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Latino Mothers' Responsiveness and Bilingual Language Development in Young Children From 24 Months to 36 Months

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by

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DEDICATION

I dedicate this to my family, in particular Papá, Mom, Alicia, AnaMaria, and Tía Sylvia. Thank you for your love, inspiration, encouragement, and unfailing support throughout this journey. I couldn't have done this without you!

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ABSTRACT

This longitudinal study examined the role maternal responsiveness had on shaping Spanish and English language development in bilingual two year-old children. Because children who are bilingual language learners are oftentimes coming from low socioeconomic families it is essential that we investigate the ways in which they develop language in order to better serve this population. Maternal responsiveness is one source in which we can examine early language development of young bilingual children. Eight Latino mother-child dyads were observed and assessed at three time points. Each observation was coded for maternal responsive behaviors. Regression and multilevel modeling was used in order to assess which maternal responsive behaviors impacted Spanish and English language outcomes. Results indicated joint topic focus as being overwhelmingly impactful across Times 2 and Times 3 in both languages. Additionally, prohibition was found to be negatively influencing English language outcomes at Times 2 and Times 3. Interestingly, focus shift was found to have a positive impact on English language outcomes at Time 2. Given the findings, this work sheds light on the similarities and differences between cultures and the need for further research surrounding this population.

CHAPTER ONE:

INTRODUCTION

Statement of Problem

Maternal responsiveness. Maternal responsiveness, which can be defined as mothers who respond promptly, contingently, and appropriately to their children's activities has been a topic of research surrounding several areas such as attachment, social cognition, and language development (Ainsworth, 1973; Bornstein et al., 1992; Skinner, 1986; Watson, 1985). Promptness refers to the timing of the mothers' behaviors to their child's vocalizations or bids. Contingent responses refer to the mother's reaction that is relevant to the child's behavior. Appropriate responses indicate the responses that are positively connected to the child's vocalizations conceptually (Tamis-LeMonda & Bornstein, 2002). Young children explore their environment, as well as, explore their vocalizations and bids to their mothers. The frequency and quality of these interactions between mother and child can vary. Mothers can also vary in their quality and frequency in their responses, by promptness, contingency and appropriateness (Tamis-LeMonda & Bornstein, 2002).

Research on maternal responsiveness is rooted in the social-pragmatic theories of early childhood development that highlight the role expert partners (e.g., mothers) have on guiding children through the process of acquiring knowledge (Bloom, 1993; Bornstein, 1985; Landry, Smith, Miller-Loncar, & Swank, 1997; Tomasello, 2003). These theories build on the works of Vygotsky (1962), who emphasized that children interpret and make meaning out of reciprocal exchanges with caregivers. Children are introduced to concepts from their parents and are linked

to prior knowledge in order to make sense of their world (Vygotsky, 1978). These types of positive interactions instill self-efficacy, motivation, and a sense of a secure base for exploring their environment through guidance needed to cognitively develop (Vygotsky, 1962; 1978). In order for this guidance to be effective, adults should match their language use and support to the child's needs and current cognitive levels (Jacobs & Eccles, 2000). These exchanges are a co-construction of knowledge between the adult and child, where optimal learning is taking place. Given that responsiveness plays a major role in the learning and development of a child (Taylor, Anthony, Aghara, Smith, & Landry, 2008) as well as in mother and child attachment formation (Ainsworth, 1973; Bornstein et al., 1992) this perspective is used in order to consider how maternal responsiveness may impact the language development in children, specifically Latino mothers and their bilingual children.

Significance of Maternal Responsiveness

The foremost benefit of maternal responsiveness is that it is related to positive cognitive outcomes and higher scores on standardized tests (Beckwith & Cohen, 1989; Bornstein & Tamis-LeMonda, 1989; Taylor et al., 2008). Mother's warmth, acceptance, and responsiveness all of which are intrinsic in healthy mother-child interactions are strongly related to children's language skills (Landry et al., 2001; Tamis-LeMonda & Bornstein, 2002).

The lasting effects of maternal responsiveness have also been well established. The quality of mother responsiveness continues to effect children's cognitive and social-emotional development throughout early life (Matas, Arende, & Stroufe, 1978; Bradley, Caldwell, & Rock, 1988). Children whose mothers provide them steady responsiveness throughout preschool exhibit better cognitive and social development than children who received inconsistent responsiveness from their mothers (Landry et al., 2001; Matas et al., 1978). Overall, parental

sensitivity is essential to children's school outcomes, such as literacy, language, math, and attention skills (Hirsh-Pasek & Burchinal, 2006; Bornsetin & Tamis-LeMonda, 2008).

There are two lenses in which researchers tend to view parenting behaviors, one being a deficit perspective (Garcia-Coll et al., 1996; McLoyd & Randolph, 1985) and the other, a positive developmental approach (Ishii Kuntz, 2000; Ogbu, 1981). Parenting behaviors can be influenced by culture through the influence of family structure, childrearing practices, beliefs, values, and the roles of children at different stages in development. These cultural beliefs are carried out within each family differently based on acculturation, level of education, and location of residency (Garcia-Coll & Pachter, 2002). Below the two differing perspectives will be discussed.

Latino maternal responsiveness. The deficit perspective tends to look at any deviation from the norm, what is referred to as the universal definition of maternal responsiveness, (e.g., warm, prompt, and relevant) as a deficit. In other words, mothers who show other behaviors other than the norm are construed as deficits and in need of improvement rather than variations that are part of their normal developmental processes (Brady-Smith et al., 2013). These norms of maternal responsiveness are normed on white-middle class mothers that are not representative of ethnic minorities.

The positive developmental approach takes into account culture and understands that maternal behaviors may differ depending on socio-economic status (SES), culture, and ethnicity (Bornstein, 2002; Garcia-Coll & Pachter, 2002). Maternal responsiveness and parenting styles may be culturally constructed; therefore the universal definition of maternal sensitivity or responsiveness may not be appropriate for other ethnicities. In cultures where respect and obedience are highly valued, the sensitive mother consistently directs, guides and controls the

attention of her child (Harwood, Miller, Irizary, 1995). This type of interference may be interpreted as an insensitive behavior (Ainsworth, 1973), however it is the culture's efforts to raise a well-behaved child (Harwood, 1992). Research suggests that maternal control in conjunction with sensitive and responsive mothering is connected to positive developmental outcomes among non-European American cultures (Barnett, Kidwell, Leung, 1998; Carlson & Harwood, 2003; Deater-Deckard, Dodge, Bates, & Pettit, 1996; Grusec, Hastings, Mammone, 1994; Lansford et al., 2004). Thus, the role of culture must be seen as an important characteristic to examining maternal behaviors such as levels of responsiveness in Latino mothers. This study will examine Latino maternal responsiveness through the lens of the positive developmental approach.

Factors that Impact Maternal Responsiveness

The age in which a mother has a child has been shown to be associated with parenting behaviors (Berlin, Brady-Smith, & Brooks-Gunn, 2002; Bornstein, Putnick, Suwalsky, & Gini, 2006). Children of teenage mothers are more likely to have cognitive disadvantages because they are not surrounded by a language-rich environment (Jaffee, Caspi, Moffitt, Belsky, & Silva, 2001), as well as have mothers who are harsher and more intrusive compared to those with mothers who are older (Berlin et al., 2002). Research suggests that harsh and coercive parenting is related to negative outcomes in children (Granic & Patterson, 2006; Patterson, Reid, & Dishion, 1992).

The level of mother's education has been associated with children's social-emotional and cognitive development (Bradley & Corwyn, 2002; Snow, Burns, & Griffin, 1998) and to positive parenting practices, such as reading, telling stories, and singing songs, which is shown to promote language and literacy skills in young children (Senechal & LeFevre, 2002; Suizzo &

Stapleton, 2007). Mothers' knowledge about child developmental milestones and appropriate childrearing practices can effect their academic and social-emotional development (Benasich & Brooks-Gunn, 1996; Whitman, Borkowski, Keogh, & Weed, 2001). Mother's who lack the knowledge of child development, and therefore what is beneficial to their development may not know the best way to respond to their child's behaviors. Toddlers with mothers who had more accurate knowledge had more positive outcomes compared to children who had mother's with less knowledge (Jahromi, Guimond, Umana-Taylor, Updegraff, and Toomey, 2014).

Factors that Impact Latino Maternal Responsiveness

A factor that needs consideration is how long the mothers have resided in the United States. Latino family's acculturation, the cultural modification or adaptation that a person experiences as a direct result of continuous exposure to another culture (Gibson, 2001), has been suggested to effect parent practices such as warmth and intrusiveness (Ispa et al., 2004). Mexican American mothers who were more acculturated showed more warmth towards their children than less acculturated Mexican American mothers (Ispa et al., 2004). Parental intrusiveness in cultures, such as Mexican Americans who continue to hold to traditional Mexican values and beliefs have children with fewer negative consequences and is considered normal in this population (Grusec, Rudy, Martini, 1997; Ispa et al., 2004).

Often research on the influence of poverty is examined using ethnic minorities thus confounding ethnicity with SES (Hill, 2006; Winsler et al., 2014). There is a common practice of comparing low-SES families from ethnic minorities to middle-class European American families (Hill, 2006; Roosa, Morgan-Lopez, Cree, & Specter, 2002). This comparison unsurprisingly leads to conclusions that the difference between the two is ethnicity when in reality the underlying cause of the difference is SES (Umaña-Taylor, & Updegraff, 2013). In the year 2013,

Hispanics made up 23.5% of the nation's population below poverty level compared to 14.5% of the general population in the United States (DeNavas-Walt, & Proctor, 2014). Living in poverty can cause significant consequences due to the lack of resources. These consequences include stress, poor parenting, poor family relationships, and poor child outcomes (Conger, Conger, Elder, Lorenz, Simons, & Whitback, 1992; Garcia Coll, 1990).

Significance of Maternal Responsiveness to Language

It has been well established that children that are regularly exposed to mothers who are responsive are provided with many opportunities to make meaning out of symbolic verbal symbols (Olson, Bates, & Bayles, 1984; Tamis-LeMonda & Bornstein, 2002) because these mothers tend to use more language (Hoff, Lausen, & Tardif, 2002). The significance of maternal responsiveness will be discussed in terms of monolingual and bilingual language development.

Monolingual language development. The literature regarding maternal responsiveness tends to center on monolingual language development (Baumwell, Tamis-LeMonda, & Bornstein, 1997; Bloom, 1993; Landry et al., 1997; Tamis-Lemonda & Bornstein, 2002; Tamis-LeMonda, Bornstein, & Baumwell, 2001; Taylor et al., 2008). Children who have responsive mothers show gains in vocabulary sooner than children of less responsive mothers and certain maternal responsive behaviors can elicit specific language milestones (Tamis-LeMonda, Bornstein Kahana-Kalman, Baumwell, & Cyphers, 1998; Tamis-LeMonda, et al., 2001). There are certain maternal behaviors that are intrusive that may result in negative effects on language development (Baumwell, et al., 2001; Tomasello & Farrar, 1986). Specifically, maternal control was found to have negative effects on child outcomes (Tomasello & Farrar, 1986).

Bilingual language development. Research on maternal responsiveness and the impact on bilingual language development in young children have not been widely investigated as

monolingual language development. Parental responsiveness from ethnically and socioeconomically diverse groups related to language competence and predicted growth in vocabulary in more than one language (Bradley et al., 2001; Song, Tamis-LeMonda, Yoshikawa, Kahana-Kalman, & Wu, 2012).

As previously stated, ethnicity should not be taken as the foremost factor that influences the quality of responses in language, rather it is SES. Furthermore, verbal sensitivity in mothers who come from culturally diverse backgrounds have been found to participate in interactions differently than mothers in the United States (Newman & Sachs, 2013). Therefore, responsiveness should be carefully observed in order to appropriately examine this construct in mothers who come from a different culture, such as the Latino culture.

Latinos in the United States

The characteristics of the Latino population in the United States should be considered in order to best serve the children and their families that are coming into the school system, and to better understand the maternal responsiveness of Latinos. Latino families make up 16% of the population in the United States (Ennis, Rios-Vargas, & Albert, 2011). They are the fastest growing ethnic minority in this country and they are estimated to increase to about 21% of the total population in the United States by the year 2025 (The National Center for Education Statistics, 2010). The Latino population has had multiple impacts on the U.S. including having about 21% of the population over 5 years old speaking a language other than English at home, 62% of which is Spanish (Ryan, 2013). These influences on the U.S. have resulted in an increase of research surrounding this ethnic group.

Latinos in Head Start or RCMA. Head Start works with families to provide access to services and resources such as, immunizations, health insurance, prenatal education, and housing

assistance for homeless families. Latino children represent 38% of the children served in Head Start, 25% of which speak Spanish at home (U.S. Department of Health Services, Administration for children and Families, 2014). Established in 1965, Redlands Christian Migrant Association (RCMA) works with migrant farm workers by providing childcare and education to their young children. It serves 21 counties in Florida and nearly 7,500 children per year, 86% of whom are Latino ("About RCMA," n.d.). Latino children are the fastest growing population in the United States and yet they are struggling academically and are at a high risk for poor literacy outcomes (Hammer, Miccio, & Wagstaff, 2003; Klinger & Artiles, 2003), as well as trail behind their European American and African American peers in school readiness (Reardon and Galindo, 2009).

Conclusion

Previous research has revealed a strong relationship between maternal responsiveness and children's developmental outcomes (Carlson & Harwood, 2003; Tamis-LeMonda et al., 1998; Taylor et al., 2008); therefore, an increased effort to understand and promote maternal responsiveness should continue. At the same time, research has shown that Latino mothers' responsiveness differs than that of European American mothers (Brady-Smith et al., 2013). Researchers and educators need to be aware of the differences in these mothers' behaviors in order to understand how to better serve their children.

Purpose of Study

The focus of the present study is to examine the role mother responsiveness has on influencing language development in bilingual two-year-old children. The purpose of this study should not be misunderstood; it is not being conducted to change the way in which these mother's respond to their children. Rather, it is to identify and capitalize on what responses

positively effect developmental outcomes in their children, specifically language development. Because children who are dual language learners are oftentimes coming from low socioeconomic families it is essential that we examine the ways in which they develop language in order to better serve this population. For infants and young children, experiences in the home are primary sources for learning about the world. Maternal responsiveness is one source in which we can examine the early language development of young children.

Research Questions

1. Which specific maternal responsive behaviors (maternal responsiveness, joint topic focus, focus, prohibition/intrusiveness, focus shift, or miss) impact Spanish language abilities of the children?
2. Which specific maternal responsive behaviors (maternal responsiveness, joint topic focus, focus, prohibition/intrusiveness, focus shift, or miss) impact English language abilities of the children?

Significance of Study

Given that Latino students are at a high risk for poor literacy and language outcomes there is an increased effort to find ways in which to promote their development. Previous research has shown that there is a strong relationship between maternal responsiveness and developmental outcomes in young children (Carlson & Harwood, 2003; Tamis-LeMonda et al., 1998). On the other hand, research findings report that Latino mothers tend to show differing responsiveness than their European American counterparts; inevitably this is viewed as a deficit that needs changing (Brady-Smith et al., 2013). Rather than viewing it as a deficiency, it is imperative to understand these behaviors and how to capitalize on them to better serve this population of children.

The overarching goal of this study is to better understand maternal responsiveness in Latino mothers and its role in their child's bilingual language develop, also to investigate specific child behaviors that are salient to these mothers. Information on these behaviors may provide insight on characteristics that may influence their child's language development. Findings from this study have the potential to add to the existing body of knowledge regarding maternal responsiveness and it's influence on language development, specifically Latino maternal responsiveness. By gaining knowledge in regards to Latino mothers' responsiveness, these families can potentially receive the necessary support and knowledge in order to increase their children's educational success.

Operational Definitions of Terms

A brief description of each of the variables included in this study follows.

Dependent variables. Children's language development: The dependent variable in this research study will be the language scores of the child. To obtain this variable language measures will be used as well as a language device that measures the amount of language surrounding the child.

Independent variable. Maternal responsiveness: The independent variable will be maternal responsiveness that refers to mothers who respond promptly, contingently, and appropriately to their children's activities. Six responsive behaviors will be identified that may be associated with language development. This variable will be obtained from observing recorded mother-child interactions using Baumwell, Tamis-LeMonda, and Bornstein (1997) coding system.

Mothers' years of residence in the United States: The total number of years spent living in the United States.

Maternal age: The age in which the mother gives birth to her child.

Level of education: The highest level of schooling the mother has completed.

Language of education: The language in which the mothers were educated in.

Delimitation and Limitations

Findings from this study may be generalizable to populations similar to that of the participants given that this population is of low income and attend Early Head Start programs or RCMA programs in a county in the state of Florida. Specifically, the findings may be representative of mothers who are low income Latinos and have children who are learning two languages as well as attending preschool programs. Because the sample is limited, the generalizability of the findings are reduced and may not be generalizable to low or high income Latino mothers who do not have children who attend a preschool program or who do not reside in the state of Florida.

Organization of Remaining Chapters

The next chapters underscore the specifics of this research project. Chapter two includes a literature review that is related to Latinos in the United States, maternal responsiveness and its significance, benefits of maternal responsiveness, Latino maternal responsiveness, and the factors that may impact Latino maternal responsiveness. Chapter three describes the methodology that will be used in this project including a description of the participants, variables under study, assessment instruments, procedure, ethical considerations, research design, and a data analysis plan.

CHAPTER TWO:

REVIEW OF LITERATURE

Theoretical Framework

Attachment theory. Examining maternal responsiveness by observing mother-child interactions requires an understanding of attachment theory. Bowlby's (1969, 1980) analysis of children's attachment has become a prominent perspective of social and emotional development of children. Bowlby's (1969, 1980) theory posited that the attachment of a child to his or her mother had lasting consequences to their psychological and cognitive development.

Ainsworth (1973) expanded Bowlby's theory and coined the term maternal responsiveness, which can be defined as mothers who respond promptly, contingently, and appropriately to their children's activities. This concept has been a topic of research surrounding a wide array of areas such as attachment, social cognition, and language development (Ainsworth, 1973; Bornstein et al., 1992; Matas et al., 1978; Skinner, 1986; Watson, 1985). Maternal responsiveness is not a measure of attachment, although it is a predictor of secure attachment. Thus, it is an expected feature of a healthy relationship (Ainsworth, 1973; Matas et al., 1978).

Relationships inherently consist of reciprocal exchanges that influence the development of one another (Bandura, 1977; Bell, 1968; Kelley, 1979). Young children explore their environment, as well as, explore their vocalizations and bids to their mothers. The frequency and quality of these interactions between mother and child can vary. Mothers also vary in quality and frequency in their responses, by promptness, contingency and appropriateness (Tamis-LeMonda

& Bornstein, 2002).

Vygotsky: Socio-constructivism. The literature on maternal responsiveness is rooted in the social-pragmatic theories of early childhood development that underscore the role expert partners have on guiding children through the process of acquiring knowledge (Bloom, 1993; Bornstein, 1985; Landry et al., 1997; Tomasello, 2003). These theories build on the writings of Vygotsky (1962) a socio-constructivist, who emphasized how children interpret and make meaning out of reciprocal exchanges between the caregiver and the child. These interactions between child and adult go far beyond just modeling and mimicry. Children are introduced to concepts from their caregivers and are then linked to prior knowledge in order to make sense of their world (Vygotsky, 1978). He posited that these interactions are more effective when they fall within a child's "zone of proximal development," the difference between what a child can accomplish independently and the highest level they can reach with help and guidance from a more capable person (Vygotsky, 1978). During these interactions the adult and child share in periods of joint attention, the ability to share attention with another person towards the same object or event. These interactions just as importantly inculcate self-efficacy, motivation, and a sense of a secure base for exploring their world through scaffolding needed to cognitively develop (Vygotsky, 1962; 1978). The term scaffolding coined by Wood, Bruner, and Ross (1978) who expanded on Vygotsky's work is the temporary support that an adult gives to a child in order to accomplish a certain task. In order for this guidance to be effective adults should match their language and support to the child's needs and current cognitive levels (Jacobs & Eccles, 2000). These exchanges are a co-construction of knowledge between the adult and child, where optimal learning is taking place.

The current study incorporated these theories by investigating maternal responsiveness

and its' effects on the language development in young children by adopting the perspective that reciprocal exchanges with an expert partner (e.g., mother) are beneficial to the child's development.

Benefits of Maternal Responsiveness

Maternal responsiveness, as was stated before, can vary from mother to mother in quality and frequency by promptness, contingency, and appropriateness (Tamis-LeMonda & Bornstein, 2002). Below each component of maternal responsiveness will be discussed further, as well as, the benefits responsiveness has on a variety of domains of child development.

Prompt responses. A prompt response refers to the timing of the mothers' reactions to their child's vocalizations or bids (Tamis-LeMonda & Bornstein, 2002). Tamis-LeMonda and colleagues (2001) focus on mother reactions within 2-5 s of a child's behavior. Their justification for this window of time is that most time-based events such as lines of poetry, spoken sentences, breath cycles, and communication movements, occur within 2 and 7 s (Jaffe, Beebe, Feldstein, Crown, & Jasnow, 2001). They postulate that children would be able to link words to their experiences when they are connected within this window. The authors give an example of a child who puts a spoon to the mouth of a teddy bear while the mother states, "You're feeding your bear." If this response occurs within 2-5s of a child's behavior then it would be considered a prompt response.

Contingent responses. Contingency refers to a maternal reaction that is pertinent to the child's behavior (Tamis-LeMonda & Bornstein, 2002). This is where joint attention comes into play. Children can best acquire new pieces of linguistic information when adult speech is focused on and relevant to children's attention (Bloom, 1993). A contingent response revolves around moments of joint attention that give meaning to the child's bids and vocalizations. Using

the same example of the child putting a spoon to the mouth of the teddy bear, the mother's response of "You're feeding your teddy bear" is relevant and contingent upon what the child is doing. If the mother had said, "What a pretty red bow!" although the response may have occurred within a 2-5 s window, it was not relevant to the child's behavior.

Appropriate responses. Appropriateness refers to responses that are connected to the child's vocalizations conceptually (Tamis-LeMonda & Bornstein, 2002). This is similar to contingency but the difference lies in that the response also has to be positively connected to the child's behavior. When a child puts a spoon to ta teddy bears mouth and the mother states, "You're feeding your bear." This is providing information that is conceptually and positively connected to the action of the child. A mother who reprimands the child by stating, "Put that down!" is not being constructive. As with contingency, the mother may react within a 2-5 s window, but it is pertinent that the reaction be appropriate as well.

Children who have high responsive mothers have better cognitive outcomes that are related to later literacy skills (Taylor et al., 2008). Taylor and colleagues (2008) examined maternal responsiveness among 238 mother-child dyads (155 children of which were preterm) across 8 years. Maternal responsiveness during infancy and preschool years predicted reading comprehension skills at age 8, especially for preterm children. Research also shows that maternal responsiveness is related to toddler vocabulary development and is predictive of higher scores on standardized tests (Beckwith & Cohen, 1989; Bornstein & Tamis-LeMonda, 1989; Olson et al., 1984). Children's language skills are strongly related to warmth, acceptance, and responsiveness all of which are inherent in healthy mother-child interactions (Landry et al., 2001; Tamis-LeMonda & Bornstein, 2002).

The lasting effects of maternal responsiveness have also been researched extensively. The quality of mother responsiveness continues to effect children's cognitive and social-emotional development after infancy and well into grade school (Matas, Arende, & Stroufe, 1978; Bradley, Caldwell, & Rock, 1988). Mothers who provide consistent responsiveness to their children during infancy and throughout preschool demonstrated better cognitive and social development than children who received inconsistent responsiveness from their mothers (Landry et al., 2001; Matas et al., 1978). Landry et al. (2001) examined 103 full term children, 102 medically low risk, and 77 medically high-risk (preterm) children, at 5 different ages in order to investigate whether early maternal responsiveness or consistent responsiveness predicted cognitive and social development. Results showed that consistent responsiveness predicted accelerated cognitive growth as well as social development. Greater deceleration at 4 years of age was found among mothers of children who were inconsistent in their responsiveness refuting the role early responsiveness had on development.

Estrada, Arsenio, Hess, and Holloway (1987), suggested that the quality of mother-child interactions effected a child's mental capability scores at age 4, school readiness skills at age 6, and literacy and mathematic skills at age 12. These studies empirically validate that parental sensitivity is essential to children's school outcomes, such as literacy, language, math, and attention skills (Bornsetin & Tamis-LeMonda, 2008; Hirsh-Pasek & Burchinal, 2006).

Latino Maternal Responsiveness

Historically, parenting behaviors and practices of ethnic minorities have been viewed through the deficit perspective (Garcia-Coll et a., 1996; McLoyd & Randolph, 1985). Ethnic minority families are compared to the "standard," which are defined as European American,

middle class, and have been given the label the "other group." The inevitable differences are then seen as deficits and problems that need to be corrected (Brady-Smith et al., 2013).

However, there has been a paradigm shift in the way researchers have conceptualized parent practices of ethnic minorities, which will be referred to as a positive developmental approach (Ishii Kuntz, 2000; Ogbu, 1981). Research in the area of Latino maternal responsiveness is in its infant stages. However, what is known is that mothers across cultural communities do practice supportive, responsive and warm parenting, albeit not identical to their European American counterparts (Ispa et al., 2004). The specific maternal behaviors that make up what is globally known as maternally responsive may differ depending on socio-economic status (SES) and ethnicity (Bornstein, 2002; Garcia-Coll & Pachter, 2002). Oftentimes, differences in maternal behaviors are viewed as deficiencies and in need of correction rather than variations that are part of their normal developmental processes (Brady-Smith et al., 2013).

A way to avoid this deficiency perspective is to examine variation within groups. Brady-Smith and colleagues (2013) examined large numbers of low-income families in Early Head Start within Latin American, African American and European American backgrounds. Within group analysis was conducted to examine the variations within ethnicities. They examined four mothering patterns: supportive, directive, harsh, and detached. They defined supportive mothers as being responsive to their child's bids and activities. Directive mothers were defined as mothers who displayed behaviors that would fall between sensitive and negative behaviors, whereas harsh mothers would be seen in those who are negative and intrusive. Detached mothers would be unsupportive, harsh, display a flat affect, and ignore their child's bids and activities.

Brady-Smith and colleagues (2013) found that all three ethnic groups displayed similar patterns of supportive, directive, and detached behaviors, with one exception. Harsh mothers did

not emerge in Latino mothers. Most of the Latino mothers displayed supportive mothering behaviors that were related to child cognitive and emotional development at 2 and 3 years of age. However, directive mothers had negative associations with their child's development both cognitively and emotionally. Detached mothers were found in all groups but only made up less than 20% of each group. Not surprising is the negative effect detached mothers had on their children's development, however, it was found to be less associated with Latino families. The authors attributed this phenomenon with the possible misinterpretation of low rates of verbal interactions with detached mothering. This may reflect their beliefs about the appropriateness of speaking to very young children rather than detached mothering (Brady-Smith et al., 2013).

These behaviors may be culturally constructed; therefore the universal definition of maternal sensitivity or responsiveness may not be appropriate for other cultures or ethnicities. In cultures where respect and obedience are highly valued, the sensitive mother consistently directs, guides and controls the attention of her child to the needs of others (Harwood, Miller, Irizary, 1995). Intuitively, we would conceptualize this type of interference as an insensitive behavior (Ainsworth, 1973), however it is the culture's efforts to raise a well-behaved and courteous child (Harwood, 1992). This type of maternal intrusiveness or control combined with sensitive and responsive mothering is associated with positive developmental outcomes among non-European cultures (Barnett, Kidwell, Leung, 1998; Carlson & Harwood, 2003; Deater-Deckard et al., 1996; Grusec, Hastings, Mammone, 1994; Lansford et al., 2004). Thus, the role of culture must be seen as an important component to investigating maternal behaviors such as levels of responsiveness, which this study intends to do.

Factors that Impact Maternal Responsiveness

Literature to date suggests that there are social and cultural influences on maternal responsiveness (Bornstein, Tamis-Le Monda, Pecheux, & Rahn, 1991; Cohen & Beckwith, 1976; Richman, Miller, & LeVine, 1992). There are a few identified universal factors that impact maternal responsiveness such as maternal age and education.

Maternal age. The age in which a mother has a child has been shown to be associated with parenting behaviors (Berlin et al., 2002; Bornstein et al., 2006). Children of adolescents are more likely to have cognitive disadvantages because they are not exposed to a rich language environment (Jaffee et al., 2001), as well as have mothers who are harsher and more intrusive compared to mothers who are older (Berlin et al., 2002). Berlin and colleagues (2002) examined links between maternal-age and parenting behaviors among 1,072 teenage mother-child dyads, 403 of which were Latinos. Teenage mothers was defined as mothers who were 19 years of age or younger at childbirth. The authors used a Three Bag Assessment in order to examine mother sensitivity and insensitivity. This assessment was adapted from a similar assessment "Three Box" (NICHD Early Child Care Research Network, 1997, 1999). The parent and child are presented with three numbered pillowcases, which contains a different toy in each. The mothers are given vague instructions to elicit natural behaviors and to examine differences in parenting. They are instructed to start with Bag 1, proceed to Bag 2, and finish with Bag 3. They may or may not choose to play with the child during this 10-minute task. The extent to which the mother is involved in the child's play and the level in which she responds to the child's behaviors allows the coders to rate parent sensitivity/insensitivity. Results showed that teenage mothers were less supportive, more intrusive, and negative than older mothers. Harsh and coercive parenting is associated with negative outcomes in children (Granic & Patterson, 2006; Patterson, Reid, &

Dishion, 1992).

Education. Level of mother's education has been associated with children's social-emotional and cognitive development (Bradley & Corwyn, 2002; Snow, Burns, & Griffin, 1998). In terms of language development, maternal education is seen to be more impactful than income or the socio-economic status of the household (Hoff, 2013). Maternal education impacts her cognitive, organizational and language abilities that inadvertently impact the child's outcomes. The level of education of mothers gives her access to human, cultural, and social capital that she will in turn use to the benefit of the child's development (Harding, Morris, & Hughes, 2015). Maternal education is also related to positive parenting practices, such as reading, telling stories, and singing songs, which is shown to promote language and literacy skills in young children (Senechal & LeFevre, 2002; Suizzo & Stapleton, 2007).

Parenting knowledge about child development is a component of maternal education that cannot be overlooked. Knowledge about child developmental milestones and appropriate childrearing practices can effect child academic and social-emotional development (Benasich & Brooks-Gunn, 1996; Whitman et al., 2001). It can be assumed that mother's who lack the knowledge of child development, and therefore what is beneficial to their development may not know the best way to respond to their child's bids and vocalizations. Jahromi and colleagues (2014) investigated the parenting knowledge among 191 adolescent Mexican American mothers and child outcomes at 2 years of age. They conducted hour and a half long interviews with each of these mothers asking questions about their infant/toddler knowledge. Toddlers were assessed using the Bayley Scales of Infant Development -2nd ed. (BSID-II; Bayley, 1993). Results suggested that mothers had varying degrees of knowledge about child development, and toddlers with mothers who had more accurate knowledge had more positive outcomes.

Factors that Impact Latino Maternal Responsiveness

Years in the United States. One factor that needs to be taken into consideration is how long the mothers have resided in the United States. Latino family's acculturation, the cultural modification or adaptation that a person experiences as a direct result of constant exposure to another culture, most oftentimes the dominant culture (Gibson, 2001), has been suggested to effect parent practices such as warmth and intrusiveness (Ispa et al., 2004). Ispa and colleagues (2004) investigated 110 more and 131 less acculturated Mexican American low-income mothers who had children 15 months old who were a part of a larger study, the Early Head Start Research and Evaluation Project (Administration on Children, Youth, and Families, 2001). The authors classified these mothers' acculturation status based on their generational status and language use. In other words, generational status was scored a 1, 1.5 or 2, (1 for mothers who were born in Mexico, 1.5 for mothers who were born in the US but had Mexican-born parents, and 2 for mothers born in the US and had parents born in the US). The language use construct was scored similarly (1 for speaking Spanish only or most of the time and 2 for speaking English only or most of the time). The higher the score the more acculturated the mothers were. Results suggested that Mexican American mothers who were more acculturated showed greater amounts of warmth than less acculturated Mexican American mothers. However, this should not be misinterpreted as a negative phenomenon. Parental intrusiveness in collectivistic cultures, such as Mexican Americans who continue to hold to traditional Mexican values and beliefs have children with fewer negative consequences and is considered normative in this population (Grusec, Rudy, Martini, 1997; Ispa et al., 2004).

Language of education. Not only does level of education need to be considered but so should mothers' language of education. Hoff and Giguere (2015), found that bilingual mothers'

language of education, rather than the level of education predicted children's bilingual language development. Because of the cultural difference, education in Spanish may be related to the way that mothers talk to their children. This is a fairly new area of research and warrants further examination.

SES. The link between SES and parenting practices has been well established, however, many of the research conducted on this relationship did not contain representative samples of families and therefore were not able to disentangle SES from ethnicity (Hill, 2006; Vernon-Feagans, Pancsofar, Willoughby, Odom, Quade, Cox, 2008). Often research on the influence of poverty is examined using ethnic minorities thus confounding ethnicity with SES (Hill, 2006; Winsler et al., 2014). Many of the problems regarding this issue stem from the popular practice of comparing low-SES families from ethnic minorities to middle-class European American families (Hill, 2006; Roosa et al., 2002). This comparison inevitably leads to assumptions that the differences between the two are attributed to ethnicity when in reality the underlying cause of the differences is SES (Umaña-Taylor, & Updegraff, 2013).

There are a disproportionate amount of Latinos represented among families who are considered low-SES. In the year 2013, Hispanics made up 23.5% of the nation's population below poverty level compared to 14.5% of the general population in the United States (DeNavas-Walt, & Proctor, 2014). Living in poverty can cause significant consequences due to the lack of resources. These consequences include but are not limited to stress, poor parenting, poor family relationships, and poor child outcomes (Conger et al., 1992; Garcia-Coll, 1990).

Maternal Responsiveness and Language Development

It has been well established that children that are regularly exposed to responsive language are provided with abundant opportunities to make meaning out of symbolic verbal

symbols (Olson et al., 1984; Tamis-LeMonda & Bornstein, 2002). Mothers who are more verbally responsive tend to use more language (Hoff, Lausen, & Tardif, 2002). The purpose of examining verbal responsiveness is that it helps in reducing situational ambiguity because when children hear words that match with their behaviors they do not need to guess about the reference. The mother responds to the child's intent (Nelson, 1988). Maternal responsiveness will be discussed further in terms of monolingual and bilingual language development.

Monolingual language development. Most research in the area of maternal responsiveness centers on monolingual language development (Baumwell et al., 1997; Bloom, 1993; Landry et al., 1997; Tamis-Lemonda & Bornstein, 2002; Tamis-LeMonda et al., 2001; Taylor et al., 2008). Optimum language learning is most often done when the mother's speech is relevant to and focused on the child's attention, also known as joint attention. Mothers provide labels for objects that occur under joint attention, which reduces the ambiguity of matching symbolic verbal symbols to their referents (Bloom, 1993). In a study conducted by Tamis-LeMonda and colleagues (1998), 40 mother child dyads were examined to assess whether a child's own language and mother responsiveness at 9 months of age predicted the onset of three major language milestones at 2 years old (50 words of language production, combinatorial speech, and language use in talking about the past). In order to measure these language milestones, the authors used the MacArthur Bates Communicative Development Inventory (CDI; Fenson Dale, Reznick, Thal & Pethick, 1994) and questionnaires to assess the ability of the child to talk about the past and use combinatorial speech. Results showed that children of more responsive mothers were able to achieve a vocabulary growth spurt, combine multiple words, and talk about the past sooner than children of less responsive mothers. It has also been found that specific maternal responsive behaviors can elicit certain language milestones, for example

mother's responses to children's activities by asking questions related to the timing of the ability to talk about the past (Tamis-LeMonda, et al., 2001). Having children recount their activities by asking questions may assist in accessing their memories.

There are some maternal behaviors that are in contrast to sensitive and responsive behaviors such as intrusiveness that have been known to either not influence or adversely effect language development (Tamis-LeMonda, et al., 2001; Tomasello & Farrar, 1986). Tamis-LeMonda and colleagues (2001) investigated 40 mother-child dyads at 9, 13, and 21 months of age. The researchers used the CDI to assess the language of the children, as well as observed the responsiveness of the mothers using the approach of Bornstein and Tamis-LeMonda (1989). The authors found that half of the children of mothers who scored low on maternal responsiveness were estimated to imitate words at 13 months, in contrast to 100% of the children of high responsive mothers were estimated to imitate words at 11 months. In addition, mothers who scored high in maternal responsiveness had children reach 50 words of production at an average age of 15.2 months, whereas half of the children who had mothers who were less responsive reached this language milestone at 21 months of age. This gives evidence to the impacts variation in responsiveness has on language developmental milestones.

Bilingual language development. There has been very little research on maternal responsiveness and the impact on bilingual language development in young children. One study suggested that parental language and their language and literacy experiences predicted Dominican and Mexican American infants' growth in vocabulary in both English and Spanish (Song et al., 2012). Bradley and colleagues (2001) used data from the National Longitudinal Study of Youth, examining multiple factors in the home environment and the differences between three ethnic groups, Hispanic, African American and European American. They found

that parental responsiveness from ethnically and socioeconomically diverse groups related to language competence.

As was discussed previously ethnicity should not be taken as the most important factor that influences the quality of responses in language, rather it is socioeconomic status. According to Oller and Eilers (2002) higher SES Spanish-English bilingual children had better English skills compared to lower SES bilinguals. Mother education also plays a role in the quality of language interactions. Mothers with higher education speak more to their children and are more interactive, which in turn encourages more langauge use in the home (Hoff, 2006). Bradley and colleagues (2001), stressed the point that poverty effects all aspects of the home environment for families and their children far beyond ethnicity.

It should also be noted that verbal sensitivity in mothers who come from culturally diverse backgrounds have been found to participate in joint attention in different ways compared to mothers in the United States (Newman & Sachs, 2013). A study was conducted regarding joint attention between U.S. mothers and Japanese mothers (Fernald & Morikawa, 1993). They found that Japanese mothers would use objects to engage their child in social interactions compared to U.S. mothers who would name the object that the infants looked towards. Another study observed Botswana mothers who interacted with their infant when they were not focusing on an object. If the children were playing with an object, the mother would not attempt to join in on the interaction as many European American mothers would (Bakeman, Adamson, Konner, & Barr, 1990). Although these cultures are far removed from the United States, more so than the Latino culture, it is important to point out that there are cultural differences in interactions between child and parent. Joint attention is a major component in maternal responsiveness and should be

carefully observed in order to appropriately examine maternal responsiveness in mothers who come from a different culture, such as the Latino culture.

Latino Population in the U.S.

It is crucial to be aware of the characteristics of the Latino population in the United States in order to best serve the children and their families that are coming into our schools, and to better understand the maternal responsiveness of Latinos. Latino families make up 50.5 million, 16%, of the population in the United States (Ennis, Rios-Vargas, & Albert, 2011). They are the fastest growing ethnic minority in this country. It is estimated that by the year 2025, the Latino population will increase to about 21% of the total population in the United States (The National Center for Education Statistics, 2010). The increase of this population can be for the most part explained by the increase of birth rates as compared to other ethnic groups, as well as immigration from Mexico, Cuba, Puerto Rico, Central and South America, and the Caribbean (Knight, Roosa, & Umaña-Taylor, 2009; Qian & Cobas, 2004). Mexicans make up the largest group (54.1%) while Puerto Ricans make up the second largest group in the U.S. (35.7%) (Ennis et al., 2011). The impact that this Latino population has had on the U.S. is not limited to their growth in population, for example about 21% of the population over 5 years old speaks a language other than English at home, 62% of which is Spanish (Ryan, 2013). (Umaña-Taylor, & Updegraff, 2013). Thus, the Latino population's presence is being felt across the nation and has resulted in an increase of research surrounding this group.

Latino Students in Head Start/RCMA

Head Start serves over 1,076,000 children birth to age 5 and pregnant women and is the largest federally funded education program in the country (U.S. Department of Health Services, Administration for children and Families, 2014). In order to be eligible to attend Head Start,

families of these children need to fall below the Federal Poverty Line and have some form of public assistance (Laughlin & Davis, 2011). Latino children represent 38% of the children served in Head Start and 25% of these children come from homes where Spanish is spoken (U.S. Department of Health Services, Administration for Children and Families, 2014). Thirty percent of Head Start staff are proficient in another language than English (U.S. Department of Health Services, Administration for children and Families, 2014). Head Start works with families to provide access to services and resources such as, immunizations, health insurance, prenatal education, and housing assistance for homeless families.

150,000 to 200,000 migrant farm workers and their families travel to Florida to work in the fields ("Florida Department of Health," n.d). RCMA was established in 1965 and now serves about 7,500 children birth to 16 years of age. It began as a service to migrant farm workers exclusively, but now has opened its doors to anyone of low-income status. RCMA became a delegate of Head Start, therefore is awarded grants through Administration for Children and Families. These programs are called Migrant or Seasonal Head Start programs. Children of migrant families are at a risk of living apart from their parents for long periods of time and live with the fear of their parents' possible deportation. They will more than likely be mislabeled and placed in special education classes, and become educationally underserved (Arzubiaga, Noguerón, & Sullivan, 2009).

Academic Achievement of Latino Students

Given that Latino children are the fastest growing population in the United States, it is concerning that they are struggling academically (Klinger & Artiles, 2003). Latino students whose primary language are Spanish, and come from low socio-economic homes, are at a higher risk for poor literacy outcomes (Hammer, Miccio, & Wagstaff, 2003), as well as trail behind

their European American and African American peers in school readiness (Reardon and Galindo, 2009).

Paez, Tabors, and Lopez (2007), found that bilingual children's vocabulary scores were two standard deviations below monolinguals in English and Spanish with a small gain in English and lower scores in age-appropriate scores in Spanish. They posited that children who are learning two languages are vulnerable for language loss and there is a need to foster oral language skills in this population. Research shows that dual language learners achieve grade level norms if given proper instruction that supports the complexities of learning two languages within 5 to 7 years (Thomas & Collier, 2002). Some promising statistics were found where the percentage of Latino students' high school dropout rates decreased from 32% to 15%, however when compared to 5% of European American students, it is still a large disparity (National Center for Education Statistics, 2012).

Conducting Research with DLLs

A thing to consider when researching dual language learners is their ability to maintain the home language. Research regarding the maternal usage of Spanish suggests that bilingual children's growth in Spanish vocabulary is faster compared to maternal usage of English which slowed the rate of growth in Spanish (Hammer, Lawrence, Davison, & Miccio, 2009). Factors that have been shown to impact slower rates of growth or regression in their first language (Spanish) include low social status in first language in the broader community, full immersion in English in education programs with sparse opportunities to use Spanish outside their home, and most importantly, their relatively low ability in Spanish at the time English is introduced and emphasized (Kohnert, 2008).

What has also been found to cause attrition in their first language is the language shifts in

the home because of the pressure to help their children learn English as quickly as possible. This is a misconception held by many parents and educators. A study conducted in California with Mexican students, found that their level of proficiency in Spanish was related to the use of Spanish in the home. Equally important, was that English proficiency was related to the time spent in the United States, regardless of their proficiency in Spanish (Hakuta & D'Andrea, 1992). This speaks to the power parents have in helping their children maintain their Spanish speaking abilities.

Another thing to consider when working with dual language learners is how to accurately capture their vocabulary development. Dual language learners most oftentimes have a language that is more dominant than another and this variability between languages can cause issues in accurately assessing their language abilities (Gross, Buac, & Kaushanskaya, 2014). The scoring that has been suggested to be the most appropriate method of accurately depicting the language proficiencies of dual language learners is total scoring (Core, Hoff, Rumiche, & Señor, 2013; Junker & Stockman, 2002; Pearson, Fernandez, Oller, 1993). In order to calculate the total vocabulary score of a child is to sum up the raw scores in English and raw scores in Spanish and compare them to monolingual norms. Total scoring will be discussed further in the methods section of this study.

Conclusion

As shown by previous research presented above, there is a strong relationship between maternal responsiveness and children's developmental outcomes (Carlson & Harwood, 2003; Tamis-LeMonda et al., 1998; Taylor et al., 2008). However, research has shown that Latino mothers' responsiveness differs than that of European American mothers (Brady-Smith et al.,

2013). Therefore, there is a need to be knowledgeable of the differences in these mothers' behaviors in order to understand how to better serve their children.

Purpose of Study

The focus of the present study was to examine the role mother responsiveness has on shaping language development in bilingual two-year-old children. Because children who are bilingual language learners are oftentimes coming from low socioeconomic families it is essential that we examine the ways in which they develop language in order to better serve this population. For infants and young children, experiences in the proximal setting of the home are primary sources for learning about the world. Maternal responsiveness is one source in which we can examine the early language development of young children. To better understand maternal responsiveness in this population, mothers who have children attending Early Head Start and Redland's Christian Migrant Association were recruited.

CHAPTER THREE:

METHODS

Pilot Study

A pilot study was conducted to inform this dissertation. Given that most of the research in this area has been conducted with monolingual middle-income participants, it was important to understand the target population being studied. Five bilingual mother and child dyads between the ages of 35-39 months old were selected within Early Head Start classrooms and observed with their mothers playing with 10 standard toys to establish levels of maternal responsiveness. The coding of child activities and maternal responsiveness was based on previously researched maternal behaviors and will be further discussed later (Bornstein & Tamis-LeMonda, 1989; Baumwell et al., 1997). The Peabody Picture Vocabulary Test, 4th edition (PPVT; Dunn & Dunn, 2007), Test de Vocabulario en Imagenes Peabody (TVIP; Dunn, Lugo, Padilla, & Dunn, 1986), Woodcock Johnson III (WJ-III; Woodcock, McGrew, & Mather, 2001) and the MacArthur Bates Communicative Developmental Inventory (CDI; Fenson, Marchman, Thal, Dale, Reznick, & Bates, 2007) were used as language measures. Data from the pilot study assisted in getting a sense of what were salient target behaviors that mothers attend to, as well as, gaining experience with the measures that would be used in this study. Through this pilot study, child shift focus was a child target behavior that was added because of the common occurrence in the observations. After completing the pilot study, the researcher decided to target younger children as 35 to 39 month old children were too old and were beginning to speak in complete sentences. The researcher wanted to examine vocabulary development at a younger age. The assessments

were administered in order to determine the appropriateness of the test for this population and some were deemed inappropriate based on the pilot testing; therefore they were excluded from the dissertation. The PPVT and the WJ-III were deemed inappropriate because they were hard for the participants to sit through. Therefore, only the CDI and Inventario II was used in the dissertation.

Participants

Nine mother and child dyads attending Early Head Start and Redlands Christian Migrant Association were a part of the study. However, one mother and her family were deported in the middle of Time 2 data collection, therefore, only eight mother-child dyads were used for the present study. Children were assessed at three time points (50% female; Age: Time 1: *M* = 23.25 months, *SD* = 3.34; Time 2: *M* = 30.13 months, *SD* = 4.14; Time 3: *M* = 35.13, *SD* = 4.34). Twenty-four months is an age where children are exposed to and absorbing language at exponential rates. They exhibit rapid growth in vocabulary production in toddlerhood and therefore 24 months to 36 months was chosen as the optimal age to study language growth (Cabrera, Aldoney, & Malin, 2015). Mothers (*M* age= 30.5 years, *SD* = 6.21) were born all outside of the United States and represented several Latin American countries. Fifty percent were from Mexico, 25% were from the Dominican Republic, 12.5% were from Cuba, and 12.5% were from Guatemala. Years spent in the US ranged between four and twenty-one years with the average being 10.75 years. Mother's education was varied ranging from completing some elementary school to completing a Bachelor's degree. Sixty-two percent of mother's education occurred in their country of origin where their language of instruction was Spanish. One mother was educated in a mixture of Spanish and Mixteco, an indigenous language of Oaxaca, Mexico. All mothers were able to speak Spanish fluently as it was their first and primary language with

62% of mothers being able to speak some English. Twenty-five percent of mothers made less than $10,000 in annual income, 50% made between $10,000 to $30,000 and 25% made between $40,000 and $50,000.

Inclusion criteria for bilingual children included having at least one parent who speaks Spanish at home. Their country of origin or marital status did not exclude any mothers from participating. Children who had any neurological and sensory abnormalities were excluded from this study.

Ethical Considerations

In order to follow ethical guidelines, permission from the University of South Florida Institutional Review Board (IRB) was obtained in order to analyze the data. No collecting or analyzing of data was conducted without IRB approval. Ethical issues concerning mothers were addressed through the provision of consent forms. Mothers were asked to sign consent forms, which were provided in both English and Spanish, prior to conducting any observations or interactions. Mothers were given detailed explanations of the research project before they signed in order to make an informed decision about participating in this study. To keep all data confidential and to protect the participants' privacy, all participants were assigned ID numbers in order to identify data without the need to use their names. Data collected was kept in a locked cabinet at the University of South Florida.

Variables

Maternal responsiveness. In this research study, the independent variable was maternal responsiveness that identifies six responsive behaviors that may be associated with language development. This variable was obtained from observing recorded mother-child interactions using Baumwell, Tamis-LeMonda, and Bornstein (1997) coding system.

Mother factors. Additional independent variables were included in this project such as, mothers' years of residence in the United States, maternal age, language of education, and level of education. These variables were obtained from a parent questionnaire.

Children's language development. The dependent variable in this research study was the language scores of the child. These measures are further described in the next sections.

Measures

The assessments listed below were chosen based on two factors: 1) the age range appropriate for the measure (i.e. many of the measures considered are not appropriate for the toddler population), and 2) it has been used in other studies conducted with the Early Head Start population.

Maternal responsiveness observation (Bornstein & Tamis-LeMonda, 1989). Maternal responsiveness observations were conducted at the home of the mother-child dyad. The coding of child activities and maternal responsiveness is based on previously researched maternal behaviors (Bornstein & Tamis-LeMonda, 1989; Baumwell et al., 1997). The home visits involved videotaped sequences of parent and child play. Mother–child interactions were videotaped during play activities using a standard set of toys for 10 minutes. The coding of child activities and maternal responsiveness were assessed based on six mutually maternal verbal behaviors aimed at the child behaviors: (1) maternal responsiveness, (2) joint topic focus, (3) focus, (4) prohibition/restriction, (5) focus shift, and (6) miss. Any comments regarding the child's emotional state or involvement with objects other than the standard toys were not coded.

MacArthur-Bates communicative developmental inventory: Second edition (CDI) (Fenson, Marchman, Thal, Dale, Reznick, & Bates, 2007). The Words and Sentences CDI was administered in order to obtain an understanding of the children's vocabulary production

growth in English. The CDI is a 680- word vocabulary checklist filled out by the parents or caregivers. The checklist measures language production, asking parents to report on only the words that their children are able to say. The checklist consists of two parts, the first being vocabulary which is made up of 22 categories (i.e., animal sounds, household objects, action words, descriptive words, pronouns, etc.) and the second part consisting of sentences and grammar (i.e., word forms, word endings, complexity, etc.). Parents were asked to check off any words that their child knows even if the child uses a different pronunciation of the word (i.e., "raffe" for giraffe).

The Words and Sentences CDI is used for children between 16-30 months old. Although the present sample exceeded 30 months old at time 3, the guidelines in the CDI manual stated several reasons for choosing the Words and Sentences form. Three of which apply to the present study. First, if the interest is in conducting longitudinal comparisons on the same scale across ages. Secondly, researchers who have older samples growing up in a bilingual environment can use the CDI. Furthermore, it should also be noted that the present sample is of low socioeconomic status and most mothers have low levels of education. Through the norming process MacArthur Bates and colleagues (2007) found that reported scores of vocabulary and grammar are lower for children with mothers who have fewer years of education. The present study is a longitudinal study that has a sample of children who are growing up in a bilingual environment and are from a low socioeconomic household, therefore the use of the Words and Sentences version is appropriate across all three time points. Additionally, Mancilla, Pan, and Banu Vagh (2011) validated the CDI and Inventario II for use with 24 and 36 month old bilingual children.

MacArthur inventarios del desarrollo de habilidades comunicativas (Inventario II: Jackson-Maldonado, Thal, Fenson, Marchman, Newton, & Conboy, 2003). The Palabras y Enunciados: Inventario II was administered in order to obtain an understanding of the children's vocabulary production growth in Spanish. Administered in the same way as the CDI in English, parents are asked to indicate the words that their children are able to say. It is a 680-word vocabulary checklist organized into 23 semantic categories. Categories contain nouns (animals, vehicles, toys, etc), games and routines, verbs, descriptive words, questions, a connecting words category, prepositions, quantifiers, etc. The second part of the checklist includes asking parents to indicate whether their child can produce word combinations and to provide examples of the child's best utterances. The last section of the checklist asks parents to report on the complexity of their children's speech.

Computerized comprehension task (CCT; Friend & Keplinger, 2003). The CCT was administered through a touch-screen device in order to obtain children's vocabulary comprehension growth. This engaging approach takes into account the limited attention span of two year olds. This software has images appear on the screen and children touch the target images based on auditory prompts. For example, if the target vocabulary is "shoe" the experimenter would ask the child "Where is the shoe? Touch the shoe." Touching the target image produces a sound that acts as a reinforcer in that it maintains the interest of the child and motivates the child to continue. Reliability tests have been conducted and it has been found reliable ($r = .828$, $p < .05$) (Friend & Keplinger, 2003).

Demographic parent questionnaire. The mother was asked to fill out a questionnaire to obtain information regarding home demographic information, language use in the home, home literacy environment, education level, language of education, maternal age, and immigration

history. This questionnaire was a subset of questions developed by the CECER-DLL team (Hammer, Scarpino, & Castro, 2014).

Procedures

Mothers were asked to provide informed consent for their child to participate in three observed home visits. Mothers were asked to complete a demographic questionnaire before participating in the first observation. Due to child attention span, the CCT was first completed followed by the observation of mother and child playing with toys.

The CCT was conducted at the home on a determined day at each time point and was administered once in English and once in Spanish. The assessment took approximately 15 minutes to administer and the child was prompted to answer in the language of the assessment. Although it is appropriate to accept answers in either of the child's languages when assessing a bilingual child, as the assessments occurred in both English and Spanish, I wanted to know whether the child knows the answer in both languages. The assessments were administered at 3 time points at least 4 months between each assessment.

Mothers were then instructed to play with their child using a provided standard set of toys for 10 minutes. Mothers were asked to behave in their usual manner and ignore the presence of the observer. The observations were recorded. A quiet room or area of the house was ideal to capture any language and behaviors that are salient to the proposed study, however on several occasions there was no such area. Observations were done to determine the level of maternal responsiveness in each dyad. The recordings were watched and analyzed soon after the observations to code for maternal responsiveness.

After the visit was complete, mothers were given a week to fill out the CDI and Inventario II checklist at each time point. A day was determined to meet with the mother to pick

up the filled out and completed CDI checklist. Raw scores from the CDI and Inventario II were summed up to obtain a total vocabulary score and were compared to Spanish monolingual norms. This method helps better assess the full capability of the child. Mothers were given a $10 WalMart giftcard after every observation was complete.

Qualifications

As stated above, observations and coding of the maternal responsiveness were conducted using Baumwell, Tamis-LeMonda, and Bornstein (1997) coding system. I personally discussed this observation/coding system with one of the authors, Dr. Tamis-LeMonda to ensure my conceptual understanding. A pilot study was conducted to gain experience and inform this study.

Research Questions

1. Which specific maternal responsive behaviors (maternal responsiveness, joint topic focus, focus, prohibition/intrusiveness, focus shift, or miss) impact Spanish language abilities of the children?
2. Which specific maternal responsive behaviors (maternal responsiveness, joint topic focus, focus, prohibition/intrusiveness, focus shift, or miss) impact English language abilities of the children?

Coding System

The coding of child activities and maternal responsiveness is based on the approach of Baumwell and colleagues (1997). The most common approach to assessing maternal responsiveness is to use global ratings (e.g., 1 = not seen to 7 = always seen), which is built upon the theories of attachment (Ainsworth, 1973). The use of global ratings limits the information on real-time interactions of mother and child dyads (Tamis-LeMonda, Kuchirko, Tafuro, 2013). In order to capture real-time interactions between mother and child, a micro-genetic approach was

used (C. S. Tamis-LeMonda, personal communication, April, 24, 2015). Based on the frame by frame coding of the onsets and offsets, six maternal behaviors aimed at the child behaviors are coded: (1) maternal responsiveness (e.g., positive and meaningful change in mother's behavior), (2) joint topic focus (e.g., child maintains attention on a toy and the mother continues to verbally elaborate on the toy or activity), (3) focus (e.g., mother attempts to focus an unfocused child on toys or activity), (4) prohibition/intrusiveness/restriction (e.g., mother discourages the child's behavior), (5) focus shift (e.g., child is focused on a toy for at least 3s and the mother attempts to direct her child's attention toward another toy or activity), and (6) miss (e.g., when the mother fails to respond verbally to the child's behavior). Any comments regarding the child's emotional state or involvement with objects other than the standard toy was not coded. Responses are coded within a 3s window, which was suggested as an appropriate amount of time between the child's target behavior and the mothers response for a 2 year old (C. S. Tamis-LeMonda, personal communication, April, 24, 2015).

For example, after noting the child's activity (i.e., a child holding a cup), the mother's response will be noted whether or not the mother responded within a 3-s window. A maternal response is defined as "a positive and meaningful change in the mother's behavior that was contiguous and contingent on the child's act" (Tamis-LeMonda, Bornstein, & Baumwell, 2001, p. 752). If the child is holding a cup and the mother responds to the child by saying "cup" or "that is a cup" the mother is considered responsive. If the mother responds by constantly redirecting the child's actions by saying "Put that down and look at your book," then the mothers' response is coded as a prohibition or restriction.

Data Analysis

Descriptive information was obtained for each subtest in each language. The results of

the CDI were tallied and analyzed using the total vocabulary scoring method. To calculate the total score the raw scores from the CDI in English and the Inventario II are summed. For example, a bilingual child knowing the word for *table* in English and Spanish and knowing the word for *dog* in Spanish but not in English, would have a raw score of three. Scores on the CCT were tallied and analyzed using SAS.

Descriptive statistics were conducted on target behaviors of the child (action, vocalizations, playing, etc.), such as how often the child is participating in these behaviors. Types of responsive behaviors from the mother (maternal responsiveness, joint topic focus, focus, prohibition/intrusiveness, focus shift, or miss) were also described. Descriptive statistics were also conducted on mother factors (e.g., level of education, maternal age, etc). Repeated Measures ANOVA was then run using SAS in order to examine whether there were differences across time.

Research Questions 1 and 2

1. Which specific maternal responsive behaviors (maternal responsiveness, joint topic focus, focus, prohibition/intrusiveness, focus shift, or miss) impact Spanish language abilities of the children?
2. Which specific maternal responsive behaviors (maternal responsiveness, joint topic focus, focus, prohibition/intrusiveness, focus shift, or miss) impact English language abilities of the children?

Regressions were conducted at Time 1 in order to assess which maternal responsive behaviors impact English and Spanish language outcomes. A regression was conducted for each maternal responsive predictor. Below is an example of a regression equation:

$$Y_i = \beta_0 + \beta_1 \text{MatRespE} + e_i$$

The growth trajectory for each language outcome was examined using hierarchical linear modeling, also known as multilevel modeling (Raudenbush & Byrk, 2002) because of the nested structure of the data. Multilevel modeling allows for residual components at each level by recognizing the clusters or hierarchies and produces more appropriate standard errors for fixed effects estimates. In other words it estimates variation in the growth trajectories across children within mother-child dyads and estimates variation in growth trajectories across dyads. This allows for a clearer picture of the diversity in maternal responsiveness of Latino mothers of children attending Early Head Start programs or RCMA.

A model was run for each maternal responsive predictor. Below is an example of a multilevel model equation for maternal responsiveness in English:

$$Y_{ti} = \pi_{0i} + \pi_{1i}\,\mathrm{MatRespE} + r_{0i} + e_{ti}$$

CHAPTER FOUR:

RESULTS

Preliminary Analysis

Descriptive statistics for maternal responsiveness behaviors, child target behaviors as well as the amount of mother and child language use are presented in Table 1. Repeated Measures ANOVA was conducted to examine whether increases or decreases across time were significant among mother behaviors as well as their language use (see Table 2 for differences across time points).

Maternal responsive behaviors. The majority of the time mothers were responding to their child in a responsive way, for example maternal responsiveness (34.2% at Time 1, 34.9% at Time 2, and 30.1% at Time 3). Maternal responsiveness decreased over time, however the difference was not significant, $F(2, 14) = .44$, p = n.s. Joint topic focus was also a responsive behavior that mothers were demonstrating a substantial amount. Joint topic focus increases across time (23.3% at Time 1, 26.6% at Time 2, and 39.5% at Time 3), however it was not significant, $F(2, 14) = 3.33$, p = n.s. Mothers also demonstrated focusing their distracted child on a few occasions (3.2% at Time 1, 3.2% at Time 2, and 1.8% at Time 3). The difference in focus behaviors was not significant, $F(2, 14) = 0.36$, p = n.s. Mothers' prohibition behaviors decreased across time but the difference was not significant, $F(2, 14) = 2.19$, p = n.s. Mothers demonstrated focus shift behaviors almost a fifth of the time at Time 1 (18.8%), however decreased across time (14.4% at Time 2, and 14.3% at Time 3). This change was not significant, $F(2, 14) = 1.24$, p = n.s. Mothers missed opportunities to respond and engage with their child

15.7% at Time 1, 15.5% at Time 2, and 13.1% at Time 3. The difference across time was not significant, $F(2, 14) = 0.31$, p = n.s.

Mothers' language use. As for language use, mothers on average spoke in Spanish the majority of the time. As is shown in Table 1 mothers used Spanish 81.5% during Time 1, 78.8% during Time 2, and 72.1% during Time 3. The decrease in Spanish use across time was not significant, $F(2, 14) = 2.98$, p = n.s. Mothers gradually started to incorporate English into their conversations with their child as time went on, as is shown in Table 1. This difference in using English across time was also not significant, $F(2, 14) = 1.81$, p = n.s. Notably, when mothers used English, it usually occurred in tandem with Spanish. Mothers would use English and Spanish in one sentence or one phrase while speaking to their child (3% at Time 1, 7.1% at Time 2, and 13.7% at Time 3). The increase in the use of both languages across time was significant, $F(2, 14) = 5.66$, $p < .05$. There were, however, periods of time where mothers did not speak at all (14.9% at Time 1, 13.1% at Time 2, and 9.3% at Time 3), and this change across time was not significant, $F(2, 14) = 1.58$, p = n.s.

Table 1. *Proportions of Maternal and Child Behaviors Across Time*

		Time 1	Time 2	Time 3
Maternal				
	Responsiveness	34.2	34.9	30.1
	Joint Topic Focus	23.3	26.6	39.5
	Focus	3.2	3.2	1.8
	Prohibition	4.9	3.9	1
	Focus Shift	18.8	14.4	14.3
	Miss	15.7	15.5	13.1
	Spanish	81.5	78.8	72.1
	English	0.8	1.1	5
	Both	3	7.1	13.7
	No Language	14.9	13.1	9.3
Child				
	Play	58.3	69.8	71.3
	Distracted	4.5	3.2	2.5
	Bids to Mother	3.3	3	1.4

Table 1. *Proportions of Maternal and Child Behaviors Across Time*

	Time 1	Time 2	Time 3
Looks at Object	4.3	2.8	3.7
Vocalizes	16	9.5	12.7
Child Shift Focus	12.4	11.8	8.4
Spanish	64.8	65.2	57
English	0.6	9.0	7.2
Both	3.0	3.1	15.5
No Language	31.6	22.3	20.1

Note: Maternal behaviors were computed by dividing the summed frequencies of each maternal behavior by summed frequency of total maternal behaviors.

Table 2. *Repeated Measures ANOVA for Maternal Behaviors and Language Use*

Effect	*MS*	*F*(2)	*p*	Greenhouse-Geisser	*Huynh-Feldt*
Maternal Responsiveness	52.54	0.44	*0.65*	0.99	1.39
Joint Topic Focus	586.99	3.33	*0.07*	0.64	0.73
Focus	3.65	0.36	*0.71*	0.80	1.00
Prohibition	31.93	2.19	*0.15*	0.82	1.04
Focus Shift	52.71	1.24	*0.32*	0.94	1.27
Miss	16.85	0.31	*0.74*	0.97	1.33
Mothers' Spanish Use	190.62	2.98	*0.08*	0.68	0.78
Mothers' English Use	44.95	1.81	*0.20*	0.56	0.60
Mothers' Use of Both Languages	232.65	5.66	*<.02*	0.86	1.11
No Language Use by Mothers	67.33	1.58	*0.24*	0.98	1.35

Child behaviors. Repeated Measures ANOVA was also conducted for child behaviors

and their language in order to examine change across time (See Table 3). Children were playing the majority of the time (58.3% at Time 1, 69% at Time 2, and 71.3% at Time 3). Their playing activities increased over time, however the change was not significant, $F(2, 14) = 3.28$, p = n.s. Children were distracted on a few occasions (4.5% at Time 1, 3.2%, and 2.5% at Time 3). Children tended to be less distracted as time progressed, however it was not found to be significant, $F(2, 14) = 0.87$, p = n.s. Children would bid to their mother for help or reassurance on a few occasions (3.3% at Time 1, 3% at Time 2, and 1.4% at Time 3). With age children tended not to bid as much as they did when they were younger however the difference was not found to be significant, $F(2, 14) = 0.09$, p = n.s. Children would simply look at the object or toy without playing with it 4.3% at Time 1, 2.8% at Time 2, and 3.7% at Time 3. The difference between time points was also not significant, $F(2, 14) = 3.31$, p = n.s. Children's vocalizations at first decrease then increase as time progresses (16% at Time 1, 9.5% at Time 2, and 12.7% at Time 3), however the changes are not significant, $F(2, 14) = 0.96$, p = n.s. Children shifted their focus from one toy to another 12.4% at Time 1, 11.8% at Time 2, and 8.4% at Time 3. As time progressed and children aged, their attention span seemed to increase, therefore their shifting in play decreased. This change in behavior was not found to be significant, $F(2, 14) = 0.85$, p = n.s.

Child language use. Spanish was the language in which children spoke the most (64.8% at Time 1, 65.2% at Time 2, and 57% at Time 3). Spanish language use decreases across time but was not found to be significant, $F(2, 14) = 0.00$, p = n.s. Children spoke only in English 0.6% at Time 1, 9.0% at Time 2, and 7.2% at Time 3. The change in speaking only in English across time was not significant, $F(2, 14) = 3.54$, p = n.s. Using both languages while speaking increased across time (3.0% at Time 1, 3.1% at Time 2, and 15.5% at Time 3), and was found to be a significant change across time, $F(2, 14) = 6.27$, $p < .01$. Children also had periods of time when

they did not speak while playing (31.6% at Time 1 and 22.3% at Time 2, and 20.1% at Time 3). Children's silent periods decreased across time but was not found to be significant, $F(2, 14) = 1.22$, p = n.s.

Table 3. *Repeated Measures ANOVA for Child Behaviors and Language Use*

Effect	*MS*	*F*(2)	*p*	Greenhouse-Geisser	*Huynh-Feldt*
Play	4.06	3.28	*0.68*	0.95	1.30
Distracted	8.20	0.87	*0.43*	0.60	0.66
Bids to Mother	1.22	0.09	*0.91*	0.74	0.89
Looks at Object	17.3	3.31	*0.07*	0.90	1.18
Vocalizes	84.50	0.96	*0.41*	0.64	0.72
Child Shift Focus	37.69	0.85	*0.44*	0.99	1.37
Childs' Spanish Use	0.82	0.00	*0.99*	0.60	0.66
Childs' English Use	168.21	3.54	*0.06*	0.82	1.05
Childs' Use of Both Languages	416.51	6.27	*<.01*	0.67	0.78
No Language Use by Child	298.33	1.22	*0.33*	0.74	0.88

Language outcomes. Table 4 represents the descriptive statistics on child language outcomes as measured by the CDI, Inventario II, and the CCT in English and Spanish across time. Repeated Measures ANOVA was conducted in order to examine the changes across time points (Table 5). Children's English vocabulary production was reported to increase across time and was found to be significant, $F(2, 12) = 7.62$, $p < .01$. Children's Spanish vocabulary production was also reported to have increased as measured by the Inventario II, and was

significant, $F(2, 10) = 9.23$, $p < .01$. Children's total scores (raw scores summed up from the CDI and Inventario II measures) increased as well and was significant, $F(2, 10) = 8.14$, $p < .01$. Receptive English skills also increased over time and was significant, $F(2, 14) = 37.22$, $p < .001$. Receptive Spanish skills significantly increased over time, $F(2, 10) = 27.55$, $p < .001$.

Table 4. *Means and Standard Deviations of Child Language Outcomes Across Time*

	Time 1		Time 2		Time 3	
Language Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*
CDI	32.5	51.01	70.5	107.67	146.63	160.84
Inventario II	173.0	146.04	249.25	208.38	315.5	219.14
Total Score	234.86	134.96	365.43	249.06	511.143	303.46
CCT English	0.25	0.71	6.38	6.74	24.38	7.71
CCT Spanish	5.13	9.67	21.38	11.72	32.88	4.94

Table 5. *Repeated Measures ANOVA for Child Language Outcomes*

Effect	*MS*	*F*(2)	*p*	Greenhouse-Geisser	*Huynh-Feldt*
CDI English	28885.76	7.62	*<.01*	0.56	0.59
Inventario II	42338.89	9.23	*<.01*	0.78	1.06
Total Score on CDI	130001.56	8.14	*<.01*	0.61	0.70
CCT English	1258.04	37.22	*<.0001*	0.855	1.103
CCT Spanish	1555.17	27.55	*<.0001*	0.91	1.2

Maternal Factors and Impacts on Language Outcomes

Regression and multi-level modeling were employed to examine whether maternal

responsive behaviors had impacts on their two-year-old children's language outcomes across time. Results are discussed by language outcomes and time points.

Spanish language outcomes at time 1. Simple regression analysis was employed to examine which maternal responsive behaviors impact Spanish language outcomes at Time 1. Maternal responsiveness was not a significant predictor of Spanish vocabulary production at Time 1, ($F(1, 5) = 0.58$, p = n.s., $R^2 = 0.10$, $R^2_{\text{Adjusted}} = -.07$) or Spanish vocabulary comprehension ($F(1, 6) = 1.39$, p = n.s., $R^2 = 0.18$, $R^2_{\text{Adjusted}} = .05$). Joint topic focus was not a significant predictor of Spanish vocabulary production, ($F(1, 5) = 0.80$, p = n.s., $R^2 = 0.14$, $R^2_{\text{Adjusted}} = -.04$) or Spanish vocabulary comprehension ($F(1, 6) = 2.53$, p = n.s., $R^2 = 0.30$, $R^2_{\text{Adjusted}} = .17$). The maternal behavior of focus was not a significant predictor of Spanish vocabulary production, ($F(1, 5) = 0.37$, p = n.s., $R^2 = 0.07$, $R^2_{\text{Adjusted}} = -.12$) or Spanish vocabulary comprehension ($F(1, 6) = 0.01$, p = n.s., $R^2 = 0.00$, $R^2_{\text{Adjusted}} = -.16$). Prohibition was also not found to be a significant predictor of Spanish vocabulary production, ($F(1, 5) = 2.63$, p = n.s., $R^2 = 0.35$, $R^2_{\text{Adjusted}} = .21$) or Spanish vocabulary comprehension ($F(1, 6) = 0.38$, p = n.s., $R^2 = .06$, $R^2_{\text{Adjusted}} = -.10$). Focus shift was not found to be a significant predictor of Spanish vocabulary production, ($F(1, 5) = 1.76$, p = n.s., $R^2 = 0.26$, $R^2_{\text{Adjusted}} = .11$) or Spanish vocabulary comprehension ($F(1, 6) = 0.05$, p = n.s., $R^2 = 0.01$, $R^2_{\text{Adjusted}} = -.16$). Misses were also not found to be a significant predictor of Spanish vocabulary production, ($F(1, 5) = 1.47$, p = n.s., $R^2 = 0.23$, $R^2_{\text{Adjusted}} = .07$) or Spanish vocabulary comprehension ($F(1, 6) = 0.41$, p = n.s., $R^2 = 0.06$, $R^2_{\text{Adjusted}} = -.09$).

Spanish language outcomes at time 2. Multilevel modeling was employed in order to examine which maternal behaviors impacted Spanish language outcomes in children across Time 1 and Time 2. Maternal behaviors and their impacts on Spanish language outcomes were not

found to be statistically significant (See Table 6 for a summary of findings). Maternal responsiveness was not impactful in Spanish vocabulary production, ($t(3) = 0.33$, p = n.s.) or in Spanish vocabulary comprehension ($t(1) = 2.05$, p = n.s.). Joint topic focus was not found to be significant in Spanish vocabulary production, ($t(3) = 1.56$, p = n.s.) or Spanish vocabulary comprehension, ($t(1) = 0.40$, p = n.s.). Mothers focusing behaviors were not found to significantly impact Spanish vocabulary production, ($t(6) = -1.15$, p = n.s.) or Spanish vocabulary comprehension, ($t(4) = 0.39$, p = n.s.). Prohibition was not statistically significant in impacting Spanish vocabulary production, ($t(6) = 1.23$, p = n.s.) or in Spanish vocabulary comprehension, ($t(4) = -1.12$, p = n.s.). Focus shift was also not statistically significant in impacting Spanish vocabulary production, ($t(6) = -0.30$, p = n.s.) or in Spanish vocabulary comprehension, ($t(4) = 0.82$, p = n.s.). Misses were not statistically significant in impacting Spanish vocabulary production, ($t(6) = 1.26$, p = n.s.) or in Spanish vocabulary comprehension, ($t(4) = 0.57$, p = n.s.).

Table 6. *Fixed Effects for Maternal Behaviors and Spanish Language Outcomes at Time 2*

Variable	*Fixed Effect*	*Estimate*	*df*	*SE*	*T Value*	*p*
Inventario II	Maternal Responsiveness	5.68	3	17.37	3.52	*0.77*
	Joint Topic Focus	8.32	3	5.34	1.56	*0.22*
	Focus	-4.05	6	3.53	-1.15	*0.29*
	Prohibition	4.46	6	3.61	1.23	*0.26*
	Focus Shift	-3.47	6	11.66	-0.30	*0.78*
	Miss	15.65	6	12.47	1.26	*0.26*

Table 6. *Fixed Effects for Maternal Behaviors and Spanish Language Outcomes at Time 2*

Variable	*Fixed Effect*	*Estimate*	*df*	*SE*	*T Value*	*p*
CCT Spanish	Maternal Responsiveness	4.58	1	2.24	2.05	*0.29*
	Joint Topic Focus	0.63	1	1.57	0.40	*0.76*
	Focus	0.28	4	0.70	0.39	*0.71*
	Prohibition	-0.90	4	0.80	-1.12	*0.32*
	Focus Shift	1.45	4	1.77	0.82	*0.46*
	Miss	1.56	4	2.72	0.57	*0.60*

Note. Variance components for maternal behaviors and Spanish language outcomes at Time 2 can be found in Appendix I.

Spanish language outcomes at time 3. In order to examine which maternal behaviors impacted Spanish language outcomes in children across all three-time points, multilevel modeling was conducted (See Table 7 for a summary of findings). Maternal responsiveness was not found to have a significant impact on Spanish vocabulary production across time, ($t(12) = -1.08$, p = n.s.) or on Spanish vocabulary comprehension, ($t(15) = -1.40$, p = n.s.). Joint topic focus was not found to impact Spanish vocabulary production, ($t(12) = 1.87$, p = n.s.). However, joint topic focus was found to have a significant positive impact on children's Spanish vocabulary comprehension, ($t(15) = 3.10$, $p < .007$). Therefore, for every one-point increase in joint topic focus demonstrated by mothers, children's Spanish CCT scores will increase by 0.50. This finding remains significant when controlling for all other maternal factors. Focus was not found to have a significant impact on Spanish vocabulary production, ($t(12) = -0.92$, p = n.s.) or on Spanish vocabulary comprehension, ($t(15) = -0.87$, p = n.s.). Prohibition was not found to be

statistically impactful on children's Spanish vocabulary production, ($t(12) = -0.98$, p = n.s.) or on Spanish vocabulary comprehension, ($t(15) = -1.12$, p = n.s.). Focus shift was also not found to have a significant impact on Spanish vocabulary production, ($t(12) = -0.84$, p = n.s.) or on Spanish vocabulary comprehension, ($t(15) = -0.45$, p = n.s.). Misses were not found to have a significant impact on Spanish vocabulary either, ($t(12) = -0.13$, p = n.s.) or on Spanish vocabulary comprehension, ($t(15) = -1.71$, p = n.s.).

Table 7. *Fixed Effects for Maternal Behaviors and Spanish Language Outcomes at Time 3*

Variable	*Fixed Effect*	*Estimate*	*df*	*SE*	*T Value*	*p*
Inventario II	Maternal Responsiveness	-2.59	12	2.40	-1.08	*0.30*
	Joint Topic Focus	2.97	12	1.59	1.87	*0.09*
	Focus	-7.41	12	8.09	-0.92	*0.38*
	Prohibition	-6.25	12	6.35	-0.98	*0.34*
	Focus Shift	-3.02	12	3.66	-0.84	*0.42*
	Miss	-0.49	12	3.74	-0.13	*0.90*
CCT Spanish	Maternal Responsiveness	-0.36	15	0.26	-1.40	*0.18*
	Joint Topic Focus	0.50	15	0.16	3.10	*<.007*
	Focus	-0.77	15	0.88	-0.87	*0.40*
	Prohibition	-0.90	15	0.81	-1.12	*0.28*
	Focus Shift	-0.16	15	0.35	-0.45	*0.66*

Table 7. *Fixed Effects for Maternal Behaviors and Spanish Language Outcomes at Time 3*

Variable	*Fixed Effect*	*Estimate*	*df*	*SE*	*T Value*	*p*
	Miss	-0.60	15	0.35	-1.71	*0.11*

Note. Variance components for maternal behaviors and Spanish language outcomes at Time 3 can be found in Appendix II.

English language outcomes at time 1. In order to examine which maternal responsive behaviors impact English language outcomes at Time 1 regression analysis was employed. Maternal responsiveness was not found to be a significant predictor of English vocabulary production, ($F(1, 6) = 0.63$, p = n.s., $R^2 = 0.10$, $R^2_{\text{Adjusted}} = -.06$) or English vocabulary comprehension ($F(1, 6) = 0.19$, p = n.s., $R^2 = .03$, $R^2_{\text{Adjusted}} = -.13$). Joint topic focus was not found to be a significant predictor of a significant predictor of English vocabulary production, ($F(1, 6) = 4.13$, p = n.s., $R^2 = 0.40$, $R^2_{\text{Adjusted}} = .31$) or English vocabulary comprehension ($F(1, 6) = 0.52$, p = n.s., $R^2 = .08$, $R^2_{\text{Adjusted}} = -.07$). However, focus was a significant predictor of English vocabulary production, ($F(3, 4) = 12.38$, $p < .02$, $R^2 = 0.90$, $R^2_{\text{Adjusted}} = .83$) but not of English vocabulary comprehension ($F(1, 6) = 0.10$, p = n.s., $R^2 = .02$, $R^2_{\text{Adjusted}} = -.15$). Prohibition was not a significant predictor of English vocabulary production, ($F(1, 6) = 0.11$, p = n.s., $R^2 = 0.02$, $R^2_{\text{Adjusted}} = -.15$) or English vocabulary comprehension ($F(1, 6) = 0.01$, p = n.s., $R^2 = .00$, $R^2_{\text{Adjusted}} = -.17$). Focus shift was also not found to be a significant predictor of English vocabulary production, ($F(1, 6) = 1.15$, p = n.s., $R^2 = 0.16$, $R^2_{\text{Adjusted}} = .02$) or English vocabulary comprehension ($F(1, 6) = 2.73$, p = n.s., $R^2 = .31$, $R^2_{\text{Adjusted}} = .19$). Misses were not found to be a significant predictor of English vocabulary production, ($F(1, 6) = 0.02$, p = n.s., $R^2 = 0.00$, $R^2_{\text{Adjusted}} = -.16$) or English vocabulary comprehension ($F(1, 6) = 0.13$, p = n.s., $R^2 = .02$, $R^2_{\text{Adjusted}} = -.14$).

English language outcomes at time 2. Multilevel modeling was employed in order to examine which maternal behaviors impacted English language outcomes in children across Time 1 and Time 2 (See Table 8 for a summary of findings). Maternal responsiveness was positively related to English vocabulary production across Time 1 and Time 2. Results showed that for every one-point increase in maternal responsiveness, a child's English CDI score would increase by 1.62, ($t(4) = 13.13$, $p < .001$). This finding remains significant when controlling for all other maternal factors. However, maternal responsiveness was not found to be statistically significant on impacting children's English vocabulary comprehension, ($t(1) = 2.07$, p = n.s.). Joint topic focus was not found to have a significant impact on children's English vocabulary production, ($t(4) = 0.09$, p = n.s.) or English vocabulary comprehension, ($t(1) = 0.83$, p = n.s.). Focus was also not found to have a significant impact on children's English production, ($t(7) = 1.84$, p = n.s.) or English vocabulary comprehension, ($t(4) = -0.06$, p = n.s.). Prohibition was found to have a significant negative impact on children's English vocabulary production across Time 1 and Time 2, ($t(7) = -3.43$, $p < .01$). Therefore, for every one-point increase in maternal prohibition children's English vocabulary production will decrease by 0.46. This finding remains significant when controlling for all other maternal factors. However, prohibition does not significantly impact children's English vocabulary comprehension, ($t(4) = -0.34$, p = n.s). Focus shift was found to have a positive significant impact on children's English language production, ($t(7) = 3.98$, $p < .005$). Therefore, for every one-point increase in focus shift, children's CDI English scores increases by 1.44. This finding remains significant when controlling for all other maternal factors. Focus shift was not found to have a significant impact on children's English vocabulary comprehension, ($t(4) = 0.79$, p = n.s.). Misses were not found to have a significant impact on children's English vocabulary production, ($t(7) = -0.60$, p = n.s.) or on children's English

vocabulary comprehension, ($t(4) = 0.27$, p = n.s.).

Table 8. *Fixed Effects for Maternal Behaviors and English Language Outcomes at Time 2*

Variable	*Fixed Effect*	*Estimate*	*df*	*SE*	*T Value*	*p*
CDI English	Maternal Responsiveness	1.62	4	0.12	13.13	*<.0002*
	Joint Topic Focus	0.02	4	0.24	0.09	*0.93*
	Focus	0.32	7	0.17	1.84	*0.11*
	Prohibition	-0.46	7	0.14	-3.43	*<.01*
	Focus Shift	1.45	7	0.36	3.98	*<.005*
	Miss	-0.44	7	0.73	-0.60	*0.56*
CCT English	Maternal Responsiveness	34.29	1	16.58	2.07	*0.29*
	Joint Topic Focus	7.90	1	9.53	0.83	*0.56*
	Focus	-0.30	4	4.70	-0.06	*0.95*
	Prohibition	-1.96	4	5.82	-0.34	*0.75*
	Focus Shift	8.22	4	11.80	0.70	*0.52*
	Miss	4.97	4	18.30	0.27	*0.80*

Note. Variance components for maternal behaviors and English language outcomes at Time 2 can be found in Appendix III.

English language outcomes at Time 3. Multilevel modeling was employed to examine which maternal behaviors impacted English language outcomes in children across all three-time points (see Table 9 for a summary of findings). Maternal responsiveness was not found to have a

significant impact on English vocabulary production across time, ($t(14) = -1.46$, p = n.s.) or on English vocabulary comprehension, ($t(15) = -0.80$, p = n.s.). Joint topic focus was found to positively impact children's English vocabulary production, ($t(14) = 4.08$, $p < .001$). In other words, for every one-point increase in joint topic focus children's English CDI scores will increase by 3.71. As for children's comprehension in English, joint topic focus is also found to be positively significant, ($t(15) = 2.31$, $p < .04$). Therefore, for every one-point increase in joint topic focus children's English comprehension scores will increase by 0.32. These findings remain significant when controlling for all other maternal factors. Focus was not found to be significantly impactful on English vocabulary production, ($t(14) = -0.88$, p = n.s.) or on English vocabulary comprehension, ($t(15) = -0.54$, p = n.s.). Prohibition was not found to have a significant impact on English vocabulary production, ($t(14) = -1.43$, p = n.s.). Mother's prohibition behaviors, however, have a significant negative impact on children's English vocabulary comprehension, ($t(15) = -2.57$, $p < .02$). Therefore, for every one-point increase in mother's prohibition, children's English comprehension scores decrease by 1.53. Even while controlling for other maternal factors (e.g., level of education, years spent in the US, etc.), these findings remain significant. Focus shift was not found to have a significant impact on English vocabulary production, ($t(14) = -1.09$, p = n.s.) or on English vocabulary comprehension, ($t(15) = -0.88$, p = n.s.). Misses were also not found to have a significant impact on English vocabulary production, ($t(14) = -0.96$, p = n.s.) or on English vocabulary comprehension, ($t(15) = -0.53$, p = n.s.).

Table 9. *Fixed Effects for Maternal Behaviors and English Language Outcomes at Time 3*

Variable	*Fixed Effect*	*Estimate*	*df*	*SE*	*T Value*	*p*
CDI English	Maternal Responsiveness	-2.53	14	1.73	-1.46	*0.17*

Table 9. *Fixed Effects for Maternal Behaviors and English Language Outcomes at Time 3*

Variable	*Fixed Effect*	*Estimate*	*df*	*SE*	*T Value*	*p*
CCT English	Joint Topic Focus	3.71	14	0.91	4.08	*<.001*
	Focus	-5.38	14	6.13	-0.88	*0.40*
	Prohibition	-6.98	14	4.90	-1.43	*0.18*
	Focus Shift	-2.94	14	2.71	-1.09	*0.30*
	Miss	-2.57	14	2.68	-0.96	*0.35*
	Maternal Responsiveness	-0.17	15	0.21	-0.80	*0.44*
	Joint Topic Focus	0.32	15	0.14	2.31	*<0.04*
	Focus	-0.40	15	0.73	-0.54	*0.59*
	Prohibition	-1.53	15	0.59	-2.57	*<.02*
	Focus Shift	-0.25	15	0.28	-0.88	*0.39*
	Miss	-0.16	15	0.31	-0.53	*0.61*

Note. Variance components for maternal behaviors and English language outcomes at Time 3 can be found in Appendix IV.

Total score language outcomes at time 1. In order to examine which maternal responsiveness behaviors are predictors of child's total score vocabulary production a regression analysis was conducted. Maternal responsiveness was not found to be a significant predictor of total score vocabulary, ($F(1, 5) = 0.15$, p = n.s., $R^2 = 0.02$, $R^2_{\text{Adjusted}} = -.17$). Joint topic focus was not a significant predictor of total score vocabulary, ($F(1, 5) = 0.04$, p = n.s., $R^2 = 0.01$, R^2_{Adjusted}

= -.19). Focus was also not a significant predictor of total score vocabulary, ($F(1, 5) = 0.02$, p = n.s., $R^2 = 0.00$, $R^2_{Adjusted} = -.20$). Prohibition was not a significant predictor of total score vocabulary, ($F(1, 5) = 2.28$, p = n.s., $R^2 = 0.31$, $R^2_{Adjusted} = .17$). Focus shifting was not a significant predictor of total score vocabulary, ($F(1, 5) = 3.73$, p = n.s., $R^2 = 0.42$, $R^2_{Adjusted} = -.31$). Misses were also not a significant predictor of total score vocabulary, ($F(1, 6) = 1.15$, p = n.s., $R^2 = 0.19$, $R^2_{Adjusted} = .02$).

Total score language outcomes at Time 2. In order to examine which maternal behaviors impacted total score language outcomes in children across Time 1 and Time 2 multilevel modeling was conducted (See Table 10 for a summary of findings). Maternal responsiveness was not found to have a significant impact on children's total score across Time 1 and Time 2, ($t(4) = 0.59$, p = n.s.). Joint topic focus was also not found to have a significant impact on total score, ($t(4) = 0.20$, p = n.s.). Focus was not found to have a significant impact as well, ($t(4) = 0.69$, p = n.s.). Prohibition was not found to have a significant impact on children's total score, ($t(4) = -0.32$, p = n.s.). Focus shift was also not found to have a significant impact on total score, ($t(4) = -1.30$, p = n.s.). Additionally, misses were not found to have a statistically significant impact on total score across Time 1 and Time 2, ($t(4) = -0.05$, p = n.s.).

Table 10. *Fixed Effects for Maternal Behaviors and Total Score Language Outcomes at Time 2*

Variable	*Fixed Effect*	*Estimate*	*df*	*SE*	*T Value*	*p*
Total Score	Maternal Responsiveness	2.62	4	4.44	0.59	*0.59*
	Joint Topic Focus	1.14	4	5.61	0.20	*0.85*
	Focus	10.07	4	14.53	0.69	*0.53*
	Prohibition	-4.30	4	13.28	-0.32	*0.76*

Table 10. *Fixed Effects for Maternal Behaviors and Total Score Language Outcomes at Time 2*

Variable	*Fixed Effect*	*Estimate*	*df*	*SE*	*T Value*	*p*
	Focus Shift	-7.64	4	5.86	-1.30	*0.26*
	Miss	-0.42	4	9.06	-0.05	*0.97*

Note. Variance components for maternal behaviors and Total Score language outcomes at Time 2 can be found in Appendix V.

Total score language outcomes at time 3. Multilevel modeling was employed to examine which maternal behaviors impacted total score language outcomes in children across all three-time points, (see Table 11 for a summary of findings). Maternal responsiveness was not found to have a significant impact on children's total score across time points, ($t(12) = -1.20$, p = n.s.). Joint topic focus was found to have a positive significant impact on children's total score, ($t(12) = 2.52$, $p < .03$). Therefore, for every one-point increase in joint topic focus a child's total score will increase by 6.22 by Time 3. This finding remains significant when controlling for all other maternal factors. Focus was not found to have a significant impact on total score, ($t(12) = -0.81$, p = n.s.). Prohibition was also not found to have a significant impact on total score, ($t(12) = -1.16$, p = n.s.). Focus shift was not found to have a significant impact on total score, ($t(12) = -0.75$, p = n.s.). Misses were also not found to have a significant impact on total score, ($t(12) = -0.48$, p = n.s.).

Table 11. *Fixed Effects for Maternal Behaviors and Total Score Language Outcomes at Time 3*

Variable	*Fixed Effect*	*Estimate*	*df*	*SE*	*T Value*	*p*
Total Score	Maternal Responsiveness	-4.74	12	3.96	-1.20	*0.25*
	Joint Topic Focus	6.22	12	2.47	2.52	*<.03*

Table 11. *Fixed Effects for Maternal Behaviors and Total Score Language Outcomes at Time 3*

Variable	*Fixed Effect*	*Estimate*	*df*	*SE*	*T Value*	*p*
	Focus	-10.97	12	13.58	-0.81	*0.44*
	Prohibition	-12.77	12	10.97	-1.16	*0.27*
	Focus Shift	-4.51	12	6.03	-0.75	*0.47*
	Miss	-3.04	12	6.32	-0.48	*0.64*

Note. Variance components for maternal behaviors and Total Score language outcomes at Time 3 can be found in Appendix VI.

CHAPTER FIVE:

DISCUSSION

Previous research suggests that Latino mothers' responsiveness behaviors differ from that of European American mothers (Brady-Smith et al., 2013). Therefore, further exploration of the differences in these mothers' behaviors is essential. The goal of the present study is to examine the role mother responsiveness has on shaping language development in bilingual two-year-old children across time. To better understand maternal responsiveness in this population, eight Latino mothers who have children attending Early Head Start or Redland's Christian Migrant Association took part in this study. This chapter will include a summary of the findings along with implications for research, and future directions.

Summary of Findings

Prior to beginning to explore the first research question, maternal and child behaviors as well as language use were examined. Although changes in maternal behaviors across time were not found to be significant it is still worth discussing. Most of the time mothers are demonstrating warm and supportive behaviors such as maternal responsiveness and joint topic focus. This aligns with research already conducted with this population that stresses that mothers who come from differing cultural communities do practice supportive, responsive and warm parenting (Ispa et al., 2004). Brady-Smith and colleagues (2013) found that Latino mothers displayed supportive mothering behaviors that were related to child cognitive and emotional development at 2 and 3 years of age. Interestingly, the present study shows that maternal responsiveness decreases across time and joint topic focus increases. A possible explanation is

that as children are getting older they are becoming more proficient in engaging in one activity/toy allowing for mothers to maintain attention to and verbally elaborate on their activities (Luo, Tamis-LeMonda, 2016). Luo and Tamis-LeMonda (2016) examined maternal behavior strategies in relation to infants' object-directed actions across time. 206 mother-infant dyads at 14, 24, and 36 months were observed during a bead-stringing activity. These mothers were from Mexican, African American, and Dominican backgrounds. They found that mothers focused on establishing joint attention when infants were younger and less skilled, then increased in their joint attention when infants were more capable in engaging in the activity.

Mother's prohibition behaviors decreased across time probably due to children maturing and are more aware of how to play with the toys and are less destructive. Focus shift also decreased across time perhaps due to the fact that children are maintaining focus on an activity more often. Mothers tended to miss opportunities to respond verbally to their child's activities. Although, it should be noted that oftentimes these mothers were continuing to engage in the activity of their child, they were however, not verbally elaborating. Instead mothers exhibited a great deal of gestures or watching their child play, which parallels Luo and Tamis-LeMonda's (2016) study. They found that Mexican mothers were more likely to demonstrate nonverbal strategies including and hands-on guidance than their Dominican and African-American counterparts.

Children behaviors also showed some changes across time, albeit not significant. Play behaviors increased across time, perhaps due to their attention span being greater and were able to be less distracted. Children decreased in their bids to their mothers across time. As children are getting older they are becoming more independent therefore asking their mother for help occurs less and less. Simply looking at an object also decreases over time and as well as shifting

focus from activity to another. Again, increasing attention spans may be the reason for this decrease in behavior. Children's vocalizations are one behavior that is unexplainable. Results show that children tend to decrease their vocalizations at Time 2 then increase again during Time 3. Further research needs to be conducted with a larger sample to examine this phenomenon.

In terms of language use across time, mothers and their children's Spanish use decreased across time as their English and the use of both languages increased. The increase across time in the use of both languages was statistically significant in mothers (p <.02) and in children (p <.01). These children attend Early Head Start or RCMA where English is being introduced; therefore, mothers and their children are increasingly using both languages in their interactions.

As for children's language outcomes, there was an increase in vocabulary across all measures over time. Children's increase in vocabulary production was statistically significant in English (p <.01) and Spanish (p <.01). Children's change in total score, which is the sum of raw scores from the CDI and Inventario II were also statistically significant (p <.01). Total scores were also compared to the Inventario II norms (see Table 12). Mancilla-Martinez and colleagues (2011) compared the use of Spanish versus English norms to interpret their findings. They found that comparing bilingual scores with Spanish norms resulted in higher scores than when using English norms. Although they used total conceptual scoring instead of total scoring, the present study found similar results. When comparing the present sample's total score with English norms, their percentile rank was much lower than that of their Spanish percentile rank. Therefore, Spanish norms were used. Results showed that children fell below the norm despite summing up both languages. It has been well established that children who are from low socioeconomic backgrounds and who are language minorities have low levels of vocabulary (Mancilla-Martinez et al., 2011; National Institute of Child Health and Human Development,

2000). Given that this sample population is of low SES and they are language minorities, this finding is not surprising.

Children's changes across time in their comprehension skills also were statistically significant in English ($p < .0001$) and Spanish ($p < .0001$). It should be noted, however, that the low scores at Time 1 were due to some children not being able to sit through or understand how to complete the CCT. Some children scored 0 at Time 1 because they had never come across a touch screen device before. Despite completing the practice portion of the assessment, children were still not able to grasp the concept of touching the correct picture. At Time 2, children were able to better understand the concept and could complete the assessment. This again speaks to the nature of conducting research with dual language learners who are from low socioeconomic backgrounds. Perhaps in the future, making sure that children have had several opportunities to practice on the device before assessing them would be prudent. Due to the time constraints of this study, however, that was not possible to do.

Table 12. *Inventario II Percentile Ranks Compared to Total Score Across Time*

	Total Score (*M*)	Inventario II Percentile Rank
Time 1 (Age: *M* = 23.5)	234.86	60
Time 2 (Age: *M* = 30.13)	365.43	35
Time 3 (Age: *M* = 35.13)	511.143	65

In order to answer the first research question, regressions for Time 1 were used. Multilevel models for Time 2 and 3 were also used. Children's Spanish language outcomes at Time 1 and Time 2 were not impacted by any maternal responsive behaviors. This may be

because there were too few participants and many variables, resulting in not enough variability to have any significance. The sole maternal responsiveness behavior that impacted children's Spanish language abilities was joint topic focus at Time 3. Mothers who demonstrated joint topic focus were maintaining attention to the same toy or activity as their child and verbally elaborated on the toy or action. Mothers who respond and maintain attention on their child's activity positively impacted children's Spanish comprehension skills. This finding again parallels that of Luo and Tamis-Lemonda (2016) who found that mothers joint attention behaviors increased over time due to their children's maturation and level of play.

Regression analysis at Time 1 and multilevel modeling analysis at Time 2 and 3 were conducted in order to answer the second research question to examine which maternal responsive behaviors impact English language abilities of children. Focus, a behavior that refocuses a distracted child, positively impacted children's English vocabulary production (p <.02) at Time 1. This partially aligns with previous research in that it suggests that focus relates to receptive vocabulary development, whereas the present study found that focus relates to vocabulary production. Baumwell and colleagues (1997) found that mothers who organized their distracted infant to attend to objects in their play interactions had larger receptive vocabularies than did mothers who did not refocus their children. This could be because mothers are demonstrating how a toy works or are soliciting their interest; therefore a great deal of language is occurring at that point in time. A more recent study found that focused attention and mothers refocusing their children were associated with receptive vocabulary among poor families (Razza, Martin, Brooks-Gunn, 2010). As children become less distracted across time, mothers need to refocus their child becomes less necessary therefore, focus is no longer significant at Time 2 and Time 3.

Unsurprising, maternal responsiveness was found to have a positive impact on children's

English language production at Time 2. This finding parallels that of previous research conducted on maternal responsiveness and the positive impacts it has on language development (Tamis-Lemonda & Bornstein, 2002; Tamis-LeMonda, Bornstein, & Baumwell, 2001). Children's language skills are strongly related to warmth, acceptance, and responsiveness, which aligns with research conducted by Chazan and colleagues (2009) who found that supportive and warm parenting was associated with higher levels of vocabulary and comprehension.

A surprising finding was that of focus shift, which was found to have a positive significant impact on children's English language production at Time 2 ($p < .005$). In the maternal responsiveness literature, intrusiveness and prohibitory behaviors have been shown to have a negative impact on language development (Tamias-LeMonda, et al., 2001; Tomasello & Farrar, 1986). However, when taking into consideration cultural variations in interactions between mothers and their children it has been found that Mexican mothers tend to be more directive (Vigil, Tyler, & Ross, 2006). Vigil and colleagues (2006) observed attention directing and following styles of 5 Mexican mothers and 5 American mothers and their children. Attention directing style is defined as adults requiring their children to switch attention to an object on which the child is not focused on. Attention-following style is defined as adults following the current focus of the child. Vigil and colleagues (2006) found Mexican mothers demonstrated more attention directing styles than American mothers. It was also found that children in the Mexican group learned more words in the attention directing style. Therefore, cultural variations should be taken into consideration when looking at focus shift behaviors.

Prohibition was found to have a negative significant impact on children's English language production at Time 2, which aligns with previous research (Tamis-Lemonda & Shannon, Cabrera, & Lamb & 2004). Tamis-LeMonda and colleagues (2004) examined fathers

and mothers interactions in relations to their children's language and cognitive development longitudinally at 24 and 36 months of age. It was found that intrusive and negative behaviors were consistently associated with negative child outcomes and it tended to be stronger for mothers. Intrusive and prohibitory maternal behaviors were found to be associated with slower rates of receptive and expressive language growth; however, it was moderated by race (Pungello, Iruka, Dotterer, Mills-Koonce, & Reznick, 2009). Why is focus shift a positive impact on language development and prohibition a negative impact? It could be that prohibition is too intrusive and too harsh and has adverse effects on language development, whereas shifting focus and directing attention is only slightly intrusive but culturally appropriate for this sample.

Maternal responsiveness was not found to impact English language outcomes at Time 3. It may be that as children get older maternal responsiveness no longer provides any real significance in language development. Most maternal responsiveness research is conducted on 9 month to 13-month-old children. Therefore, maternal responsiveness may impact children's abilities during particular development periods (Luo & Tamis-LeMonda, 2016; Tamis-LeMonda, Bornstein, & Baumwell, 2001). Or it could be because of the small sample size. Further research is needed. Joint topic focus was found to have a significant impact on children's production (p <.001) and comprehension ($p < .04$) English vocabulary skills. Again, responding and attending to a child's activities and continually elaborating on those activities are essential in language development (Akhtar & Gernsbacher, 2007; Cochet & Byrne, 2016). Similar to the findings in Spanish language outcomes, mothers could be increasing in their joint attention behaviors when their children are more capable in engaging in the activity (Luo & Tamis-LeMonda, 2016). Thus, as time progresses mothers are more engaged and more likely to elaborate verbally on their child's sustained attention on a toy/activity. Focus shift was no longer significant at Time 3. As

was stated previously, some maternal behaviors at certain ages impact certain language outcomes, but not others (Luo & Tamis-LeMonda, 2016; Tamis-LeMonda, Bornstein, & Baumwell, 2001). Also, it could be that focus shift behaviors decrease over time (see Table 1) therefore, it is no longer significant at later time periods.

At Time 3 prohibition remains significant, however, it is now impacting English receptive skills. Admonishing and being intrusive hinders the learning and understanding of English in these children. This finding continues to align with previous research on the adverse effects of prohibition on language development among young children (Pungello et al., 2009; Tamis-Lemonda & Bornstein, 2002; Tamis-LeMonda, Bornstein, & Baumwell, 2001).

Total score vocabulary was measured by summing the CDI English and Inventario II raw scores, which according to Core and colleagues (2013) allows for a more accurate representation of a bilingual child's language ability in both languages. Maternal responsive behaviors had no impact on total scores neither at Time 1 nor at Time 2. Joint topic focus was found to have a positive impact on children's total score at Time 3, reiterating the fact that attending to and maintaining attention on an activity while providing verbal elaboration helps in developing language in both English and Spanish over time (Akhtar & Gernsbacher, 2007; Cochet & Byrne, 2016; Luo & Tamis LeMonda, 2016).

Limitations

The researcher is aware of certain limitations of the present study and these limitations will be discussed within this section. Since the CDI is a self-report measure, it may be biased in the sense that mothers may underestimate or overestimate their children's language expressive capabilities. However, research on this very issue has suggested that parents of two year old children are reasonably accurate in judging their child's vocabulary skills (Feldman et al., 2000).

Another limitation of this study is the small sample size. This limitation may have impacted the results in that having a large sample size allows for the ability to detect significant differences between values. In the current political climate, migrants are scared and because of this fear they may have been unwilling to participate because of discrimination and fear of deportation. One mother who participated in this study was deported. Oddly enough, she expressed her fear about being deported and what would happen to her children if that were to happen. Unfortunately, she and her children are back in Guatemala. This expressed fear was probably a common fear among this population.

Another limitation is generalizability. The findings may be representative of mothers who are low income Latinos and have children who are learning two languages as well as attending preschool programs, therefore this study could be generalizable to a very specific population. Because the sample is limited, the generalizability of the findings are reduced and may not be generalizable to low or high income Latino mothers who do not have children who attend a Early Head Start and RCMA program or who do not reside in the state of Florida. Another limitation is that the sample population had limited exposure to technology. Therefore, caution should be taken when conducting further research with children who come from low-income households.

Implications for Research and Future Directions

The present study has important implications for research surrounding maternal responsiveness, especially with Latino mothers. Maternal responsiveness was found to be significant in English vocabulary production at Time 2 and joint topic focus has an overwhelmingly positive influence across time in both language outcomes. The key implication that can be taken from this study is that Latino mothers demonstrate warm and responsive behaviors while playing with their children, albeit differently. One finding that adds something

new to the body of knowledge and speaks to the uniqueness of Latino mother responsive behaviors is that of the positive impact of focus shift on English language production at Time 2. This phenomenon is one that has not been found elsewhere and could potentially be only generalizable to this sample, however it warrants further research. As was mentioned before, most maternal responsive behaviors occur in mother-infant dyads. Another implication is that maternal responsive behaviors are apparent in interactions with older children (24-40 month olds) thus research should continue to occur within this age group.

Future research should consider larger sample sizes in order to make inferences about this specific population. Although there were some interesting findings in the present study, the confidence levels of the findings may be small. The work highlights the importance of joint topic focus in bilingual language development, and sheds light on the similarities and differences between cultures. The negative implication of shifting focus should be used with caution and cultural background should be taken into consideration, especially when conducting research with Latino mothers.

Conclusion

Research examining Latino mother responsiveness is still in its infant stages. It has been well established maternal responsiveness positively affects children's developmental outcomes (Carlson & Harwood, 2003; Tamis-LeMonda et al., 1998; Taylor et al., 2008); therefore, research conducted to understand and promote maternal responsiveness should continue. At the same time, the present study and previous research has shown that Latino mothers' responsiveness differs than that of European American mothers (Brady-Smith et al., 2013). Researchers and educators need to be aware of the differences in these mothers' behaviors in order to understand how to better serve their young children.

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APPENDIX I:
VARIANCE COMPONENTS FOR MATERNAL BEHAVIORS AND SPANISH LANGUAGE OUTCOMES AT TIME 2

Variable	*Effect*	*Between Estimate*	*Within Estimate*
Inventario II	Maternal Responsiveness	0	37,685
	Joint Topic Focus	0	24,069
	Focus	0	24,853
	Prohibition	0	24,250
	Focus Shift	0	29,162
	Miss	0	24,104
CCT Spanish	Maternal Responsiveness	0	474.56
	Joint Topic Focus	0	1,356.64
	Focus	0	666.16
	Prohibition	0	548.74
	Focus Shift	0	605.06
	Miss	0	644.57

APPENDIX II:
VARIANCE COMPONENTS FOR MATERNAL BEHAVIORS AND SPANISH LANGUAGE OUTCOMES AT TIME 3

Variable	*Effect*	*Between Estimate*	*Within Estimate*
Inventario II	Maternal Responsiveness	23,574	11,091
	Joint Topic Focus	25,527	9,196.74
	Focus	27,065	10,708
	Prohibition	26,036	10,780
	Focus Shift	29,313	10,483
	Miss	25,378	11,685
CCT Spanish	Maternal Responsiveness	0	204.50
	Joint Topic Focus	0	155.04
	Focus	0	215.29
	Prohibition	0	210.66
	Focus Shift	0	220.57
	Miss	0	196.64

APPENDIX III:
VARIANCE COMPONENTS FOR MATERNAL BEHAVIORS AND ENGLISH LANGUAGE OUTCOMES AT TIME 2

Variable	*Effect*	*Between Estimate*	*Within Estimate*
CDI English	Maternal Responsiveness	0	2.02
	Joint Topic Focus	0	71.64
	Focus	0	60.68
	Prohibition	0	35.05
	Focus Shift	0	29.02
	Miss	0	82.67
CCT English	Maternal Responsiveness	18,217	21,347
	Joint Topic Focus	0	49,985
	Focus	0	29,613
	Prohibition	0	28,975
	Focus Shift	0	27,015
	Miss	0	29,205

APPENDIX IV:
VARIANCE COMPONENTS FOR MATERNAL BEHAVIORS AND ENGLISH LANGUAGE OUTCOMES AT TIME 3

Variable	*Effect*	*Between Estimate*	*Within Estimate*
CDI English	Maternal Responsiveness	11,711	5,899.34
	Joint Topic Focus	15,333	3,138.96
	Focus	11,576	6,386.48
	Prohibition	7,912.86	6,664.05
	Focus Shift	9562.40	6,589.83
	Miss	8,788.58	6,872.79
CCT English	Maternal Responsiveness	0	143.71
	Joint Topic Focus	0	119.03
	Focus	0	145.91
	Prohibition	0	113.71
	Focus Shift	0	142.90
	Miss	0	146.03

APPENDIX V:
VARIANCE COMPONENTS FOR MATERNAL BEHAVIORS AND TOTAL SCORE LANGUAGE OUTCOMES AT TIME 2

Variable	*Effect*	*Between Estimate*	*Within Estimate*
Total Score	Maternal Responsiveness	21,473	29,504
	Joint Topic Focus	28,698	27,293
	Focus	17,558	31,368
	Prohibition	21,053	30,883
	Focus Shift	42,619	18,141
	Miss	22,261	30,664

APPENDIX VI:
VARIANCE COMPONENTS FOR MATERNAL BEHAVIORS AND TOTAL SCORE LANGUAGE OUTCOMES AT TIME 3

Variable	*Effect*	*Between Estimate*	*Within Estimate*
Total Score	Maternal Responsiveness	39,442	31,766
	Joint Topic Focus	48,962	22,621
	Focus	45,062	32,063
	Prohibition	35,395	33,085
	Focus Shift	42,176	32,940
	Miss	35,708	35,588