

Sociodemographic factors can also explain some of the differences we see among parent-child interactions. Factors such as economic security, education, SES, and the mother-father relationship have all been found to play a role in influencing parent-child interactions (Tamis-LeMonda, Shannon, Cabrera, & Lamb 2004).

SES and other demographic factors may also account for the variations we see among mothers in their knowledge of child development. Maternal age, SES, and education are all predictive factors of knowledge of child development. Living in low SES households is associated with mothers having less knowledge of child development (Benasich & Brooks-Gunn, 1996; September et al., 2015); whereas parents who have higher education and income levels have more knowledge of child development (Morawska, Winters, & Sanders, 2008; Winter et al., 2012). Thus, parents who have higher education and are from higher SES households are more likely to have more knowledge of their children's development, which may lead to more parenting behaviors supportive of language development.

Synthesis of the Literature

Understanding which components of parent-child interactions influence the development of language is essential for fostering optimal language learning environments. Conversations during parent-child interactions have a stronger impact on children's language development than conversations with others (Hart & Risley, 1999). This study further investigated the parenting behaviors that occur during these interactions to examine which specific types of behaviors may influence the relationship between parent interactions and language development. The relationship

between parents' knowledge of child development and their child's language ability was also further examined.

Currently, the research shows that parents living in high SES households are more knowledgeable in child development (Morawska, Winters, & Sanders, 2008; Winter et al., 2012), have higher quality language interactions with their children, (Chazen-Cohen et al., 2009; Hoff, 2002), and children from high SES households have better language ability (Hart & Risley, 1992; Hart & Risley, 1995; Hoff-Ginsburg, 1998; Rowe, 2008). Parents from high SES households are initiating behaviors that are already known to positively influence a child's language ability. Accordingly, this study only included participants from high SES households as these are the parents most positively influencing their child's language development. Many past studies examining parent-child interactions have used self-report measures which can cause social desirability to occur. By conducting an observational study on parent-child interactions, more accurate information can be obtained. Investigating which specific behaviors parents from high SES households are engaging in during parent-child interactions will therefore show us the strongest behaviors that positively influence language development, and how child gender may influence those interactions.

Hypotheses:

1) Parents with more child development knowledge will show more affection, responsiveness, encouragement, and teaching.

2) Parents with more child development knowledge will have children with higher vocabulary scores.

3) Parents that show more affection, responsiveness, encouragement, and teaching will have children with higher vocabulary scores.

4) Parents of males will show more affection, responsiveness, encouragement, and teaching than parents of females.

CHAPTER III

METHOD

Participants

Participants were parent-child dyads with children between three and six years old. The primary language spoken in the home was English for all participants, which was required to be a part of this study. Participants were recruited through social media posts about the study in parenting groups, informational flyers at local daycares, and participants suggesting people they knew as potential participants. The participants were compensated by giving each parent-child dyad a $10 gift card to Target, Starbucks, or Yogurt Mill, to thank the child and parent for their time. There were 40 parent-child dyads that participated. There were 34 mothers (85%) and 6 fathers (15%), who were between 24 and 41 years old ($M = 31.92$, $SD = 4.57$). Of the 40 children, 18 were males and 22 were females. Child age was calculated in months; children ranged from 37 to 83 months old ($M = 58.87$, $SD = 13.26$). It was required that participants be from upper-middle class/high SES households. For this study, an upper-middle class SES household was defined as making $100,000 and above per year (Jackson, 2018). The participants' household income level was used as a proxy for SES. Participants' yearly household income ranged from $100,000 to $450,000 ($M = \$151,075$, $SD = \$64,644$). Parents were asked for the number of children they have and answers ranged from one to three ($M = 2.07$, $SD = .69$). The number of people who lived in the home ranged from three to seven ($M = 4.37$, $SD = .93$). There were 32 employed participants and eight non-working participants. Of the 40 participants, four graduated from high school, eight had some college credits, four

had associate's degrees, 12 had bachelor's degrees, eight had master's degrees, and four had doctoral degrees. Participants were asked for their relationship status; 35 were married, one participant was single, and four were in a relationship. Parents were asked for the birth order of the child participating in the study; 22 (55%) were first born children, 13 (32.5%) were second born children, and 5 (12.5%) were third born children. Although many parent participants were parents of male and female children, for this study parents were labeled as parents of females or parents of males contingent on the child who participated in the study with them. Table 1 shows an overview of the participants' ethnicities.

Table 1

Parent and Child Ethnicities

	White	Hispanic/Latino	Asian/Pacific Islander	Black/African American	Other
Parents	22 (55%)	8 (20%)	4 (10%)	0	6 (15%)
Children	15 (37.5%)	10 (25%)	6 (15%)	1 (2.5%)	8 (20%)

Procedures

Individuals interested in participating in the study were called to ask when the child would be alert and rested for participation, the time of day the parent prefers the research to be done, their income, and what languages are spoken in the home.

Upon arrival, the study and the steps that would occur during the study were explained. Informed consent was obtained for the parent and child. The demographics questionnaire and the knowledge of child development questionnaire were administered to the parent. While the parent filled out these measures, the child's vocabulary was assessed. The parent and child were then instructed to interact with

one another using the toys provided. Participants were then debriefed and provided with a debriefing sheet. Finally, the researcher answered any questions participants had. The parent-child interaction was later coded for parenting behaviors by trained researchers. Children who received a standard score of 70 and below on the language assessment were to be removed from the study as this study is focused on typically developing children; however, there were no children who received a score below 70.

Measures

Receptive Vocabulary

Receptive vocabulary was measured with the Peabody Picture Vocabulary Test (PPVT-IV; Dunn & Dunn, 2007). It is appropriate for use with children and adults, but only children's receptive vocabulary was assessed in this study. The items are presented from easier words to more difficult words. The sets are categorized by age. The researcher shows the participant four pictures, states a word, and asks the child to point, select, or state the number of the picture that best describes the word. An example of an easy question would be: a page is shown showing a strawberry, a teddy bear, a star, and a blanket. The researcher will say "point to the star" and the child is expected to point to what they believe is the star. The assessment takes between 11-12 minutes on average.

Scoring sheets are used to keep track of the child's progress. There is a "1, 2, 3, 4, E" to the right of each stimulus word. The number in the red font is the stimulus word. If they choose the stimulus word, the researcher circles the red number. If the child was incorrect, the researcher would circle the number of the word they chose and draw a line through letter E to signify an error occurred. If the child says, "I don't

know" the researcher would draw a line through the letter E and write "DK" (for don't know) next to the crossed out E. The researcher would then want to add the number of errors and mark that down. The researcher should begin by finding the participant's basal set. The basal set is found when the participant only makes one or zero errors in a set of 12. The researcher would then continue going through the sets with the participant until the participant has made eight errors in one set. Once eight errors have been made in one set, the ceiling set has been established and the test is finished (Dunn & Dunn, 2007).

The PPVT-IV has high reliability and validity. Cronbach's alpha is high across all ages and grades with a .96 to .97 on average for each form. The PPVT-IV has a split-half reliability of .94, and correlations range from .80 to .84 with other established vocabulary measures (Dunn & Dunn, 2007). The children's standard scores on the PPVT-IV ranged from 85 to 130 ($M = 107.37$, $SD = 10.52$).

Parenting Behaviors

Parenting behaviors were measured with the Parenting Interactions with Children Checklist of Observations Linked to Outcomes (PICCOLO; Roggman et al., 2013). PICCOLO predicts cognitive, social, and language development across four domains. These domains are affection, responsiveness, encouragement, and teaching. The items measured in each domain are predictive of positive outcomes in child development.

Interrater reliability is strong with a 75% agreement across domains. Correlations were statistically significant when comparing the PICCOLO to other parenting interaction measures. The PICCOLO has strong content validity.

Practitioners who work with young children and their parents rated the items as "very important" with an average score of a 2.58 on a 3-point scale. Predictive validity is also strong with this measure. Domain scores were found to be predictive of cognitive, language, and social-emotional outcomes at three and five years old. The internal consistency alpha averaged .78 for all four domains. This measure is also reliable across cultures (Roggman et al., 2013). There were two trained coders who were blind to the study; 20% of the videos were coded for reliability, and coders had 95% agreement.

When using the PICCOLO, a parent and child are videotaped for ten minutes during an activity. Activities may include using pretend play toys, manipulative toys, looking at picture books, or even an everyday routine like cleaning up. This study used a doctor set, Duplo blocks, and the book *The Very Hungry Caterpillar*. The interaction was later scored in the four domains using the PICCOLO measure by trained coders. The affection domain has statements such as "speaks in a warm tone of voice" or "uses positive expressions with child." The responsiveness domain has statements like "pays attention to what child is doing" and "is flexible about child's change of activities or interests." The encouragement domain has statements such as "waits for child's response after making a suggestion" and "supports child in doing things on his or her own." Lastly, the teaching domain has statements like "explains reasons for something to child" and "engages in pretend play" (Roggman et al., 2013).

The scores for each statement are added in each domain to get a domain score. The scores are categorized as below average, average, or above average. The

PICCOLO score is the sum of all the domain scores. The higher the PICCOLO score, the more parents show developmentally supportive behaviors in their parenting (Roggman et al., 2013). The highest score an individual can receive on the PICCOLO is a 58. Parents' scores ranged from 32 to 56 ($M = 46.03$, $SD = 5.55$) with a 37 or above considered better than average and developmentally supportive parenting. The affection domain scores ranged from 8 to 14 ($M = 11.68$, $SD = 1.86$) with a score of 10 or more considered above average. The responsiveness domain scores ranged from 6 to 14 ($M = 12.38$, $SD = 1.69$) with a score of 10 or more considered above average. The encouragement domain scores ranged from 7 to 14 ($M = 11.73$, $SD = 1.50$) with a score of 9 or more considered above average. The teaching domain scores ranged from 2 to 15 ($M = 10.25$, $SD = 2.81$) with a score of 8 or more considered above average.

Parents' Knowledge of Child Development

The Knowledge of Infant Development Inventory (KIDI; Macphee, 1981) is designed to measure parents' knowledge of developmental norms and milestones, developmental processes, and child-rearing practices. This self-report measure is a 75-item questionnaire, but for this study, only three of the four scales were used. These questions address development (17 items) which addresses developmental processes. For example, a question states "one's IQ (intelligence) score stays the same from infancy through childhood" and the participant chooses agree, disagree, or not sure. The questions also address norms and milestones (32 items) which addresses typical behavior of the infant at a certain time. For example, a question states "infants usually are walking by about 12 months of age" and the participant chooses agree,

younger, older, or not sure. Lastly, they address parenting strategies (14 items) which

addresses parenting strategies, responsibilities, and beliefs (September et al., 2015).

For example, a question states "the more you comfort your crying baby by holding

and talking to it, the more you spoil him (her)" and the participant chooses agree,

disagree, or not sure.

These scores show how knowledgeable participants are in child development.

The KIDI has been found to have reliability and validity. The internal consistency

reliability alpha is .82 for parents, and Cronbach's alpha was also .82 at pre-test and

post-test (September et al., 2015). There were 63 questions used from the KIDI. The

parents' scores on the KIDI ranged from 38 to 56 ($M = 47.07$, $SD = 4.71$).

CHAPTER IV

RESULTS

Data Analyses

Bivariate correlations were conducted to analyze the relationships among

parent knowledge of child development, parenting behaviors, child vocabulary score,

and child gender. T-tests were conducted to analyze male and females' standard

scores. T-tests were also conducted to examine the differences between parents of

males and parents of females' scores of parenting knowledge and parenting

behaviors. The results are discussed further in relation to each of the hypotheses.

Parent Knowledge and Parenting Behaviors

A bivariate correlation was conducted to determine if higher scores of child

development knowledge, as measured by the KIDI total score, were related to higher

scores of affection, responsiveness, encouragement, and teaching. Parent knowledge

of child development was not statistically significantly related to any of the domains,

but was related to several of the specific behaviors. Parent knowledge was positively

associated with the parenting behavior affection item, smiles at child ($r = .31$, $p =$

.05). Parents who had more knowledge in child development smiled more often.

Parenting knowledge was highly correlated with the parenting behavior teaching

item, asks child for information ($r = .35$, $p = .03$). Parents who were more

knowledgeable in child development asked their child for information during the play

activity. Parenting knowledge was negatively associated with the parenting behavior

responsiveness item, changes pace or activity to meet child's interests or needs ($r = -$

.32, $p = .04$), and the responsiveness item, looks at child when child talks or makes sounds ($r = -.32, p = .05$).

A bivariate correlation was conducted to determine if the three KIDI domains, development, norms and milestones, and parenting strategies, were related to items from the PICCOLO. The norms and milestones domain was found to be positively associated with items from the PICCOLO. However, there were no correlations found with the development or parenting strategies domains. Parenting knowledge of norms and milestones was found to have a high positive correlation with the parenting behavior affection item, smiles at child ($r = .40, p = .01$). This means that parents who had more knowledge of children's norms and milestones smiled more often. Parenting knowledge of norms and milestones also had a marginally significant positive correlation with the parenting behavior teaching item, labels objects or actions for child ($r = .29, p = .07$), and was positively correlated with the teaching item, asks child for information ($r = .39, p = .01$). Accordingly, parents who had more knowledge in children's norms and milestones were more likely to label objects or actions for their child and ask their child for information. Parenting knowledge of children's norms and milestones was found to be negatively associated with parenting behavior responsiveness item, looks at child when child talks or makes sounds ($r = -.35, p = .03$). Parenting knowledge of children's norms and milestones was also found to have a marginally significant negative correlation to the teaching item, engages in pretend play with child ($r = -.30, p = .07$), and the teaching item, does activities in a sequence of steps ($r = -.29, p = .07$).

Parent Knowledge and Language Ability

A bivariate correlation was conducted to determine if higher scores of child development knowledge were related to higher child vocabulary scores. There was no significant relationship among the parenting knowledge scores and PPVT-IV scores. In fact, parents of males had higher scores of child development knowledge, while male child participants had a lower mean PPVT-IV score than female child participants. The scores of child development knowledge for parents who interacted with their sons ranged from 39 to 56 ($M = 49.22$, $SD = 4.63$). The scores of child development knowledge for parents who interacted with their daughters ranged from 39 to 57 ($M = 46.91$, $SD = 4.74$). Female children's standard scores ranged from 87 to 130 ($M = 110.32$, $SD = 10.03$). Male children's standard scores ranged from 85 to 121 ($M = 103.78$, $SD = 10.24$).

Parent Behaviors and Language Ability

A bivariate correlation was conducted to determine if parenting behaviors were related to child vocabulary score. There were no significant positive relationships found among these variables. The parenting behavior encouragement item, supports the child in doing things on his or her own, was found to approach significance and be positively associated with above average PPVT-IV score ($r = .27$, $p = .10$). The parenting behavior encouragement item, verbally encourages the child's efforts, was negatively associated with the children's PPVT-IV score ($r = -.38$, $p = .02$).

Parent Behaviors with Males and Females

A bivariate correlation was conducted to determine if parents of females and parents of males' parenting behavior scores of affection, responsiveness, encouragement, and teaching were related to child vocabulary score. Six of the parenting behavior items were strongly correlated with vocabulary score for males, but not for females; they include: the teaching item, suggests activities to extend what child is doing ($r = .51$, $p = .03$); the teaching item, labels objects or actions for child ($r = .49$, $p = .04$); the teaching total (the total score the participant received in the teaching category) ($r = .51$, $p = .03$); the affection item, smiles at child ($r = .56$, $p = .02$); the encouragement item, encourages child to handle toys ($r = .52$, $p = .03$); and the encouragement item, supports child in doing things on his or her own ($r = .57$, $p = .02$). However, parents participating in the teaching item, asking child for information, occurred less with males than females.

T-tests were conducted to analyze male and females' standard scores. Females' standard score on the vocabulary measure had a mean of 110.32, while males had a mean standard score of 103.77. Females did significantly better than males did on the PPVT-IV, $t(38) = 2.03$, $p = .05$. T-tests were also used to examine the differences in parenting knowledge and parenting behavior scores for parents of males and parents of females. Parents of males had higher scores on the parenting knowledge measure and on the parenting affection domain than parents of females. Parents of males had a mean score of 49.2 on parenting knowledge and parents of females had a mean score of 46.9, $t(38) = 1.55$, $p = .12$, while not statistically significant, it did approach significance. Parents of males had significantly higher

scores in the affection domain of the parenting behaviors measure. Parents of males

had a mean score of 12.4 in the affection domain, while parents of females had a

mean score of 11.1 in this domain, $t(38) = 2.6$, $p = .01$. Thus, parents of males show

more affection toward their children than parents of females. Fathers and mothers

were analyzed separately and together to ensure one group did not behave differently

than the other, and there were no differences found.

Table 2

Correlations for KIDI, PICCOLO, and PPVT-IV Variables

Measure	1	2	3	4	5	6	7	8	9
1. KIDI Development	-								
2. KIDI Norms and Milestones	.23	-							
3. KIDI Parenting Strategies	.43**	.41	-						
4. KIDI Total	.67**	.71**	.76**	-					
5. PICCOLO Affection	-.05	.11	.14	.10	-				
6. PICCOLO Responsive	-.11	-.26	-.16	-.24	.38*	-			
7. PICCOLO Encourage	.10	-.10	-.04	.01	.47**	+.28	-		
8. PICCOLO Teaching	-.10	-.03	-.03	-.09	.21	.44**	.18	-	
9. PICCOLO Total	-.08	-.08	-.03	-.09	.69**	.73**	.60**	.76**	-
10. PPVT Standard Score	-.04	-.10	.09	.07	-.23	.17	-.02	.11	.03

CHAPTER V

DISCUSSION

The primary purpose of this study was to investigate which specific parenting behaviors most positively influence language development during parent-child interactions in upper-middle class to high-income households. This study also examined how parent knowledge is related to parenting behaviors and children's language ability. The interactions between parents and their sons and parents and their daughters were examined separately and together to see if there were differences between a child's interaction with their parent based on the child's gender. Previous research has shown that parents with high SES households have higher quality language interactions with their children than those with low SES households (Chazen-Cohen et al., 2009; Hoff, 2002), are more knowledgeable in child development (Morawska, Winters, & Sanders, 2008; Winter et al., 2012), and their children have better language ability (Hart & Risley, 1992; Hart & Risley, 1995; Hoff-Ginsburg, 1998; Rowe, 2008). Appropriately, this study only included parent-child dyads from high-income homes, as these parents are expected to be engaging in higher quality language interactions with their children. With parents from high SES households engaging in higher quality interactions with their children, it is essential to learn which specific parenting behaviors they are engaging in to help other parents use these parenting behaviors with their children. Knowing which parenting behaviors are most important for language development during one-on-one interactions can help parents know what behaviors will support their children's language skills so they are ready to enter school.

Parent Knowledge and Parenting Behaviors

It was hypothesized that higher scores of child development knowledge would be related to higher scores of affection, responsiveness, encouragement, and teaching. Having higher scores of parenting knowledge was not related to any of the domains, but was related to specific parenting behaviors within the domains. Having more parenting knowledge was positively associated with smiling more at the child. Although the current literature lacks information on the association between parenting knowledge and smiling during parent-child interactions, past research has found that affection and warmth are able to moderate a child's stress response; this causes the child to become more resilient to frustration, distress, and other predicaments (Maselko et al., 2011). Parents who are more knowledgeable in child development may smile more often at their child to show affection in order to help their children not become frustrated or stressed during activities. More parenting knowledge also had a high positive association with the teaching item, asks the child for information. Parent knowledge has been previously found to be associated with the cognitive stimulation parents give their children (Benasich & Brooks-Gunn, 1996; Rowe, 2008). Previous research has also found that mothers from high SES households elicit conversation from their children more often. This is likely the case because parents of high SES are more knowledgeable in child development (Morawska, Winters, & Sanders, 2008; Winter et al., 2012). Thus, parents who are more knowledgeable in child development may ask their child for information to provide cognitive stimulation and start conversation. This provides the child more opportunities to learn and practice language.

There was a negative relationship among parent knowledge and the responsiveness item, changes pace or activity to meet child's needs and between parent knowledge and the responsiveness item, looks at child when child talks or makes sounds. The current literature lacks information on the association between parenting knowledge and changing the pace or activity to meet the child's needs and looking at the child when he or she talks or makes sounds. However, previous research has found that being more knowledgeable in child development helps parents more accurately create engaging environments, respond appropriately to their children, and have higher quality interactions, as they are more sensitive to the child's developmental abilities (Goodnow, 1988; Huang, Caughy, Genevro, & Miller, 2005; Miller, 1988). Therefore, it is surprising that changing the pace or activity to meet the child's needs and looking at the child when he or she talks or makes sounds would be negatively associated with parenting knowledge. With more parenting knowledge previously being associated with parents more accurately creating engaging environments, one would presume that changing the pace or activity to meet the child's needs would in fact be associated with having more parenting knowledge, but this was not the case.

Parent knowledge in the norms and milestones domain of the KIDI was related to smiling more often at the child. As stated previously, parents may smile more often at their children when they are more knowledgeable in developmental norms and milestones to help their children be more resilient and less frustrated during activities. Parent knowledge in the norms and milestones domain was also related to labeling objects or actions for the child, and asking the child for more

information during play. Huang et al., (2005) found that parents who have more parenting knowledge in developmental norms and milestones have been found to have higher quality parent-child interactions while attempting to teach their children. This is in line with the current study's findings that labeling objects or actions for the child and asking the child for more information during a play activity is related to having more knowledge in developmental norms and milestones.

Parent Knowledge and Language Ability

It was hypothesized that higher scores of parenting knowledge would be related to higher child vocabulary scores, but there was no significant relationship among these variables. All of the participants did well on the parenting knowledge assessment; there was limited variation in the scores. The average parenting knowledge score on the KIDI was a 47.07 out of 63 (74.7%). In a previous study, which examined parent knowledge in low and high SES groups, the average KIDI score was 60.9% (September et al., 2015). A possible reason that there was no significant relationship between parenting knowledge and PPVT-IV scores is that there was not much variability among the participants' parenting knowledge scores. All of the participants were from high income households and almost all of them were college educated. Only four of the 40 participants did not attend college. Previous research has shown that income and education are predictive factors of child development knowledge (Benasich & Brooks-Gunn, 1996; September et al., 2015), which explains why the current study's high-income, highly educated sample did not vary greatly in their parenting knowledge scores. Participants also likely know what the correct answers are on the KIDI because of the internet and being educated; some

of them may have chosen answers based on what the right answers are rather than what they would really do because of social desirability. Therefore, social desirability, income, and education may be some of the reasons that there was not a lot of variability in these results.

<div align="center">**Parenting Behaviors and Language Ability**</div>

It was hypothesized that parents that have higher scores of affection, responsiveness, encouragement, and teaching would have children with higher vocabulary scores. The encouragement item, supports child in doing things on his or her own, was marginally positively correlated with above average PPVT-IV scores. Chazen-Cohen et al. (2009) found that children have higher vocabulary knowledge when their parents are supportive and encourage learning in the home. Past research has also found that mothers foster the development of language and cognition by encouraging their children to learn and explore their environments (Bernier et al., 2010; Bradley, Caldwell, Rock, Ramey & Al, 1989). When parents support their children in doing things on their own, it promotes and enhances language development. There was a negative correlation between PPVT-IV score and the encouragement item, verbally encourages child's efforts. This was surprising, as past research has shown that mothers promote the development of language and cognition when they encourage their children to explore and learn about their environments (Bernier et al., 2010; Bradley, Caldwell, Rock, Ramey & Al, 1989). This negative correlation between PPVT-IV score and parents verbally encouraging their child's efforts may have occurred because if parents are continuously encouraging what their child is doing without asking questions, it may deter the child from verbalizing or

asking questions themselves. Parents in this study had higher than average PICCOLO scores and domain scores in all four domains: affection, responsiveness, encouragement, and teaching.

Parenting Behaviors with Males and Females

It was hypothesized that parents of males would receive higher scores of affection, responsiveness, encouragement, and teaching than parents of females, and this was partially supported. Parents of males had a mean score of 46.8 and parents of females had a mean score of 45.3 on the parenting behaviors measure. While these scores only approach significance, there were significant gender differences for the affection domain. In the affection domain, parents of males had a mean score of 12.4, while parents of females had a mean score of 11.1, which was statistically significantly different. Several other items approached significance indicating that there may be differences in the way parents respond to males versus females. Parents of males had six parenting behaviors that were strongly correlated with their son's PPVT-IV scores. The encouragement item, supports child in doing things on his or her own, and the encouragement item, encourages child to handle toys, were both correlated with males PPVT-IV scores, but not for females. These findings are in line with Short-Meyerson, Sandrin, and Edwards (2016) study which found parents are more encouraging with their male children and are more likely to praise them compared to their female children. The affection item, smiles at child, was also correlated with males PPVT-IV scores. This supports past research that found showing affection during parent-child interactions is associated with higher language ability (Chazen-Cohen et al., 2009; Hart & Risley, 1995; Maselko et al., 2011).

Parents showing affection by smiling was related to male vocabulary, but not female vocabulary. The teaching items, suggests activities to extend what the child is doing, labels actions and objects for the child, and the parents' total teaching score were also correlated with males PPVT-IV scores. Parents of males may have used these teaching behaviors more often than parents of females because female children are more positively engaged during interactions with their parents than male children (Nordahl, Janson, Manger, & Zachrisson, 2014). Male children have also been found to be less cooperative and challenge the rules of a game during interactions with their parents (Grebelsky-Litchtman, 2014). Parents of males may use these behaviors more than parents of females in an attempt to get their male children more engaged and cooperative during activities.

Implications

As previously discussed, Hart and Risley (1995) found that there was a 30 million word gap between children of welfare families (low income) and children of professional families (high income). Sperry et al. (2018) attempted to replicate this study. Their results did not support Hart and Risley's claim regarding the 30 million word gap, but Sperry et al. (2018) had a few differences in their study. Sperry et al. (2018) included children from poor, working-class, and middle-class families; whereas Hart and Risley (1995) had children from welfare, middle-class, and professional families. Sperry et al. (2018) did not include professional, or high-income families in their study. Another difference between these two studies is the type of speech included in the word count the children heard. While Hart and Risley (1995) only included child-directed speech, Sperry et al. (2018) included child-

directed speech as well as overheard speech. Past research has shown that overheard speech does not benefit children learning language like child-directed speech (Golinkoff, Hoff, Rowe, Tamis-LeMonda, Hirsh-Pasek, 2018). Due to the differences in these studies, we cannot disregard the findings of Hart and Risley (1995), nor can we disregard the findings of Sperry et al. (2018) because they were not the same study. Sperry et al. (2018) suggests that future research should focus on what causes the differences within communities in regards to socioeconomic status. Hart and Risley (1995) found that children from low SES households have fewer interactions involving language, thus they have fewer opportunities to learn language. The current study's participants had no differences in their income; all families were from upper-middle class to high SES households, but there was variability in the PPVT-IV scores. It may not be the quality of parent-child interactions nor the behaviors of the parent that cause differences in language ability. It may be the differences in experiences each child has that causes variability in the PPVT-IV scores.

Lev Vygotsky believed that language is learned through social interactions and it is an interdependent process between child and parent (Wertsch & Tulviste, 1992). When parents use scaffolding during parent-child interactions they are helping the child learn to solve problems on their own in the future. The current study's results found that supporting the child in doing things on his or her own was marginally related to the child's PPVT-IV score. Therefore, results support past research that found mothers who use scaffolding during interactions with their children have children with higher language comprehension (Laakso, Poijjeus, Katajamaki, & Lyytinen, 1999).

As previously mentioned, behaviors that involve affection, responsiveness, encouragement, and teaching, have been shown to be predictive of positive child outcomes. Parents are able to support their child developmentally in their language, cognition, and sociability by engaging in these behaviors during interactions with their children. When parents engage in behaviors that value and support a child's development, it is considered developmental parenting. Using developmental parenting with young children helps with their social competence and mental health. Developmental parenting includes changing behaviors to adjust to the child's developmental level. When children have the ability to ask questions and communicate, they are ready to learn academic skills and more likely to succeed in school (Roggman et al., 2013). The parents in this study received higher than average PICCOLO scores, but there was a lot of variability in the PPVT-IV scores. Therefore, there may be a threshold where at some point higher PICCOLO scores don't matter as much as other factors. The purpose of this study was to investigate which specific parenting behaviors involved in parent-child interactions are related to children's language development. Results found a parenting behavior that was related to language development for both male and female children; supporting the child in doing thing on his or her own. By supporting the child in doing things on his or her own, parents can support their children developmentally and practice developmental parenting. If parents do this during parent-child interactions, it may help children become more ready for school and have more similar language ability to their peers, despite SES.

Limitations

There were several limitations in this study. Most participants were White (55% of parents and 37.5% of children), so the sample is not nationally representative and cannot be generalizable to all U.S. families. A requirement to participate in this study was that all participants' primary language spoken in the home had to be English. Only allowing individuals who primarily speak English to participate makes the study lack information on how parenting behaviors influence languages other than English; this makes the results not generalizable to individuals who do not speak English primarily. Although a requirement to participate was that participants had to be from high-income households, the reason for only including these individuals was that it was necessary for this research. As stated previously, children from high income households have higher language ability (Hart & Risley, 1992; Hart & Risley, 1995; Hoff-Ginsburg, 1998; Rowe, 2008), their parents have more parenting knowledge (Morawska, Winters, & Sanders, 2008; Winter et al., 2012), and parents and children from high income households have higher quality language interactions (Chazen-Cohen et al., 2009; Hoff, 2002). For these reasons, it was decided only to include parent-child dyads from high-income households in this study as the parents are already engaging in optimal parenting behaviors that influence language development. Another limitation was that this study is strictly correlational. The results only show relationships among variables, but do not show that one variable actually causes another. In addition, the small sample size was a limitation; a larger sample size may have shown different results. Some items that approached significance may have reached significance with a larger sample. Further, there is

only one parent knowledge measure currently available and it is self-report, this is also a limitation. A new parent knowledge and behavior measure is needed with a wider range of knowledge, behaviors, and attitudes around parenting. Lastly, another limitation of this study is that there were 34 mothers and 6 fathers. Although there were no differences found between mothers and fathers, it would be beneficial to limit the study to either only mothers or only fathers, or to have an equal number of mothers and fathers to examine parenting differences between mothers and fathers.

Future Research

Future research on this topic should include participants who speak languages other than English as their primary language. It should also aim to include more participants from different ethnicities, as most of the parent participants in the current study were White. Future research should also include more fathers. There is a mass amount of literature on mothers and parenting, but there is not enough on fathers. Researchers should aim at including more fathers in studies, and also including both fathers and mothers in the same studies so there can be more comparison. Although past research has shown that parents from high income households are providing higher quality language interactions for their children (Chazen-Cohen et al., 2009; Hoff, 2002), it would be interesting to have a replication of this study with high and low income participants to examine if there are major differences between the groups. It would also be important to identify differences in experiences for each group to determine if the difference in language is related to parenting behaviors of high-income parents or the experiences they are able to offer.

REFERENCES

REFERENCES

Baumrind, D. (1991). Parenting styles and adolescent development. *Encyclopedia of Adolescence*, 746-758. Retrieved from http://www.springer.com/us/book/9781441916945

Benasich, A. A., & Brooks-Gunn, J. (1996). Maternal attitudes and knowledge of child-rearing: Associations with family and child outcomes. *Child Development, 67*, 1186-1205. doi:10.2307/1131887

Bernier, A., Carlson, S. M., & Whipple, N. (2010). From external regulation to self-regulation: Early parenting precursors of young children's executive functioning. *Child Development, 81*, 326-339. doi:10.1111/j.1467-8624.2009.01397.x

Bingham, G. E., Jeon, H., Kwon, K., & Lim, C. (2017). Parenting styles and home literacy opportunities: Associations with children's oral language skills. *Infant and Child Development, 26*(5), 1-18. doi:10.1002/icd.2020

Bornstein, M. H., Putnick, D. L., Suwalsky, T. D., & Gini, M. (2006). Maternal chronological age, prenatal and perinatal history, social support, and parenting of infants. *Child Development, 77,* 875-892. doi:10.1111/j.1467-8624.2006.00908.x

Bradley, R. H., Caldwell, B. M., Rock, S. L., Ramey, C. T., & Al, E. (1989). Home environment and cognitive development in the first 3 years of life: A collaborative study involving six sites and three ethnic groups in North America. *Developmental Psychology, 25*, 217-235. doi:10.1037//0012-1649.25.2.217

Cerezo, M. A., Pons-Salvador, G., & Trenado, R. M. (2008). Mother–infant interaction and children's socio-emotional development with high- and low-risk mothers. *Infant Behavior and Development, 31*, 578-589. doi:10.1016/j.infbeh.2008.07.010

Chazan-Cohen, R., Raikes, H., Brooks-Gunn, J., Ayoub, C., Pan, B. A., Kisker, E. E., . . . Fuligni, A. S. (2009). Low-income children's school readiness: Parent contributions over the first five years. *Early Education & Development, 20*, 958-977. doi:10.1080/10409280903362402

Conrad, B., Gross, D., Fogg, L., & Ruchala, P. (1992). Maternal confidence, knowledge, and quality of mother-toddler interactions: A preliminary study. *Infant Mental Health Journal, 13*, 353-362. doi:10.1002/1097-0355(199224)13:4<353::AID-IMHJ2280130410>3.0.CO2-#

Cristofaro, T. N., & Tamis-LeMonda, C. S. (2011). Mother-child conversations at 36 months and at pre-kindergarten: Relations to children's school readiness. *Journal of Early Childhood Literacy, 12*, 68-97. doi:10.1177/1468798411416879

Deci, E. L., & Ryan, R. M. (1987). The support of autonomy and the control of behavior. *Journal of Personality and Social Psychology, 53,* 1024-1037. doi:10.1037/0022-3514.53.6.1024

Dunn, D. M., & Dunn, L. M. (2007). *Peabody Picture Vocabulary Test, fourth edition: Manual*. Bloomington, MN: Pearson.

Dukewich, T. L., Borkowski, J. G., & Whitman, T. L. (1996). Adolescent mothers and child abuse potential: An evaluation of risk factors. *Child Abuse & Neglect, 20*, 1031-1047. doi:10.1016/0145-2134(96)00093-2

Ertem, I. O., Atay, G., Dogan, D. G., Bayhan, A., Bingoler, B. E., Gok, C. G., . . . Isikli, S. (2007). Mothers knowledge of young child development in a developing country. *Child: Care, Health and Development, 33*, 728-737. doi:10.1111/j.1365-2214.2007.00751.x

Fuligni, A. S., & Brooks-Gunn, J. (2013). Mother–child interactions in early head start: Age and ethnic differences in low-income dyads. *Parenting, 13*(1), 1-26. doi:10.1080/15295192.2013.732422

Goldstein, M.H., King, A.P., & West, M.J. (2003). Social interaction shapes babbling: Testing parallels between bird- song and speech. *Proceedings of the National Academy of Sciences, 100*, 8030–8035. doi:10.1073/pnas.1332441100

Golinkoff, R. M., Hoff, E., Rowe, M., Tamis-LeMonda, C., & Hirsh-Pasek, K. (2018, May 21). Talking with children matters: Defending the 30 million word gap. The Brookings Institution. Retrieved from https://www.brookings.edu

Goodnow, J. J. (1988). Parents' ideas, actions, and feelings: Models and methods from developmental and social psychology. *Child Development, 59,* 286-320. doi:10.2307/1130312

Grebelsky-Lichtman, T. (2014). Children's verbal and nonverbal congruent and incongruent communication during parent–child interactions. *Human Communication Research, 40,* 415–441. doi: 10.1111/hcre.12035

Hart, B., & Risley, T. R. (1992). American parenting of language-learning children:

    Persisting differences in family-child interactions observed in natural home

    environments. *Developmental Psychology, 28*, 1096-1105. doi:10.1037//0012-

    1649.28.6.1096

Hart, B., & Risley, T. R. (1995). *Meaningful differences in the everyday experience of*

    young American children. Baltimore, MD: Brookes Publishing Company, Inc.

Hart, B., & Risley, T.R. (1999). *The social world of children learning to talk.*

    Baltimore, MD: P.H. Brookes.

Hirsh-Pasek, K., & Burchinal, M. (2006). Mother and caregiver sensitivity over time:

    Predicting language and academic outcomes with variable- and person-

    centered approaches. *Merrill-Palmer Quarterly, 52,* 449-485.

    doi:10.1353/mpq.2006.0027

Hoff, E. (2002). Causes and consequences of SES-related differences in parent-to-

    child speech. *In Socioeconomic Status, Parenting, and Child Development*

    (1st ed., Vol. 1, Monographs in Parenting Series, pp. 146-160). Mahwah, NJ:

    Aylor and Francis.

Hoff-Ginsburg, E. (1998). The relation of birth order and socioeconomic status to

    children's language experience and language development. *Applied*

    Psycholinguistics, 19, 603−629. doi:10.1017/s0142716400010389

Huang, K., Caughy, M. O., Genevro, J. L., & Miller, T. L. (2005). Maternal

    knowledge of child development and quality of parenting among White,

    African-American and Hispanic mothers. *Journal of Applied Developmental*

    Psychology, 26, 149-170. doi:10.1016/j.appdev.2004.12.001

Jackson, A. (2018, February 24). Silicon Valley is so expensive that people who

make $400,000 think they're middle class – here's what the middle class

actually is in the 25 largest US cities. *Business Insider*. Retrieved from

https://www.businessinsider.com

Laakso, M., Poikkeus, A., Katajamäki, J., & Lyytinen, P. (1999). Early intentional

communication as a predictor of language development in young toddlers.

First Language, 19, 207-231. doi:10.1177/014272379901905604

MacPhee, D. (1981). *Knowledge of infant development inventory manual*. Chapel

Hill, NC: Department of Psychology, University of North Carolina.

Magnuson, K. A., & Duncan, G. J. (2006). The role of family socioeconomic

resources in the Black–White test score gap among young children.

Developmental Review, 26, 365–399. doi:10.1016/j.dr.2006.06.004

Malmberg, L., Stein, A., West, A., Lewis, S., Barnes, J., Leach, P., & Sylva, K.

(2007). Parent–infant interaction: A growth model approach. *Infant Behavior

and Development, 30*, 615-630. doi:10.1016/j.infbeh.2007.03.007

Maselko, J., Kubzansky, L., Lipsitt, L., & Buka, S. L. (2011). Mothers' affection at 8

months predicts emotional distress in adulthood: Errors in interpretation.

Journal of Epidemiology & Community Health, 65, 621-625.

doi:10.1136/jech.2010.122804

Miller, S. (1988). Parents' beliefs about children's cognitive development (Book

Review). *Child Development, 59*, 259-285. Retrieved from

http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1467-8624

Moon, M., & Hoffman, C. D. (2008). Mothers' and fathers' differential expectancies and behaviors: Parent x child gender effects. *The Journal of Genetic Psychology*, 164, 261–279. doi: 10.3200/GNTP.169.3.261-280

Morawska, A., Winter, L., & Sanders, M. R. (2008). Parenting knowledge and its role in the prediction of dysfunctional parenting and disruptive child behaviour. *Child Care, Health and Development, 35*, 217-226. doi:10.1111/j.1365-2214.2008.00929.x

NICHD Early Childhood Research Network (2000). The relation of child care to cognitive and language development. *Child Development, 71*, 960-980. doi:10.1111/1467-8624.00202

Nordahl, K. B., Janson, H., Manger, T., & Zachrisson, H. D. (2014). Family concordance and gender differences in parent-child structured interaction at 12 months. *Journal of Family Psychology, 28*, 253–259. doi: 10.1037/a0035977

Pancsofar, N., & Vernon-Feagans, L. (2006). Mother and father language input to young children: Contributions to later language development. *Journal of Applied Developmental Psychology, 27,* 571-587. doi:10.1016/j.appdev.2006.08.003

Raikes, H., Pan, B. A., Luze, G., Tamis-LeMonda, C. S., Brooks-Gunn, J., Constantine, J., . . . Rodriguez, E. T. (2006). Mother-child bookreading in low-income families: Correlates and outcomes during the first three years of life. *Child Development, 77*, 924-953. doi:10.1111/j.1467-8624.2006.00911.x

Ramírez-Esparza, N., García-Sierra, A., & Kuhl, P. K. (2014). Look whos talking: Speech style and social context in language input to infants are linked to concurrent and future speech development. *Developmental Science, 17*, 880-891. doi:10.1111/desc.12172

Roggman, L. A., & Boyce, L. K., & Innocenti, M. S. (2008). *Developmental parenting: A guide for early childhood practitioners.* Baltimore: Paul H. Brookes Publishing.

Roggman, L. A., Cook, G. A., Innocenti, M. S., Jump Norman, V., Christiansen, K., & Anderson, S. (2013). *Parenting interactions with children: Checklist of observations linked to outcomes*. Baltimore, MD: Paul H. Brookes Publishing Co., Inc.

Roggman, L. A., Cook, G. A., Innocenti, M. S., Norman, V. J., & Christiansen, K. (2013). Parenting interactions with children: Checklist of observations linked to outcomes (PICCOLO) in diverse ethnic groups. *Infant Mental Health Journal, 34*, 290-306. doi:10.1002/imhj.21389

Rowe, M. L. (2008). Child-directed speech: Relation to socioeconomic status, knowledge of child development and child vocabulary skill. *Journal of Child Language, 35*, 185-205. doi:10.1017/s0305000907008343

Rowe, M. L., Denmark, N., Harden, B. J., & Stapleton, L. M. (2015). The role of parent education and parenting knowledge in children's language and literacy skills among White, Black, and Latino families. *Infant and Child Development, 25*, 198-220. doi:10.1002/icd.1924

September, S. J., Rich, E. G., & Roman, N. V. (2015). The role of parenting styles and socio-economic status in parents' knowledge of child development. *Early Child Development and Care, 186*, 1060-1078. doi:10.1080/03004430.2015.1076399

Shaffer, D. R. (2009). *Social and personality development* (6th ed.). Belmont, CA: Wadsworth.

Short-Meyerson, K., Sandrin, S., & Edwards , C. (2016). Gender influences on parent-child science problem-solving . *Journal of Research in Childhood Education*, 30, 334–348. doi: 10.1080/02568543.2016.1178194

Sperry, D. E., Sperry, L. L., & Miller, P. J. (2018). Reexamining the verbal environments of children from different socioeconomic backgrounds. *Child Development*, 00, 1-16. doi:10.1111/cdev.13072

Steinberg, L., Lamborn, S. D., Dornbusch, S. M., & Darling, N. (1992). Impact of parenting practices on adolescent achievement: Authoritative parenting, school involvement, and encouragement to succeed. *Child Development, 63*, 1266–1281. doi:10.2307/1131532

Tamis-LeMonda, C. S., Bornstein, M. H., Baumwell, L., & Damast, A. M. (1996). Responsive parenting in the second year: Specific influences on children's language and play. *Early Development and Parenting, 5*, 173-183. doi:10.1002/(sici)1099-0917(199612)5:4<173::aid-edp131>3.3.co;2-m

Tamis-LeMonda, C. S., & Rodriguez, E. T. (2008). Parents' role in fostering young children's learning and language development. *Encyclopedia on Early Childhood Development.* Retrieved, from http://www.child-

encyclopedia.com/documents/Tamis-LeMonda-RodriguezANGxp-

Language.pdf

Tamis-LeMonda, C. S., Shannon, J. D., Cabrera, N. J., & Lamb, M. E. (2004).

Fathers and mothers at play with their 2- and 3-year-olds: Contributions to

language and cognitive development. *Child Development, 75*, 1806-1820.

doi:10.1111/j.1467-8624.2004.00818.x

Tomasello, & Farrar. (1986). Joint attention and early language. *Child Development,*

57, 1454-1463. Retrieved from:

http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1467-8624

U.S. Department of Education. (2015, January). A matter of equity: Preschool in

America. U.S. Department of Education. Retrieved from https://www.ed.gov

U.S. Department of Education. (2017, June). Early learning: Talk, read, sing. U.S.

Department of Education. Retrieved from https://www.ed.gov

Wertsch, J. V., & Tulviste, P. (1992). L. S. Vygotsky and contemporary

developmental psychology. *Developmental Psychology, 28*, 548-557.

doi:10.1037//0012-1649.28.4.548

Winter, L., Morawska, A., & Sanders, M. R. (2012). The effect of behavioral family

intervention on knowledge of effective parenting strategies. *Journal of Child*

and Family Studies, 21, 881-890. doi:10.1007/s10826-011-9548-y

Zimmerman, F. J., Gilkerson, J., Richards, J. A., Christakis, D. A., Xu, D., Gray, S.,

& Yapanel, U. (2009). Teaching by listening: The importance of adult-child

conversations to language development. *Pediatrics, 124*, 342-349.

doi:10.1542/peds.2008-2267

APPENDICES

APPENDIX A

PEABODY PICTURE VOCABULARY TEST

- **Complete Set Rule:** Administer all 12 items in the set in order, starting with the first item in the set.
- **Basal Set Rule:** One (1) or zero (0) errors in a set.
- **Ceiling Set Rule:** Eight (8) or more errors in a set.

Start Ages 2:6-3:11 — SET 1

#	Item	1	2	3	4	E
1.	ball	1	2	3	4	E
2.	dog	1	2	3	4	E
3.	spoon	1	2	3	4	E
4.	foot	1	2	3	4	E
5.	duck	1	2	3	4	E
6.	banana	1	2	3	4	E
7.	shoe	1	2	3	4	E
8.	cup	1	2	3	4	E
9.	eating	1	2	3	4	E
10.	bus	1	2	3	4	E
11.	flower	1	2	3	4	E
12.	mouth	1	2	3	4	E

Number of Errors ☐

Start Age 4 — SET 2

#	Item	1	2	3	4	E
13.	pencil	1	2	3	4	E
14.	cookie	1	2	3	4	E
15.	drum	1	2	3	4	E
16.	turtle	1	2	3	4	E
17.	red	1	2	3	4	E
18.	jumping	1	2	3	4	E
19.	carrot	1	2	3	4	E
20.	reading	1	2	3	4	E
21.	toe	1	2	3	4	E
22.	belt	1	2	3	4	E
23.	fly	1	2	3	4	E
24.	painting	1	2	3	4	E

Number of Errors ☐

SET 3

#	Item	1	2	3	4	E
25.	dancing	1	2	3	4	E
26.	whistle	1	2	3	4	E
27.	kicking	1	2	3	4	E
28.	lamp	1	2	3	4	E
29.	square	1	2	3	4	E
30.	fence	1	2	3	4	E
31.	empty	1	2	3	4	E
32.	happy	1	2	3	4	E
33.	fire	1	2	3	4	E
34.	castle	1	2	3	4	E
35.	squirrel	1	2	3	4	E
36.	throwing	1	2	3	4	E

Number of Errors ☐

Start Age 5 — SET 4

#	Item	1	2	3	4	E
37.	farm	1	2	3	4	E
38.	penguin	1	2	3	4	E
39.	gift	1	2	3	4	E
40.	feather	1	2	3	4	E
41.	cobweb	1	2	3	4	E
42.	elbow	1	2	3	4	E
43.	juggling	1	2	3	4	E
44.	fountain	1	2	3	4	E
45.	net	1	2	3	4	E
46.	shoulder	1	2	3	4	E
47.	dressing	1	2	3	4	E
48.	roof	1	2	3	4	E

Number of Errors ☐

Start Age 6 — SET 5

#	Item	1	2	3	4	E
49.	peeking	1	2	3	4	E
50.	ruler	1	2	3	4	E
51.	tunnel	1	2	3	4	E
52.	branch	1	2	3	4	E
53.	envelope	1	2	3	4	E
54.	diamond	1	2	3	4	E
55.	calendar	1	2	3	4	E
56.	buckle	1	2	3	4	E
57.	sawing	1	2	3	4	E
58.	panda	1	2	3	4	E
59.	vest	1	2	3	4	E
60.	arrow	1	2	3	4	E

Number of Errors ☐

Start Age 7 — SET 6

#	Item	1	2	3	4	E
61.	picking	1	2	3	4	E
62.	target	1	2	3	4	E
63.	dripping	1	2	3	4	E
64.	knight	1	2	3	4	E
65.	delivering	1	2	3	4	E
66.	cactus	1	2	3	4	E
67.	dentist	1	2	3	4	E
68.	floating	1	2	3	4	E
69.	claw	1	2	3	4	E
70.	uniform	1	2	3	4	E
71.	gigantic	1	2	3	4	E
72.	furry	1	2	3	4	E

Number of Errors ☐

APPENDIX B

KNOWLEDGE OF INFANT DEVELOPMENT INVENTORY

1. A two-year-old who is two or three months behind other two-year-olds is retarded.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

2. Children often will keep using the wrong word for a while, even when they are told the right way to say it (like "feet not footsies").
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

3. The baby should not be held when he (she) is fed because this will make the baby want to be held all of the time.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

4. Babies do something just to make trouble for the parent (like crying a long time or soiling their diapers).
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

5. The same thing may make an infant cry one time and laugh another (like a large dog or playing "I'm-gonna-getcha").
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

6. If you punish your child for doing something naughty, it's okay to give him (her) a piece of candy to stop the crying.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

7. In general, babies cannot see and hear at birth.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

8. Babies understand only words they can say.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

9. If a baby is shy or fussy in new situations, it usually means that there is an emotional problem.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

10. Talking to the baby about things he (she) is doing helps the baby's development and later competence.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

11. The two-year-old who says "no" to everything tries to boss you around means it and is just trying to get you upset.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

12. The way an infant is brought up will have little effect on its intelligence.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

13. Fathers are naturally clumsy when it comes to taking care of babies.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

14. All infants need the same amount of sleep.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

15. The young infant usually has 5 to 7 feedings a day.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

16. The infant has little effect on how the parent cares for and plays with it, at least until the baby gets older.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

17. Taking care of a baby can leave the parent feeling tired, frustrated or overwhelmed.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

18. The newborn can see a face six feet away as well as an adult can.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

19. A young brother or sister may start wetting the bed or thumb sucking when the new baby arrives in the family.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

20. The two-year-old's sense of time is different from an adult's.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

21. One's IQ (intelligence) score stays the same from infancy through childhood.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

22. Most premature babies end up being abused, neglected, or mentally retarded.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

23. Some healthy babies spit out almost every new food until they get used to it.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

24. The baby's personality (individuality) is set by 6 months of age.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

25. A three-month-old wets his (her) diapers about 10 times a day.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

26. A child is using rules of speech even when he (she) says words and sentences in an unusual or different way (like "I goed to town" or "What the dollie have?")
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

27. Some mothers do not get really involved with their infants until the baby starts to smile and look at them.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

28. The way the parent responds to the baby in the first few months of life determines whether the child will grow up to be happy and well-adjusted, or moody and a misfit.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

29. The newborn's toes fan out when you stroke the bottom of its foot.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

30. Children learn all of their language by copying what they have heard adults say.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

31. An infant may stop paying attention to what is going on around him (her) if there is too much noise or too many things to look at.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

32. Some normal babies do not enjoy being cuddled.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

33. The more you comfort your crying baby by holding and talking to it, the more you spoil him (her).
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

34. Baby girls are fragile and sick more often, so they need to be treated more carefully than boys.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

35. A good way to teach your child not to hit is to hit back.
    (A) Agree _____   (B) Disagree _____   (C) Not Sure _____

36. Some days you need to discipline your baby; other days you can ignore the same thing. It all depends on the mood you're in that day.

(A) Agree _____   (B) Disagree _____   (C) Not Sure _____

Each of the following asks you about the age at which infants can do something. If you think the age is about right, check "Agree". If you don't agree, then decide whether a <u>Younger</u> or <u>Older</u> infant could do it. If you aren't sure of the age, check "Not Sure".

37. Most babies can sit on the floor without falling over by 7 months.
    (A) Agree ____   (B) Younger ____   (C) Older ____   (D) Not sure ____

38. A baby of 6 months will respond to someone differently depending on whether the person is happy, sad or upset.
    (A) Agree ____   (B) Younger ____   (C) Older ____   (D) Not sure ____

39. Most two-year-olds can tell the difference between a make-believe story and a true one.
    (A) Agree ____   (B) Younger ____   (C) Older ____   (D) Not sure ____

40. Infants usually are walking by about 12 months of age.
    (A) Agree ____   (B) Younger ____   (C) Older ____   (D) Not sure ____

41. An eight-month old acts differently with a familiar person than with someone not seen before.
    (A) Agree ____   (B) Younger ____   (C) Older ____   (D) Not sure ____

42. A baby is about 7 months old before he (she) can reach and grab things.
    (A) Agree ____   (B) Younger ____   (C) Older ____   (D) Not sure ____

43. A two-year-old is able to reason logically, much as an adult would.
    (A) Agree ____   (B) Younger ____   (C) Older ____   (D) Not sure ____

44. A one-year-old knows right from wrong.
    (A) Agree ____   (B) Younger ____   (C) Older ____   (D) Not sure ____

45. An infant of 3 months often will smile when he (she) sees an adult face.
    (A) Agree ____   (B) Younger ____   (C) Older ____   (D) Not sure ____

46. Most infants are ready to be toilet trained by one year of age. (
    A) Agree ____   (B) Younger ____   (C) Older ____   (D) Not sure ____

47. An infant will begin to respond to his (her) name at 10 months.
    (A) Agree ____   (B) Younger ____   (C) Older ____   (D) Not sure ____

48. Babies begin to laugh at things around 4 months of age.
    (A) Agree ____   (B) Younger ____   (C) Older ____   (D) Not sure ____

49. Five-month-old knows what "no" means.
    (A) Agree ____ (B) Younger ____ (C) Older ____ (D) Not sure ____

50. A four-month-old lying on his (her) stomach can lift his (her) head.
    (A) Agree ____ (B) Younger ____ (C) Older ____ (D) Not sure ____

51. Babbling ("a-bah-bah" or "bup-bup") begins around 5 months.
    (A) Agree ____ (B) Younger ____ (C) Older ____ (D) Not sure ____

52. One-year-olds often cooperate and share when they play together.
    (A) Agree ____ (B) Younger ____ (C) Older ____ (D) Not sure ____

53. An infant of 12 months can remember toys he (she) has watched being hidden.
    (A) Agree ____ (B) Younger ____ (C) Older ____ (D) Not sure ____

54. The baby usually says his (her) first real word at 6 months.
    (A) Agree ____ (B) Younger ____ (C) Older ____ (D) Not sure ____

55. Infants have depth perception by 6 months of age (can tell that they are on a
    high place)
    (A) Agree ____ (B) Younger ____ (C) Older ____ (D) Not sure ____

56. Two-month-olds can tell some speech sounds apart.
    (A) Agree ____ (B) Younger ____ (C) Older ____ (D) Not sure ____

Please select the best single answer for the following:

57. The best way to deal with a one-year-old who keeps playing with breakable
    things in the living room is to:
    a. Keep him (her) in a playpen and out of everything.
    b. Slap the baby's hand whenever he (she) touches something
    c. Tell the child "No!" and expect him (her) to obey you.
    d. Put the things out of the reach until the child is older.
    e. Not sure.

58. Select the appropriate game for a one-year-old:
    a. Stringing small beads.
    b. Cutting out shapes with scissors.
    c. Rolling a ball back and forth with an adult.
    d. Sorting things by shape and color.
    e. Not sure.

59. The average newborn sleeps a total of:
    a. 22 hours a day.

    b. 17 hours a day.
    c. 12 hours a day.
    d. 7 hours a day.
    e. Not sure.

60. If a two-year-old doesn't get his (her) way and has a temper tantrum, which of the following would be the best way to avoid future problems with tantrums?
    a. Give the child a new toy.
    b. Ignore the temper tantrum.
    c. Spank the child's bottom.
    d. Let the child have his (her) own way.
    e. Not sure.

61. Altogether, the average newborn cries about:
    a. 1-2 hours out of every 24.
    b. 3-4 hours of every 24.
    c. 5-6 hours of every 24.
    d. 7-8 hours out of every 24.
    e. Not sure.

62. An eight-month-old is <u>most</u> likely to be scared by:
    a. Dreams.
    b. Large animals.
    c. Being alone in the dark.
    d. An unfamiliar person wearing a mask.
    e. Not sure.

63. The best way to bring down a baby's fever is:
    a. By putting a cold cloth on the forehead.
    b. By putting extra clothes on the baby.
    c. By giving Tylenol drops.
    d. By giving the baby lots of Vitamin C.
    e. Not sure.

APPENDIX C

DEMOGRAPHICS QUESTIONNAIRE

Please answer the following questions to the best of your ability.
1. Estimated gross household income: $ _____
   (This is your income combined with anyone else's income in the home)

2. What is the primary language spoken in your home?
   A. English
   B. Spanish
   C. Other – Please specify: _____

3. What is your age? _____

4. When is your child's birthday? _____

5. What is your ethnicity?
A. White
B. Hispanic or Latino
C. Black or African American
D. Native American or American Indian
E. Asian/ Pacific Islander
F. Other

6. What is your child's ethnicity?
A. White
B. Hispanic or Latino
C. Black or African American
D. Native American or American Indian
E. Asian/ Pacific Islander
F. Other

7. How many kids do you have? _____
A. 1
B. 2
C. 3
D. 4
E. 5
F. Other – please specify: _____

8. What is the birth order of the child who is participating? (For example: If the child is the first born child, please put 1. If the child is the second born child, please put 2.)

A. 1
B. 2
C. 3
D. 4
E. 5
F. Other – please specify: _____

9. How many people live in your home? _____

10. Are you employed?
A. Yes
B. No

11. What is your relationship to the child?
A. I am the child's mother.
B. I am the child's father
C. I am the child's guardian.
D. Other – please specify: _____

12. What is your relationship status?
A. Married
B. Divorced
C. Widowed
D. Single
E. In a relationship

13. What is your education level?
A. Some high school
B. High school graduate
C. Some college
D. Associate's degree
E. Bachelor's degree
F. Master's degree
G. Doctoral degree

APPENDIX D

PICCOLO SAMPLE ITEMS

(P)(I)(C)(C)(O)(L)(O)

Sample Items from
Parenting Interactions with Children: Checklist of
Observations Linked to Outcomes (PICCOLO™)

Developed by Lori A. Roggman, Ph.D., Gina A. Cook, Ph.D., Mark S. Innocenti, Ph.D.,
Vonda Jump Norman, Ph.D., & Katie Christiansen, Ph.D., with Sheila Anderson, Ph.D.

AFFECTION

Warmth, physical closeness, and positive expressions toward child

#	Parent . . .	Observation guidelines	Absent	Barely	Clearly
1	speaks in a warm tone of voice	Parent's voice is positive in tone and may show enthusiasm or tenderness. A parent who speaks little but very warmly should be coded highly.	0	1	2
2	smiles at child	Parent directs smiles toward child, but parent and child do not need to be looking at each other when smile occurs. Includes small smiles.	0	1	2

RESPONSIVENESS

Responding to child's cues, emotions, words, interests, and behaviors

#	Parent . . .	Observation guidelines	Absent	Barely	Clearly
1	pays attention to what child is doing	Parent looks at and reacts to what child is doing by making comments, showing interest, helping, or otherwise attending to child's actions.	0	1	2
2	changes pace or activity to meet child's interests or needs	Parent tries a new activity or speeds up or slows down an activity in response to where child looks, what child reaches for, what child says, or emotions child shows.	0	1	2

ENCOURAGEMENT

Active support of exploration, effort, skills, initiative, curiosity, creativity and play

#	Parent . . .	Observation guidelines	Absent	Barely	Clearly
1	waits for child's response after making a suggestion	Parent pauses after saying something the child could do and waits for child to answer or do something, whether child actually responds or not.	0	1	2
2	encourages child to handle toys	Parent offers toys or says positive things when child shows obvious interest in toys. (Does not include preventing children from mouthing toys.)	0	1	2

TEACHING

Shared converation and play, cognitive stimulation, explanations, and questions

#	Parent . . .	Observation guidelines	Absent	Barely	Clearly
1	explains reasons for something to child	Parent says something that could answer a "why" question, whether child asks a question or not.	0	1	2
2	suggests activities to extend what child is doing	Parent says something child could do to add to what child is already doing but does not interrupt child's interests, actions, or play.	0	1	2