12-2009

The Influence of Family Structure and the Role of Siblings on Early Language Development of Latino Preschool Children

Eduardo Aguiles Ortiz
Utah State University

THE INFLUENCE OF FAMILY STRUCTURE AND THE ROLE OF SIBLINGS ON EARLY LANGUAGE DEVELOMENT OF LATINO PRESCHOOL CHILDREN

by

Eduardo Aquiles Ortiz

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Sociology

Approved:

E. Helen Berry, Ph.D. Major Professor	Susan Mannon, Ph.D. Committee Member
David Lancy, Ph.D. Committee Member	Michael Toney, Ph.D. Committee Member
Mark Innocenti, Ph.D. Committee Member	Byron Burnham, Ed.D. Dean of Graduate Studies

UTAH STATE UNIVERSITY
Logan, UT

2009

ABSTRACT

The Influence of Family Structure and the Role of Siblings on Early Language Development of Latino Preschool Children

by

Eduardo Aquiles Ortiz, Doctor of Philosophy

Utah State University, 2009

Major Professor: E. Helen Berry, Ph.D.
Department: Sociology, Social Work, and Anthropology

The purpose of this research is to examine the relationship between family structure including family size, number of parents at home, and presence of an older sibling at home, and the language development of young Latino children. I used data from the Head Start—Family and Child Experiences Survey (FACES) year 2000, which included information on 746 Latino preschool children and their families in 43 different Head Start programs nationwide. A subgroup of 369 children were identified as English-language learners (ELL) because they were determined to be primarily Spanish speaking. Some of the findings indicate that more than two thirds of children (69%) who do not have two parents at home are primarily English speakers and more than two thirds of children (68%) who have two parents at home are primarily Spanish speakers. Independent sample *t* tests indicate there are statistically significant differences between Latino primarily Spanish speakers and Latino primarily English speakers on vocabulary

and early literacy outcomes. Family background variables such as English language proficiency of parents and parent education are important factors that affect early language and literacy development of their children. In addition, family structure variables have some effects on these outcomes. The variables family poverty and family size, specifically having an older sibling, had negative impacts only on the primarily English-speaking group. The most influential social factors for the Latino primarily English-speaking preschool children's language and literacy outcomes are different than the most influential social factors for the same outcomes of their primarily Spanish-speaking preschooler counterparts who in general experience less favorable outcomes overall.

(126 pages)

ACKNOWLEDGMENTS

I want to express my sincere gratitude to my dissertation committee who supported me throughout my dissertation work with their encouragement, knowledge, and wise guidance. Dr. David Lancy was always open to discuss and expand new areas for further exploration. Dr. Susan Mannon helped me to understand better the Latino population in the US and challenged my initial interpretations. I am very, very thankful with Professor Mike Toney who always gave me confidence on my academic pathway and motivated me to keep making progress especially during difficult times. Dr. Toney encouraged me to take opportunities and expose my ideas in front of different audiences for additional feedback and information exchange. In my daily work I have been blessed with a friendly and unconditional friend, Dr. Mark Innocenti, who made available his support in a number of ways such as including me in all the steps of many research projects. Dr. Innocenti let me be part of many, many hours of research work and endless conversations that challenged my thinking in a productive way. These learning experiences were the foundations to develop this research work. Also, I owe my deepest gratitude to Dr. Eddy Berry, my major professor, who supported the present work since the beginning to the final. Dr. Berry gave me so much of her time and tolerance to review endlessly the dissertation writing progress; I attribute the success of this work to her encouragement and without her this dissertation would not have been completed yet. I simply could not wish for a better adviser. In addition, I am indebted to many of my pop-lab and fellow classmates who shared hundreds of hours together shaping our academic and social skills and filling up each other with tons of information and collaboration.

Finally, this dissertation would not have been possible unless my wife, Valeria, and my children Eduardito, Diana, and Sara supported me emotionally, socially, psychologically, economically, and morally throughout all my studies at the university. I am heartily thankful to my precious and loved family for this given opportunity to acquire additional human capital tools for upward mobility together.

Eduardo A. Ortiz

CONTENTS

Page

LIST OF TABLES

Table Page

LIST OF FIGURES

CHAPTER I

INTRODUCTION

The current study evaluates the role of family structure in the language development of Latino young children. The study evaluates this association within the context of cultural influences on early language acquisition. This is important because language is recognized as a critical predictor of future academic success. However, the specific influence of family structure on language acquisition has not received much research attention.

The influence of family structure and siblings on language acquisition is hypothesized to be particularly important among children in cultural settings unique from those of the dominant population. For example, it is necessary to examine the positive and negative early language and literacy outcomes from a variety of factors such as familial characteristics, birth order, family ages, family size, number of children, number of adults, sibling characteristics, single parent or two-parent households, extended and blended families, all of which may vary by cultural setting. Further, factors that affect language development among the Latino group such as primarily language speaking by the children, immigrant generational status and English proficiency of both parents and children are important variables to include in any analysis. Looking at language development outcomes from within the context of language and culture immigrant status will tell a more complete story about language development.

Language is central to the early literacy of every child (Dickinson, 2004; Dickinson & Tabors, 2001). One of the biggest obstacles to school success for Spanish

speaking children in the United States is learning to read in English (August & Hakuta, 1997). This barrier can be overcome by a good foundation of language in early childhood (Dickinson; Dickinson & Tabor). In order to understand how to help Latino children achieve greater academic success, researchers need to understand more about the factors affect both Spanish and English learning of young children from Latino families. Knowledge about family structure, siblings, and family interactions is fundamental to understand its impact on preschool Latino children's early language development.

Data from the Family and Child Experiences Survey (FACES 2000), which included data related to Head Start families and children's cognitive, social, emotional, and physical development was used for this study. The combination of the rich quantitative standardized language measures and family and demographic information provided a detailed picture of language development outcomes of young Latino children in the context of cultural dynamics/practices, family structure, family resources, and family background.

Definitions

Latino: People living in the United States constitute individuals who have self-identified as members of the Hispanic or Latino group (Pew Hispanic Research Center, 2009a). This definition also includes people who trace their roots to Spanish speaking nations. In this case, the term is used for either males or females.

Family structure: For the purpose of this study was defined as the composition and nature of the members of the family living together in the child's home. Family structure refers to the composition and characteristics of the families such as: birth order,

family size, family ages (ages of family members), gender of the family members, number of adults, number of children, one and two-parent families, and number of older siblings.

Siblings: For purpose of this research are considered any minor (under age 18) living in the same home of the child.

First generation immigrants: People who were born abroad and came to the U.S. at the age of 12 years or older.

One and a half (1.5) generation immigrants: People who were born abroad and came to the U.S. at the age of 11 years or younger (Rumbaut & Ima, 1988).

Second generations of immigrants: People who were born in the U.S. but at least one of their parents were born abroad.

Third and higher generation immigrants: People who were born in the U.S. and whose parents were born in the U.S.

Early language development: The vocabulary outcomes taken from the Head Start preschool children who are part of the research sample. For the purpose of this research the standardized test *Peabody Picture Vocabulary (PPVT)* and its Spanish version *"Test de Vocabulario en Imágenes Peabody" (TVIP)* will be the main measures of this concept. The PPVT and TVIP are receptive vocabulary measures with high levels of reported validity and reliability.

Preliteracy: This refers to the following child outcomes: Identifying letters and words, writing its name, knowing the colors, counting and writing/drawing rather than scribbling. The terms "preliteracy," "emerging literacy," and "early literacy" are used

interchangeably.

Latinos in the United States

The Latino population in the U.S. faces important socioeconomic challenges related to education, demographics, poverty, and identity (Duncan, Hotz, & Trejo, 2006; Durand, Telles, & Flashman, 2006; Landale, Oropesa, & Bradatan, 2006; Reimers, 2006; Rumbaut, 2006; Schneider, Martinez, & Owens, 2006; Tienda & Mitchell, 2006). Latino culture and family settings influence family interactions. Different roles, practices and dynamics within a family depend on cultural/traditional beliefs, values background, and circumstances (see Tables 1-6 [shown and discussed later] for descriptions of this population).

Latino students show negative educational results in comparison with other student groups in the U.S. For example, high school dropout rate for Latino students is more than three times that of non-Latino whites (National Center for Education Statistics, 2008; Tienda & Mitchell, 2006;). The high school graduation rate in 2002 was lower for Latinos (54%) when compared with African-American (75%), and white non-Hispanic (86%) populations (Espinosa, 2004). Stereotypes and low expectations about Latino students undermine their academic achievement beginning early in their academic lives (Rouse, Brooks-Gunn, & McLanahan, 2005). Estimates of the Latino gap in school readiness range from slightly less than half a standard deviation below to slightly more than one standard deviation below the white non-Hispanic majority population (Rouse et al.). As a result, research studies show dramatic negative academic results in very young Latino learners.

The Latino population in the United States constitutes a large, young, poor, and geographically concentrated group. They represent more than 40 million inhabitants (Table 1) without counting people from the Commonwealth of Puerto Rico (Pew Hispanic Research Center, 2009b; Rumbaut, 2006; U.S. Census Bureau, 2009). The Latino population increases faster than other groups because of its high fertility and immigration rates as well as to youthful age of immigration. For example, Latinos accounted for more than half the population growth in the recent years (Fry, 2008; Johnson & Lichter, 2008). Approximately 22% of the U.S. preschool-age population is Latino, and 30% of all poor children in the U.S. ages 5 and under are Latino (U.S. Census Bureau, 2004; Pew Hispanic Research Center, 2009b). Within the Latino population, 45% are foreign born, 31% constitutes a second generation of immigrants, and the rest have two American-born parents (Rumbaut). Most Latinos are concentrated in a few states such as California and Texas. Other states having high numbers of Latinos are Arizona, New Mexico, Florida, New York, New Jersey, and Illinois. New destinations for Latinos are rural Midwestern and western towns (Berry & Kirschner, 2002).

Table 1. *U. S. Population by Race and Ethnicity (2000 and 2007)*

	2000		2007	
Race/ethnicity	Population	%	Population	%
Hispanic	35,204,480	12.5	45,378,596	15.0
Native born	21,072,230	7.5	27,328,758	9.1
Foreign born	14,132,250	5.0	18,049,838	6.0
White alone, not Hispanic	194,527,123	69.1	198,594,527	65.8
Black alone, not Hispanic	33,706,554	12.0	36,624,935	12.1
Asian alone, not Hispanic	10,088,521	3.6	13,100,861	4.3
Other, not Hispanic	7,895,228	2.8	7,922,240	2.6
TOTAL	281,421,906	100.0	301,621,159	100.0

Source: Pew Hispanic Research Center (2009b).

The Latino families in the U.S. are diverse. A majority of these people are from Mexico, but an increasing proportion is from more than 20 different nationalities having different histories and even different languages. This group includes different immigration generational statuses among their members. They are also considered family oriented or have a high level of "familism," which is a multidimensional concept that includes structural-demographic (like large family size), behavioral (like having mutual assistance and family support), and attitudinal variables such as loyalty, reciprocity, and solidarity among family members (Landale et al., 2006; Sabogal, Marin, Otero-Sabogal, VanOss, & Perez-Stable, 1987; Steidel, Contreras, & Contreras, 2003). It is also important to note research has found that "familism" as defined above has been found to be declining across generations (Landale et al.). In conclusion, there is evidence for some commonalities across Latino origins, despite Latino diversity.

Many Latino families living in the U.S. are poor (Table 2). An educational maxim is that the higher the socioeconomic status (SES) of a child's family, the more likely that child will be ready for school (Duncan & Magnuson, 2005). Low SES families are less likely to talk to, read with, and teach young children than are high SES families (Duncan & Magnuson; Hart & Risley, 1995, 1999). Poverty is also associated with other variables that are associated with lesser educational outcomes (e.g., single-parent families, low birthweight, or segregated neighborhoods). The percentage of young children with two or more risk factors is five times greater among Latino kindergarteners than among their non-Latino white peers (NCES, 2003). Therefore, a high proportion of Latino children are immersed in problems affected by conditions of risk.

Table 2. *U.S. Poverty by Age, Race, and Ethnicity (2007)*

	Poverty rate (%)			
Race/ethnicity	Younger than 18	18-64	65 and older	All
Hispanic	27.0	16.3	17.9	20.0
Native born	26.2	14.5	16.0	20.5
Foreign born	34.1	17.8	19.6	19.3
White alone, not Hispanic	10.5	8.2	7.0	8.5
Black alone, not Hispanic	33.5	19.1	19.8	23.4
Asian alone, not Hispanic	10.9	8.8	11.2	9.5
Other, not Hispanic	20.9	16.3	14.9	18.1
TOTAL	17.6	10.8	9.0	12.3

Source: Pew Hispanic Research Center (2009b).

From Table 1, we saw that Hispanics/Latinos in the U.S. have become the nation's largest minority which keeps growing (Durand et al., 2006; Rumbaut, 2006). The proportion of Latino children in the U. S. is high because fertility rates are higher for Latinos in comparison with other groups (Table 3). Because of the high fertility and immigration rates, Latinos already account for 50% of the U.S. population growth (Pew Hispanic Research Center, 2009b). The trend expects to reach 81 million of Latinos or 30% of the total U.S. population in 2050 (Durand et al.).

Demographic characteristics of the Latino population like population growth, age structure, and family size have important implications on educational issues (Durand et al., 2006). Table 4 tell us that Latino population overall is much younger than most of the other groups in The U.S. In addition, Table 5 indicates that in general that Latino families are larger when compared with other U.S groups. Then, many children from Latino families will face educational challenges associated to having interactions with young parents and/or having large family size around their lives.

Table 3. *Fertility of U.S. Population by Race and Ethnicity (2007)*

Race/ethnicity	Women giving birth in past year	% women giving birth in past year	Share of total births in past year
Hispanic	897,810	8.6	21.7
Native born	419,494	7.6	10.1
Foreign born	478,316	9.8	11.6
White alone, not Hispanic	2,337,722	6.1	56.5
Black alone, not Hispanic	565,588	6.6	13.7
Asian alone, not Hispanic	210,686	6.5	5.1
Other, not Hispanic	125,172	7.4	3.0
TOTAL	4,136,978	6.7	100.0

Source: Pew Hispanic Research Center (2009b).

Table 4. *Median Age in Years of U.S. Population by Sex, Race, and Ethnicity (2007)*

Race/ethnicity	All	Male	Female
Hispanic	27	27	27
Native born	17	17	18
Foreign born	36	35	38
White alone, not Hispanic	40	39	42
Black alone, not Hispanic	31	29	33
Asian alone, not Hispanic	35	34	36
Other, not Hispanic	23	22	24
TOTAL	36	35	37

Source: Pew Hispanic Research Center (2009b).

Table 5. *Heads of U.S. Households by Family Size, Race, and Ethnicity (2007)*

	Percent distribution		
Race/ethnicity	Two-person families	Three- or four-person families	Five-person families or more
Hispanic	26.7	46.9	26.4
Native born	33.7	47.1	19.2
Foreign born	21.6	46.7	31.7
White alone, not Hispanic	50.4	39.2	10.4
Black alone, not Hispanic	40.1	45.1	14.8
Asian alone, not Hispanic	31.2	50.5	18.3
Other, not Hispanic	39.5	43.4	17.0
TOTAL	45.3	41.4	13.4

Source: Pew Hispanic Research Center (2009b).

Table 6 shows a great majority of foreign born Latinos who do not speak English very well yet. Additional statistics show that 93% of foreign-born Hispanics speak some Spanish at home, compared with 63% of the U.S. born Hispanics (Rumbaut, 2006; Tienda & Mitchell, 2006). Among all U.S.-born 95.5% of non-Hispanic speaks English only, compared with 36% of Latinos US born. These numbers are high considering that the level of English proficiency especially of the new immigrants can determine positive human capital gain like school results for their next generations. Some effects of parent acculturation on their children can start very early in the child's lives, including at preschool ages and it is known that as part of the acculturation processes, English proficiency is a key factor for the potential social upward mobility of Latinos in the United States.

Table 6. *Percent Distribution of English-Speaking Ability among U.S. Foreign-Born Latinos (2007)*[a]

	Younger than 18				18 and Older		
Date of arrival		English spoken very well	English spoken less than very well	Total		English spoken very well	English spoken less than very well
Before 1990	***	***	***	***	5.1	32.1	62.8
1990 to 1999	5.0	70.0	25.0	100.0	2.6	22.2	75.2
2000 and later	2.7	44.8	52.5	100.0	2.6	10.8	86.6
All	3.5	53.6	42.8	100.0	3.7	23.5	72.8

Source: Pew Hispanic Research Center (2009b).
[a] Universe: 2007 foreign-born Latino resident population ages 5 and older.

Recent Latino immigrant families also experience, full time labor-working parents, undocumented immigration issues, and possibly emotional and psychological pressures because of their transnational situation (Salazar-Parreñas, 2001; Sassen, 2001), as well as limited access to social and community services. Due to these challenges, families may count on siblings and other family members to be extra resources as buffers. For example, and critical to this study, older siblings in Latino families play important roles as "linguistic bridges" and "cultural brokers" into the predominantly English-speaking U.S. school system (Gallimore & Goldenberg, 1992; García, 1983; Orellana, Dorner, & Pulido, 2003; Pérez-Granados & Callanan, 1997). Siblings are a potential family social resource that needs to be investigated in order to understand language development.

Family Structure with Emphasis on Sibling Influencing Language Development

Important variations in language learning settings exist based on family structure. For example, children in different birth-order positions may have different opportunities, such as a difference in availability of family resources, availability of parental time, energy, and attention, quality of the relationship with parents, and other family members that influence on younger siblings language outcomes (Cicirelli, 1994; Lu & Treiman, 2008; Wallden, 1990). In fact, larger families having both a larger number of children and/or extended relatives living with them are thought to dilute family resources by spreading themselves among several children. This limits the quantity and quality of the interaction of children with their parents and may affect some academic outcomes. In

industrialized nations, having more siblings may reduce their opportunities of education (Lu & Treiman, 2008). Children from large families benefit less than children from small families from parental resources even if the same resources are available for all of them (Lu & Treiman; Steelman, Powell, Werum, & Carter, 2002). However, if negative resources like alcohol drinking and drug issues, or mental problems within the family also are diluted as a function of family size, it is plausible that under certain negative circumstances having a larger number of siblings might be advantageous (Downey, 1995; Steelman et al). Then, family structure may influence positively and negatively on language and academic outcomes.

Family structure plays a role for verbal interactions between young children and their family members (Barton & Tomasello, 1991; Brown, Donelan-McCall, & Dunn, 1996; Cicirelli, 1976; Jones & Adamson, 1987; Oshima-Takane, Goodz, & Derevensky, 1996; Pine, 1995; Steelman et al., 2002; Tomasello & Mannle, 1985). For example, there are differences in mother-child interaction between first-born and later-born children (Olsen-Fulero & Conforti, 1983; Oshima-Takane et al.). Research shows that first-born children are exposed to more adult language while later-born children are exposed to the less mature siblings' vocabularies (Oshima-Takane et al.). Additionally, mothers speak less to their younger children during triadic interactions that include parent, child, and an older sibling (Olsen-Fulero & Conforti; Oshima-Takane et al.). Lastly, later-born children may acquire their early language differently than first-born children (Nelson, 1981; Tomasello & Mannle). It is likely that later-born children and first-borns are getting language input from parent-child-sibling interactions differently.

Research has focused on the role of parents in language acquisition of young children, but siblings are another source of language learning opportunities. Some national and international studies suggest that sibling caregivers are as skilled as parents in guiding their younger siblings' learning process (Azmitia & Hesser, 1993; Cicirelli, 1976; Lancy, 2008; Lindholm & Padilla, 1981; Martínez, 1987; Orellana, 2003; Pérez-Granados & Callanan, 1997; Zukow, 1989a & b). From early ages, young children observe and imitate their older siblings, and older siblings teach them physical, social, cultural, and academic skills (Azmitia & Hesser; Perez-Granados & Callanan). Because of their greater shared experience, siblings may be more aware of each other's strengths and weaknesses and thus, be more effective teachers and learners. When siblings interact, younger siblings in particular may benefit as their vocabulary and background knowledge may be expanded and their depth of knowledge becomes greater. Sibling influences on language development may provide another tool to consider in efforts to improve early language development in Latino children living in the U.S.

Sibling roles and practices in industrialized societies tend to be more discretionary while they tend are more obligatory in nonindustrialized societies (Cicirelli, 1994). It is unclear whether U.S. first or second-generation Latino children's roles are more discretionary because they are living in a very industrialized country or obligatory because they are coming from or are influenced by their parents' non-industrialized cultural backgrounds. Further, it is reasonable to suppose that some Latinos may be from industrialized societies but this might not be the case for many of them. The diverse national and cultural backgrounds of Latinos make generalizations difficult.

When parents lack English language skills siblings are more likely to participate in the family's everyday interactions with the non-Spanish speaking community. For example, Mexican-American students prefer to ask siblings for help on homework while white non-Hispanic students are more likely to ask their parents for help (Orellana, 2003; Perez-Granados & Callanan, 1997). Latino children whose parents are recent immigrants from a non-industrialized country might still experience obligatory sibling relationships like care giving, teaching, playing, and interpreting (Orellana). Researchers need to consider the cultural context within which behavior and practices occurs among ethnic subgroups in the American hegemonic culture as well as among those influenced by other cultures such the Latino one (Cicirelli, 1994; Weisner, 1989, 1993).

At the same time the presence of older siblings affects family interactions. For example, older siblings are often delegated responsibility for the care of younger siblings (Maynard, 2004; Orellana, 2003; Oshima-Takane et al., 1996; Zukow, 1989b). The high number of interactions of a Latino child with an older sibling may represent an advantageous family setting that influences the younger child's language development. The range of possibilities of family language learning settings could be extensive. Sibling interactions can be influenced by a great variety of possibilities and variation, including family structure, family socioeconomic status, neighborhood characteristics, cultural background, education, occupation, age, gender, birth order, birth spacing, family size, and a combination of these variables may have some importance in children's language outcomes.

Prior Research by the Bilingual Early Language and Literacy Support Project

Little research has focused on the association between family structure with emphasis on sibling status and language acquisition (Ortiz, Innocenti, & Roggman, 2004, 2005). A pilot study supported by the Bilingual Early Language and Literacy Support (BELLS) project showed statistically significant positive correlations between the number of older siblings present and both expressive and receptive English measures. In addition, the presence of older siblings had no impact on the Spanish skills of younger siblings. This project is relevant to the current research study because the pilot study showed that siblings and family size play an active role on early language development of young children from Spanish speaking families living in the United States.

The sample from the pilot study included 58 low-income Spanish-speaking families participating from a larger research project called BELLS conducted by the Early Intervention Research Institute (EIRI) at Utah State University (USU). BELLS was a multi-site, longitudinal, comparative study that tested the language and emergent literacy outcomes of Spanish-speaking children who either were (a) enrolled in an early childhood program that included English exposure/immersion with Spanish support, a high-quality language/ literacy preschool environment, and home language and literacy support; or (b) in a community where there were limited early childhood experiences.

Statistical analysis indicated some effects of siblings on language development. Children from Spanish speaking families who had older school-age siblings had larger vocabularies in *English* compared with those who did not have older school-age siblings. These differences were found in both receptive as well as expressive language measures.

Children from Spanish speaking families who had older school-age siblings did not show receptive or expressive language differences in *Spanish* compared with the children who did not have older school-age siblings. The results demonstrated that in comparison to first-born and only born children, children with older siblings had higher means on the English language measures but the Spanish language measures scores were similar for both groups. Interestingly, regression analyses indicated that there was a positive relationship between the number of siblings and children's vocabulary in families with mothers who were more proficient in English. An interaction effect suggested that if parents have higher English vocabularies or more education, the influence of older siblings on English language development is decreased, implying family composition specific effects.

A follow up of this initial exploratory research found consistently that English expressive and receptive early language development were greater when substantial child-sibling interactions were in English. Additionally, Spanish vocabulary development appeared to be negatively influenced when child-sibling interactions were in English. Earlier study did not show any significant effects on Spanish language development but showed some impact on English language development.

Relevance of Language Development

The focus of this project is on early language development of Latino children. Early language skills contribute to later literacy which in turn predicts school outcomes (Biemiller, 1999; Catts, Fey, Zhang, & Tomblin, 1999; Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg, & Poe, 2003; Snow, Burns, & Griffin, 1998). Some

children, especially those living in disadvantaged economic situations like many Latino families, are at risk for language delays because their environments do not facilitate language development at rates similar to their peers living in better economic situations (Dickinson & Snow, 1987; Duncan & Brooks-Gunn, 1997; Hart & Risley, 1995). This risk may be magnified for U.S. children's homes where Spanish is the primarily language because young children in low-income Latino families may have limited exposure to the dominant language (English) and because parents themselves may have limited English language proficiency. For these children, it is important to understand how their language develops and what influences their language acquisition either in English or Spanish because language skills, especially poor English skills, are a primarily contributor to negative academic outcomes (August & Hakuta, 1997).

Purpose of the Project

Family structure and siblings may be useful resources for facilitating language and literacy development for disadvantaged Latino children living in the United States. As seen above, Latino immigrant family members might have different roles and interactions within their families in comparison with the traditional white non-Hispanic family members living in the U.S. In particular, Latino working parents who spend long days at work do not have much time or energy left to spend with their young children in one-to-one interactions after taking care of the child's basic physical needs. Therefore, siblings usually take some responsibilities within the home to help with the family needs. It is culturally acceptable for older siblings from Spanish speaking families to assume some duties like care giving, teaching, supervising, guiding, directing, interpreting, and

translating, among other family tasks (Orellana, 2003; Perez-Granados & Callanan, 1997). Children's learning begins well before the child enters school. Further, the style of learning at home could be quantitatively and qualitatively different than the preschool setting among families from different cultures (Michaels, 1981; Oshima-Takane et al., 1996; Pérez-Granados & Callahan; Tharp & Yamauchi, 1994). Family settings and interactions are the context for early child vocabulary and literacy learning. Therefore, the family structure and sibling role in Latino families is of crucial importance and may directly influence key factors of child development such as early language acquisition.

Data and Methods

This dissertation used 2000 data from the Head Start - FACES, which has been conducted in four cohorts: 1997, 2000, 2003, and 2006. In 1997, as part of the Head Start Program Performance Measures Initiative, the Head Start Bureau started a study to describe the characteristics, experiences, and outcomes for children and families served by. FACES began having a nationally representative sample of 3,200 children and their families. However, the data collected in fall year-2000 only included approximately 2,500 preschool children and their families in 43 different Head Start programs. FACES data includes information related to Head Start children's cognitive, social, emotional, and physical development as well as the characteristics, well-being and behavior of families (Zill, Kim, Sorongon, & Herbison, 2006). The combination of the rich quantitative standard measures such as receptive and expressive vocabularies in Spanish and English, demographics, family and sibling information with some acculturation data, will provide a detailed picture of language development outcomes of young children in

the context of family and cultural values, environmental constraints, and available resources. The contextual analysis moves us closer to the big picture understanding of how the many social variables in human life come together to affect the language learning processes of preschool Latino children living in the United States.

Goals and Objectives

The first goal of this study was to understand how family structure influenced early language development in Latino children living in the United States. I focused on the impact of sibling status on the early language development of this population. The second goal was to understand how cultural differences within the Latino group (like immigrant generational status) influenced early language development in Latino children living in the U.S.

Assumption

The current study assumed that human interactions represent a critical factor for language development of young children. This assumption is important to keep in mind because family structure and culture may determine the frequency, intensity, and type of interaction opportunities that influence early language development.

Research Questions

1. How does family structure as defined by family size, number of adults, number of children, two parents versus one parent at home, and family ages affect language development of Latino children?

   As we will discuss later, this research question represents a test for the confluence

theory which states that children intelligence in part is determined by the quality and quantity of attention gotten from their family intellectual environment provided mainly by parents and siblings. The theory holds that any additional birth in the family or having only one adult at home might be disadvantageous for children intelligence development because under these circumstances child attention needs to be shared with another child in the family and/or there would be only one parent rather than two parents at home who can interact and provide attention to the child. Therefore it would be expected that having two parents at home and being part of small families would be beneficial for the children intellectual outcomes.

2. How does sibling status (position within the family, number of siblings, and child spacing) affect the language development of Latino children?

This research question is another family structure scenario that goes along with the first research question. It also represents an additional test for the confluence theory which by extension implies that having no older siblings at home or being the only child at home concentrates most of the family attention on the child which would be advantageous for the child's developmental outcomes including language and early literacy.

3. Does the family assimilation process (measured by English proficiency of both parent and children, and their immigrant generational status) have an influence on early language development of Latino children?

This research question represents a test of the assimilation theory that implies an eventual immigrant catch up on native education and socioeconomic levels over time. It

means that second and third generations of children would have better outcomes (such as language and literacy) than recent immigrants or less assimilated immigrants into the American society.

It is important to say that social learning theories are embedded on the context that includes family structure, Latino culture, and language development. Social learning approaches emphasize social interactions in cultural contexts such as the Latino population living in the U.S. Research questions associated directly with this theory were not included in this work but its framework enriched the discussion and analysis. Also, this theory was difficult to test independently utilizing this data because more information would be necessary.

Next Chapter Content

Chapter II will review the literature on the topics outlined above. Chapter III will describe the methods and variables to be used, Chapter IV will describe and report the results of the analysis, and Chapter V will provide conclusions and possible policy recommendations.

CHAPTER II

LITERATURE REVIEW

Introduction

The influence of family on the early language development is a complex topic that includes socially, demographically, and culturally interrelated variables. In this chapter, I review and discuss several factors of early language development, namely: (a) family structure, (b) sibling structure, (c) Latino characteristics, and (d) U.S. demographic changes with emphasis on the Latino population. In addition, three theoretical approaches are outlined to explain this connected framework for early language development. These three theoretical perspectives are the assimilation model, the confluence model, and the social learning perspectives. The early language development of Latino children involves a complex group of interrelated factors that need to be analyzed together in settings where the combinations of these variables are expected to have some impact on children's language and literacy outcomes such as vocabularies in English and Spanish, alphabet knowledge, and basic math counting. Such analysis may shed light on the critical area of early language and academic outcomes of Latino children.

Early language development is an important measure of future academic outcomes (Biemiller, 1999; Catts et al., 1999; Dickinson et al., 2003; Snow et al., 1998). Preschool vocabulary knowledge is positively associated with later reading, reading comprehension, writing, preliteracy and literacy measures (Biemiller; Catts et al.; Dickinson et al.; Snow et al.). As a result, analyzing the relationship between early

language development and family structure in a given cultural group is important for better contextual understanding.

Family structure sets the framework for family dynamics and interactions of young children. Families' compositions are different and constantly changing. For example, families having a single parent at home have increased in the past decades from 5% in 1970 to 9% in 2006 (U.S. Census Bureau, 2007), which now represent around 13 million single parents in charge of more than 26 million of children in the United States. These numbers are proportionally higher for single-parent Latino families (Pew Hispanic Research Center, 2009b). Because of that, it is important to look at additional information such as family size, family ages, number of adults and number of children living under the same roof. Having a more detailed description of the family characteristics will improve our analytical model to measure its impact on early language and literacy outcomes.

Siblings play an especially important role on families' dynamics and interactions. For example, older siblings, as active members of the family, are likely to influence the early language acquisition and language development of their younger family members due to their frequent interactions. Sibling caretakers usually have introduced younger siblings to new language, routine language use, and culturally appropriate ways to behave (Maynard, 2004, 2005; Zukow, 1989b). However, western researchers sometimes underestimate the contribution of older siblings to the development of the younger ones (Lancy, 2008; Maynard, 2004; Teti, Gibbs, & Bond, 1989; Zukow, 1989a & b). In fact, opportunities for verbal interactions among young siblings are very common because

they usually spend a lot of time together. Therefore, siblings are another critical variable to observe in this model looking at language and literacy outcomes of young Latino children.

Traditional models of early child development based on hegemonic (common for the majority of the people) practices are not always applicable to universal populations. For example, middle-SES Americans parents emphasize verbal interaction with their children but low-SES people or people from different cultures like Mexican mothers who tend to have less involvement in children's play activities and lower levels of verbal interaction with their children (Lancy, 2007). Attention to cultural practices may show us important paths to improve early language development and academic outcomes for Latino young children living in the U.S. Keeping in mind that even within their group, Latino families share great diversity based on differences in their national origin, generational status, number of years living in the U.S., English proficiency, social support, geographic location, human capital, and socioeconomic status.

Demographic changes in the U.S. are happening at faster rates than in the past. For example, diversity is increasing and the Latino population is contributing in larger numbers to some of these changes. At present, the Latino population in the United States constitutes a large, young, poor, and geographically concentrated group. Not counting people from the Commonwealth of Puerto Rico, they represent more than 40 million inhabitants in the United States (Pew Hispanic Research Center, 2009b; Rumbaut, 2006; U.S. Census Bureau, 2009). These numbers keep growing faster than other groups because of the group's overall higher fertility and immigration rates. Additionally, the

Latino population in the Unites States has both old and new immigrants in substantial numbers. In fact, 45% of them are foreign born and 31% constitute a second generation of immigrants (Pew Hispanic Research Center, 2009b; Rumbaut, 2006). Most of them have been concentrated in a few states like California, Arizona, New Mexico, Texas, Florida, New York, New Jersey, and Illinois. However, our general knowledge and understanding about this minority group is still limited (Weisner, Matheson, Coots, & Bernheimer, 2005). Therefore, I will include demographic variables like generational status, language proficiency, location, education, income, and other human capital characteristics for the study analyses.

Finally, testing major theories such as "the confluence model," "assimilation model," and "social learning theories" in this particular context will contribute to the knowledge base on child development. The current study focuses on testing these theories as they relate to early language development in young Latino children living in the United States. Some assumptions, such as the belief that larger families are disadvantageous for children's development, may not be true in the Latino population, so developing a better understanding of the possible interactions within families and the influence of on early language development, represents a potential source of intervention that has not previously been tapped and may become important.

Theoretical Framework

Assimilation and Acculturation Perspectives

The concept of assimilation implies that third and higher generation of

immigrants will be indistinguishable from the majority group with regard to education, occupation or income (Borjas, 1985; Neidert & Farley, 1985; Rumbaut, 2006) and acculturation implies psychological and social changes that groups and individuals experience when they enter into a new and different cultural context (Cabassa, 2003). Then, assimilation is an intergenerational process and acculturation is a progression usually within the first generation of immigrants.

Most of the immigrant acculturation theories consider time as the main factor for a process where the longer the immigrants stay in the host country the better adjusted them will be. However, time is not the only factor in this process (Alba & Nee, 2003), because time will be combined with other socioeconomic, cultural, and geographical variables that also influence on the path to become similar to the host country majority members. For example, English language proficiency, which is associated primarily with levels of education, is an important measure of acculturation. However, it is not always true that the longer you stay the better English you have. People who immigrate at younger ages might learn faster than older immigrants. In this case, the age at migration in addition to the length of migration are additional factors influencing the acculturation process.

The assimilation process of Latino immigrants seems not to be linear as earlier experiences of European-American immigrants were perceived to be. After having a large human capital gain in education between the first and second generation, there is not much difference between the second and third and higher generations of Latino immigrants (Rumbaut, 2006). Moreover, the difference between the third and higher

generations of Latinos with the non-Hispanic white group is considerable taking into account education, earnings, occupation, and other social factors. At the same time, the more that immigrants come into contact with and compete with natives, the more they potentially encounter prejudice and discrimination, leading to stratification and advancement ceilings of this group (Portes & Rumbaut, 2001). The segmented assimilation hypothesis predicts that adaptation is impacted by geographical location, SES of the family of origin, race, and place of birth (Hirschman, 2001; Portes & Rumbaut). The segmented assimilation suggests not simply advancement ceiling, but downward mobility for certain groups. In general, Portes and Zhou (1993) identified three assimilation pathways: downward mobility to underclass, upward mobility to middle class, and upward mobility in ethnic enclave. Conceivable, each of these forms of assimilation might be associated with different family structures and therefore different outcomes. Therefore, some immigrants will be better assimilated than others in the short and long run.

Third and higher generations of Latinos in the U.S. are not progressing linearly as would be expected based on past experiences of other groups. After having a considerable educational gain between the first and second generation, their advance seems to get stuck (Duncan et al., 2006). The established academic gap between Latinos and the white non-Hispanic majority becomes difficult to close and its negative effects on earnings, occupation, and opportunities in general are evident. The assimilation process of the Latino population seems to have followed a different path in comparison with many historical European-American immigrants (Duncan et al.).

Assimilation implies an eventual catch up (usually by the third generation) on native human capital and socioeconomic rate levels such as education, occupation and earnings by the new immigrants and their descendants on the host country. Hispanic/ Latinos in the U.S. are 45% foreign born or first generation of immigrants and 31% is second generation (Rumbaut, 2006). Assimilation framework implies differences at the beginning but it tend to decline over time, as immigrants adjust and adapt over time in the host country (Alba & Nee, 2003; Borjas, 1985). Also, assimilation models show an adaptation and adjusting process having different speeds depending of human capital factors on the individual like education, economic and financial resources, cultural background, gender, class, race, national origin, language proficiency etc. or family factors like interracial marriages, or other factors like place of residence, social networks or legal status (Rumbaut, 2006; Tienda & Mitchell, 2006). Acculturation can influence on educational and earning outcomes of immigrants and their children (Alba, Logan, Lutz, & Stults, 2002). For example, there is literature about maintenance and language skills of immigrants influencing on their children academic work (Lara-Cinisomo & Thomas, 2007; Portes & Rumbaut, 2001).

Confluence Model

The confluence model serves as the second theoretical framework to be considered by the study. The "confluence model theory" holds that "children who grow up in the presence of fewer siblings and more adults will be more advantaged relative to those in the presence of relatively more siblings and fewer adults" (Falbo & Cooper, 1980, p. 299). The confluence model holds that the intelligence or in the present study,

language ability as an important component of IQ measures of the developing child, is enhanced to the higher the average mental age of the family members. The model suggests that the birth of a child “reduces the intellectual atmosphere of the home and slows the mental development of children” (McCall, 1985, p. 218).

Zajonc and Markus (1975) proposed that first-borns had an academic advantage over later-born because home environments tended to be more intellectually stimulating for an eldest child than for her or his siblings. The “confluence model” of birth order and academic performance is an influential theory in social psychology (Freese, Powell, & Steelman, 1999). The intellectual atmosphere to which he/she is exposed in the family setting molds the developing child according to the confluence model. The arrival of a newborn automatically dilutes the family’s intellectual milieu and with each additional child—unless children are very widely spaced in age—the intellectual environment continues to decline (Steelman et al., 2002).

Zajonc and Marcus (1975) also introduced the idea of the teaching function (i.e., having a younger sibling enables the older child to assume the role of tutor), which may benefit the tutor more than the tutored (Steelman et al., 2002). Individual differences in intellectual ability are associated with the amount of time children spend in certain activities and with certain people. According to this theory, the reduced intellectual atmosphere in large families negatively affects the younger child and at the same time there are some benefits in favor of the older child.

Past research leads us to predict that young children with older siblings will have better English skills (Ortiz et al., 2004). This contradicts the confluence model but can be

examined in a context in which this special case may hold. If the target child is the oldest sibling, the confluence model suggests this child may have better parent language skills (other than English) than same aged peers but weaker English skills, if a language other than English is spoken at home.

Social Learning Approaches

Interactions are very important to the language learning process. According to Vygotsky (1978, as cited in Maynard, 2004), social life is the source of higher functions like language. Language is a powerful tool in the socialization of children because through linguistic interactions in social contexts children acquire their culture's values, rules, and roles (Maynard, 2005). "Vygotsky differentiated the level of actual development (child's autonomous intellectual development) with the level of potential development (child's functioning while interacting with others). The zone of proximal development is the area between what the child is able to do independently and what the child can achieve when guided by or in collaboration with a more knowledgeable person" (Zukow, 1989b, p. 80). Children acquire patterns of thinking and communication through their interactions with more competent members (Vygotzky cited in Maynard, 2004). Social interactions provide the foundation for early language development (Teti et al., 1989) and siblings constitute socializing agents who interact frequently, especially in the Latino families where older siblings play active roles within their families as interpreters, translators, caretakers, babysitters, and advisers. Therefore, older siblings or older family members (not only parents) become critical players on the language learning process of the younger ones through their interactions.

Interactions' in the child's zone of proximal development expose the child to complex understanding (Gauvain, 2005). For example, there are societies that do not prioritize direct verbal communication, but have social opportunities for children to overhear adult conversations like the Zinecantec case (Gauvain; Maynard, 2005). In addition, older siblings proved to be equally important socializing agents by assuming a large portion of the caregiving responsibilities and by providing culturally appropriate knowledge of the world to their younger siblings. A social or cultural approach represents an important contextual setting to analyze language development of Latino preschool children living in the U.S. (see Figure 1).

In the following section of this chapter, I will begin to discuss the main concept that I am going to examine: early language development. Ultimately, this concept will be measured with English and Spanish standardized tests such as Peabody Picture Vocabulary Test (PPVT) and "Test de Vocabulario en Imágenes Peabody" (TVIP). An expanded discussion of the measures themselves will be part of Chapter III (methods). Then I will continue the discussion with the other concepts that are part of the study.

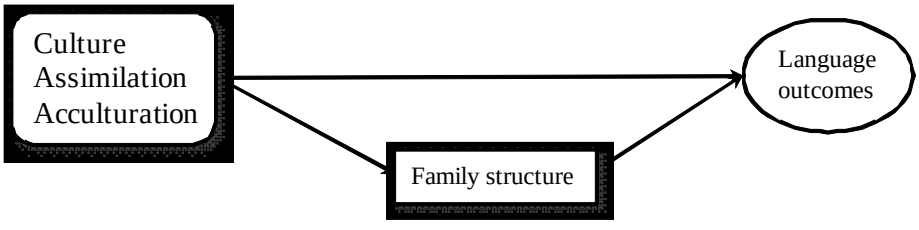

Figure 1. Language Outcomes Model.

Language Development

An important focus of this project is on language development. Early language skills contribute to later literacy, which in turn predicts school outcomes (Biemiller, 1999; Catts et al., 1999; Dickinson et al., 2004; Snow et al., 1998). Some children, especially those living in disadvantaged economic situations, are at risk for language delays because their environments do not facilitate language development at rates similar to their peers living in better economic situations (Dickinson & Snow, 1987; Duncan & Brooks-Gunn, 1997; Hart & Risley, 1995; Hoff, 2003). For example, higher SES mothers show important speech characteristics associated with children's language development that lower SES mothers lack or have it at lower levels like quantity of words, sentence complexity, or lexical richness on mother's language use. This risk may be magnified for children in homes where Spanish is the primarily language because young children in low income, Spanish speaking families may have limited exposure to English and parents who themselves have delayed language skills. For these children, it is important to understand how their language develops and what influences their language acquisition either in English or Spanish because language skills, especially poor English skills, are a primarily contributor to negative academic outcomes (August & Hakuta, 1997).

An important barrier for some Latino students is limited knowledge of English, often related to poor early language development in English or Spanish. In fact, one of the biggest obstacles to school success for Spanish speaking children in the United States is learning to read in English (August & Hakuta, 1997). Language is central to early literacy (Dickinson, 2004; Dickinson & Tabors, 2001). For Latino children, these barriers

could be overcome with a good foundation of language in early childhood in either Spanish (for a later crossover to English) or English. In order to understand how to help Latino children achieve greater academic success, we need to understand more about the factors that influence how young children from Spanish speaking families learn both Spanish and English. Knowledge about siblings, family members, and parent-sibling interactions is fundamental to their impact on children's language development.

Language development is a vital area that needs to be addressed in our attempts to improve academic results for new generations of disadvantaged children. Because vocabulary and early literacy predict school achievement (National Research Council, 1998; Sénéchal & LeFevre, 2002), the contribution to language of verbal interactions among young children and their family members are important pieces to investigate (Barton & Tomasello, 1991; Brown et al., 1996; Cicirelli, 1976; Jones & Adamson, 1987; Oshima-Takane et al., 1996; Pine, 1995; Tomasello & Mannle, 1985).

Factors Associated with Language Development

This section will cover some literature about family structure, siblings, and the Latino people history, demographics, and the acculturation/assimilation process. Although family structure and siblings sometimes overlap, I will try to keep them separated. For example, family structure will include information related to two-parent families and others, family size, number of adults, number of children, age of parents, and age of children within families. Sibling related topics will look at the number of siblings, birth order position, spacing, and gender among them. In addition, the story of Latino population in the United States will be described. Finally, I will talk about the

Latino demographic imperative piece which describes the main outcomes, characteristics, issues, and general results about this minority group in the United States that is focus of the present study.

Family Structures

Family Structure for the purpose of this study was defined in Chapter I as the members of the family living together in the child's home. The term also refers to the composition and characteristics of the families such as family size; age, gender, and number of adults, in the household; number of children in the household; and single- or two-parent family.

Family structure determines potential differences in language interaction setting possibilities. For example, parents in a single-parent household might not have the same amount of time to interact directly with their children compared with those in two-parent household. Interaction time could be affected by there being a single parent who is working full time who is unable to be physically present as often for her/his children as are parents who do not work full time. Currently, there are important changes in the Latino family structure having increased numbers in marital disruption and cohabitation (Landale et al., 2006). Some of these differences are noticed between first and second and higher generations of Latino immigrants where the former group are more likely to be married and less likely to cohabit or to have a female family head in comparison with their native born counterparts (Landale et al., Pew Hispanic Research Center, 2009b). Additionally, Latino families are more likely to live with extended family members in comparison with the non-Latino white majority group (Pew Hispanic Research Center).

Latino families are demographically different in comparison with other groups. For example, Latino families have larger family size in comparison with the non-Latino white population (Pew Hispanic Research Center, 2009b; Reimers, 2006). In addition, the Mexican origin population, which is the largest among the Latinos in the U.S., is in general much younger than the national average (Reimers; U.S. Census Bureau, 2009) and they are getting married at younger ages as well. For example, the median age of Latino women in the U.S. is 27.6 years compared with the national average 37.8 (U.S. Census Bureau, 2002).

Finally, the Latino group has higher fertility rates and they are entering parenthood earlier in comparison with other groups (Pew Hispanic Research Center, 2009b). Age of parent could be a source of differences on parent-child interactions because it is possible that a young parent might interact distinct in comparison to a middle age parent of preschool children. Middle age parents might reasonably be expected to be in a better SES position than their younger counterparts, in part because the former have accumulated more human capital, skills, capabilities, and material resources than the latter.

Variations on language learning situations exist based on family structure. Children in different settings may have different vocabulary development opportunities, such as a difference in availability of family resources, availability of parental time, energy, and attention, quality of the relationship with parents, and influence on younger siblings (Cicirelli, 1994; Steelman et al., 2002, Wallden, 1990). For example, being part of a large family implies having greater dilution of resources, which is often thought to

affect familial academic advancement. Children from large families benefit less than children from small families from parental resources (Lu & Treiman, 2008; Steelman et al.). On the other hand, it may be the case that under certain problematic circumstances, having a larger number of family members in the household might be advantageous (Downey, 1995; Steelman et al.). For example, children from large families facing social problems like poverty, drugs and drinking within their families still might count on other family members to get some support and help. The range of impacts of family structure on language learning and development can be extensive and diverse.

There are important differences in mother-child verbal interaction between first-born and later-born children (Olsen-Fulero & Conforti, 1983; Oshima-Takane et al., 1996). For example, first-born children are exposed to more adult mature language while later-born children are exposed to the less sophisticated use (Oshima-Takane et al.). In addition, mothers of later-born infants use less language speech than mothers of firstborns in their parent child interactions. Additionally, mothers speak a lesser quantity of and fewer types of words directly to their younger children during conversations that include other family members. Lastly, later-born children may acquire their early language at a slower rate than first-born children (Tomasello & Mannle, 1985) and have other additional sources of influence (like older siblings and expose to frequent complex conversations between older siblings and parents) than first-born children. It appears that later-born children and first-born children are getting language input from parent-child interactions in different ways.

Family structure differences will provide a good setting to test the confluence

model theory. As indicated before, this theoretical approach holds that having more adults at home will increase the intellectual family environment which will impact positively on their children outcomes. Then, it would be expected that having two parents at home will be advantageous for their children vocabularies and pre-literacy knowledge in comparison with children who have one or none parents at home.

Sibling Structures

Siblings represent another family resource for early literacy and language development. Having older siblings may be advantageous for the early language development of younger children; however the quality, frequency, intensity, and type of the interactions may also affect this outcome. Variables like birth order, birth spacing, and sibling gender can be interconnected with their actual frame of interactions that impact on early language development. For example, the notions of “male superiority” or “gender expectations” (like sisters as caregivers) which are generalized in many societies can influence on the type, quantity, and quality of settings and dynamics between siblings (Best, 2004; Bryant, 1989; Lancy, 2008). For example, it might be expected to have more verbal interactions between sisters than between an older brother with his younger sister. In addition, children in widely spaced dyads have good opportunities to improve their receptive and expressive language because there will be more communication opportunities and collaborative work rather than competition between them. Therefore, the sibling role may acquire crucial importance if it is directly influencing key factors of child development such as early literacy and language acquisition.

Siblings share many thousands of hours of social and emotional interaction with

each other in the same context (Weisner, 1989). For example, play is common for siblings, and is a powerful setting for child interactions where they can talk, learn, teach, socialize, and apply what they know (Maynard, 2004). In addition, young children observe and try to imitate their older siblings, and older siblings teach them physical, social, cultural, and academic skills (Azmitia & Hesser, 1993; Perez-Granados & Callanan, 1997; Zukow, 1989b). Some studies suggest that sibling caregivers are as skilled as parents in guiding their younger siblings' learning process (Azmitia & Hesser; Cicirelli, 1976; Lancy, 2008; Lindholm & Padilla, 1981; Martínez, 1987; Maynard, 2004, 2005; Orellana, 2003, Pérez-Granados & Callanan; Zukow, 1989b). As a result of their greater shared experience, siblings may be more aware of each other and be more effective teachers (older siblings) and learners (younger siblings). Obviously, when siblings interact, younger siblings in particular may benefit as their vocabulary and background knowledge may be expanded and their depth of knowledge becomes greater.

Older siblings may also change the format of family interactions. The presence of older siblings can influence younger child's language learning setting (Oshima-Takane et al., 1996). First-born in widely spaced dyads used more vocal, verbal, and gestural behaviors with their infant siblings than did closely spaced-ones (Teti et al., 1989). Older siblings are often delegated responsibilities for the care of their younger siblings. The directiveness of siblings and their responsiveness or non-responsiveness in conversations may contribute to the tendency of some later-born children to employ expressive styles of language acquisition (Tomasello & Mannle, 1985). Interactions of a child with a close older sibling may also represent a special family setting model that negatively influences

the young child's linguistic development because potential conflict and rivalry might limit the quality of the interactions (Tomasello & Mannle).

For young children from Spanish-speaking families, older siblings who are already in school may be particularly helpful in providing English language learning opportunities. Siblings may be an important resource given current problems with (bilingual) public education and the increasing participation of mothers in the full-time work force. Siblings may pass on the teaching behaviors they have learned to their young siblings and when these behaviors are maintained, teaching continues to affect language progress of their younger brothers and sisters (Hancock & Kaiser, 1996). Exploring bridges between learning in home and school communities may provide important indicators of how children can best be served in different programs. For example, homes and schools are learning environments that can complement one another, and teachers and families are resources who can work in collaboration with one another to further children's learning (Pérez-Granados & Callanan, 1997). In conclusion, older siblings in Latino families play important roles as "linguistic bridges" and "cultural brokers" into the English-speaking U.S. school system (Gallimore & Goldenberg, 1992; García, 1983; Orellana, 2003; Pérez-Granados & Callanan).

Cultural context and families whose native language was other than the majority language were not considered in the development of the confluence model theoretical approach. The Latino families may represent a special case of the confluence model. For example, having older siblings could be positive in the development of younger sibling language at early ages. It is possible that in the Latino cultural context where older

siblings play a more salient role on the younger child's life and where the sibling has knowledge that the parents do not have, the confluence model may not fully explain the contributions of siblings under these circumstances. Previous research strongly suggests a special case of the Confluence Model in these situations (Ortiz et al., 2004, 2005). The proposed study will make use of the Confluence Model to drive part of our research questions and hypotheses.

Sibling structure differences will give us another great setting to test the confluence model theory. As we talked earlier, the confluence model holds that having more children at home will decrease the intellectual family environment which will impact negatively on the children outcomes. Then, it would be expected that not having older siblings or being the only child in the family will be advantageous for their vocabularies and pre-literacy progress in comparison with children who have older siblings at home.

Social Issues of Latinos in the U.S.

There are important social factors affecting Latino populations in the U.S. For example, many Latinos in the United States represent a working class category having in general low levels of education, low salaries, and poor jobs; and these variables might constitute critical obstacles on the assimilation process (Durand et al., 2006). In addition, many of the Latino immigrants are undocumented, a problem that also impact on their progress and opportunities (Pew Hispanic Research Center, 2009b). Additionally, there are ethnic disparities in access to and quality of health care affected by specific features that include degree of acculturation, language proficiency, insurance, and immigration

status (Escarce, Morales, & Rumbaut, 2006). These lower human capital characteristics of Latinos in comparison with other groups represent a critical problem to move forward as a group. However, education is a key factor for upward social mobility.

The Latino population in the U.S generally shows negative educational results in comparison with other groups. For example, the high school dropout rate for Latino students (28% in 2000) is more than double than of non-Latino whites and blacks (Tienda & Mitchell, 2006). Furthermore, stereotypes and low expectations about Latino students undermine their academic achievement and some of these negative outcomes start very early in their lives (Rouse et al., 2005). Some risk factors like low English proficiency, low educational attainment, two working parents, single parent families, larger families, limited educational resources at home, and low SES among others get in the way of Latino parents engaging in their early children literacy activities (Tienda & Mitchell). Before students begin kindergarten, family resources are critically important and these are not reaching Latino children successfully. The high school graduation rate in 2002 was lower for Latinos (54%) when compared with white non-Hispanic (86%) populations (Espinosa, 2004). Currently, more than 20% of the U.S. preschool population is Latino (U.S. Census Bureau, 2004), and many of them are in poverty children. By the year 2025, approximately 46% of all youth age 15 to 19 are expected to be from minority groups (U.S. Census Bureau, 2002), and many of them will be at risk for school failure. If current trends continue, a large number of Latino children will likely not complete high school in the near future. One way to circumvent this persistent trend is to encourage success from early life and into the school years.

Latino population living in the U.S. represents a group having accumulated disadvantages all the way along the educational process. Reasons for lower education levels among Latinos are complex and operate at the individual, family, and societal levels. Individual causes might include combinations of a minimal amount of time spent on school activities, low levels of motivation, high peer pressure, health problems, and lack of fluent verbal communication (August & Hakuta, 1997; Escarce et al., 2006) Family causes can involve socioeconomic stress, unfamiliar educational systems, a lack of acculturation (discrimination, segregation, isolation, and no effective integration), low parent education levels, low levels of aspirations and expectations for children, low parent commitment, harsh parenting styles, lack of parent involvement, inefficient use of available resources, gender prejudices, and high teen pregnancy rates (Goldenberg, Gallimore, Reese, & Garnier, 2001, Salinas-Sosa, 1997). Societal causes reflect cuts in bilingual education, a lack of role models in school, a lack of access to early education programs, few Latino teachers, big class size, neighborhood issues, and poverty issues (Adam, 2003; DiMaria, 2003; Goldenberg et al.; Hague, 2003).

Recent studies attribute the initial educational gap between ethnic/racial groups to causes such as poor parenting, lack of early childhood education programs, poor health, bad genetics(non-significant but indicated), limited bilingual education programs, and poor socioeconomic conditions (April, 2004; Brooks-Gunn & Markman, 2005, Currie, 2005; Duncan & Magnuson, 2005; Magnusson & Waldfogel, 2005). For example, the national Household and Education Survey (NHES) from 1993 to 1999 indicate that Latino children age 3 to 5 are less likely to be read compared with non-Latino children

(Schneider et al., 2006). Families having Spanish as their primarily language have especially low rates of participation in literacy activities such as telling their child a story or visiting a library. On the other hand, bilingual families might be more assimilated into the American culture, and specifically into practices that increase school performance. Attending Head Start appears to be a positive experience for most Latino children, however Latino children are the least likely to be enrolled in preschool (Schneider et al.).

The combination of limited English proficiency, low educational attainment, and other socioeconomic factors of Latino families, impact negatively on possible opportunities of early literacy contexts for interactions between parents and children. For example, third and higher generations of Latino students is not much better academically as we might expect, in comparison with second generations of Latino students immigrants (Duncan et al., 2006). Any intervention to help improve the academic outcomes of these students must be sensitive to generational status and differences among Latino subgroups (Schneider et al., 2006). Many risk factors interact with each other and the pattern of risk differs considerably for Latinos who speak English at home (second and higher generation) and those who speak Spanish primarily (first generation) at home. The lack of cultural understanding between the school system and the Latino families (especially the new immigrants) is an important reason to take in consideration. Often parents with limited knowledge of the American school system will not question any teacher decision, and will limit their parent involvement participation (Schneider et al.). The academic achievement gap between Latino and other groups suggest that the effects of family background characteristics create barriers that are difficult to overcome.

Many Latino families living in the United States are poor. For example, first generation of Latino population is disproportionately concentrated at the bottom of the occupational structure with 61.5% of workers in low wage labor; it is more than twice the 30% of non-Latinos working at these jobs, although the gap closes to 36% by second and higher generation (Rumbaut, 2006). The better the socioeconomic status of a child's family, the more likely that child will be ready for school (Duncan and Magnuson, 2005). Low SES families are less likely to talk to, read with, and teach young children than high SES families (Duncan & Magnuson; Hart & Risley, 1995). The vast majority of Latino children experience at least one hardship such as poverty, single-parent family, low birthweight, or segregated neighborhoods. The percentage of young children with two or more risk factors is five times greater among Latino kindergarteners than among their white peers (NCES, 2000). Therefore, many Latino families face social issues associated with poverty such as high fertility rates, full-time working parent, low-ranked occupations, lack of English proficiency, undocumented immigration issues, lack of social and community services access, and so forth. However, there is an important difference within this ethnic group I would like to start pointing out such as their generational immigrant status.

Assimilation implies that third and higher generation of immigrants will have similar education, occupation or income outcomes as the majority group (Borjas, 1985; Neidert & Farley, 1985; Rumbaut, 2006). At present, Latinos are having a large human capital gain in education between the first and second generation, but third and higher generations of Latinos in the U.S. are not progressing linearly as would be expected

based on past experiences of other groups (Duncan et al., 2006; Rumbaut). In addition, it is important to remember that from 45 million Latinos in the U.S. 45% are foreign born or first generation of immigrants and 31% is second generation (Rumbaut). Thus, it is a foregone conclusion that some Latinos, because of their generational status, will be better assimilated than others in the short and long run.

Assimilation framework implies differences that tend to decline over time, as immigrants adjust and adapt in the host country (Alba & Nee, 2003; Borjas, 1985). As part of the study, I would like to test this theoretical approach at early ages within the Latino group. Differences in immigrant generational status and/or acculturation should show differences on academic outcomes such as language development and pre-literacy skills. The assimilation theory approach holds that having older immigration status and better acculturation level will impact positively on their children outcomes. Then it would be expected that better assimilated young Latino children will have better language and emergent literacy outcomes than their less assimilated counterpart children.

Differences Between Cultures and Family Dynamics

There are important cultural differences between developed countries like the U.S. and less developed nations like many Latino American countries. For example, the United States is a kind of “neontocracy” (emphasis on the children) versus some agrarian societies that represent a kind of “gerontocracy” (emphasis on the elders; Lancy, 2008). The change between the latter to the former was called “demographic transition” where the children went from assets to become liabilities. Then, family sizes were reduced, life

expectancy was increased, marriage and pregnancy were delayed, having children and their education became expensive (Caldwell, 1976). Many U.S. immigrants are coming from countries that have not yet completed the “demographic transition.”

There are important cultural differences on established roles within families. For example, there are expected roles for Latino older siblings such as interpreting, translating, or care giving that are different in comparison with white non-Hispanic older sibling roles. In addition, working Latino parents who spend long days in hard labor (traditionally agriculture, construction, manufacture, or domestic work) do not have much time or energy left to spend with their young children after taking care of basic child needs. Therefore, siblings usually take some responsibilities within the home to help with the family needs. Latino culture commonly accepts that older siblings assume some duties like care giving, teaching, supervising, guiding, playing, directing, interpreting, and translating, among other tasks (Lancy, 2007, 2008; Maynard, 2004; Orellana, 2003, Perez-Granados, 1997; Weisner, 1989; Zukow, 1989b). In addition, the style of learning at home could be qualitatively different than the school setting among families from different cultures (Heath, 1983; Michaels, 1981; Pérez-Granados & Callanan, 1997; Tharp & Yamauchi, 1994). Because children’s learning begins well before they enter school then, Latino home settings and possible interaction scenarios become important variables to include in early language development study of this particular population.

Research studies have described some family differences among cultures. Ervin-Tripp (1989) showed that Mexican children did better on cooperative games (sharing) but they did worse in competitive ones. Additional cultural differences include that some

societies in Latin America like the Zinacantec community emphasize teaching by doing rather than verbal instruction or positive reinforcement (Maynard, 2005). On the other hand, the Gusii mothers showed high levels of responsiveness to the children stress although they gave little importance to the parent-child verbal interactions (Gielen, 2004; LeVine, 2004). Caribbean immigrant parents believe that a lot of work for preschoolers is appropriate for them but it is not the case for their American counterpart (Roopnarine, Bynoe, & Singh, 2004). In general, Latin-American childrearing is characterized by its authoritarianism, dependency, obedience, reward, and punishment. Cultural differences become crucial to understanding particular and unique interactions or dynamics within families that influence early literacy and language development of minority groups living in the U.S.

Cultural knowledge is passed from older family members to younger ones. It is a process developed mainly through interactions and shared settings. For example, Mexican families allow the older siblings the task of teaching, guiding, and helping to the later-born children (Lancy, 2007; Maynard, 2004; Zukow, 1989b). The caregiving sibling provides the younger sibling descriptions of the society into which they are both growing (Whittemore & Beverly, 1989). Participation in social and cultural activities is a way of children learning (Gauvain, 2005; Gielen, 2004; Maynard, 2005; Weisner et al., 2005). In fact, many younger children learn emerging capabilities from the older ones by following the instructions or repeating what the older siblings do or say. This differs from other cultural groups and provides a unique cultural setting for language development.

CHAPTER III

METHODS

Introduction

The purpose of this chapter is to describe the database chosen for the research; the conceptualization and operationalization process of the key variables that will be measured and used; the research method for the analysis; and some introductory descriptive and bivariate statistics. Demographics, family structure information, and some acculturation data provide a contextual framework to examine language outcomes through the combination of rich quantitative standard measures such as receptive vocabularies in Spanish and English.

Sample

This research used the Family and Child Experiences Survey (FACES 2000) data. In 1997, as part of the Head Start Program Performance Measures Initiative, the Head Start Bureau started a study with a nationally representative sample of 3,200 children and their families, to describe the characteristics, experiences, and outcomes for children and families served by Head Start. Head Start is a US nationwide federal program that provides comprehensive education, health, nutrition, and parent involvement services to low income young children and their families. The data collected in fall 2000 included 2,500 preschool children and their families in 43 different Head Start programs. FACES 2000 had four phases of data collection and followed 3- and 4-year-old Head Start children from entry into Head Start, through one or two years of Head Start program

participation, with follow-ups in the spring of children's kindergarten year (Zill et al., 2006). The FACES database includes data related to Head Start Children's cognitive, social, emotional, and physical development. It also has information about the characteristics, well-being, and accomplishments of families: the quality of Head Start classrooms, and the characteristics, needs and opinions of Head Start teachers and staff. Data sources included further direct child assessments, teacher reports and interviews, parent interviews on child and family well being and program satisfaction, and classroom observations.

The FACES database allows the examination of numerous relationships between child, family, and Head Start characteristics with child and family outcomes. Data from FACES 2000 is suitable to investigate the research topic of the present dissertation. FACES 2000 has a subsample of 746 children who were identified as Latino after filtering parental and child ethnicity. This subsample contains 369 children identified (by the teacher and assessor) as ELL because they were determined to be primarily Spanish speaking. In this case, the ELL children received the entire direct child assessment battery in Spanish and English, which is very valuable for this investigation. However the primarily English-speaking Latino children received the entire direct child assessment battery in English only. The entire subsample of Latino children (n = 746) will be the principal target of the dissertation.

The Institutional Review Board (IRB) at USU has reviewed and authorized the use of this data for the present research study. The Child Care and Early Education Research Connection Office, an extension of the U.S. Department of Health and Human

Services and the official keeper of the FACES database, allowed use of the database for this project.

Hypotheses

The present study had tested three hypotheses.

Hypothesis 1. Children Language outcomes in both English and Spanish and early literacy outcomes of young children in the Latino families will be affected positively by having two parents at home, having a small family size, and having higher averages of family ages at home.

This hypothesis represented a direct test for the confluence theory, which stated that any additional birth in the family, or having fewer numbers of adults at home, might be disadvantageous for children intelligence development. Under these circumstances child attention should be shared with others in the family and the presence of fewer adults at home who can provide skilled and sophisticated attention to the child would be reduced. Therefore, it would be expected that having two parents at home, being part of small families, and having high ratios of family ages in the family would be beneficial for the child's intellectual outcomes.

Hypotheses 2. Children Language outcomes in both English and Spanish and early literacy outcomes of young children in the Latino families will be greater for those having older school-age siblings than those with no siblings at all, or only younger siblings.

This hypothesis is another family structure scenario that goes along with the first hypothesis. It represents an additional test for the confluence theory, which by extension

implies that having no older siblings at home or being the only child at home would be advantageous for the child's developmental outcomes.

Hypotheses 3. Children Language outcomes in both English and Spanish and early literacy development will be impacted positively by better assimilated families such as children from second, or third and higher generations of immigrants, and by the English proficiency levels of both parent and children.

This hypothesis represents a test of the assimilation theory which implies an eventual immigrant catch up on native education and socioeconomic levels over time. It means that second and third or higher generations of children would have better outcomes (such as language and emergent literacy) than recent immigrants or less assimilated immigrants.

Dependent Variables

The dependent variables of this research study are language and literacy outcomes. Language will be considered through standardized receptive vocabulary measures in both Spanish and English. The English and Spanish vocabulary measures used are the PPVT and the TVIP, respectively. The literacy outcomes are: Letter-word Identification, Counting, and Emerging Literacy Scale.

Language outcomes

Peabody Picture Vocabulary Test (PPVT-III; Dunn & Dunn, 1997) is a normative measure designed to assess children's receptive verbal ability. Children are shown four pictures and asked to point to the picture that best represents a stimulus word presented

orally by the examiner. The items are arranged in order of increasing difficulty. One point is awarded for each correct response, and a sum of the correct responses is used to obtain standardized scores. The standardized score has a mean of 100 and a standard deviation of 15. It is suitable for a wide range of ages from 2½ through 90+ years old. The PPVT-III scores have high reliability, with the test publisher reporting internal-consistency reliability (alpha) coefficients ranging from .92 to .98, with a median of .95, and test-retest reliability ranging from .91 to .94. The alpha coefficients for the PPVT-III results from FACES were reported very high as well (Zill et al., 2006). In addition, concurrent and predictive validity has been established for this measure (publisher webpage http://www.pearsonassessments.com/ppvtthree.aspx).

Receptive verbal ability in Spanish was measured using the TVIP. The test was norm-referenced on Spanish speakers in Puerto Rico and Mexico (Dunn, Padilla, Lugo, & Dunn, 1986) and was constructed so as to be as universal as possible for groups considered "Hispanic or Latino." The TVIP has not been updated to be directly comparable to the PPVT-III but many of the words appear on both forms, and can be considered translation equivalents of each other. Similar to the PPVT, the TVIP has been arranged in order of increasing level of difficulty. For FACES, the TVIP was used with children whose primarily language was Spanish. The TVIP was reported to be highly reliable utilizing FACES data with internal-consistency alpha coefficients of .92 for both Fall 2000 and Spring 2001, and .94 for Spring 2002 (Zill et al., 2006).

Literacy Outcomes

Woodcock-Muñoz Language Survey Letter-Word Identification Test: The first five

letter-word identification items involve symbolic learning, or the ability to match a rebus (pictographic representation of a word) with an actual picture of the object. The remaining items measure children's skills in identifying isolated letters and words that appear in large type on the pages of the test book. As well as being part of the Early Development cluster, this subtest is also part of the Basic Reading Skills cluster. The internal reliability of the Letter-Word Identification subtest with preschool age children averages .92 (Woodcock & Johnson, 1989; Woodcock & Muñoz-Sandoval, 1993). The internal reliability of this subtest with FACES children averaged .84 for fall 2000, and .86 for spring 2001 and spring 2002. The same subtest of the Spanish version (Woodcock-Muñoz Pruebas de provechamiento-Revisada) was used in the Spanish version of the FACES assessment battery (Zill et al., 2006). The internal reliability of the Spanish version of this subtest was .75 for Fall 2000, .78 for Spring 2001, and .83 for Spring 2002 (Zill et al.).

The *child-counting variable* tells us how high the child can count some numbers from zero to more than twenty. The coding was as follow: 1 = not at all, 2 = up to 5, 3 = from 6 up to 10, 4 = from 11 up to 20, and 5 = more than 20.

The *emerging literacy scale* variable includes a composite of five different categories about children knowledge: colors, letters, counting to 20, write his/her own name, and write/draw rather than scribbles. Each successful scored category indicated one point. Coding went from 0 (nothing at all) to 5 (everything) and any sum in between.

The FACES measures had strong predictive validity with outcomes at the end of kindergarten (Zill et al., 2006). The instruments used in FACES may tap different types

of abilities that are important for children's future literacy proficiency and academic achievement. As we have seen from above, the data collection instruments are widely used and report mostly high reliabilities.

Independent Variables

The independent variables were divided into four segments: family structure, sibling characteristics, acculturation status, and demographics. Family structure variables include two parent families versus one parent families, family size, number of adults in the household, number of children in the household, number of older siblings, and family age ratio. Sibling characteristics include the variables of having or not an older sibling, birth order, and birth spacing. Family acculturation status variables take into consideration generational status of both children and parents (first, second, and third or higher generations of immigrants), primarily language spoken by children (Spanish or English), and parent level of English proficiency measured by their functional English reading proficiency (Kfast measure). Finally, demographic variables contain information about socioeconomic status (education, poverty), rural and urban status, region (location), and percentage of minorities in the Head Start participant program.

An important group of independent variables are related to family structure, which for the purpose of this study, is defined as the composition and characteristics of members of the family living together in the child's home. Therefore, some of the expected variables from this group included: (a) *number of parents* living in the household or in other words it will be two parent families versus one parent or no parents at home families; (b) *family size* or the total number of members living in the home; (c)

number of adults or how many people older than 18 years are living in the home; (d) *number of children* or anyone under 18 years living in the home; (e) *number of older siblings* or anybody older than target child but under 18 years old living in the same home (as discussed later, people who are at the school age is an important distinction for the purpose of our study because we might expect different levels and intensity of interactions based on the age of their actors); (f) *gender* of target child and older siblings or male versus female; (g) *age of parents* who are living in the home; and (h) *family age ratio* which is the sum of all the family members age divided by the number of people included on it.

Another important group of independent variables are related to sibling structure which for the purpose of this study is defined as the characteristics of any person (under age 18) living in the home of the participants. Therefore, some of the expected variables from this group included: (a) *target child sibling placement* or his/her sibling status such as being the oldest, being the younger (or in the middle), or being the only sibling living in the home (this variable is very close related with the next one); (b) *birth order* or its sibling position number within the family. It counts only real siblings but it does not count others under age 18 living in the same house; (c) *birth spacing* or the length of time between the target child and their immediately older sibling; and (d) gender of target child and their immediately older siblings.

An important cluster of variables are related to the immigration process of adaptation, acculturation, and assimilation. For example, variables related to the generational status, number of years living in the U.S., parent English proficiency, and

children language skills in Spanish and English will give us information about their integration process. In fact, we expect to find some differences between recent immigrants compared with more established Latino populations. Time of residence has been used commonly as a factor to explain the assimilation process of immigrant populations as well as education and age of the migrant at the time of migration.

Demographic variables will be also taken into account for the analysis. For example, information about SES will be used in our analyses. SES variables will include levels of education, income, and poverty (according to the federal guidelines) among the sample families. In addition, I am planning to do some comparisons based on location of the cases such as rural vs. urban or some national regions like Northeast, Midwest, South, and West from the available subsamples. Lastly, minority density of the program location is another variable I will try to include in this analysis. Finally, I hope be able to disaggregate the country of origin variable, though some subgroups could be very marginal with very few cases that make it difficult accomplish the expected task.

Family structure variables will be the main source to test the confluence model. For example, information about two parent families versus one parent families, family size, number of adults in the family, number of children in the family, number of older siblings, and family age ratio as well as sibling characteristics such as having or not an older sibling, birth order, and birth spacing will be used to determine children language and emergent literacy outcomes as it was established in the first two hypotheses.

Family acculturation status variables will be the main source to test the assimilation theory. For example, length of residence, generational status, primarily

language speaking by children (Spanish or English), and parent level of English proficiency (independent variables) will be used to determine its impact on children language and early literacy outcomes (dependent variables) as it was expected to test in the third hypothesis of this work.

The combination of rich quantitative standard measures such as receptive vocabularies as well as literacy standardized measures in Spanish and English, demographics, and sibling information with some acculturation data provided a detailed picture of early language and literacy development outcomes of young children in the context of family and cultural values, environmental constraints, and available resources. The contextual analysis moves us closer to the big picture of understanding how many variables in human life come together to affect children language learning processes.

Descriptive Statistics

First, basic procedures will be carried out to produce and examine descriptive data, such as means, standard deviations, and frequencies, for all variables. Descriptive statistics are valuable to test the integrity of the data and show typical values, variability, and the range of responses as means to provide context for further analysis and to provide a context for the studies' conclusions. Descriptive data provide a setting for information about children language outcomes and their family structure, siblings, cultural, and demographic data variables that are the focus of the study. Thus, obtaining detailed descriptive results provide valuable baseline information for the next phases of the research analysis (Healey, 2007).

The main five dependent variables are: (a) PPVT, which measures the English

receptive language; and (b) the TVIP, which measures the Spanish receptive language. Primarily Spanish speakers were tested in both Spanish and English but primarily English speakers were tested only in English. (c) The "letter word identification" variable is a subtest of Woodcock-Muñoz survey that measure the knowledge of the alphabet and basic reading words, (d) the "emerging literacy" scale variable includes a composite of five referents: colors, letters, counting to 20, write his/her own name, and write/draw rather than scribbles. Finally, (e) the "child counting" scale variable shows how high the child can count from 1= not at all, 2 = up to 5, 3 = up to 10, 4 = up to 20, and 5 = more than 20. In addition, it is important to note that the sample size is not the same among all the dependent language variables (see Table 7). It is because the group called Latino primarily Spanish-speaking children were tested in both Spanish (TVIP) and English (PPVT) language measures. However, the Latino primarily English-speaking group was not tested on the Spanish language vocabulary measure (TVIP).

Table 7. *Descriptive Statistics of Dependent Variables*

Dependent variable	*N*	Min.	Max.	Mean	*SD*
PPVT	668	40	130	71.12	18.452
TVIP	368	59	127	84.95	12.009
Letter-word ID	356	55	123	90.83	8.267
Emerging literacy	734	0	5	1.71	1.339
Child counting	737	1	5	2.9593	.82157

The family structure information includes variables such as two parents at home living in the household, and having or not having older siblings. The following versus others, family size, number of adults living in the household, number of children descriptive data (Table 8) shows us that "2 parents and others" a dichotomous variable

including two parents as one category and any other type such as single parent or not having parents at home another category. As shown in Table 8, more than half of the sample (62%) is in the 2-parent category. In regards "family size," the Table shows that the sample contains families between 2 and 16 members with a mean of 5 members for the whole sample.

The "number of adults living in the household" variable which describes the number of family members 18 years and older living in the household have a range between 1 and 8 adult members with an average of 2.31 (*SD* = 1.074) adult members among the group. On the other hand, the "number of children living in the household" variable describes the number of family members younger than 18 years old living in the household and ranges between 1 to 10 children. There is a mean of 2.69 (*SD* = 1.362) children among these families. The "family age" variable describes the total sum of the ages of family members that goes from 0 to 311. The sample mean is 58 years per family. Having a standard deviation of 46, it means the normal distribution curve has a positive skew on this variable. In addition, I ran some frequencies on this variable and I found a

Table 8. *Descriptive Statistics of Family Structure Variables*

Variable	*N*	Min.	Max.	Mean	*SD*
2 parent and other (1 = 2 parents; 0 = Other)	739	0	1	.62	.49
Family size	737	2	16	4.99	1.87
Number of adults living in the house	737	1	8	2.31	1.07
Number of children living in the house	738	1	10	2.69	1.36
Family age	714	0	311	58.3	45.9
Family age and size ratio (1 = low; 2 = medium; 3 = high)	642	1	3	1.48	.62
Older sibling (0 = no older sibling; 1 = yes)	746	0	1	.48	.50

few outlier cases. Second, the “family age ratio” variable describes the total sum of the ages of the family members divided by the total number of the family members. I recoded this variable into three categories: 1 = families having a ratio of less than 10 years (low), 2 = from 11 to 20 years (medium), and 3 = more than 20 years (high) family ratio.

Second, the “older sibling” dichotomous variable indicates whether or not the target child has an older family member between six and eleven years old living in the same household. In this case 0 = no older sibling between those ages, and 1= having an older sibling between these ages. Table 8 indicates a mean of .48, which means that close to half of this sample, has no older siblings between these ages and the rest of them are in the other group having at least one older sibling. In addition, Table 9 describes the “birth order” variable that categorizes the order position of the child within the family. Overall the groups: only-child, first-child, and middle-child share similar proportions from the sample except the category Youngest-child, which had almost two thirds of the total sample. It is important to note that this variable includes only real siblings and it does not include any other family members living in the household such as half sibling or step sibling.

Acculturation and assimilation information included variables about English proficiency for parents and children as well as parents’ generational status (see Table 10). For purpose of this study, the “parent functional reading” variable describes the functional level of parent English reading on everyday activities. The instrument used is a standardized measure called K-Fast and it includes some testing questions about how well the parent understands labels on drug containers or if they can follow recipe

Table 9. *Frequency Statistics of Family of Children Birth Order Variable*

Variables	Frequency	Percent	Valid %	Cumulative %
Only child	160	21.4	21.8	21.8
First child	165	22.1	22.5	44.3
Middle child	119	16.0	16.2	60.6
Youngest child	289	38.7	39.4	100.0
Total	733	98.3	100.0	
Missing	13	1.7		

Table 10. *Descriptive Statistics of Family Acculturation and Assimilation Variables*

Variables	*N*	Min.	Max.	Mean	*SD*
Parent functional reading	723	0	29	13.68	6.801
Immigrant father (0 = No; 1 = Yes)	736	0	1	.61	.489
Immigrant mother (0 = No; 1 = Yes)	733	0	1	.59	.492
Children Primarily language (0 = English; 1 = Spanish)	729	0	1	.54	.499

directions. In my opinion, it is a good proxy to measure levels of parent acculturation because reading and language are indicators of acculturation (Rumbaut, 2006). For example, I used this variable as an outcome of a *t*-test statistic between immigrant and nonimmigrant parents as well as primarily Spanish-speaking children and their English-speaking counterpart. The difference was statistically significant between these groups. Additionally, “mother’s” and “father’s immigrant status” variables show the parents’ generational status, and indicates if parents were native or foreign born. For practical reasons (although arbitrary) I defined immigrant as anyone who has been in the U.S. 10 years or less. It is interesting to see that 61% of the fathers and 59% of the mothers of the sample were immigrants. Finally, the primarily speaking language variable determines if the children speaks better English or Spanish. Based on the outcome of this variable, the

children were tested using English or Spanish measures.

Demographic data included children and parents information about: socioeconomic status, ages, gender, location, and percentage of minorities in their Head Start programs (see Table 11). To begin with, “mother’s age at having first child” variable saying it is self-explanatory. It ranges from 13 years old to 42 years old when they gave birth for the first time. The sample mean is 20.69 years old and it has some outliers at the right extreme of the normal distribution curve. In addition, this mean age is substantially lower than current national averages at first birth 25.1 years old (U.S. Census Bureau, 2004) but similar to past trends. In addition, “mother’s and “father’s education” describe the level of education reached by the parents and it has been categorized as follow: 1= less than high school, 2 = high school, 3 = some college and, 4 = bachelor or more. From the Table11 we can observe that mothers have a bit more education than fathers although as a group, both mothers and fathers have a mean of 1.7 and 1.6, respectively, which is equivalent to some high school overall. The “family

Table 11. *Descriptive Demographic Statistics Variables*

Variables	*N*	Min.	Max.	Mean	*SD*
Age at first birth	724	13	42	20.69	4.331
Mother’s education categorized	723	1.00	4.00	1.7427	.87924
Father’s education categorized	687	1.00	4.00	1.6419	.85366
Poverty status (0 = non poor; 1 = poor)	698	0	1	.73	.446
Child gender	746	0	1	.50	.500
Program metropolitan status (0 = rural; 1 = urban)	746	0	1	.93	.250
Minority concentration (0 = less than half minorities; 1 = more than half)	746	0	1	.86	.352
Age of child in months at first assessment	729	32	69	49.79	6.132

poverty" is a dichotomous variable that shows whether or not the family fits into this category. The definition of "poor" was based on the Federal guidelines for poverty that included information about household income, and family size. As a whole 73% of the total families of the sample were poor and this percentage is well above than the national average, which is 12.3% as a whole and 20% for the Latinos (Pew Hispanic Research Center, 2009b). However, we must take into account that families who are served by the Head Start Program are required to have low household incomes to be admitted. The gender variable is telling us very nicely that half of the subsample is male and the other half is female. Additionally, variables about location and minority concentration were included in the analysis. For example, the "program metropolitan status" is a dichotomous variable that describes data between rural and urban categories. From Table 11, it is apparent that most of the sample or 93% were urban cases. The "program percent minority" is another dichotomous variable showing that 86% of this subsample is concentrated in programs having more than half minorities on it. One of the study limitations might be related to this variable because it is unknown if this population distribution is representative for the Latino group nationwide. Finally, the "child age at assessment in months" variable is self-explanatory. On average, the children were 50 months of age (rounded up).

Finally, I would like to talk about some variables related to children's daily lives, as regards parent employment status, childcare arrangements, and television activities as proxies of children interaction types and opportunities. Table 12 shows that 32% of the mothers were full time workers, 57% of the parent interview sample have relatives at

home as childcare providers, and 30% of this group set no controls regarding the number of hours children can watch television.

Finally, frequency data for some nominal variables with more than two categories, such as program region, are included below because it needs to be discussed beyond the general descriptive Table. The "program region" variable that shows the general location of the Head Start programs included in this sample (Table 13). The data collected has been coded into four different regions: northeast, Midwest, south, and west. We see a high concentration of the sample in the West (45.2%) and South (29.1%).

Table 12. *Descriptive Statistics Related to Children Interaction Variables*

Variables	*N*	Min.	Max.	Mean	*SD*
Mothers full-time worker (0 = non full time worker; 1 = yes)	746	0	1	.32	.47
Family and home childcare (0 = non relatives childcare; 1 = yes)	300	0	1	.57	.50
Television without control (0 = yes control; 1 = no control)	727	0	1	.30	.46

Table 13. *Program Region Frequency Data*

Variables	Frequency	Percent	Valid %	Cumulative %
Northeast	149	20.0	20.0	20.0
Midwest	43	5.8	5.8	25.7
South	217	29.1	29.1	54.8
West	337	45.2	45.2	100.0
Total	746	100.0	100.0	

However, the Midwest has a low representation of sample (5.8%) and the Northeast proportion is moderate (20%). In general, the sample group distribution is similar to the nationwide Latino group distribution.

Bivariate Correlations

Pearson correlations illustrate the degree and direction of statistical relationship between two variables. Examining correlations is an important step in our description because it gives a general picture of the level of association among the variables.

Correlations among the five dependent variables are seen in Table 14 and show moderate positive statistically significant correlations among most of these variables. In addition, there is a strong statistically significant correlation (.606) between Emerging Literacy and the counting variables. Additionally, it is interesting to note there is a low statistical correlation between TVIP and emerging literacy but not statistically significant correlation between TVIP with Letter word ID and Child counting. Second, I ran a correlation between the five dependent variables with the independent variables. As shown in Table 15, there are negative statistically significant correlations between the dependent variables and most of the family structure independent variables such as two parent versus other, family size, adults in the household, having an older sibling, and family age variables. In other words, it seems there is a consistent level of negative association between the quantity and type of family members who live in the household (family structure) with the language and emerging literacy outcomes of these children. On the other hand, as expected there is a positive statistically significant correlation between the dependent variables with parents' education. It is also interesting to remark the negative correlation between age in months of the children and the Spanish language results. In others words, it seems that the older the child in months of age the lower the Spanish vocabulary language outcome. Does this mean that as time goes by for children

at these ages that they are losing their Spanish skills? We do not know yet, but it will be worthy of further exploration.

Table 14. *Correlations Between Dependent Variables*

Variables	PPVT	TVIP	Letter-words	Emerging literacy	Child counting
PPVT	1.000				
TVIP	.195**	1.000			
Letter-word ID	.359**	.022	1.000		
Emerging literacy	.308**	.108*	.382**	1.000	
Child Counting	.284**	-.034	.357**	.606**	1.000

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table 15. *Correlations Between Dependent and Independent Variables*

Variable	PPVT	TVIP	Letter-words	Emerging literacy	Child counting
Two parent and other	-.240**			-.116**	-.090*
Family size	-.148**		-.135*	-.121**	-.143**
Number of adults in house	-.214**				
Number of children in house		-.136**	-.111*	-.132**	-.153**
Having older sibling					-.081*
Family age	-.119**				
Family size/age ratio					
Age at first birth	-.093*	.129*	.140**		
Mother education	.306**	.156**	.272**	.215**	.190**
Father education	.200**	.141**	.222**	.159**	.140**
Poverty status	-.096*		-.111*		
Parent functional English reading	.607**		.284**	.241**	.195**
Immigrant father	-.507**		-.218**	-.156**	-.167**
Immigrant mother	-.557**		-.225**	-.149**	-.193**
TV without control			-.136*	-.155**	-.111**
Metropolitan status	-.100**				
Minority concentration	-.260**				
Age in months		-.364**	-.278**	.355**	.254**

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

The correlations between dependent and independent variables are consistent with most of the confluence model and the assimilation approach expectations. For example, the confluence model would expect to have negative direction on the correlations between some family structure independent variables such as family size, number of children in the household, and having an older sibling with the language and literacy outcomes (dependent variables). It is interesting to see that having two parents at home and the number of adults at home variables do not follow the positive correlation expected pattern. In addition, the assimilation theory would expect to have negative direction on the correlation between having immigrant parents (independent variables) and the children outcomes (dependent variables) as well as having a positive correlation between the parent English knowledge and the children outcomes.

Third, as a continuation of the correlation between the five dependent variables with other independent variables, Table 15 shows that there are some negative statistically significant correlations between our dependent variables with family poverty, immigrant parent status, and TV without control. Therefore, it appears that children of immigrants score less on language and early literacy measures. It is interesting to note there is not a statistically significant correlation between TVIP (Spanish receptive language) with those independent variables. In addition, there is a statistically positive correlation between the dependent variables (except TVIP) and parent functional reading. In addition, there is statistically positive association between counting and emerging literacy variables with children age in months, but the same independent variable (age in months) has negative statistically significant direction with the TVIP and letter word

identification dependent variables.

Finally, Table 16 shows statistically significant moderate correlations among most of the independent variables. However, there are a few statistically significant strong correlations between some of the family structure variables including family size, number of adults and children in the house, older siblings, and family age variables. This finding is likely to be because these variables are so closely related to the variables regarding the number of people who are living together under the same roof. Then, we will cautious in not using highly correlated variables for later analysis.

The descriptive and correlational data analyses showed some statistically significant patterns of independent variables interacting with language and literacy outcomes. For example, it seems that family size, number of adults, number of children, and two parent home variables influence negatively on the language vocabulary and literacy outcomes. Additionally, the human capital variables such as parent education and functional reading in English interact positively with children language and pre-literacy outcomes. Note that there are differences in the associations between independent variables and English versus Spanish vocabularies outcomes. It means that independent variables are not having the same strength in the relationship with children language outcomes in English compared with Spanish. These patterns provide an important overview to narrow the model.

Table 16. *Correlations Between Independent Variables*

Variable	2 parent & other	Family size	Adults	Children	Older Sib Y/N	Family age	Age-size ratio	Age birth 1st time	Mother ed.	Father ed.	Family poverty	Parent reading	Imm. father	Imm. mother	TV w/o control	Metro status	Percent minority
2 parent & other	1																
Family size	.181**	1															
Adults in house	.273**	.693**	1														
Children in house		.823**	.161**	1													
Older SibY/N		.365**	-.059	.545**	1												
Family age	.112**	.753**	.862**	.332**	.105**	1											
Age-size ratio		.344**	.640**			.770**	1										
Age birth first time	.104**	-.131**		-.191**	-.134**		.151**	1									
Mother Education	-.118**	-.138**		-.133**				.222**	1								
Father Education	-.076*	-.083*	-.079*					.093*	.483**	1							
Family poverty	-.077*	.194**	.093*	.188**	.105**	.135**		-.122**	-.121**	-.128**	1						
Parent reading	-.293**	-.126**	-.199**			-.120**		-.091*	.449**	.265**	-.141**	1					
Immigrant father	.256**	.109**	.198**			.122**	.119**	.118**	-.218**	-.168**		-.597**	1				
Immigrant mother	.300**	.139**	.214**			.141**	.118**	.190**	-.193**	-.091*		-.659**	.666**	1			
TV w/o control					-.099**									-.078*	1		
Metro status		.074*				.078*	.090*				.079*	-.119**				1	
Percent minority		.098**	.111**			.117**	.124**		-.094*		.089*	-.279**	.174**	.195**		.651**	1
Birth order	.075*	.236**	-.132**	.425**	.677**		-.144**	-.129**			.084*						
Age in months													.093*			-.111**	

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Note: The empty cells are non-statistically significant correlations

The next chapter will cover the results from simple group comparisons, chi-square, regression, and interaction effects analysis. Simple group comparisons will be generally tested using ANOVA and *t*-test procedures, as appropriate, in part due to the easy access and viewing of group means. For example, one research question will be tested by comparing the vocabulary scores on the English and Spanish outcomes for the different groups. Regression analyses will look at the relative contributions of multiple continuous variables to predict language and literacy outcomes.

CHAPTER IV

ANALYSES

Introduction

The current chapter will analyze other bivariate relationships and use regression analyses to test the research questions and hypotheses. Descriptive statistics were used to illustrate the basic features of the data in Chapter III. This data provided valuable baseline information for the next steps of this research analysis. In Chapter III, relationships between dependent and independent variables were examined. Correlation coefficients provided a single number that describes the strength and direction of the relationship between two variables. In this chapter, I examine the correlation between independent and dependent variables. I will use the two-sample *t* test to show whether or not both groups, the Latino primarily Spanish-speaking children and their Latino primarily English-speaking counterpart, have different mean values on the standardized language measures. The *t* test is one of the most commonly used statistical procedures to examine differences among populations. The *t*-test statistics will also show group differences or similarities on language and literacy outcomes among immigrant and nonimmigrant parents as well as between two parents at home and others. Second, the chi-square statistic will be used to test the hypothesis of independence of two nominal level variables. It is a test for the independence of the relationship between the variables. In addition, the chi-square test is flexible and has no restriction in terms of level of measurement so it can be conducted with variables measured at the nominal level (Healey, 2007). Finally, multiple regression analysis is a technique for the modeling and

analysis of numerical data consisting of values of a dependent variable or outcome and one or more independent variables also known as explanatory variables or predictors. In other words, it can be utilized to make predictions for a dependent variable from independent variables.

Descriptive Relationships Between Dependent and Independent Variables

Descriptive statistics and bivariate correlations together will be valuable to test the integrity of the data and show typical values, variability, level of association, and the range of responses as a method to provide context for further analysis and to provide a setting for study conclusions. Based on descriptions from Chapter III, we can say this sample has a majority of poor families with two parents at home, neither of whom may have graduated from high school. In addition, the majority of the parents are immigrants living in urban areas, many of whom are not proficient in English. The children's mean age is close to 50 months old and most are enrolled in Head Start Centers where there is a majority of minority students.

The correlation analysis described in Chapter III helped us to complete the sample description and to oversee the type of association between variables. Overall, we observe that most of the correlations between dependent variables are positive and statistically significant at moderate levels. However, the correlations between dependent and independent variables are more complex and require some detailed attention.

The bivariate correlation between English vocabulary and the family structure variables (family size, two-parent home, number of adults and children, family ages), in

most of the cases, has a negative direction as expected from the confluence model approach, and most of the relationships are statistically significant. When there are two parents at home, larger family size, and larger number of children there is a negative association to most of the language and preliteracy dependent variables. Interestingly, this is not the case with Spanish vocabulary outcomes. Only having larger numbers of children at home is negatively associated with the Spanish vocabulary outcome variable (TVIP). These findings may suggest that family structure such as large family size and two-parent-home-families negatively influence the English language measure (PPVT), but it does not follow he same path of influence on the Spanish language measure (TVIP).

Human capital variables such as mother's education, father's education, and parent functional reading in English have positive and statistically significant levels of association with all the language and preliteracy outcomes confirming the importance of parent education and English skills on children outcomes at very early ages. As expected from the assimilation model, having an immigrant parent negatively influences the dependent variables with the exception of the Spanish vocabulary outcome. On the other hand, poverty negatively influences (statistically significant) only the English vocabulary outcome and letter-words measures, but not the Spanish outcomes. In addition, many of the preliteracy variables such as counting, letter-words and emerging literacy scores go down if there is no control over watching television at home.

Finally, I would like to extend the discussion on the child age variable because this measure has both positive and negative statistically significant correlation results. For

example, correlation between age and TVIP is telling us that as children get older their Spanish vocabulary outcome declines. At the same time, the correlation between age and preliteracy measures indicates that as children get older their emerging literacy and counting outcomes increase. This inconsistent pattern is similar to what is found later in the multivariate analysis.

t-Test Analysis

Table 17 shows the main results of *t*-test statistics found between chosen dichotomous variables for the Spanish versus English speaking children, two parents at home versus other types, immigrant mothers versus not immigrant mother, and higher versus lower percent of minority program, on the dependent variables.

The independent-samples *t* test indicates there are statistically significant differences between both groups: (a) Latino primarily Spanish speaker children and, (b) Latino primarily English speaker on all the dependent variables tested such as PPVT, letter word identification, emerging literacy, and child counting.

The independent-samples *t* test is telling us there are statistically significant differences between both groups: (a) Latino families with two parents at home, and (b) Latino families without two parents at home on the dependent variables PPVT, emerging literacy, and child counting. In addition, it is interesting to note that the Latino families without two parents at home have higher means on most of the dependent variables used in this piece of analysis.

Table 17. *Means, Standard Deviations, and t-Test Results of Language and Literacy Children Outcomes by Independent Variables*

Group	*n*	Mean	*SD*	*t*	*p*
Receptive English Vocabulary Measure (PPVT)					
Primarily English-speakers	321	83.98	13.999	23.314	.000
Primarily Spanish-speakers	347	59.24	13.421		
Immigrant mother	376	62.14	15.236	17.192	.000
Non-immigrant mother	282	82.93	15.500		
Two-parent home families	404	67.61	17.634	6.352	.000
Non-two parent home families	258	76.69	18.398		
Majority of minorities program	578	69.24	17.851	6.938	.000
Non-majority of minorities program	90	83.26	17.713		
Receptive Spanish Vocabulary Measure (TVIP)					
Immigrant mother	335	85.24	12.005	-1.728	.085
Non-immigrant mother	31	81.35	11.726		
Two parent home families	285	85.27	12.076	-1.088	.277
Non-Two parent home families	82	83.63	11.713		
Majority of minorities program	346	84.77	11.853	1.139	.255
Non- Majority of minorities program	22	87.77	14.256		
Letters and words identification					
Primarily English-speakers	161	92.76	9.578	4.088	.000
Primarily Spanish-speakers	195	89.24	6.615		
Immigrant mother	219	89.37	6.954	4.301	.000
Non-immigrant mother	131	93.21	9.703		
Two parent home families	213	90.33	7.385	1.443	.150
Non-Two parent home families	139	91.63	9.514		
Majority of minorities program	299	90.81	8.318	.118	.906
Non- Majority of minorities program	57	90.95	8.063		
Emerging literacy					
Primarily English-speakers	328	2.01	1.467	5.295	.000
Primarily Spanish-speakers	390	1.48	1.171		
Immigrant mother	432	1.54	1.208	4.058	.000
Non-immigrant mother	296	1.95	1.486		
Two parent home families	458	1.59	1.268	3.162	.002
Non-Two parent home families	276	1.91	1.429		
Majority of minorities program	628	1.68	1.330	1.349	.178
Non- majority of minorities program	106	1.87	1.388		

(*Table 17 continues*)

Group	*n*	Mean	*SD*	*t*	*p*
Counting numbers					
Primarily English-speakers	333	3.14	.841	5.221	.000
Primarily Spanish-speakers	388	2.83	.761		
Immigrant mother	432	2.83	.794	5.320	.000
Non-immigrant mother	299	3.15	.832		
Two parent home families	458	2.90	.789	2.445	.015
Non-two parent home families	279	3.05	.865		
Majority of minorities program	629	2.94	.816	1.701	.089
Non- Majority of minorities program	108	3.08	.844		

The above independent samples *t* test indicates that there are statistically significant differences between both groups: (a) Latino families with an immigrant mother at home and, (b) Latino families without an immigrant mother at home on most of the dependent variables outcomes such as PPVT, letter word identification, emerging literacy, and child counting. However, there is not a statistically significant difference on the Spanish language measure TVIP outcome between these two groups. In addition, it is important to note that having a non-immigrant mother at home is advantageous in most of the language and literacy outcomes.

The above independent samples *t* test indicates that there is a statistically significant difference between both groups: (a) Latino families with a child in a program with 50% or fewer minorities and, (b) Latino families with a child in a program with more than 50% minorities on the dependent variable PPVT. As expected, children in programs with 50% or fewer minorities (non-majority minorities) have higher averages on English vocabularies in comparison with children in programs with more than 50% minorities (majority of minorities).

The above independent samples *t* test results are consistent with the assimilation theory approach framework; but these results are inconsistent with the confluence model expectations. Along with the assimilation theoretical model, the current sample shows lower mean outcomes for the primarily Spanish-speaking children and children who have immigrant parents in comparison with the children who are primarily Spanish-speaking and who has not immigrant parents at home. However, contrary to the confluence model expectations having two parents at home had lower children outcomes (means) in comparison with not having two parents at home. It is important to remark that this inconsistent pattern was also found on the initial bivariate correlation analysis described in Chapter III.

Chi-Square Cross Tabulation

Chi-square is a test for the independence of the variables. In addition, the chi-square test is flexible and has no restriction in terms of level of measurement so it can be conducted with variables measured at the nominal level (Healey, 2007). Therefore, this statistic is used to indicate whether some variables are, at best, not related to one another including two parents at home versus one or none parents at home, parent immigration status, and percentage of minority in the program.

Table 18 shows an unexpected pattern between families who have two parents at home in comparison with families who do not have two parents at home. This crosstabulation table shows that the majority of children (69%) from families who do not

Table 18. *Chi-Square Results on Latino Primarily English-Speakers Children and Their Primarily Spanish-Speakers Counterpart and Independent Variables*

Children group	English-speakers (%)	Spanish-speakers (%)	*N*	Pearson chi-square	Sig. (2-sided)
Two-parents home	32.1	67.9	449	93.291	.000
Non-two-parents home	69	31.0	274		
Immigrant mom	15.4	84.6	423	385.695	.000
Non-immigrant mom	89.5	10.5	296		
Majority of minorities	41.6	58.4	625	39.998	.000
Non-majority of minorities	75	25.0	104		

have two parents at home are primarily English speakers. However, the majority of children (67.9%) from families who have two parents at home are primarily Spanish speakers. The difference between these two groups indicates that they are not statistically independent of one another.

Table 18 also shows the expected pattern between families who have an immigrant mother at home in comparison with families who do not have an immigrant mother at home. This crosstabulation is showing that the majority of children (89.5 %) from families who have not an immigrant mother at home are primarily English speakers. On the other hand, the majority of children (84.6%) from families who have an immigrant mother at home are primarily Spanish speakers. Again, these groupings are not statistically independent of one another.

Table 18 shows the expected pattern between families who have children in a program with more than 50% minorities (majority of minorities) in comparison with families who have children in a program with less than 50% minorities (non-majority of minorities). This crosstabulation is showing that the majority of children (75%) in

programs with less than 50% minorities are primarily English speakers. However, the majority of children (58.4%) in programs with more than 50% minorities are primarily Spanish speakers.

Regression Analysis

Following, the pattern of the best predictors of both primarily Spanish and primarily English Latino children in our dependent variables outcomes, PPVT (English receptive vocabulary), TVIP (Spanish receptive vocabulary), letter word identification, emerging literacy scale, and child counting, is examined. Although I have run a series of simple regression statistics to choose the most important independent variables to include in the final model, I have not focused on improving the models but focused on the patterns of the relationship among the variables in the model for both English and Spanish speaker children. Also, because of the anticipated high levels of multicollinearity among some of the variables that measure related concepts such as family size, number of children, number of adults, having an older sibling, family age, and two parents versus one or none parents at home variables, not all variables will be utilized in the same statistical model. Each variable was chosen based on the preliminary regression analyses indicated above. For example, there is a high correlation between father education and mother education. When father education is used in a model, mother education will not be used in the model. Finally, based on the previous data analysis, I chose to split the sample into primarily Spanish-speaking and their primarily English-speaking Latino children counterpart.

Table 19 indicates that the variables poverty status and program percent minority are important negative predictors of English receptive vocabulary (PPVT) of primarily English-speaking Latino preschool children. It would be expected that being poor and surrounded by larger number of minorities influence negatively on English language outcomes because this social setting might provide more limited resources for learning English. On the other hand, the level of functional reading of the parent and the age of the child positively influence English language outcomes of these children.

Table 19. *Regression Analysis on Spanish and English Language Outcomes of Latino Primarily Spanish-speaking and Primarily English-speaking Children Groups*

	English vocabulary PPVT primarily English-speaking		English vocabulary PPVT primarily Spanish-speaking		Spanish vocabulary TVIP primarily Spanish-speaking	
Variable	b (se)	Beta	b (se)	Beta	b (se)	Beta
(Constant)	58.065 (8.863)		59.577 (7.956)		124.546 (6.574)	
2 parent and other	-1.010 (1.667)	-.036	2.246 (2.067)	.065	1.836 (1.669)	.060
Family size	-.205 (.555)	-.023	-.782 (.449)	-.114*	-.261 (.366)	-.042
Older sibling	1.011 (1.728)	.036	.618 (1.649)	.023	.772 (1.344)	.033
Poverty status	-3.855 (1.797)	-.124**	.588 (1.766)	.020	.386 (1.477)	.015
Parent reading	1.056 (.185)	.344***	.453 (.149)	.180***	-.181 (.122)	-.081
Father education	-.281 (.951)	-.017	.395 (1.007)	.023	2.060 (.798)	.138**
Majority of minorities (program)	-3.395 (2.036)	-.100*	1.509 (3.227)	.027	-2.706 (2.509)	-.057
TV without control	-2.151 (1.669)	-.073	-2.067 (1.727)	-.070	-.558 (1.431)	-.021
Age in months	.330 (.132)	.140**	-.051 (.124)	-.024	-.773 (.103)	-.395***
		R^2 = .225		R^2 = .053		R^2 = .157
		N = 249		N = 288		N = 303

* $p < .10$
** $p < .05$
*** $p < .01$

Table 19 also shows that parent functional English reading is a statistically significant positive predictor of English vocabulary (PPVT) of primarily Spanish-speaking Latino preschool children. However, family size becomes an important negative predictor on English language outcomes for this group.

Finally, as shown in Table 19, it is apparent that the variable father education is the most important positive predictor of children Spanish receptive vocabulary (TVIP) of primarily Spanish-speaking Latino children.

Table 20 shows that variables family size, having an older sibling and, TV without control are statistically significant negative predictors of letter word identification outcome for primarily English-speaking Latino children. However, father education and parent functional reading are the most important statistically significant positive predictors for the same group.

Table 20 also shows that variables having an older sibling, poverty status, and TV without control are the most important negative predictors of emerging literacy scale outcome of primarily English-speaking Latino preschool children. On the other hand, father education and age of children in months have a positive predictor influence on the emerging literacy outcome from this regression model.

Finally, Table 20 indicates that variables parent functional reading, father education, and age of the child are the most important positive predictors of number counting for primarily English-speaking Latino preschool children. On the other hand, television with no control has an important negative influence on this outcome for the same subsample group.

Table 20. *Regression Analysis on Literacy Outcomes of Latino Primarily English-speaking Children*

	Letter-words identification primarily English-speaking		Emerging literacy scale primarily English-speaking		Children count primarily English-speaking	
Variable	b (se)	Beta	b (se)	Beta	b (se)	Beta
(Constant)	86.543		-2.924		1.156	
	(11.394)		(.834)		(.511)	
2 parent and other	.978	.058	-.209	-.071	-.134	-.079
	(1.471)		(.160)		(.099)	
Family size	-.922	-.186**	-.059	-.062	-.050	-.092
	(.438)		(.054)		(.033)	
Older Sibling	-3.516	-.212**	-.285	-.097*	-.114	-.067
	(1.420)		(.166)		(.102)	
Poverty status	-1.724	-.097	-.282	-.086*	-.121	-.064
	(1.501)		(.175)		(.107)	
Parent reading	.358	.200**	.026	.086	.019	.109*
	(.163)		(.017)		(.010)	
Father education	2.075	.210**	.272	.160***	.137	.139**
	(.850)		(.090)		(.056)	
Majority of minorities	1.758	.097	.138	.039	.033	.016
(program)	(1.659)		(.191)		(.118)	
TV without control	-4.028	-.220***	-.470	-.153***	-.248	-.140**
	(1.507)		(.159)		(.098)	
Age in months	.112	.047	.105	.431***	.043	.311***
	(.199)		(.013)		(.008)	
		R^2 = .258		R^2 = .321		R^2 = .22
		N =122		N = 261		N = 263

* $p < .10$
** $p < .05$
*** $p < .001$

The analyses in Table 21 show that the variables two parents versus other (one or none parents at home) and parent functional reading are the most important positive predictors of letter word identification outcome of primarily Spanish-speaking Latino children. However, the age of the child is a statistically significant negative predictor of the same outcome when other variables are controlled.

Table 21. *Regression Analysis on Literacy Outcomes of Latino Primarily Spanish-speaking Children*

	Letter-words identification primarily Spanish-speaking		Emerging literacy scale primarily Spanish-speaking		Children count primarily Spanish-speaking	
Variable	b (se)	Beta	b (se)	Beta	b (se)	Beta
(Constant)	119.234 (8.100)		-1.273 (.631)		1.616 (.422)	
2 parent & other	2.459 (1.263)	.145**	.159 (.163)	.052	.097 (.109)	.050
Family size	-.137 (.285)	-.041	-.077 (.036)	-.125**	-.040 (.024)	-.101*
Older sibling	.597 (1.071)	.047	-.021 (.130)	-.009	-.098 (.087)	-.066
Poverty status	-.040 (1.149)	-.003	-.033 (.141)	-.013	.048 (.094)	.029
Parent reading	.314 (.106)	.224***	.038 (.012)	.173***	.009 (.008)	.062
Father education	.333 (.575)	.042	.053 (.078)	.036	.047 (.052)	.050
Majority of minorities (program)	2.604 (1.969)	.098	.177 (.231)	.040	.101 (.154)	.036
TV without control	-.893 (1.014)	-.065	-.297 (.136)	-.114**	-.102 (.091)	-.061
Age in months	-.660 (.130)	-.380***	.056 (.010)	.302***	.025 (.007)	.211***
		R^2 = .239		R^2 = .141		R^2 = .070
		N = 157		N =324		N =323

* $p < .10$
** $p < .05$
*** $p < .001$

Table 21 also shows that the variables parent functional reading and children age are the most important positive predictors of emerging literacy scale outcome of primarily Spanish-speaking Latino preschool children. However, the variables family size and TV without control have negative influence on this outcome.

Finally, Table 21 indicates that age of the child is the sole statistically significant positive predictor variable impacting on child counting outcome for primarily Spanish-

speaking Latino preschool children. However, family size is an important negative predictor for the same group in this regression model.

Summary of Analyses

The *t*-test analyses showed there are important group differences on the chosen language and literacy outcomes between Latino primarily English-speaking preschool children and their primarily Spanish-speaking counterparts. The primarily English-speaking children have higher means in comparison with their primarily Spanish-speaking counterpart in all the language and literacy outcomes. Spanish vocabulary outcome (TVIP) was not included on this comparison because only primarily Spanish-speaking children were tested on it. As a group, the primarily English-speaking children, who are in the great majority third-or-later generation of immigrants (because they have non-immigrant parents) are performing better in all the tested variables. These findings support the assimilation premise about linear progress among additional generations of immigrants.

Bivariate analysis also showed important group differences on most of the chosen language and literacy outcomes between families with an immigrant mother and without an immigrant mother at home. All the group differences were statistically significant and most of the outcomes were better for the children from families with no immigrant mothers at home (except on the Spanish vocabulary measure TVIP). Again, this finding confirms the assimilation theory framework, which expects better outcomes on language and preliteracy measures for the second and later generation of immigrants in the host country.

The bivariate analysis showed important group differences on some of the chosen language and literacy outcomes between families with two parents at home and families having no two parents at home. Unexpectedly the group who does not have two parents at home had higher means on these measures in comparison with the group who do have two parents at home. These results are contrary to the confluence model theory approach expectation because it holds that having more adults at home would be beneficial for the children outcomes but it is not the case. Although many speculative causes could be included here, one possible interpretation for this unexpected outcome would be the need of families without two parents at home to maximize their external resources. For them it will become essential to interact in English and use community services outside the home. Therefore, these "necessary" external interactions could be one of the reasons that increase their early language and literacy learning.

The competing explanation would be the assimilation model which assumes that third or later generation of immigrants will be similar to the native population. First generation of U.S. Latino immigrants have higher proportions of two parents at home compared with second or higher generations of U.S. Latino immigrants (Pew Hispanic Research Center, 2009b). Therefore, it would be logic to assume that many of the two-parent home families from the sample have first generation immigrants and many of the single or no parents at home families from the sample are second and higher generations of Latino immigrants. This was also confirmed by the chi square test showing a great majority of primarily Spanish-speaking children coming from two parents at home families as well as a great majority of primarily English speaking children coming from

one or none parents at home families. In fact, I followed up the *t* test finding that having two parents at home was more disadvantageous in comparison with not having two parents at home for language and literacy outcomes. I ran some cross tabulations and chi-square statistics using the indicated family structure variables with the children primarily language variable (2 x 2 tables). I found that more than two thirds (68%) of the families with two parents at home had children whose primarily language was Spanish. On the contrary, more than two thirds (68%) of the families without two parents at home had children whose primarily language was English.

Another important finding to expand the discussion was related to the influence of program percent minorities on the language and literacy outcomes. As was shown in Table 16 in Chapter III, we know that there was a negative association between having a majority of minorities in the program and English vocabulary outcomes. Therefore, I ran some crosstabulations and chi-square statistics using this indicated variable and the children primarily language variable (2 x 2 tables) on it. As expected, I found that three quarters (75%) of the Latino children who are at Head Start centers with less than 50% of minorities are primarily English speakers. On the other hand, the majority of Latino children who are at Head Start centers with more than 50% of minorities are primarily Spanish English speakers. These differences were statistically significant. This finding reveals that high levels of minority concentration of children at those centers are not beneficial for English language outcomes.

Finally, from the regression analysis it was found that the most influential variables for the Latino primarily English-speaking preschool children language and

literacy outcomes may be different from the most influential variables for their primarily Spanish-speaking counterpart. In general, we can say that human capital variables such as English language proficiency of parents and parent education are important factors on early language and literacy development. In addition, family structure variables such as family size have strong effect on these outcomes. It is interesting to observe that the variables family poverty and older sibling had an impact only on the primarily English-speaking group. In addition, another important independent variable was television without control that negatively influenced many of the children outcomes. Finally, the child's age had contradictory influences on the dependent variables depending on whether the language was English or Spanish. This brief review of these findings will be the focus of the next chapter.

Overall, the assimilation theory has been supported but the confluence model has been partially rejected. For example, the main variables related to the assimilation model have been: parent immigrant status, parent functional reading, and children primarily language. Most of the statistic tests showed better language and early literacy outcomes for children who are primarily English-speaking, have not immigrant parents, and have parents with better English reading skills in comparison with children who are primarily Spanish-speaking children, have an immigrant parent at home who does not read English very well. However, the confluence model approach has some contradictory and inconsistent findings. For example, some of the main variables related to the confluence model have been having two parents at home versus one or none, having an older sibling, and family size. The *t*-test statistic showed better outcomes for children who are coming

from single or none parents at home compared with the children who had two parents at home which are contrary to the confluence model expectation. In addition, the regression analysis showed that having an older sibling is a negative statistically significant predictor of the tested outcomes but it is the case only for the primarily English speaker children. Finally, the family size variable went along with the confluence model expectation because this variable was a negative predictor of most of the English-speaking and Spanish-speaking children outcomes.

Theoretical approaches such as the confluence model and the assimilation model give us competing explanations for early language development of Latino children. Because children of more recent immigrant parents are more likely to live in two-parent households, this is also tapping into assimilation measures. Children of U.S.-born Latino parents are more likely to live in female-headed single-parent households and be more assimilated. In addition, they scored higher on language and early literacy measures than their less assimilated counterparts. Findings did not show clear and strong support for a family structure and sibling role on early language development. Although family is important, findings suggest that assimilation has a better story to tell in this case.

CHAPTER V

CONCLUSIONS

Introduction

The influence of family structure and the role of siblings on the early language development of Latino children living in the United States is complex. Latino preschool children (under 5 years old) in the U.S. represent about 23% of the total U.S. population at that age (Pew Hispanic Research Center, 2009b). Knowledge about this population and its characteristics is needed. There are proportionally more children from native-born Latino unmarried women than children from their foreign-born unmarried counterparts (Pew Hispanic Research Center, 2009b) and proportionally more foreign-born Latino families with more than three members in their household compared to non-Latino families', Do these demographic differences suggest new factors and perspectives are needed to understand the development of young Latino children? I believe the answer is yes because of the important role this group will play in the future of the American nation.

Early language development has been recognized as important for academic success. Any short-term effort and investment in young children's development will be compensated by long-term academic success. This research supports the idea that there is an early connection among the variables language, ethnicity, cultural practice, and family structure that we need to keep in mind for the following discussions.

In this chapter, the most important research findings and the most important implications derived from these findings will be discussed. For this chapter, I will

describe the sequence of the analyses made in Chapter IV because many decisions were made in logical and systematic order. The descriptive statistics will be reviewed, then the analyses. In addition, I will connect the results generated to the theoretical framework detailed in Chapter II. Finally, I will write about some of the limitations of the present work. At the conclusion, I will elaborate some arguments about the next steps expected to continue the present investigation.

At this point, I would like to remark on the importance of disaggregating Latino population analysis. As part of the literature review from previous chapters, I have emphasized the need to narrow down the study of the Latino populations. This group represents more than twenty nationalities and several generations of immigrants living into the U.S. Aggregating these nationalities and cohorts is fraught with complications. As a beginning, I have split the Latino sample in two: primarily Spanish-speaking and primarily English-speaking children. Differences between these two subsamples will be important to demonstrate similarities and differences on the learning paths and trends of early language and literacy development.

I summarized the best predictor variables found for language and literacy outcomes of the Latino preschool children tested from the sample in Table 22. Table 22 illustrates the positive or negative direction of the most important independent variable influences on the dependent variables as well as the associated statistical significance. Later, I will remark on some of the main points illustrated in this table and I will discuss these finding in the context of the primarily Spanish-speaking and primarily English-speaking groups and variables used.

Table 22. *Main Predictors on Language and Literacy Outcomes of Latino Preschool Children*

Variable	PPVT English	PPVT Spanish	TVIP Spanish	Letters English	Letters Spanish	Literacy English	Literacy Spanish	Count English	Count Spanish
2 parent & other					(+)*				
Family size		(-)~		(-)*			(-)*		(-)~
Older sibling				(-)*		(-)~			
Poverty status	(-)*					(-)~			
Parent English reading	(+)*	(+)*		(+)*	(+)*		(+)*	(+)~	
Father education			(+)*	(+)*		(+)*		(+)*	
Majority of minorities	(-)~								
TV without control				(-)*		(-)*	(-)*	(-)*	
Age in months	(+)*		(-)*		(-)*	(+)*	(+)*	(+)*	(+)*
	R^2= .23	R^2= .053	R^2= .182	R^2= .26	R^2= 24	R^2= .30	R^2= .117	R^2= .22	R^2= .07
	N= 249	*N*= 288	*N*= 303	*N*= 122	*N*= 157	*N*= 261	*N*= 324	*N*= 263	*N*= 323

*Significant at the 0.05 level (2-tailed).
~ Significant at the 0.1 level (2-tailed).

Research Questions and Hypotheses

As we stated in Chapters I and III of this study, there are three research questions and three hypotheses. Let me start with research question number 1 as it is asked: How does family structure as defined by family size, number of adults, number of children, two parents versus one parent at home, and family ages affect language development of Latino children?

Hypothesis 1: Language and early literacy outcomes of young children in the Latino families will be affected positively by having two parents at home, having a small family size, and having higher means of family ages at home.

There were some family structure variables that negatively impacted child's language and pre-literacy outcomes as illustrated in the findings noted below.

1. Having two parents at home has a statistically positive influence on letter word identification only for the Latino primarily Spanish-speaking children. However, children from two parent homes performed statistically lower than the children from one or no-parents households in all the language and early literacy measures except Spanish vocabularies TVIP.

2. Family size is negatively associated with English language development, emerging literacy, and basic counting variables for the Latino primarily Spanish-speaking children. However, family size affects negatively only letter word identification for the Latino primarily English-speaking children.

As we stated in Chapter I of this study, research question number 2 asked: how does sibling status (position within the family, number of siblings, and child spacing) affect the language development of Latino children?

Hypotheses 2: Language and early literacy outcomes of young children in Latino families will be greater for those having older school-age siblings than those with no siblings at all, or only younger siblings.

This hypothesis was confirmed partially because having older siblings impact negatively in some of the language and pre-literacy outcomes. It has been the case particularly of primarily English speaker children because the following findings:

1. Having an older sibling at school age has a negative correlation with the child-counting variable.

2. Having an older sibling at school age negatively influences letter word identification and emerging literacy variables only for the Latino primarily English-

speaking children. It is important to keep in mind that there were important differences on outcomes between primarily Spanish-speaking and primarily English-speaking Latino children.

Finally, stated in Chapter I of this study, research question number 3 asked: Does the family assimilation process (measured by English proficiency of both parent and children, and their immigrant generational status) influence on early language development of Latino children?

Hypotheses 3: Children Language outcomes in both English and Spanish and early literacy development will be impacted positively by better assimilated families such as children from second, or third and higher generations of immigrants, and by the English proficiency levels of both parent and children.

This hypothesis was accepted because it was found statistically significant differences between primarily Spanish-speaking and primarily English-speaking children in all the language and literacy outcomes. In general, primarily English-speaking children had better outcomes than primarily Spanish-speaking children. In addition, having an immigrant parent was found statistically significant negative correlated with all the language and literacy outcomes except the Spanish vocabulary measure.

Summary

Latino preschool children from two-parent-at-home households seem to be more embedded in Spanish-speaking culture than in English-speaking culture. The reverse is true for those children not living with two parents at home. This finding proves is a surprising disadvantage for early English language development for Latino preschool

children who are living with both mother and father in their homes. The finding is unexpected because it could be easily assumed that having two parents at home implies additional opportunities for English learning activities and interactions between parents and their young children that help them to expand their vocabularies. However, Latino preschool children who have one or no parents at home seems having a better chance to be primarily English speakers in comparison with Latino children from two-parent home. This could be because the former group is reaching out for resources that go beyond parental assistance like community, government, or institutional aid and support which in many cases implies English language settings. Another explanation would say that children from single household families represent a more assimilated group who has similar characteristics to the majority group in the U.S. nation. It also could be that having two parents at home increases the Spanish use within the family as well as possible higher exposed to Spanish friends or media (TV, radio, magazines, and newspapers) Spanish-speaking social networks, books, toys, and audio-visual materials which could be another characteristic of less assimilated groups. In this particular case, children having two parents at home might represent a less assimilated group of immigrants. However, we cannot take for granted that parents per se are the unique source of early English language development of young Latino children because in addition to parental presence at home for children's language influences' there are other factors need to be taken into account such as family structure and levels of acculturation and assimilation.

Children who are more assimilated to the host culture apparently have better

language and early literacy results. The Latino primarily English-speaking preschool children showed statistically significant better English vocabularies and literacy outcomes in comparison with their primarily Spanish-speaking counterparts. It was assumed that primarily English-speaking children were better acculturated or more highly assimilated into the American culture. In my opinion, English language proficiency was a fair proxy of assimilation and acculturation commonly used. Latino preschool children who are third and later immigrant generation (not having immigrant parents) seem to have better early language and preliteracy outcomes in comparison with the first and second generation (having at least one immigrant parent) of Latino children. These early outcome differences provide clear evidence of the assimilation process impact on even very young preschoolers, where each additional generation of immigrants help them to improve their early knowledge and important cognitive skills in comparison with the more recent immigrants. These results may be a function of having an immigrant parent at home, which also might increase the chance of living in a Spanish language enclave. Residence in a Spanish language enclave was not a variable I tested due to lack of data. In addition, having an immigrant parent may limit access to common English language settings, interactions, materials, and resources of children from fluent English-speaking families. For example, many of the most popular children's books utilized in the U.S., like Dr. Seuss, were written in English and thus assist primarily English-speaking children, but are less attractive for children embedded in a different language and cultural background even though both groups of children are living in the same country. Differences in children's language and literacy outcomes among generations of

immigrants start even before children begin school and it is in part influenced by their family knowledge (culture), settings, and dynamics.

Children living in small families were expected to have better outcomes than children from larger families. Family structure information such as family size, having an older sibling, and the number of children and adults at home were used to test their influence on language and literacy outcomes of Latino preschool children. Some results showed negative effects on these outcomes particularly for Spanish-speaking children if they were members of large families in comparison with children from small families. For example, if the child belongs to a large family, it was disadvantageous on their Spanish language development and early literacy knowledge, in comparison with children who were members of small families. However, it is important to note that having an older sibling was found having a negative impact in some literacy outcomes only for Latino primarily English-speaking children. These findings confirmed in part the confluence model that says children having fewer siblings and more adults (small families) will have better academic outcomes than children having more siblings and fewer adults (large families; Falbo & Cooper, 1980). The confluence model as a theoretical framework has been confirmed only in part by these results because these statistics were not consistent for both primarily Spanish-speaking and primarily English-speaking children groups. The confluence model was also partially rejected because children from families “having two parents at home” had lower language and emergent literacy outcomes in comparison with children who had one or none parents at home.

Human capital variables such as parent education, parent functional reading in

English, and poverty of the family had a significant impact on the Latino children's language and preliteracy outcomes. For example, parent education and parent English proficiency has a consistently positive impact on children's outcomes. This finding goes along with assimilation theory, which expects better outcomes for the second and higher generation of immigrants in comparison with individuals from more recent immigrant generations. It also supports the positive impact on child outcomes for those parents who are more acculturated parents at least as indicated by their better English skills. On the other hand, poverty had a negative impact on the outcomes particularly for the primarily English-speaking group. It seems that more recent generations of immigrants who are in this case primarily Spanish-speaking children buffer somehow the negative effects of family poverty on early language and preliteracy development.

Interesting enough, the age of the Latino preschool children (in months) has both positive (for one group) and negative (for the other group) effects on the studied language and literacy outcomes. For example, it seems that older children have less developed Spanish vocabulary and literacy in particular for primarily Spanish-speaking children. This finding suggests an apparent progressive decrease in Spanish vocabulary skills for primarily Spanish-speaking young children. The decline may be because as they age the children are more exposed to settings and social environments where English rather than Spanish predominates. However, the opposite pattern was found for the primarily English-speaking children who showed better English language results and literacy outcomes when they were older they during the testing period.

Finally, one of the few variables I used to explore the potential level and type of

interactions within the families homes was children watching television without control. This variable was a statistically significant negative independent predictor for the children literacy outcomes in both Latino primarily Spanish-speaking and primarily English-speaking groups. Then, no matter what language children use, watching television is detrimental for early literacy results.

The research findings need to be connected with the theoretical approaches used for this study: the assimilation process and the confluence model. First, the assimilation process holds that, in general, there will be better socioeconomic immigrant outcomes over time (generations) and this has been confirmed based on significant differences on early language and literacy outcomes between Latino primarily Spanish-speaking children (who are one and a half or second generation of immigrants mainly) and Latino primarily English-speaking children (who are third and higher generation of immigrants). In this case, children of earlier immigrants who have been in the U.S. for longer periods of time and are therefore likely to have higher generational status performed better in comparison to children of more recent immigrant parents. In addition, the confluence model which holds that any additional child in the family could be unfavorable and any additional adult in the family could be favorable for children's cognitive development has been partially rejected because children from two parents at home families had lower outcomes than children from one or none parents at home. Data showed that a great majority of primarily English-speaking children had one or none parents at home. More assimilated children (primarily English speakers) had larger vocabularies and developed better emergent literacy skills than less assimilated immigrant children, and much of

these differences can be extended to future academic outcomes and its social and economic derivations. In addition, children age became a positive English language factor but it also showed a negative Spanish language factor. In other words, older primariy English-speaking children had better standardized English vocabularies than their younger counterparts, but older primarily Spanish-speaking children had lower standardized Spanish vocabularies than their younger counterparts. It also means that as part of the acculturation process, the longer a recent immigrant child stay in the new culture, s/he is at risk to lose part of his/her own or parent culture.

In conclusion, I have found different patterns of influences on language and pre-literacy outcomes of both primarily English-speaking and primarily Spanish-speaking Latino preschool children living in the U.S. These differences are directly related to the assimilation process of immigrants and their children. In addition, family structure plays a role on the type of interactions between children and their family members. Therefore, family structure and family assimilation status are important combined factors to explain language and emergent literacy outcomes (see Table 23).

Implications

Findings from this study might lead to interventions that use family strengths and build cultural competence while improving child outcomes. (a) Families acculturation and assimilation process matters so it needs to be considered by government programs because English language proficiency of both parents and children become critical for immigrant future progress. (b) Then cultural sensitive approaches need to be included on services and programs that help to understand others learning process to facilitate a faster

Table 23. *Main Predictors for Primarily English-speaking and Spanish-speaking Children on Language and Literacy Outcomes*

	English				Spanish			
Independent variables	PPVT	Letter-word	Literacy	Count	PPVT	Letter-word	Literacy	Count
2 parent and other						(+)*		
Family size		(-)*			(-)~		(-)*	(-)~
Older sibling		(-)*	(-)~					
Poverty status	(-)*		(-)~					
Parent English reading	(+)*	(+)*		(+)~	(+)*	(+)*	(+)*	
Father education		(+)*	(+)*	(+)*				
Majority of minorities	(-)~							
TV without control		(-)*	(-)*	(-)*			(-)*	
Age in months	(+)*		(+)*	(+)*		(-)*	(+)*	(+)*

*Significant at the 0.05 level (2-tailed).
~ Significant at the 0.1 level (2-tailed).

acculturation process of immigrant families. (c) If family structure and siblings influence language development at preschool ages, making families aware of this "resource" and developing information on how to engage siblings and other family members in meaningful ways could be important to promote good development strategies of younger children. (d) Training older siblings and other family members on how to interact with younger siblings may be effective. (e) Involving older siblings in some program activities could lead us to new opportunities of positive intervention. (f) Utilizing effective new cultural perspectives in childhood issues such as language development will help programs adapt and adjust to a demographically changing nation.

Limitations

An important limitation from the sample is related to the potential lack of national representativeness of the Head Start data to the Latino population living in the U.S. as a whole. The sample is representative nationally, but is not likely to be representative of Latinos nationally. Although some population distribution comparison was done, it is not enough to generalize to the whole group. Specifically, Head Start is a program that primarily serves to low-income (poor) families. Although many Latinos are poor, it is not justifiable to assume that all are poor, nor that those served by Head Start are representative.

Information about interactions between Latino young children and other family members is critical for further analysis. Knowing the quality, quantity, and type of their interactions will help us to understand better the process and the critical resources these families might have to improve language and emergent literacy skills at early ages.

Next Steps and Future Research

This dissertation analyzing the influence of assimilation, family structure and the role of siblings on early language development of Latino children living in the United States constitutes exploratory research on a topic that needs further investigation. At this point, I have focused my attention on the Latino families without any additional group consideration. It will be important to include in the model a comparison with other populations like white non-Hispanic Blacks or African Americans, Asians, and non-Latino immigrants.

Currently we are witnessing demographic changes that affect family structure

directly and many other different outcomes indirectly such as their interactions within the families. Updated new data will be available soon, and comparisons with other cohorts from the same database project will be possible. Tracking demographic changes and their influences on the outcomes we have chosen for the present study will help us to identify, prepare, and react on time to the new challenges the new generations of Americans might face.

There is a need of more detailed data about the type, quantity (intensity), and quality of young children interactions. It is important to know "when," "how," and "who" are they interacting with as part of their early language development process. Having this information on hand will help us to improve or to develop new strategies and to provide better service programs with cultural knowledge and contextual understanding.

Finally, there is a need to follow up on some of the current findings. For example, why two parents at home is disadvantageous for Latino preschool children language and literacy outcomes? These questions need to be investigated in the near future.

Because data is showing that assimilation matters on early language development and literacy outcomes of young children, additional research about specific factors influencing early cognitive development as well as early social outcomes would be relevant. For example, disaggregated learning about the critical elements impacting on language and social skills of young Latino children coming from recent immigrant families in comparison with older generations of immigrants and native white –not-Hispanic families would be pertinent.

REFERENCES

Adam, M. (2003). Fighting the Latino dropout rate. *The Education Digest, 68*(6), 23-27.

Alba, R., Logan, J., Lutz, A., & Stults, B. (2002). Only English by the third generation? mother-tongue loss and preservation among the grandchildren of contemporary immigrants. *Demography, 39*, 467-484.

Alba, R., & Nee, V. (2003). *Remaking the American Mainstream: Assimilation and Contemporary Immigration*. Cambridge, MA: Harvard University Press.

April, L. (2004.) A critical mass model of bilingualism among U.S. born Hispanics. *Social Forces, 83*(1), 279-314.

August, D. A., & Hakuta, K. (1997). *Improving schooling for language minority children: A research agenda.* Washington, DC: The National Academy Press.

Azmitia, M., & Hesser, J. (1993). Why siblings are important agents of cognitive development: A comparison of siblings and peers. *Child Development*, 64, 430-444.

Barton, M.E., & Tomasello, M. (1991). Joint attention and conversation in mother-infant sibling triads. *Child Development, 62,* 517-529.

Berry, E. H., & Kirschner, A. (2002). *The changing face of the American West: The burgeoning Latino population.* Logan, Utah - Western Regional Development Center White Paper Policy Series.

Best, D.L. (2004). Gender roles in childhood and adolescence. In U.P. Gielen & J. Roopnarine (Eds.), *Childhood and adolescence, cross-cultural perspectives and applications* (pp. 3-45). Westport, CT: Praeger.

Biemiller, A. (1999). *Language and reading success*. Cambridge, MA: Brookline.

Borjas, G. (1985). Assimilation, changes in cohort quality, and the earnings of immigrants. *Journal of Labor Economics, 3*(4), 463-489.

Borjas, G. (1993). The intergenerational mobility of immigrants. *Journal of Labor Economics, 11*(1), 113-135.

Brooks-Gunn, J., & Markman, L. (2005). The contribution of parenting to ethnic and racial gaps in school readiness. *The Future of Children, 15*(1), 139-168.

Brown, J.R., Donelan-McCall, N., & Dunn, J. (1996). Why talk about mental states? The significance of children's conversations with friends, siblings, and mothers. *Child Development, 67,* 836-849.

Bryant, B.K. (1989). The child's perspective of sibling caretaking and its relevance to understanding social-emotional functioning and development. In P. G. Zukow (Ed), *Sibling interactions across cultures: Theoretical and methodological issues* (pp. 143-164). New York: Springer-Verlag.

Cabassa, L. (2003) Measuring acculturation: Where we are and where we need to go. *Hispanic Journal of Behavioral Sciences*, *25*, 127-146.

Caldwell, J.C. (1976). Toward a restatement of demographic transition theory. *Population and Development Review, 2,* 321-366.

Catts, H.W., Fey, M.E., Zhang, X., & Tomblin, J.B. (1999). Language basis of reading and reading disabilities: Evidence from a longitudinal investigation. *Scientific Studies of Reading, 3,* 331-361.

Cicirelli, V.G. (1976). Mother-child and sibling-sibling interactions on a problem-solving task. *Child Development, 47,* 588-596.

Cicirelli, V.G. (1994). Sibling relationships in cross-cultural perspective. *Journal of Marriage and the Family, 56,* 7-20.

Currie, J. (2005). Health disparities and gaps in school readiness. *The Future of Children, 15*(1), 117-138.

Dickinson, D.K. (2004, June). *The central importance of oral language*. Paper presented at the National Head Start Conference, Washington, DC.

Dickinson, D.K., & Snow, C.E. (1987). Interrelationships among pre-reading and oral language skills in kindergartners from two social classes. *Early Childhood Research Quarterly, 2*(1), 1-25.

Dickinson, D.K., & Tabors, P.O. (Eds.). (2001). *Beginning literacy with language: Young children learning at home and school.* Baltimore: Brookes.

Dickinson, D.K., McCabe, A., Anastasopoulos, L., Peisner-Feinberg, E.S., & Poe, M.D. (2003). The comprehensive language approach to early literacy: The interrelationships among vocabulary, phonological sensitivity, and print knowledge among preschool-aged children. *Journal of Educational Psychology, 95*(3), 465-481.

DiMaria, F. (2003). High-schoolers a fighting chance at college. *The Education Digest, 68*(7), 45-50.

Downey, D.B. (1995). When bigger is not better: Family size, parental resources, and children's educational performance. *American Sociological Review, 60*, 746-61.

Duncan, B., Hotz, V.J., & Trejo, S.J. (2006). Hispanics in the U.S. labor market. In M. Tienda & F. Mitchell (Eds.), *Hispanics and the future of America* (pp. 228-290). Washington, DC: The National Academy Press.

Duncan, G.J., & Brooks-Gunn, J. (1997). *Consequences of Growing up Poor.* New York: Sage.

Duncan, G.J., & Magnuson, K.A. (2005). Can family socioeconomic resources account for racial and ethnic test score gaps. *The Future of Children*, *15*(1), 35-54.

Dunn, L., & Dunn, L. (1997). *Peabody Picture Vocabulary Test* (3rd ed.). Circle Pines, MN: American Guidance Service.

Dunn, L.W., Padilla, E.R., Lugo, D.E., & Dunn, L.M. (1986). *Test de Vocabulario en Imágenes Peabody*. Circle Pines, MN: American Guidance Service.

Durand, J., Telles, E., & Flashman, J. (2006). The demographic foundations of the Latino population. In M. Tienda & F. Mitchell (Eds.), *Hispanics and the future of America* (pp. 66-99). Washington, DC: The National Academy Press.

Ervin-Tripp, S. (1989). Sisters and Brothers. In P.G. Zukow (Ed.), *Sibling interactions across cultures: Theoretical and methodological issues* (p184-195). New York: Springer-Verlag.

Escarce , J.J., Morales, L.S., & Rumbaut, R.G. (2006). The health status and health behaviors of Hispanics. In M. Tienda & F. Mitchell (Eds.), *Hispanics and the future of America* (pp. 362-409). Washington, DC: The National Academy Press.

Espinosa, L.M. (2004, June). *The promise of diversity: Educating young children from diverse backgrounds*. Presentation at the National Head Start Conference, Washington, DC.

Falbo, T., & Cooper, C. (1980). Young children's time and intellectual ability. *The Journal of Genetic Psychology*, *137*, 299-300.

Freese, J., Powell, B., & Steelman, L.C. (1999). Rebel without a cause or effect: Birth order and social attitudes. *American Sociological Review, 64*, 207-231.

Fry, R. (2008). *Latinos settlement in the new century*. Retrieved June 5, 2009, from http://pewhispanic.org/reports/report.php?ReportID=96

Gallimore, R., & Goldenberg, C.N. (1992). Activity settings in early literacy: Home and school factors in children's emergent literacy. In E.A. Forman, N. Minick, & C.A. Stone (Eds.), *Context for learning* (pp. 315-335). New York: Oxford University Press.

García, E. (1983). Becoming bilingual during early childhood. *International Journal of Behavioral Development, 6*, 375-404.

Gauvain, M. (2005). Sociocultural context of learning. In A.E. Maynard & M.I. Martini (Eds.), *Learning in cultural context: Family, peers, and school* (pp. 11-40). New York: Kluwer Academic/Plenum.

Gielen, U.P. (2004). The cross-cultural research of human development: An opinionated historical introduction. In U.P. Gielen & J. Roopnarine (Eds.), *Childhood and adolescence, cross-cultural perspectives and applications* (pp. 3-45). Westport, CT: Praeger.

Goldenberg, C., Gallimore, R., Reese, L., & Garnier, H. (2001). Cause or effect? A longitudinal study of immigrant Latino parents' aspirations and expectations, and their children's school performance. *American Educational Research Journal, 38*(3), 547-582.

Hague, R. (2003). Dropout re-engagement: A new approach. *Principal Leadership, 3*(6), 44-47.

Hancock, T., & Kaiser, A.P. (1996). Siblings' use of milieu teaching at home. *Topics in Early Childhood Special Education, 16*(2), 168-191.

Hart, B., & Risley, T.R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore: Brookes.

Hart, B., & Risley, T.R. (1999). *Learning to talk: The social world of children*. Baltimore: Brookes.

Heath, S.B. (1983). *Ways with words: Language, life and work in communities and classrooms*. Cambridge, England: Cambridge University Press.

Healey, J.F. (2007). *The essentials of statistics: A tool for social research*. Belmont, CA: Wadsworth.

Hirschman, C. (2001). The educational enrollment of immigrant youth: A test of the segmented-assimilation hypothesis. *Demography, 38*(3), 317-336.

Hoff, E. (2003). The specificity of environmental influence: Socioeconomic status affects early vocabulary development via maternal speech. *Child Development, 74*(5), 1368-1378.

Johnson, K., & Lichter, D.T. (2008). Natural increase: A new source of population growth in emerging Hispanic destinations in the United States. *Population and Development Review, 34*(2), 327-346.

Jones, C.P., & Adamson, L.B. (1987). Language use in mother-child and mother-child-sibling interactions. *Child Development, 58,* 356-366.

Lancy, D. (2007). Accounting for variability in mother-child play. *American Anthropologist, 109*(2), 273-284.

Lancy, D. (2008). *The anthropology of childhood: Cherubs, chattel, changelings*. Cambridge, MA: Cambridge University Press.

Landale, N.S., Oropesa, R.S., & Bradatan, C. (2006). Family structure and process in an era of family change. In M.T. & F. Mitchell (Eds.), *Hispanics and the future of America* (pp. 138-178). Washington, DC: The National Academy Press.

Lara-Cinisomo, S., & Thomas, A. (2007). *An exploratory study of mothers' perceptions of acculturation within the preschool context* (Working paper WR-523-L&P). Pittsburgh, PA: RAND Labor and Population.

LeVine, R. (2004). Challenging expert knowledge: Findings from an African study of infant care and development. In U.P. Gielen & J. Roopnarine (Eds.), *Childhood and adolescence, cross-cultural perspectives and applications* (pp. 3-45). Westport, CT: Praeger.

Lindholm, K., & Padilla, A. (1981). Socialization via communication: Language interaction patterns used by Hispanic mothers and children in mastery of skill communication. In R. Duran (Ed.), *Latino language and communicative behavior* (pp. 271-293). Norwood, NJ: Ablex.

Lu, Y., & Treiman, D.J. (2008). The effect of sibship size on educational attainment in China: Period variations. *American Sociological Review, 73*(5), 813-834.

Magnusson, K., & Waldfogel, J. (2005). Early childhood care and education: Effects on ethnic and racial gaps in school readiness. *The Future of Children, 15*(1), 169-195.

Martínez, M. (1987). Dialogues among children and between children and their mothers. *Child Development, 58,* 1035-1043.

Maynard, A.E. (2004). Sibling interactions. In U.P. Gielen & J. Roopnarine (Eds.), *Childhood and adolescence, cross-cultural perspectives and applications* (pp. 229-252). Westport, CT: Praeger.

Maynard, A.E. (2005). Cultural learning in context. In A.E. Maynard & M.I. Martini (Eds.), *Learning in cultural context: Family, peers, and school* (pp. 1-10). New York: Kluwer Academic/Plenum.

McCall, R. (1985). The confluence model and theory. *Child Development, 56,* 216-217.

Michaels, S. (1981). "Sharing time": Children's narratives styles and differential access to literacy. *Language and Society, 10,* 423-442.

National Center for Education Statistics. (2000). *Special analysis 2000. Entering kindergarten: A portrait of American children when they begin school*. Retrieved May 18, 2008 from, http://nces.ed.gov/programs/coe/2000/essay/e03f.asp

National Center for Education Statistics. (2008). *Fast facts*. Retrieved May 18, 2008, from http://nces.ed.gov/FastFacts/display.asp?id=16

National Research Council. (1998). *Prevention of reading difficulties in young children.* Washington, DC: National Academy of Sciences.

Neidert, L., & Farley, R. (1985). Assimilation in the United States: An analysis of ethnic and generation differences in status and achievement. *American Sociological Review*, 50(6), 840-850.

Nelson, K. (1981). Individual differences in language development: Implications for development and language. *Developmental Psychology, 16,* 170-187.

Olsen-Fulero, L., & Conforti, J. (1983). Child responsiveness to mother questions of varying type and presentation. *Journal of Child Language, 10*, 495-520.

Orellana, M.F. (2003). Responsibilities of children in Latino immigrant homes. *New Directions for Youth Development, 100*, 25-39.

Orellana, M.F., Dorner, L., & Pulido, L. (2003). Accessing assets: Immigrant youth's work as family translator or "para-phrasers." *Social Problems, 50*(4), 5005-5024.

Ortiz, E., Innocenti, M., & Roggman, L. (2004, June). *How much do sibling influences on*

early language development in Spanish-speaking low-income families? Poster presentation at the National Head Start Conference, Washington, DC.

Ortiz, E., Innocenti, M., & Roggman, L. (2005, April). *Sibling influences on early language development in Spanish-speaking low-income families.* Poster presentation at the Society for Research in Child Development Conference. Atlanta, GA.

Oshima-Takane, Y., Goodz, E., & Derevensky, J.L. (1996). Birth order effects on early language development: Do second born children learn from overheard speech? *Child Development, 67,* 621-634.

Pérez-Granados, D., & Callanan, M. (1997). Parents and siblings as early resources for young children's learning in Mexican-descent families. *Hispanic Journal of Behavioral Sciences, 19*(1), 3-33.

Pew Hispanic Research Center. (2009a). *Who's Hispanic?* Retrieved June 5, 2009, from http://pewhispanic.org/reports/report.php?ReportID=111

Pew Hispanic Research Center. (2009b). *Statistical portrait of the Hispanics in the United States, 2007*. Retrieved June 5, 2009, from http://pewhispanic.org/factsheets/ factsheet.php?FactsheetID=46

Pine, J. M. (1995). Variation in vocabulary development as a function of birth order. *Child Development, 66,* 272-281.

Portes, A., & Rumbaut, R. (2001). *Legacies: The story of the immigrant second generation*. Berkeley: University of California Press.

Portes, A., & Zhou, M. (1993). The new second generation: Segmented assimilation and its variants among post-1965 immigrant youth. *Annals of the American Academy of Political and Social Science. 530,* 74-89.

Reimers, C. (2006). Economic well-being. In M. Tienda & F. Mitchell (Eds), *Hispanics and the future of America* (pp. 291-361). Washington, DC: The National Academy

Roopnarine, J., Bynoe, P.F., & Singh, R. (2004). Factors tied to schooling of children of English-speaking Caribbean immigrants in the United States. *Childhood and adolescence, cross-cultural perspectives and applications* (pp. 319-349). Westport, CT: Praeger.

Rouse, C., Brooks-Gunn, J., & McLanahan, S. (2005) Introducing the issue. *The Future of Children*, *15*(1), 5-14.

Rumbaut, R. (2006). The making of a people. In M. Tienda & F. Mitchell (Eds), *Hispanics and the future of America* (pp. 16-65). Washington, DC: The National Academy.

Rumbaut, R.G., & Ima, K. (1988). *The adaptation of Southeast Asian refugee youth: A comparative study*. Washington, DC: Office of Resettlement.

Sabogal, F., Marin, G., Otero-Sabogal, R., VanOss, M.B., & Perez-Stable, E.J. (1987). Hispanic familism and acculturation: What changes and what doesn't? *Hispanic Journal of the Behavioral Sciences, 4*, 397-412.

Salazar-Parreñas, R. (2001). *Servants of globalization: Women, migration, and domestic work*. Stanford, CA: Stanford University Press.

Salinas-Sosa, A. (1997). Involving parents in educational activities through collaborative relationships. *Bilingual Research Journal, 21*(2 and 3), 103-111.

Sassen, S. (2001). *The global city: New York, London, Tokyo*. Princeton, NJ: Princeton University Press.

Schneider B., Martinez, S., & Owens, A. (2006). Barriers to educational opportunities for Hispanics in the United. In M. Tienda & F. Mitchell (Eds), *Hispanics and the future of America* (pp. 179-227). Washington, DC: The National Academy

Sénéchal, M., & LeFevre, J. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child Development, 73*, 445-460.

Snow, C. E., Burns, M. S., & Griffin, P. (1998). *Preventing reading difficulties in young children.* Washington, DC: The National Academy Press.

Steelman, L., Powell, B., Werum, R., & Carter, S. (2002). Reconsidering the effects of sibling configuration: Recent advances and challenges. *Annual Review of Sociology, 28*, 243-269.

Steidel, A.G., Contreras, L., & Contreras, J.M. (2003). A new familism scale for use with Latino populations. *Hispanic Journal of the Behavioral Sciences, 25*(3), 312-330.

Teti, D.M., Gibbs, E.D., & Bond, L.A. (1989). Sibling interaction, birth spacing, and intellectual/linguistic development. In P.G. Zukow (Ed), *Sibling interactions across cultures: Theoretical and methodological issues* (pp. 117-142). New York: Springer-Verlag.

Tharp, R.G., & Yamauchi L.A. (1994). *Effective instructional conversation in Native American classrooms (Educational Practice Report, 10).* Santa Cruz, CA: National Center for Research on Cultural Diversity and Second Language Learning.

Tienda, M., & Mitchell, F. (2006). Introduction: E Pluribus Plures or E Pluribus Unum? In M. Tienda & F. Mitchell (Eds), *Hispanics and the future of America* (pp. 1-15). Washington, DC: The National Academy

Tomasello, M., & Mannle, S. (1985). Pragmatics of sibling speech to one-year-olds. *Child Development, 56,* 911-917.

U.S. Census Bureau. (2002). *Demographic trends in the 20th century*. Retrieved May 18, 2008, from http://www.census.gov/prod/2002pubs/censr-4.pdf

U.S. Census Bureau. (2004). *Hispanic and Asian Americans increasing faster than overall population*. Retrieved May 18, 2008, from http://www.census.gov/ Press-Release/www/releases/a archives/race/001839.html

U.S. Census Bureau. (2007). *Single-parent households showed little variation since 1994*. Retrieved May 18, 2009, from http://www.census.gov/Press-Release/www/releases/archives/families_households/009842.html.

U.S. Census Bureau. (2009). *Hispanic population of the United States*. Retrieved January 18, 2009, from http://www.census.gov/population/www/socdemo/hispanic/hispanic_pop_presentation.html

Wallden, J. (1990). *Sibling position and mental capacity reconsidered* (Project Metropolitan Research, report 31). Stockholm, Sweden: University of Stockholm, Department of Sociology.

Weisner, T.S. (1989). Comparing sibling relationships across cultures. In P.G. Zukow (Ed.), *Sibling interactions across cultures: Theoretical and methodological issues* (pp. 11-25). New York: Springer-Verlag.

Weisner, T.S. (1993). Overview: Sibling similarity and difference in different cultures. In C.W. Nuckolls (Ed.), *Siblings in South Asia: Brothers and sisters in cultural contexts* (pp. 1-18). New York: Guilford.

Weisner, T. S., Matheson, C., Coots, J., & Bernheimer, L.P. (2005). Sustainability of daily routines as a family outcome. *Learning in cultural context: Family, peers, and school*. New York: Kluwer Academic/Plenum.

Whittemore, R.D., & Beverly, E. (1989). Trust in the Mandinka way: The cultural context of sibling care. In P.G. Zukow (Ed.), *Sibling interactions across cultures: Theoretical and methodological issues* (pp. 26-53). New York: Springer-Verlag.

Woodcock, R.W., & Johnson, M.B. (1989). *Woodcock-Johnson Revised Tests of Achievement*. Itasca, IL: Riverside.

Woodcock, R. W., & Muñoz-Sandoval, A. F. (1993). *Comprehensive manual: Woodcock Muñoz Language Survey.* Itasca, IL: Riverside.

Zajonc, R.B., & Marcus, G.B. (1975). Birth order and intellectual development. *Psychology Review, 82,* 74-88.

Zill, N., Kim, K., Sorongon, A., & Herbison, R. (2006). *Family and Child Experiences Survey FACES 2000 Data User's Guide*. ICPSR, Ann Arbor, MI.

Zukow, P.G. (1989a). Communicating across disciplines: On integrating psychological and ethnographic approaches to sibling research. In P.G. Zukow (Ed.), *Sibling Interactions across cultures: Theoretical and methodological issues* (pp. 1-8). New York: Springer-Verlag.

Zukow, P.G. (1989b). Sibling as effective socializing agents: Evidence from Central Mexico. In P.G. Zukow (Ed.), *Sibling Interactions across cultures: Theoretical and methodological issues* (pp. 70-105). New York: Springer-Verlag.

VITA

EDUARDO A. ORTIZ

Office Address:
Early Intervention Research Institute
Logan, Utah 84322-6580
Phone: (435) 797-3690
Eduardo.Ortiz@aggiemail.usu.edu

Home Address
165 W 1100 N.
Logan, UT 84341
435-764-6373

Education

PhD (Sociology)	2009	*Utah State University*, Logan, Utah
MBA	2002	*Utah State University*, Logan, Utah
Doctorate Law Degree	1996	*Pontifical Catholic University of Ecuador*, Quito, Ecuador
BS (Political Science)	1994	*Pontifical Catholic University of Ecuador*, Quito, Ecuador

Dissertation

The Influence of Family Structure and the Role of Siblings on Early Language Development of Latino Preschool Children in the U.S.

Awards

Utah State University Diversity Award (Student category), 2008

Dean's List, College of Humanities. Utah State University, 1999

Certificate of merit to recognize outstanding scholarship, Utah State University 1998

Teaching Experience:

Social Research Methods (Soc.3110) class instructor at Utah State University (fall, 2008)

Introduction to Sociology (Soc. 1010) class instructor at Utah State University (summer, 2007)

Social Problems (Soc. 1020) class instructor at Utah State University (summer, 2006)

Research and Management Experience:

Research Assistant, Early Intervention Research Institute, Utah State University, 2000-present.

Research Assistant, Using Technology for Emergent Literacy and Language (UTELL) project, Early Intervention Research Institute, Utah State University, 2006-9.

Research Assistant, Storytelling for Home Enrichment of Language and Literacy Skills (SHELLS) project, Early Intervention Research Institute, Utah State University, 2006-7.

Research Assistant, Bilingual Early Language and Literacy Support (BELLS) project, Early Intervention Research Institute, Utah State University, 2002-6

Research Assistant and Project Manager, Finding most In Need Utah children project, Early Intervention Research Institute, Utah State University, 2000-1.

Project Coordinator, International Student Office and Scholars, Utah State University, 2000

The above projects included the following responsibilities:

- Literature Review
- Project development
- Data collection
- Quantitative data analyses
- Qualitative data analyses
- Project coordination
- Project supervision
- Translations
- Interpretation
- Coding
- Research team discussions
- Dissemination

Publications

Akers, J., Boyce, L. K., and Innocenti, M. S., Ortiz, E., and Cook, G. A. (In press). The Validity of a Parent Report Measure of Vocabulary at 24 Months for Low-Income, Bilingual Children (in submission).

Boyce, L. K., Akers, J., and Innocenti, M. S., Ortiz, E., and Cook, G. A. (Invited to revise and resubmit). Expressive vocabulary development of young Spanish-English bilingual children living in poverty. Submitted to *Journal of School Psychology.*

Oral Presentations

Ortiz, E., Lim L. S., Berry E. H., and Toney M. (2008). *Comparison of the Internal Migration of Mexican and other Hispanic groups in the United States.* Presenter at Pacific Sociological Association Conference, Portland, OR.

Ortiz, E., Toney M., Berry E. H., Innocenti, M., and Roggman, L. (2007). *Early Language Development Considerations from Spanish speaking families.* Presenter at Institute of Public and International Affairs, Utah Demography Research Network Seminar, University of Utah, Salt Lake City, UT.

Ortiz, E. and Jump Vonda (2006). *Building Books with Family Stories.* Northern Utah Summit for Parents, Teachers, and Friends of Education, Utah State University, Logan, UT.

Ortiz, E., Roggman, L., and Mark Innocenti, M. (2004). *How much do Siblings Influence Early Language Development of Preschool children of Spanish speaking low-income Families in the U.S.* Society for Research in Human Development, Park City, UT.

Ortiz, E. and Ahern A. (2003). *Hispanic Latino parents, an approach to Understanding.* Educators for Diversity, Utah State University, Logan Utah.

Poster Presentations

Boyce, L. K., Innocenti, M. S., Ortiz, E. (2008). *Examining Maternal Vocabulary Diversity in Book Sharing and Play Interactions: A Longitudinal Study of Latino Toddlers Living in Poverty.* International Conference on Infant Studies, Vancouver, BC

Ortiz, E., Innocenti, M., and Roggman, L. (2006). *Vocabulary exposure of Young Children from Spanish speaking Low-income Families: Words Count!* 8th Head Start National Research Conference, Washington, D.C.

Akers, J.F., Boyce, L.K., Innocenti, M.S., Cook, G.A., and Ortiz, E. (2006). *Assessing the Language Development of Young, Bilingual Children Living in Poverty: Are We Measuring What We Think We Are Measuring?* Conference on Research Innovations in Early Intervention, San Diego, CA.

Ortiz, E., Innocenti, M., and Roggman, L. (2005). *How Siblings Influence Early Language Development in Spanish speaking low income Families*. Society for Research in Child Development, Atlanta, GA.

Ortiz, E., Innocenti, M. S., and Roggman, L. A. (2004). *Sibling Influences on Early Language Development in Spanish speaking low-income Families.* Conference Proceedings of the National Head Start National Research Conference, Washington, DC, 625-626.

Ortiz, E., Innocenti, M. S., and Roggman, L. A. (2004). *Factors about Sibling Influence in Early Language Development.* Early Intervention Research Institute, Logan, UT.

Ortiz, E., Linares L., and Cook G. (2003). *Understanding Language and Literacy Development: Watching and Listening to Parent – Child Interactions.* Early Intervention Research Institute, Utah State University, Logan, UT.

Grant Applications

- USAID: Expanding Participation through Material Development and Capacity Building for People with Disabilities in Ecuador (2009).
- AETNA Inc. “To empower Hispanic families in Utah communities to identify and obtain health coverage” (2002).
- Head Start Graduate Student Research Grants (2007)

- Robert Wood Johnson Foundation "Serving the most in-need populations in Utah, uninsured non-majority groups in rural communities and children's health" (2002)

Professional Service

Reviewer, American Education Research Journal, 2005-6

Consultant, Center for Persons with Disabilities (CPD) and Early Intervention Research Institute projects, 2002-8

Legal Experience

Executive Lawyer, Benitez and Associates Legal Office, Quito, Ecuador, 1996-8.

Secretary Lawyer, School of Psychology, Pontifical Catholic University of Ecuador, Quito, Ecuador, 1997.

Assistant legal support, Benitez and Associates Legal Office, Quito, Ecuador, 1990-6.

Volunteer Experience

- Chairperson, Bridger Elementary School Community Committee, Logan, Utah, 2007-8.
- Board Member, Somebody's Attic Non Profit, Logan, Utah, 2007-8.
- Editorialist, Ecuadorian Newspaper "Ecos del Chanchán", Alausí, Ecuador, 2005-9.
- Founding Member, Cache Valley Hispanic Network, 2006-8.
- Guest Speaker, Hispanic Education and Culture, Utah State University, Logan, Utah
- Member, Bridger Elementary School Community Committee, Logan, Utah, 2005-9
- Volunteer, Adams Elementary School, Logan, Utah, 2003-4
- Teacher, GED adult education, Utah State University Extension, Logan, Utah, 2002
- Teacher, Computer Assisted Literacy for Latino Adults, Logan, Utah, 2001
- Counselor at the Social Rehabilitation Center, Quito, Ecuador, 1994
- Legal Consultant , CORDAVI (Ecological Foundation), Quito, Ecuador, 1992

Professional Memberships

American Sociological Association (ASA)
Pacific Sociological Association (PSA)
Society for Research in Child Development (SRCD)
Society for Research in Human Development