

아시아계와 남미계 미국인 이민자 어머니의 언어 사용과 학령 전 아동의 학교준비도 사이의 관계

The Associations between Early Maternal Language Use and School Readiness among Young Children of Asian and Hispanic Immigrant Mothers in the United States

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요약

본 연구는 아시아계와 남미계 미국인 이민자 어머니의 언어 사용과 학령 전 아동의 학교준비도 사이의 관계를 규명하려는 목적으로 수행되었다. 미국 교육부에서 구축한 전국적 대표성을 지니는 출생 코호트 자료에서 이민자 어머니의 자녀 약 1,500명을 대상으로 중다회귀분석 방법을 활용하여 분석을 수행한 결과는 다음과 같다. 첫째, 아시아계와 남미계 집단 모두에게서 이민자 어머니가 모국어를 사용하는 경우보다 영어만 사용하거나 영어와 모국어를 함께 사용하는 경우에 자녀의 표현적 언어 발달에 긍정적인 영향을 미치는 것으로 나타났다. 둘째, 아시아계 이민자 어머니가 모국어를 사용하는 경우보다 영어만 사용하거나 영어와 모국어를 함께 사용하는 경우 자녀의 친사회적 행동에 긍정적 영향을 미치는 것으로 분석되었다. 셋째, 영어와 모국어를 함께 사용하는 이민자 어머니의 미국 내 거주기간이 길수록 자녀의 학습 접근과 행동 발달에 긍정적인 영향을 미치는 것으로 나타났다. 본 연구의 결과를 토대로 이민자 가정의 학령 전 아동의 발달을 도울 수 있는 개입 방안에 대해서 논의하였다.

■ 중심어 : | 어머니의 언어 사용 | 학교준비도 | 인지 발달 | 사회정서 발달 | 아시아계 이민자 어머니 | 남미계 이민자 어머니 |

Abstract

This study examined how early maternal language use was associated with school readiness at kindergarten entry among children of Asian or Hispanic immigrant mothers in the United States. Using a nationally representative sample from the Early Childhood Longitudinal Study-Birth Cohort (ECLS-B; N≈1,500), this study estimates multivariate regression models to address each research question. This study finds generally advantages of maternal use of English and bilingualism for children's expressive language in both Asian and Hispanic groups and for children's pro-social behavior in the Asian group. It also finds that longer residency in the U.S. is associated with higher levels of approaches to learning for children of bilingual Asian mothers and lower levels of behavior problems for children of bilingual Hispanic mothers. Based on the findings, social work implications for the healthy development of young children of immigrants were discussed.

■ keyword : | Maternal Language Use | School Readiness | Cognitive Development | Socio-emotional | Asian Immigrant Mothers | Hispanic Immigrant Mothers |

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I. Introduction

Over the past three decades, children living in immigrant families have been the fastest growing proportion of the young child population in the United States, and the majority of these children are Asian and Hispanic[1][2]. One in four children under age 6 in the United State are children of immigrants[3], and by 2020, about 30% of all children will be living in families composed of at least one immigrant parent[4]. Despite this rapid change, there have been few studies on the early development of young children of immigrant parents[5-7].

The language environment provided by parents is one of the important factors in the early years of young children in immigrant families and one that is closely related to developmental outcomes[8-11]. For example, immigrant parents with fluent English skills may have better opportunities to provide their children with enhanced developmental environments (e.g., creating a better home environment, facilitating access to American school systems and public institutional resources, and forming relationship ties outside of the ethnic community)[12][13]. In addition, immigrant parents' native language maintenance may also be associated with the development of their young children. Young children of bilingual immigrant parents may benefit from their cultural heritage (e.g., support from immigrant families and resources in ethnic neighborhoods)[14].

Therefore, given that the development of young children is directly affected by parents' characteristics[15], it is important to understand how early maternal language use influences early child development and school readiness. However, surprisingly, very little is known about the association between maternal language use and the development of young children in immigrant families. In particular, almost no prior research exists about

school readiness among preschool age children of Asian or Hispanic immigrant mothers. In this study, following the definition of UNICEF[16], school readiness is defined as the developmental competencies of children at school entry, including cognitive skills as well as socio-emotional wellbeing.

Hence, using a sample of children of Asian and Hispanic immigrant mothers from the Early Childhood Longitudinal Study-Birth Cohort (ECLS-B), this study aims to examine the associations between early maternal language use and child school readiness at kindergarten entry. The research questions of this study are as follows.

First, is early maternal language use is associated with child school readiness at kindergarten entry?

Second, are there differences in the associations between children of Asian and Hispanic immigrant mothers?

Answering these research questions will provide empirical evidence to suggest implications for the school readiness of immigrant children in the Korean context (those called children in multicultural families in South Korea who have at least one foreign-born parent). Also, given that Asian and Hispanic immigrant groups are the representative ones in the United States, but are quite different in maternal language use as well as socioeconomic background, the results of the second research question will provide implications with respect to helping immigrant children grow up healthily in the Korean society, particularly those whose mothers have difficulties in using Korean language and have low socioeconomic status.

II. Background

1. Maternal Language Use and Child Development

Ecological theory emphasizes that child development is an unfolding process over time through interactions between a child's individual characteristics and the contexts in which the child belongs[16][17]. In that sense, differences in the early development of young children in immigrant families are associated with the language environment to which they are exposed in the home[18][19].

There has been strong evidence that early language experiences at home for young children are an essential factor for their language skills, cognitive development, and social and emotional skills[20-23]. Therefore, early language environments provided by parents are also important for young children in immigrant families. Immigrant parents of young children play a crucial role as their first teacher and caregiver at home, and language use of immigrant parents is closely related to their ability and preference to provide their young children with learning and development resources and environments[8][24]. Recent studies have reported that language stimulation provided by immigrant mothers is closely related to children's cognitive development (e.g., vocabulary growth, bilingual language development) as well as socio-emotional wellbeing[25-27].

Therefore, this study expects that maternal language use may play an important role in predicting the development of young children in immigrant families, by having a direct influence on children's development outcomes and by affecting family processes with which they interact.

2. Differences between Asians and Hispanics

Generally, in both Asian and Hispanic groups, parental cognitive stimulating activities at home are a pivotal factor for child school readiness, particularly language skills[28-30].

However, given that patterns of English acquisition and home language retention are different between Asian and Hispanic groups[31], there could be differences in the association between maternal language use and children's development between the two groups. For example, Asian immigrants show a more rapid shift toward English monolingualism compared to Hispanic immigrants[31]. Asian immigrants tend to have a strong motivation to be integrated into American society not only by obtaining legal citizenship, but also by fully adapting to English language[32][33]. In contrast, Hispanic immigrants use a common language, and thus they are much less likely to speak English than Asian immigrants[34]. In addition, due to sharing an important part of culture (i.e., Spanish), Hispanic immigrants are more likely to be segregated within Spanish-speaking enclaves, which may also hinder English acquisition[34].

Furthermore, immigrants from Asian countries often enter under employment preferences and thus tend to have higher socioeconomic status than those from Latin countries who are mainly admitted under family reunification[15][35][36]. This differential selection between Asian and Hispanic groups may contribute to differences in English acquisition and home language retention between the two groups. For example, lower educational attainment and family income among Hispanic immigrants are negatively associated with English monolingualism[18][37].

In a word, with respect to English acquisition, whereas Asian immigrants are more likely to be English monolingual, Hispanic immigrants are more likely to be bilingual[31][33][38]. Therefore, English acquisition may be more related to the process of being integrated into American society for Asian immigrant mothers, but more related to the process of maintaining the origin culture and at the same time

acquiring the new culture for Hispanic immigrant mothers. These differences suggest that English acquisition and home language retention may influence children's early development differently in the two groups.

III. Method

1. Participants

This study conducts a second data analysis. Data come from the ECLS-B, which tracked a nationally representative sample of about 10,700 children born in the U.S. in 2001 from birth through kindergarten entry[39]. The ECLS-B collected data at the child's birth and 9 months after birth, followed by follow-up interviews when the child was approximately 2, 4 (preschool age), and 5 or 6 (kindergarten entry) years old. All sample sizes reported in this study are rounded to the nearest 50 in compliance with NCES guidelines for the use of restricted-data[39].

The ECLS-B only followed about 7,700 cases at the kindergarten survey due to financial constraints[39], and, of these, about 7,000 children and their parents completed child direct assessments and parent interviews, respectively. Of these, this study selected mothers who were foreign-born, leaving about 1,800 cases. Foreign-born mothers who were born in countries other than Asian and Latin American countries were excluded, leaving about 1,500 cases. In addition, a very small number of children (under 0.2% of the kindergarten sample) who did not have valid information in at least one of the school readiness outcomes at the kindergarten survey were excluded. Thus, the final participants of the analytic sample include about 1,500 children whose foreign-born mothers came from Asian countries ($n \approx 850$; about 40% from China and the rest from Japan, Philippine,

India, Korea, Vietnam, and other Asia or Pacific Island) or Latin American countries ($n \approx 650$; about 70% from Mexico and the rest from Puerto Rico, Cuba, and other Central or South America).

2. Variables

2.1 Maternal language use

To measure maternal language use among Asian and Hispanic foreign-born mothers, this study uses information about two aspects of language: their primary language at home (English vs. home language) measured at the 9-month and 2-year surveys and their English proficiency (speaking, reading, writing, and understanding English) measured at the 9-month survey.

Three language groups of Asian and Hispanic immigrant mothers are created based on these two language measures: 1) mothers who primarily used English at home (hereafter, English dominant mothers); 2) mothers who primarily used their home language at home but also had high English proficiency (i.e., speaking, reading, writing, and understanding English very well or pretty well; hereafter, bilingual mothers); and 3) mothers who primarily used their home language at home and had low English proficiency (i.e., speaking, reading, writing, or understanding English not very well or not well at all; hereafter, home language mothers).

In the analytic sample, these three groups were 27%, 46%, and 27%, respectively, among Asian mothers, and 9%, 22%, and 68%, respectively, among Hispanic mothers.

In addition, since the extent of English acquisition is closely related to the length of stay[40], this study also controls for mothers' length of stay in the United States in all analyses, measured at the 2-year survey. In the analytic sample, Asian and Hispanic mothers' average length of years in U.S. residency was about

12 and 11, respectively.

2.2 School readiness

This study uses a comprehensive definition of school readiness, that is how ready a child is for school, cognitively, socially, and emotionally[41]. Therefore, this study analyzes three cognitive (i.e., early reading, expressive language, and mathematics) and four socio-emotional (i.e., approaches to learning, pro-social behavior, externalizing problems, and attention problems) outcome variables that were all measured at the kindergarten survey.

2.2.1 Early reading

To measure children's early reading skills, this study uses early reading scores developed for the ECLS-B. The early reading scale includes 53 items for basic skills, 10 items for initial understanding, 2 items for developing interpretation, 2 items for demonstrating a critical stance, and 7 items for vocabulary[42]. This study transforms the overall scale scores to z-scores by standardizing it to have a mean of 0 and a standard deviation of 1, with higher scores indicating better early reading skills; in the analytic sample, the mean of the standardized scores for Asian and Hispanic groups was 0.73 and -0.15, respectively.

2.2.2 Expressive language

Children's expressive language ability is measured using the Let's Tell Stories scores. The ECLS-B provides the average scores of two items from the Let's Tell Stories of the Preschool Language Assessment Scale (PreLAS)[43]. To assess a child's ability to construct a grammatically accurate, consistent story, field interviews read two stories to the child, and then trained coders rated the response of the child with five response values (0="no

response" to 5="articulate, detailed sentences, vivid vocabulary, and complex constructions)[42]. This study standardizes the average scores provided in the ECLS-B with higher scores indicating better expressive language skills; in the analytic sample, the mean of the standardized z-scores for Asian and Hispanic groups was 0.36 and -0.08, respectively.

2.2.3 Mathematics

To measure children's mathematics skills, this study uses mathematics scores developed for the ECLS-B. The mathematics scale includes 41 items for number sense, properties, and operations, 3 items for measurement, 4 items for geometry and spatial sense, 3 items for data analysis, statistics, and probability, and 7 items for patterns, algebra, and functions[42]. This study standardizes the overall scores, with higher scores indicating better mathematics skills; in the analytic sample, the mean of the standardized z-scores for Asian and Hispanic groups was 0.75 and -0.16, respectively.

2.2.4 Approaches to learning

Children's approaches to learning is measured using four items from the Social Skills Rating System[44]. Teachers answered four questions regarding children's eagerness to learn, attentiveness, learning independence, and task persistence with a 5-point Likert scale (1="never" to 5="very often")[42]. This study sums all four items ($\alpha=0.86$ in Asians and $\alpha=0.87$ in Hispanics) and then standardizes the total score, with higher scores reflecting better approaches to learning. In the analytic sample, the mean of the standardized z-scores for Asian and Hispanic groups was 0.16 and -0.03, respectively.

2.2.5 Pro-social behavior

To measure children's pro-social behavior, this

study employs six items from the Preschool and Kindergarten Behavior Scales[45]. Teachers answered these six items regarding children's forming friendships, being accepted by others, sharing belongings with others, standing up for others' rights, comforting others, and trying to understand others with a 5-point Likert scale (1="never" to 5="very often")[42]. This study creates standardized z-scores by summing and standardizing all items ($\alpha=0.86$ in Asians and $\alpha=0.87$ in Hispanics), with higher scores reflecting better pro-social behavior. In the analytic sample, the mean of the standardized z-scores for Asian and Hispanic groups was -0.13 and 0.03 , respectively.

2.2.6 Externalizing problems

Children's externalizing problems is measured using four items from the PKBS-2[45]. Teachers answered four questions regarding children's restlessness, aggressiveness, disturbing ongoing activities, and annoying others with a 5-point Likert scale (1="never" to 5="very often")[42]. This study reverse-codes each item, sums all items ($\alpha=0.84$ in Asians and $\alpha=0.87$ in Hispanics), and then standardizes the total score, with higher scores indicating lower levels of externalizing problems. In the analytic sample, the mean of the standardized z-scores for Asian and Hispanic groups was 0.14 and -0.03 , respectively.

2.2.7 Attention problems

To measure children's attention problems, this study employs four items from the PKBS-2[45]. Teachers answered these four items regarding children's acting impulsively, being overly active, having difficulty concentrating, and having temper tantrums (1="never" to 5="very often")[42]. This study creates standardized z-scores by

reverse-coding each item and then summing and standardizing all items ($\alpha=0.81$ in Asians and $\alpha=0.83$ in Hispanics), with higher scores reflecting lower levels of attention problems. In the analytic sample, the mean of the standardized scores for Asian and Hispanic groups was 0.13 and -0.03 , respectively.

2.3 Control variables

All analyses include an extensive set of covariates selected based on their theoretical and empirical relevance for maternal language use and child school readiness[5][6][46][47].

Child characteristics include gender (boy=1), multiple birth (twin or higher order=1), low birth weight ($<2.5\text{kg}=1$), and age in months at the 9-month survey. Family background characteristics include mothers' age, marital status (married=1), and education (less than high school; high school graduate; or some college or more) at birth. Also included are family income (less than \$20,000; \$20,001-\$35,000; \$35,001-\$50,000; or \$50,001 or more) and the number of siblings (none; one; or two or more) at the 9-month survey.

Maternal employment is measured with three groups at the preschool survey: not working; working part-time (<35 hr/week); and working fulltime (≥ 35 hr/week). This study also defines five child care groups at the preschool survey: parental care as exclusively receiving care from parents; relative care as receiving care from sibling, grandparent, or other relatives; non-relative care as receiving care from someone other than relatives; other center-based care as attending center-based programs, such as day care center, prekindergarten, and other preschool; and Head Start.

This study also controls for four parenting behavior variables collected at the preschool survey. First, mothers' cognitively stimulating activities variable is

measured as the total score (ranging from 3 to 12; $\alpha = 0.54$ in Asians and $\alpha = 0.64$ in Hispanics) of the three items (i.e., reading books, telling stories, and singing songs), with higher scores indicating more activities[48]. Second, mothers' use of spanking is measured as a binary variable with a value of 1 if mothers spanked their child in the past week and 0 otherwise. Third, a sleeping routine measure is a binary variable with a value of 1 if a family had a regular routine for bed time and 0 otherwise. Fourth, the frequency of eating dinner together per week is a continuous variable ranging from 0 to 7.

3. Analytic Strategies

To address missing data on control variables, this study employs multiple imputation. Missing rates in most control variables were low (ranging from 0% to 2.6%), but such rates were slightly higher in some control variables, such as cognitively stimulating activities. Using the ICE command in Stata, this study creates ten imputed data sets to increase the expected relative efficiency (i.e., the recovery rate of missing data), which resulted in 99.9%[49][50]. Also, this study includes all outcome variables in the multiple imputation to increase the accuracy of imputation[51], but uses the original outcome variables, not the imputed ones, in the analysis. Using the MICOMBINE command in Stata, this study estimates the final average coefficients from ten separate regressions and standard errors adjusted across the imputed data sets[49].

This study specifies empirical models relying on Ordinary Least Squares regressions of school readiness outcomes on maternal language use, separately for Asian and Hispanic groups. All models include all control variables, two binary indicators for children who entered kindergarten in 2006 vs. 2007 and for mothers' country of origin(Chinese vs. other

Asian in the Asian group and Mexican vs. other Hispanic in the Hispanic group), an indicator for mothers' length of U.S. residency, and a binary indicator for the presence of fathers at home at the 9-month survey.

In addition, supplemental models are estimated adding interaction terms of maternal language groups with length of U.S. residency to the main model. These additional analyses are also conducted separately for Asian and Hispanic groups. Post-estimation tests are conducted to see whether the coefficients of English dominant mothers are statistically different to those of bilingual mothers and whether the coefficients of interaction terms are statistically different to each other.

IV. Results

1. Associations between Maternal Language Use and Children's Cognitive Development

[Table 1] presents the summary results of cognitive development outcomes (i.e., early reading, expressive language, and mathematics) with the main and interaction models, separately for Asian and Hispanic groups(the full results are available upon request from the author).

Maternal use of English or bilingualism tends to be associated with improved early reading skills among children of Hispanic mothers, but not among those of Asian mothers (see Panel A of [Table 1]). Children of English dominant Hispanic mothers tended to have higher scores in early reading (0.281SDs, $p < 0.10$) than those of home language Hispanic mothers after controlling all control variables in the main model.

As shown in Panel B of [Table 1], as expected, maternal use of English or bilingualism is associated with improved expressive language skills among

Table 1. Maternal Language Use and Cognitive Development among Children of Asian and Hispanic Immigrant Mothers

	Children of Asian mothers		Children of Hispanic mothers	
	Main model	Interaction model	Main model	Interaction model
	Coef (SE)	Coef (SE)	Coef (SE)	Coef (SE)
Panel A: Early reading				
Maternal language use				
Bilingual mothers (Bil)	0,112 (0,089)	0,249 (0,146) ⁺	0,077 (0,106)	-0,106 (0,194)
English dominant mothers (Eng)	0,162 (0,106)	0,031 (0,175)	0,281 (0,156) ⁺	0,642 (0,328) ⁺
Maternal years of U.S. residency	-0,007 (0,005)	-0,006 (0,011)	0,001 (0,007)	-0,000 (0,009)
Bil × years of U.S. residency		-0,012 (0,013)		0,013 (0,014)
Eng × years of U.S. residency		0,007 (0,013)		-0,019 (0,019)
Adjusted R ²	0,237	0,238	0,151	0,152
Panel B: Expressive language				
Maternal language use				
Bilingual mothers (Bil)	0,326 (0,075) ^{***}	0,368 (0,123) ^{**}	0,425 (0,116) ^{***}	0,701 (0,208) ^{***}
English dominant mothers (Eng)	0,429 (0,089) ^{***}	0,381 (0,148) ⁺	0,435 (0,169) ⁺	0,596 (0,360) ⁺
Maternal years of U.S. residency	-0,003 (0,004)	-0,003 (0,009)	0,004 (0,007)	0,014 (0,010)
Bil × years of U.S. residency		-0,004 (0,011)		-0,024 (0,014)
Eng × years of U.S. residency		0,003 (0,011)		-0,016 (0,020)
Adjusted R ²	0,114	0,113	0,194	0,196
Panel C: Mathematics				
Maternal language use				
Bilingual mothers (Bil)	-0,067 (0,085)	0,073 (0,139)	0,088 (0,105)	0,078 (0,193)
English dominant mothers (Eng)	0,121 (0,101)	0,095 (0,166)	0,160 (0,155)	0,240 (0,326)
Maternal years of U.S. residency	-0,009 (0,005) ⁺	-0,004 (0,010)	-0,011 (0,007)	-0,010 (0,009)
Bil × years of U.S. residency		-0,014 (0,012)		0,000 (0,013)
Eng × years of U.S. residency		-0,001 (0,012)		-0,005 (0,019)
Adjusted R ²	0,304	0,304	0,129	0,127

Note. Reference language group was home language mothers. All regressions were adjusted using the kindergarten sampling weights (WK1R0). The main model included all covariates, and the interaction model was the same with the main model but further added interaction terms between maternal language groups and years of U.S. residency. Sample sizes were rounded to the nearest 50, due to IES reporting rules. Sample sizes for children of Asian and Hispanic mothers were about 800 and 600, respectively, in all three outcomes. Coef=Coefficient, SE=Standard error of the coefficient. *** $p < 0,001$, ** $p < 0,01$, * $p < 0,05$, + $p < 0,10$.

children of both Asian and Hispanic mothers. Children of bilingual and English dominant Asian mothers had higher scores in expressive language (0.326SDs and 0.429SDs, respectively, $p < 0,001$) than those of home language Asian mothers in the main model. Similarly, children of bilingual and English dominant Hispanic mothers had higher scores in expressive language (0.425SDs, $p < 0,001$ and 0.435SDs, $p < 0,05$, respectively) than those of home language Hispanic mothers in the main model.

2. Associations between Maternal Language Use and Children's Socio-emotional Development

The summary results of socio-emotional outcomes

(i.e., approaches to learning, pro-social behavior, externalizing problems, and attention problems) with the main and interaction models are presented in [Table 2], separately for Asian and Hispanic groups (the full results are available upon request from the author).

Maternal bilingualism is associated with approaches to learning among children of Asian mothers, but not those of Hispanic mothers (see Panel A of [Table 2]). As maternal length of U.S. residency increased, children of home language Asian mothers had lower levels of approaches to learning, but children of bilingual Asian mothers had higher levels of approaches to learning. These two opposite patterns

Table 2. Maternal Language Use and Socio-emotional Development among Children of Asian and Hispanic Immigrant Mothers

	Children of Asian mothers		Children of Hispanic mothers	
	Main model	Interaction model	Main model	Interaction model
	Coef (SE)	Coef (SE)	Coef (SE)	Coef (SE)
Panel A: Approaches to learning				
Maternal language use				
Bilingual mothers (Bil)	-0,097 (0,105)	-0,403 (0,178)*	-0,137 (0,150)	-0,289 (0,281)
English dominant mothers (Eng)	-0,127 (0,126)	-0,255 (0,212)	-0,165 (0,213)	-0,019 (0,445)
Maternal years of U.S. residency	-0,015 (0,006)**	-0,035 (0,014)*a	-0,007 (0,010)	-0,010 (0,013)
Bil × years of U.S. residency		0,033 (0,016)*a		0,012 (0,020)
Eng × years of U.S. residency		0,018 (0,016)		-0,008 (0,028)
Adjusted R ²	0,135	0,140	0,068	0,065
Panel B: Pro-social behavior				
Maternal language use				
Bilingual mothers (Bil)	0,234 (0,112)*	0,199 (0,187)	-0,126 (0,154)	-0,397 (0,291)
English dominant mothers (Eng)	0,298 (0,137)*	0,131 (0,230)	0,303 (0,217)	0,153 (0,451)
Maternal years of U.S. residency	-0,004 (0,006)	-0,013 (0,014)	-0,003 (0,010)	-0,012 (0,013)
Bil × years of U.S. residency		0,006 (0,016)		0,022 (0,020)
Eng × years of U.S. residency		0,014 (0,016)		0,014 (0,028)
Adjusted R ²	0,053	0,052	0,005	0,002
Panel C: Externalizing problems				
Maternal language use				
Bilingual mothers (Bil)	0,014 (0,094)	-0,118 (0,158)	-0,093 (0,150)	-0,659 (0,284)*
English dominant mothers (Eng)	-0,193 (0,113)*	-0,430 (0,190)*	0,157 (0,213)	-0,108 (0,443)
Maternal years of U.S. residency	-0,006 (0,005)	-0,023 (0,012)*	-0,013 (0,010)	-0,031 (0,013)*a
Bil × years of U.S. residency		0,017 (0,014)		0,047 (0,020)*a
Eng × years of U.S. residency		0,022 (0,014)		0,027 (0,027)
Adjusted R ²	0,133	0,136	0,091	0,095
Panel D: Attention problems				
Maternal language use				
Bilingual mothers (Bil)	-0,025 (0,099)	-0,177 (0,172)	-0,031 (0,151)	-0,618 (0,284)*
English dominant mothers (Eng)	-0,290 (0,121)*	-0,298 (0,209)	0,087 (0,217)	-0,289 (0,446)
Maternal years of U.S. residency	-0,007 (0,006)	-0,015 (0,014)	-0,013 (0,010)	-0,032 (0,012)*a
Bil × years of U.S. residency		0,016 (0,016)		0,049 (0,020)*a
Eng × years of U.S. residency		0,004 (0,015)		0,035 (0,027)
Adjusted R ²	0,139	0,138	0,105	0,111

Note. Reference language group was home language mothers. All regressions were adjusted using the ECLS-B sampling weights (WK1R0). The main model included all covariates, and the interaction model was the same with the main model but further added interaction terms between maternal language groups and years of U.S. residency. Sample sizes were rounded to the nearest 50, due to IES reporting rules. Sample sizes for children of Asian mothers were about 600 in externalizing problems and 550 in the other three outcomes, and those for children of Hispanic mothers were about 450 in all four outcomes. Groups with shared superscript letters were statistically significantly different from each other ($p < 0.05$). Coef=Coefficient, SE=Standard error of the coefficient. ** $p < 0.01$, * $p < 0.05$, + $p < 0.10$.

are statistically significantly different to each other (see Panel A of [Table 2]).

As shown Panel B of [Table 2], maternal use of English and bilingualism are associated with higher levels of pro-social behavior among children of Asian mothers, but not those of Hispanic mothers. In the main model including all control variables, children of bilingual and English dominant Asian mothers

showed higher levels of pro-social behavior than those of home language Asian mothers (0.234SDs and 0.298SDs, respectively, $p < 0.05$).

Maternal use of English or bilingualism tends to be associated with higher levels of externalizing problems among children of Asian mothers but also is associated with lower levels of externalizing problems among children of Hispanic mothers (see Panel C of

[Table 2]); higher scores of the reverse-coded externalizing problems indicate lower levels of problems. Specifically, children of English dominant Asian mothers tended to show higher levels of externalizing problems ($-0.193SDs$, $p < 0.10$) in the main model. In contrast, in the interaction model, as maternal years in the length of U.S. residency increased, children of home language Hispanic mothers showed higher levels of externalizing problems, but children of bilingual Hispanic mothers showed lower levels of externalizing problems (see Panel C of [Table 2]); these opposite patterns are statistically significantly different to each other.

Finally, as shown in Panel D of [Table 2], maternal language use is associated with attention problems among children of both Asian and Hispanic mothers; the attention problems measure is also reverse-coded with higher scores indicating lower levels of problems. Children of English dominant Asian mothers showed higher levels of attention problems ($-0.290SDs$, $p < 0.05$) compared to those of home language Asian mothers in the main model. In contrast, as shown in Panel D of [Table 2], as maternal years in the length of U.S. residency increased, children of home language Hispanic mothers showed higher levels of attention problems, but children of bilingual Hispanic mothers showed lower levels of attention problems. These opposite patterns are statistically significantly different to each other.

V. Discussion

Using a contemporary and nationally representative sample of children of Asian and Hispanic immigrant mothers in the United States, this study examines the associations between maternal language use and

children's school readiness outcomes at kindergarten entry. To better measure diverse patterns of language use among recent Asian and Hispanic immigrant mothers, this study defines three language groups, and compares children's school readiness outcomes across these three language groups, separately for Asians and Hispanics.

The main findings of this study extend previous research by showing the beneficial associations between maternal use of English or bilingualism and a wide set of school readiness outcomes at kindergarten entry among a nationally representative sample of children of Asian and Hispanic immigrant mothers.

As expected, the main findings provide evidence showing better expressive language skills among children of English dominant and bilingual mothers in both Asian and Hispanic groups, which is consistent with prior research on beneficial influences of parental English proficiency or bilingualism on cognitive development among preschool- and school-age children of immigrant families[11][52]. These results suggest that the acquisition of the host society's language (i.e., English) among immigrant mothers may play a protective role in their children's language development[15][22]. For example, immigrant mothers who are proficient in English may be more likely to interact with American school systems (e.g., communicating with teachers and reading letters from school) and to obtain opportunities in their community (e.g., resources for child care and information about child rearing), both activities which are related to children's academic school readiness. In addition, immigrant mothers with proficient English skills may be more likely to assist their children with school work in subjects such as English and history.

Furthermore, this study finds beneficial effects of maternal use of English or bilingualism only for

language related outcomes, but not math scores, which complements prior research[11][52]. As expected, this is likely due to the fact that mother's language characteristics (i.e., primary language at home and English proficiency) would be expected to have stronger effects on children's language related outcomes than their math outcomes. In addition, given that Asian parents tend to have very strict criteria for their children's math skills since they believe that early education for math and science is one of the key factors for their children's later success[53][54], Asian immigrant parents may do their best to help their children with math learning regardless of their English ability. In contrast, many Hispanic immigrant mothers may have difficulties in assisting their children's learning due to their own limited English ability[55][56], and therefore Hispanic mothers who are learning English or primarily using English may put more focus on teaching their children reading than math.

As expected, this study also finds higher levels of pro-social behavior among children of English dominant and bilingual Asian mothers. Given that adopting the host country's language is a well-established proxy measure for acculturation[57][58], this finding complements prior studies showing maternal acculturation's positive influence on social skills among school-age Asian immigrant children[59]. One explanation of this finding is that English dominant and bilingual Asian immigrant mothers who are more likely to be integrated into the American society than home language Asian mothers may have less resistance to their children's interactions with native-born peers, and therefore these mothers may be more likely to encourage their children to participate in diverse extracurricular activities that are beneficial in developing social and emotional skills; also, to locate

such activities, bilingual Asian mothers may utilize cultural resources in their ethnic communities. Furthermore, given that Asian parents have strong beliefs in emotional reservedness, and thus tend to belittle their children's expression of feelings and thoughts[60][61], Asian mothers who are more integrated into American culture may be less likely to use their traditional parenting practices, and therefore they may help their children to develop social and emotional skills.

Additionally, this study finds, when maternal length of U.S. residency increases, higher levels of approaches to learning among children of bilingual Asian immigrant mothers, but lower levels of approaches to learning among those of home language Asian immigrant mothers. While only speculating due to there being no studies on bilingual parents and its influence on children's approaches to learning, this finding suggests that bilingual Asian mothers may be beneficial in developing their children's behaviors and characteristics that facilitate their learning. In addition, this finding may be in line with prior studies showing how improved parent-child interaction through language congruence could enhance children's motivation for better academic achievement[62].

With respect to children's behavior problems, contrary to as expected, this study finds higher levels of attention problems among children of English dominant Asian mothers compared to those of home language Asian mothers; children of English dominant Asian mothers also tended to show higher levels of externalizing problems. Given that studies have shown that harsh parenting among American parents is associated with children's increased behavior problems[63], these results suggest that children of English dominant Asian immigrant mothers may have more behavior problems perhaps

because their mothers still adhere to using their traditional strict and harsh parenting styles. Also, these results indicate that Asian mothers' English proficiency may not enhance their ability to detect and address their children's behavior problems. Furthermore, this study also finds, when maternal length of U.S. residency increases, lower levels of externalizing and attention problems among children of bilingual Hispanic mothers, but higher levels of externalizing and attention problems among those of home language Hispanic mothers. Although there would be differences across origin countries in the Hispanic group, these results may be in line with prior research showing that consistent discipline practices of Mexican American mothers who are more integrated into American culture are beneficial to reducing children's behavior problems[64]. In addition, as expected, these findings suggest that bilingual Hispanic mothers who have stayed in the U.S. for longer time may have adjusted their child rearing values and attitudes in a way that harmonizes positive aspects of both cultures, and therefore they may play a more protective role in addressing their children's behavior problems.

VI. Conclusion

The findings of this study should be interpreted in light of several limitations. First, the information about maternal English proficiency was reported by mothers and thus may be inaccurate. If mothers over-reported or misreported their English skills, the results could be biased. Second, although this study examined children's school readiness separately for Asians and Hispanics—two major recent immigrant groups—it is not able to further investigate variations by country of origin within the Asian and Hispanic

groups due to sample size limitations. Future work needs to take into account the heterogeneity within ethnic groups.

Despite these limitations, the findings of this study provide important implications for the school readiness of immigrant children in South Korea, which is the main contribution of this study. This is particularly meaningful in that children in multicultural family in South Korea are mainly those who are born in South Korea.

First, language ability, both speaking Korean fluently and bilingualism, seems to be a key for successful transition to school for immigrant children. Therefore, diverse Korean language improvement programs[65] for immigrant children need to be developed and provided. Second, such programs need to include parental education in that parental cognitively stimulating activities at home, including language use, are important for the school readiness of immigrant children in South Korea[66][67]. Third, in this study, the children of bilingual Hispanic mothers showed high levels of expressive language and lower levels of behavior problems. It means that maintaining bicultural characteristics for immigrant families, particularly those socioeconomically disadvantaged, would be a protective factor for their children's development[68]. Therefore, it will be helpful to provide tailored programs for the healthy development of immigrant children in South Korea who are living in vulnerable environments both linguistically and socioeconomically.

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