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# Maternal Parenting Behaviors and Infants' Receptive Language In Immigrant Families

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## **Abstract**

Receptive language is known as the ability to listen and comprehend, and has been found to be one of the biggest predictor for academic success. With the increase in the United States, incoming immigrant population it is important to address the issue of immigrant children entering school less prepared than native children. There is a lack of research examining the link between mother-infant interactions in relation to the promotion of infant receptive language within the immigrant population. This study examines the relationship between immigrant mother's early cognitive engagement and sensitivity with their infants, during mother-infant play and the infant's later receptive language and the influence of maternal education. A total of 19 immigrant mothers of Latino, African, Caribbean and Asian Pacific Island background were videotaped playing with their infants in order to determine the level of cognitive engagement and sensitivity provided. Data analysis of the coding scores revealed that there was a distinctive difference in the level of maternal education in relation to cognitive engagement and sensitivity. Results determined that receptive language was not associated with parenting behaviors: sensitivity and cognitive engagement. Indicators of cultural variations within the sample could have influenced the results. Future research needs to extend this study in order to determine the longitudinal effects of parenting behaviors of immigrant mothers and their children's receptive language.

## **Introduction**

### ***Problem Statement***

The immigrant population in the United States is a drastically increasing population. (U.S. Census). Immigrant children are currently considered the fastest growing segment of the U.S. population (Hernandez, Denton & Macartney, 2008). There are one in five U.S. children under the age of six that are from immigrant families (Lahaie, 2008). The main purpose of the new educational reform policy, known as No Child Left Behind, is to diminish the achievement gap among all different groups of children. However it is becoming increasingly difficult for schools to achieve in the case of immigrant children as immigrant kindergarteners already enter school less prepared than their native born peers (Lahaie, 2008).

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Research on immigrant children's lives before their entrance into formal schooling is important for understanding how the early life experiences contribute to their later educational achievement. Previous research has shown the development of early language plays a significant role in children's later school success (Morrison & Cooney, 2002 & Pungello, Iruka, Dotterer, Mills-Koonce & Reznick, 2009). Since mother functions as the first teachers in almost everywhere, in most interactions, one necessary approach is to examine the role of mothers in providing a teaching environment that influences young children's language development.

While mother-child interactions are often studied there has been limited analysis on how mother-child interaction effects children's development of receptive language. The majority of the studies about mother-child interactions are concern about the affects of parent-child interaction on children's social emotional development. Studies that do focus on early mother-child interactions and children's early language skills usually fail to investigate how, specifically maternal sensitivity and cognitive engagement play a role in the early development of receptive language. Furthermore, there is limited research on how maternal characteristics like education level are related to maternal sensitivity and cognitive engagement effect children's development. Instead, the studies tend to focus on how other demographics such as ethnicity, gender and income effect children's development. Since mother's level education is a stable, yet changeable characteristic there needs to be more research on its effects on parenting behavior, and ultimately on children's development. Since studies have found that immigrant children are less prepared at school, research should focus on the link between maternal cognitive engagement and sensitivity. This current study explores the relationship between sensitivity and cognitive engagement in children's mother-infant interactions and early language skills in a sample of immigrants. Such research provide a better understanding on maternal education and enhancing parenting behaviors can help young children develop important language skills before their introduction to formal education.

### ***Purpose of Study and Research Questions***

The lack of understanding of what parenting behaviors influence language in the immigrant population and the influence of maternal education on those behaviors has sparked this study. The current study was created to examine the relationship between early mother's cognitive engagement and sensitivity interactions and children's early receptive language abilities, among immigrant families. The study will address the following research questions:

1. What is the association between the level of education of immigrant mothers' and their cognitive engagement with their infants?
  2. What is the association between the level of education of immigrant mothers' and their sensitivity with their infants?
  3. What is the association between immigrant mothers' cognitive engagement with their infants and their children's receptive language ability?
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4. What is the association between immigrant mothers' sensitivity with their infants and their children's receptive language ability?

### ***Significance of Research***

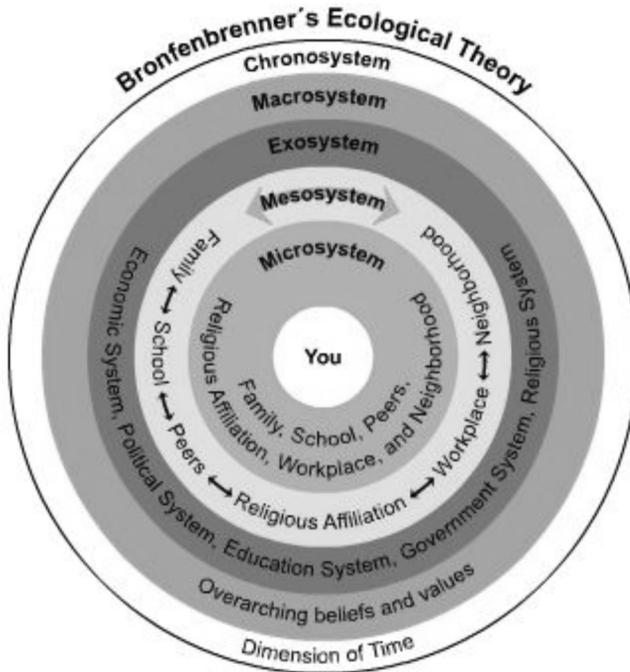
The rapid increase in the immigrant population in the United States makes it important to understand the factors that enhance the development immigrant children. Currently there is little information available about the development of "school readiness" in immigrant children. This study is an important step in gaining an understanding of the factors that affect young immigrant children's language skills, which have been linked with school readiness. Such information may suggest ways to intervene with parents to enhance children's school readiness and avoid the developmental repercussions that can affect the public schools system.

### ***Summary of Analytic Framework***

For the purpose of this study Bronfenbrenner's Ecological theory will be used as a conceptual framework. This theory address how various interactions that are not necessarily apparent contributors to the development of a child. The interactions in relation to the child is not specific to one set of environmental standard in this theory and can be used to analyze interactions across various backgrounds, which is necessary in studying immigrant families.

The Ecological theory is a hierarchy four-stage system that contains various forms of social interaction that affects the development of a child: the microsystem, mesosystem, exosystem, and the macrosystem. In a bidirectional and reciprocal way each system interacts and affects the relationship between one another. The macrosystem are the beliefs, values and laws that affect child rearing, which affects all other layers. Development of a child specifically occurs through interactions in the microsystem that includes the child's immediate family. In the immediate family the parent's characteristics such as education, employment and religion in the mesosystem can indirectly affect a child through the interaction in the microsystem.

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**Figure 1** Bronfenbrenner's Ecological Theory

*This figure is from WSU Human Development website*

Within this system parental interaction is a specific social interaction necessary for the development of a young child. As stated by Vygotsky, "knowledge is situated in and shaped by a particular culture, and it is the interaction of children with adults that knowledge; the embracing of values, beliefs, customs and skills of a social group, is thus transmitted (as cited in VanderVen, 2008, p. 138). This is a dynamic process of interactions that continues society's values and ideas of knowledge. When analyzing immigrant families there maybe blending of values, practices and beliefs from their country of origin and mainstream U.S. culture. Immigrant parents may change their values and ideas to fit in with the new culture's ideas and values. Developing an understanding of the cultural differences of interactions among immigrant helps with analyzing the affects of different variables on the children's development of receptive language.

### **Key Terms**

There are specific terms that are stated throughout this paper that have varying definitions based on the source. The meaning of following terms is grounded in the research literature and to be assumed throughout the entire read of this study for clarity.

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- **Sensitivity:** It is the mother's prompt, contingent responses to the child's signals, the degree to which the mother adapts to the child's needs and abilities and the degree to which the mother allows the child to explore their interests independently (Beackwith & Rodning, 1996; Bornstein & Tamis-LeMonda, 1989 & Paavola et al, 2009).
  - **Cognitive Engagement:** Characterized by developmentally appropriate verbal and cognitive stimulation that includes rich descriptive language, object exploration, focusing child's attention and encouraging the child to participate in more sophisticated play. The play must match the child's ability level (PCIRS: Sosinsky, Carter & Marakovitz).
  - **Receptive Language:** The ability to comprehend words, and able to refer to the representation of the word (Otto, 2002).

### ***Assumptions, Delimitations and Scope***

**Assumptions.** From an extensive literature review, it is predicted that immigrant mothers with higher levels of education will behave more sensitive and in cognitively engaging ways during interaction with their young children. Maguson, Sexton, Davis-Kean and Huston (2009) state that education enhances mothers' understanding about their children's educational needs and increase their ability to provide higher order thinking and create a better learning environment. Higher level of thinking and perceptions of their children's education may make immigrant mothers more aware of the necessary cognitive and sensitivity stimulation need for the development of their young children. It is also predicted that greater maternal education, cognitive engagement and sensitivity will increase the child's receptive language ability.

**Delimitations.** This study is not focusing on determining the differences of intelligence of infants and mothers. The social-emotional aspect of children's development is not being addressed in this study because it is specifically focusing on language development. Differences between immigrants from different countries of origins are also not directed in this study. The data in the study is categorized in a general group of immigrants rather than in specific groups of immigrants to provide an overall understanding of immigrants in the United States population. The overall assessment of parent-infants interaction is also not being assessed in this study. This is also not a longitudinal study that compares mother-child interaction and child's later school readiness.

**Scope.** This study is specifically focusing on parent- child interactions of immigrant mothers in the Washington, D.C. area. The immigrant mothers have different levels of education and are from the following countries: El Salvador, Mexico, Dominican Republic, Bahamas, Trinidad, Jamaica, Nigeria, and Ethiopia. The age of the children in the study range from 0 to 36 months old.

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## **Analysis and Discussion of the Literature**

Receptive language has been linked to children's later academic success (Bzoch, League & Brown 2003). Parent-child interactions with young children are believed to provide children with early experiences that support various developmental aspects, especially receptive language (Bornstein, 2002; Korat, 2009; Hamner & Turner, 1996 and Pan, Rowe, Singer & Snow, 2005). Studies have shown that the language development of young children is especially indicative to mother-child interactions. There are numerous factors that have been associated with promoting young children's receptive language, such as maternal education, sensitivity and cognitive engagement. However, little is known about what parenting behaviors influences children's receptive language among immigrants.

This chapter will review research on the association between maternal education, parenting, and young children's receptive language. First, this chapter will look into the links between maternal education and cognitive engagement. Second, there will be an analysis of the links between maternal education and sensitivity. Afterwards, the links between cognitive engagement and receptive language will be examined. Then, analysis of the link between sensitivity and receptive language will be addressed. The last section in this chapter will address any relevant research with immigrant families.

### ***Links between Maternal Education and Cognitive Engagement***

A mother's cognitive engagement reflects developmentally appropriate verbal and cognitive stimulation of her child. High cognitive engagement has rich descriptive language, joint attention, and a sophisticated level of play, between mother and child. Within the literature, there is a common theme that maternal education influences mothers' verbalizations, stimulating objects available, and achievement of joint attention, between mother and child.

Maternal education is often times not directly researched as an important variable in the cognitive engagement that immigrant mothers provide their young children. When maternal education is acknowledged in studies of cognitive engagement it is usually combined with other factors, such as family income, employment and race or ethnicity; and labeled as socio economic status (Dollaghan et al, 2001 & Bjorklund & Weiss, 1985). There is still less of an analysis on the specific relationship between maternal education and children's language development. It is possible that education, income and employment are so interrelated that it is hard to decipher which economic influences a situation more.

One influence of maternal education on cognitive engagement is that there is a difference in the ways mothers talk to their children and view strategies of stimulating their child, by education level. In both the Magnuson (2009), Korat (2009) study found that mothers of higher education provided their children with a higher quality of cognitive stimulation than mothers with low education.

Through home observations parents showed drastic improvements in responsiveness with an increase in talking and listening to their child more and

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exposure to learning materials (Magnuson, 2009). More highly educated mother were found to be more verbal and have more high-level conversations with their children, than less educated mothers (Korat, 2009). The variation is the amount of highly cognitive communication among mothers of different education levels, effects children's auditory stimulation. This auditory form of infant stimulation is important in their intelligence and language development. Hamner and Turner (1996) examined how "the amount and type of language used in the home during the period of infancy" effects the child's language development (p. 37). Other forms of auditory stimulation can take place in vocalizing, music, reading and exposure to daily sounds in the environment (Hamner & Turner, 1996).

Mothers with increased education had a higher stimulation for cognitive development because they had more learning materials and better physical environment to engage in more learning activities (Magnuson, 2009). Having stimulating toys, language and overall environment gives more opportunities for mothers to build on young children's various stimulations. Parents are more able to attempt to focus their child on a specific task or object and/or focusing on specific characteristics of objects. The materials, environment and language are important aspects in providing young children with a cognitive stimulating environment because the level of cognitive stimulation is dependent on the mother's ability to foster attention focused on a specific object, high cognitive thinking and physical development (PCIRS). It was studied that children talked and comprehended more language, in English or in the mother's native language when there are join parent-child activities that consistently take place (Mushi, 2002). This development in the children's language skills was result of the mother's talking directly to the child, where the child would observe the parents reactions or would talk to themselves, while engaging in mother-infant activities of playing, going shopping, cooking, doing chores, etc (Mushi, 2002).

### ***Links between Maternal Education and Sensitivity***

Maternal sensitivity behavior provides an emotionally stable environment that allows young children to feel comfortable to interact and learn from their environment. During mother-infant interactions, where the mother is sensitive she is aware of the child's moods, interests and skills. This reciprocating social response is based on the mother's ability to not only notice the infant's signals accurately, but also respond to them promptly and appropriately (Paavola et al, 2006).

Higher levels of maternal education are significantly associated with responsiveness (Magnuson, 2009). A mother that continues her education after having children, she more likely to have a better understanding of the sensitive needs of her children based on these findings. A similar study determined that socioeconomic factors such as maternal education are one of the biggest predictors of mother-infant behaviors, such as their sensitivity (Mistry et al, 2008). The positive effect that these higher educated mother had was to engage their children in activities that interested their child, use more language, and congratulate their child's accomplishments (Mushi,

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2002). Through these interactions the child received reassurance from the mother and monitored their mother's activity more (Mushi, 2002).

### ***Links between Cognitive Engagement and Receptive Language***

Cognitive engagement is when young children can learn from interacting with the world around them through verbal and cognitive stimulation and encouragement to participate in more challenging activities. The literature on infant stimulation revolves around the idea that infants are curious and have the capacity to learn. Hamner and Turner (1996) analyze the importance of parental cognitive engagement in leading the infants' curiosity to increase their capacity to learn. Hamner and Turner (1996), and Bornstein (2002) have examined how parental stimulation is a crucial aspect in children's languages development. The authors tend to use different terminology, but a common idea of social interaction during infancy development was determined as an important aspect for their language development. This time in the child's development is a crucial stage of developing the foundations in language because it is known as the critical period of developing language (Snow & Hoefnagel-Hohle, 1978). This can occur through an environment that has sensorimotor activities and through one-on-one interaction with the infant (Hamner & Turner, 1996). Overall the idea of infant cognitive engagement is to provide infants with a stimulating environment for them to explore on their own, while still having mothers provide them with verbal and cognitive stimulation. A study by Westman (2001) determined that the infant "self-initiated, independent activities are important for their receptive language skills (p. 40).

A child's receptive language abilities can be determined by the parents' ability to invest in their child (Mistry et al, 2008). Parents having the ability to provide cognitively stimulating materials such as books, educational toys and trips places outside the home has been linked to children's ability (Mistry et al, 2008). The higher cognitive engagement that higher educated mother provide to their young children, helps their children develop receptive language skills in a range of ways. In one study of parent-child reading sessions found more educated mothers labeled more objects, and had more conversations about the text and pictures, and engaged in more paraphrasing of the story than less educated mothers (Korat, 2009). More educated mothers also allowed the children to connect the text to their life experiences, thereby making it more relevant and comprehensible.

### ***Links between Sensitivity and Receptive Language***

Otto (2002) states that these sensitive mother-child interactions are important for children's language development. When parents are responsive and engaging in one-to-one conversations with their children they are establishing eye contact and shared reference. Turn talking conversations also allows young children to have a better understanding of more complex conversations. Also mother's understanding of their children's interests is important in developing these skills. Maternal understanding is important because "some infant thrive more with frequent stimulation from their caregivers while other infants need periods of free time to

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explore the environment on their own, at their own pace, without constant adult interaction (Otto, 2002).

Paavaola, Kempine, Kumpulainen, Moilanen and Ebeling (2006) found that maternal behaviors, including sensitivity were a significant factor in the development of receptive language. Another study found that the quality of maternal behaviors during a book-reading task was related to children's receptive language (Dodici, Draper and Peterson, 2003).

### ***Maternal Education, Cognitive Engagement, Sensitivity, and Receptive Language and Immigrants Families***

There is a limited amount of research that is available about factors that influence the receptive language development of immigrant children. Of the immigrant children population in the United States, a majority comes from families where parents have lower levels of education and lower incomes in comparison to natives (Schleicher, 2006). Parents with limited amount of education beyond elementary school may provide their children with limited knowledge needed to do well in school (Hernandez, Denton, & McCartney, 2008 & Magnuson et al, 2006). Similar to that, documented studies have determined the importance of maternal education for parenting that enhances development of their children's language ability, a small amount of research has documented similar links among immigrant mothers (Mistry et al, 2008).

Since 40% of the immigrant population is composed of families from Mexico and other Latino American countries and most studies do not focus on a general category of immigrants, some of the studies included in this review use Latinos as the sample for the immigrant population (US Census). Analyzing the way immigrant mother's education affect their cognitive engagement and sensitivity in relation to their child's receptive language is important in determining a main contributor in the development of immigrant children's language.

Maternal education level is an important contributor to the mother's cognitive engagement of their young children. Among an immigrant sample of low socioeconomic status, mothers with the most education provided their children with the most cognitive engagement, assessed by the *Home Observation for Measurement of the Environment*. Another study, found mothers with lower education provided their child with less verbal communication during book reading times (Yarosz & Barnett, 2001). There was high percentage of 69 percent, of less the less educated mothers, which did not read to their child at all in comparison to the 39 percent of mothers that had at least a college degree (Yarosz & Barnett, 2001).

The quality of parental stimulation that is provided in immigrant homes varies in the relationship with children's language skills. In various comparison studies sensitive and cognitive engagement looks differently between immigrant and native US mother; immigrant mothers tend to be viewed as less sensitive to their children. Fracasso, Lamb, Scholmerich and Leyendecker (1997) determined that immigrant mothers left their children alone more, when their children were awake, more than native mothers. This is known to provide a less responsive stimulating

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environment for their children receptive language development. Another study by Mistry, Biesanz, Chien, Howes and Benner (2008) and Mistry (2008) had similar results, which determined that children living in immigrant homes received low levels of language, literacy and cognitive stimulation in the home. Fracasso et al (1997) contradicts this idea of low cognitive engagement with the findings that immigrant mothers had relatively high amount of time having mutual engagement with their child, verbal communication, and directing infants interests. Throughout various studies there are contradicting ideas on the level of sensitivity and cognitive engagement of immigrant mothers. Despite the varying of opinions there are numerous studies that indicate the children from immigrant households have low levels of receptive language skills (Schleicher, 2006; Magnumson et al, 2006 & Mistry 2008). There were also no studies found that examines maternal education with mother sensitivity and cognitive and sensitive engagement with receptive language skills.

### **Summary, Limitations and Implications of the Literature**

A few studies provide preliminary evidence for a relationship between maternal education and children's receptive language. An increase in maternal education increases the likelihood that the mother will provide more cognitive engagement and also increases their level of sensitivity towards their child. Both cognitive engagement and sensitivity in mother-child interactions are linked with a higher level of receptive language.

Throughout this literature review it was apparent that there was a lack of research that specifically looked at all the links addressed in this study, in relation to immigrant families. The majority of the studies available only assessed one specific link, such as maternal education and cognitive engagement. But they failed to address all aspect of this study, even though it is possible to determine intervention strategies with conclusive results.

### **Research Design and Methodology**

#### ***Participants***

The participants in this study consisted of 19 English-speaking immigrant mother-infant pairs drawn from a larger research project on infant –mental health in children enrolled in an Early Head Start program in the Washington, D.C. area. Beyond meeting the Head Start qualification of 100 percent below the poverty line, eligible families had to be currently experiencing risk factors: family with 3 or more children under the age of 5, teen mother, substance abuse, and/or mother scored above the cutoff for depression on the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977).

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**Table 1 Demographics of Participants**

	Percentage	Range	Mean	Standard Deviation
Ethnicity: • Latinos • African • Caribbean • Asian or Pacific Islander • Mixed				
Marital Status: • Single • Married	73.7% 26.3%			
Mother’s Education: • In years		4-16	11.47	2.611
Mother’s Age		15-43	25.11	7.249
Infant’s Age		3.5-24.9	16.477	6.2516
Infants Gender • Males • Females	31.6% 68.4%			

*N* = 19

***Procedures***

Two researchers working with the University of Maryland conducted two home visits with mothers that were approximately 9 months apart. During the home visit the researchers observed and videotaped mother-infant dyads playing with toys for 20 minutes and mothers were interviewed about their background and children’s development. The participants received \$50 for each visit.

## Measures

**Family Information** The mothers answered various questions on the *Baseline Family Information* survey. This survey asked questions in order to get information about the mother's education level, income, child characteristics, mother's partners, neighborhood qualities, family health and day-to-day activities. For the purpose of this study, the maternal education level (in years) is used as a study variable.

**Cognitive Engagement and Sensitivity** The first 10 minutes of free play between the mother and child, was provided with various toys, and the mothers were told to play with their child as they normally would. The toys that were provided were the same for each dyad and consisted of a ball, picture books, puppets, puzzle, etc. During the home visits mother-child interactions were videotaped and coded with the *Parent Child Interaction Rating Scale* (PCIRS). This cognitive engagement code was a composite variable of cognitive stimulation and language quality. Indicators of cognitive stimulation included: sophisticated play suggestions, teaching concepts and principles and focusing the child's attention on unique attributes (PCIRS). Language quality was defined as providing rich descriptive language. The sensitivity code assessed the degree to which mothers acknowledged child's affect, have contingent vocalizations, facilitated the manipulation of an object or child movement, used appropriate methods to focus child's attention and demonstrating awareness of child's interests and arousal level (PCIRS). Both cognitive engagement and sensitivity was rated on a scale of 1-7 based on the characteristics on the observed behavior. In order to decrease bias the author coded the 19 dyads after first reaching 85% agreement level with the master coder.

**Receptive Language** The *Receptive and Expressive Emergent Language* test (REEL: Bzoch, League & Brown) was used to measure the current language ability of the infants, during the second home visit. This mother self-report test assesses receptive and expressive emergent language of young children. Mothers answered a series of yes and no questions about their children's skills, and behaviors. Some examples of the questions used are as followed; "Does your baby enjoy hearing words that name familiar objects?" "When people ask your baby to give them toys or other things, will she or he usually do it?" and "Does your toddler enjoy listening to nursery rhymes, finger plays or songs?" (REEL).

## Data Analysis

With the data that was collected this study analyzed the data by using correlations in SPSS. In order to answer the research questions correlations were run using SPSS. Descriptive statistics were generated for the variables of maternal education, sensitivity, cognitive engagement, receptive language, mom age and infant age. Given the assumption that maternal education positively affected cognitive engagement and sensitivity and cognitive engagement and sensitivity positively affected children's receptive language a one-tailed correlation was used. Given the small sample size the alpha level of less than .1 will be used to indicate statistical significance.

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## Findings, Conclusions and Recommendations for Future Research

### Findings

**Table 2 Intercorrelations of Research Variables**

Variables	1	2	3	4
1. Maternal Education	--			
2. Cognitive Engagement	.367*	--		
3. Sensitivity	.295	.872*	--	
4. Receptive Language	.129	.098	.121	--
M	11.47	6.32		
SD	2.61	3.20		

Note: N= 19 \*  $p < .10$

**Maternal Education and Cognitive Engagement** A one tailed Pearson correlation revealed a positive statistically significant association between maternal education and cognitive engagement. ( $r = .37, p < .1$ )

**Maternal Education and Sensitivity** A one tailed Pearson correlation revealed a positive trend between maternal education and sensitivity. ( $r = .30, p = .11$ )

**Cognitive Engagement and Receptive Language** A one tailed Pearson correlation revealed the relationship between cognitive stimulation and child’s receptive language, was not statistically significant. ( $r = .10, p > .1$ )

**Sensitivity and Receptive Language** A one tailed Pearson correlation revealed that the relationship between maternal sensitivity and child’s receptive language was not statically significant. ( $r = .12, p > .1$ )

### Conclusion

This study examined whether specific parenting behavior of immigrant mothers promotes children’s receptive language. It was expected that the higher the mother’s level of education the higher the probability that she will be able to provide a higher level of cognitive engagement and sensitivity. The higher the quality of cognitive engagement and sensitivity the more it would promote the child’s receptive language. Examining these relationships, this study observed 19-immigrant mothers level of cognitive engagement and sensitivity during a free play

activity and used the REEL to test the child's receptive language abilities. The findings supported the assumptions that maternal education did have a positive association on the parent's ability in providing more cognitive engagement and sensitivity with their infants. But the findings did not statistically support that there was a relationship between cognitive engagement and sensitivity in the development of receptive language skills.

### **Limitations**

The limitations of this study included a small sample size, the sample selection process, time and aspects of the data collection process. Since the participants were a sub sample from another study on infant mental illness in high-risk families, the participants were selected based on the specific criteria of immigrant status to meet the needs of this study. Due to the lack of time to complete this study during the six-week summer program and the limited amount of usable participant data, there was only a small sample size in this study. The size is also a contributor to the variations of immigrants used in the study. The multiple countries of origins of participants force the study to generalize results, when it may be more ideal to look at a specific set of immigrants. There is a high possibility of cultural variance within the group of immigrants studied. Because of this small sample size the use of correlations was most appropriate for this study, but limited the significance of statistical analysis.

Bias is also a contributing limitation throughout various aspects of this study. The REEL test that is used to measure the children's receptive language was self-reported by the mothers. Self-reported data has the ability to be skewed based on the person's responses, which can dramatically impact the findings of this study. Videotaped observation of only 10 minutes could have also altered normal parent-child interactions, which can provide an altered reflection of actual interactions between the mother and child. The reliability process of observation coding can have bias because it is subjected to person beliefs. Overall the observation method is still more reliable than being solely based on mother's opinions.

### ***Maternal Educations and Cognitive Engagement***

Studies have reported that there is a significant correlation between parental education and the level of cognitive stimulation they provide their children (Dollaghan et al, 2002, Korat, 2009 & Magnuson, 2009). As stated in the assumptions it was predicted that immigrant mothers that have a higher level of education would have more cognitive engagements than mother with less education. It is apparent from this study's results that maternal education does have a positive relationship to the quality of cognitive engagement.

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### ***Maternal Education and Sensitivity***

The results of this study affirmed early assumptions that the more maternal education an immigrant mother has the more likely she will have a higher sensitivity. The moderate size significance in the correlation also supports other research that has been done that states education could be a factor in determining sensitivity (Magnuson, 2009; Paavaola et al, 2006; & Mushi, 2002).

### ***Cognitive Engagement and Sensitivity link to Receptive Language***

It was anticipated that the factors, cognitive engagement and sensitivity would have a positive association with children's receptive language scores. This anticipation was supported with studies that examined how American mothers' levels of sensitivity and cognitive engagement during play helped their child in language development (Dodici et al, 2003; Hammer and Turner 1996; Mistry et al, 2008; & Mushi, 2002). Despite the previous research and assumptions this study's results did not show there was any correlation between cognitive engagement and receptive language and sensitivity and receptive language.

Examining the nature of this study there are a few factors that could have impacted the results of these two correlations. There are specifically three possible implications that could have specifically affected the results of this study, which all revolves around a cultural aspect.

The REEL test that was used to determine the level of receptive language of the immigrant children had limitations when used within the study's sample demographics. Even though the REEL developed a sample test to determine the reliability of its use in the United States there is still a difference in the sample use in this study. While the REEL sample tested Native Americans, Hispanic Americans, Asian American, African Americans and other, this study specifically looked at immigrants. The unequal distribution of demographics across both study's sample makes it clear that the REEL may not be as valid for this study's sample of Caribbean and African immigrants. "It cannot always be assumed that because a test is reliable for a general population it will be equally reliable for every subgroup; especially with unique characteristics: racial, ethnicity and linguistic differences" (REEL, p. 30).

During the videotaped observations parents may have been placed in unnatural situations that could have also affected their level of parenting. Since the parents knew there were being observed by two researchers and being videotaped, there may have been changes in the way that the mother naturally acts with her child. The changes in the parents' behaviors would then affect the coding scores, and provided an unbalanced set of results.

Within this very diverse population of participants it is difficult to equate Western standards of interactions on the participant of this study. While this study measured mother's interactions in correlation to the child's receptive language there may be some differences among less educated mother with low cognitive engagement and sensitivity scores. In the participant cultures mothers may not be viewed as the

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primary caregiver that interacts with the child specifically in cognitively engaging and sensitive ways. It is possible that other family members that were not involved have more interactions with the child that affects the receptive language than the mother, which could have altered the results of the correlation.

### **Recommendations for the Future**

In order to readdress the question of “does maternal cognitive engagement and sensitivity affect a child’s receptive language?” there are few designing changes that would be made in a future study. There would be a greater amount of participants the subgroups within the immigrant sample and overall, in order to provide more statistically meaningful data. The different immigrant groups would have their data analyze separately in order to avoid culturally differences between the various groups. The future study would be a quantitative study that would have more culturally sensitive measures of parent-child interactions. Instead of parents being rated solely on the observation with them playing with their child, the adapted study will have parents rate what qualities do they feel are important in developing receptive language and providing a cognitive engaging and sensitive environment, what their role is in fostering receptive language, cognitive engagement and sensitivity and if they do foster it how do they do so.

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