

The Relationship between Initial Primary Language Fluency and the English Language Arts Achievement of Hispanic English Language Learners

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ABSTRACT

Our educational system has had difficulty meeting the needs of Hispanic English language learners. The educational services provided to Hispanic English language learners have been constrained in some states due to English Only laws. This researcher traces the relationship between a student's initial primary Spanish language proficiency, and their later English language arts achievement. Two samples of students, one from Kindergarten, and the other from fifth grade, and their state language arts achievement scores are examined. Results show a significant relationship between level of initial Spanish language proficiency and future English language arts outcomes.

Introduction

A review of demographic data with regard to Hispanic English language learners suggests that there may be a problem with the way our educational system serves this population. In 2000, only 52.4 percent of all Hispanics in the 25 and over age group had graduated from high school, compared to rates of 83.6 for whites, 80.4 for Asians, and 72.3 for African-Americans (United States Census Bureau, 2003). This figure includes all students of Hispanic background, not just those learning English. Results for those classified as English language learners are far worse. In California, one of the states implementing a high school exit exam, only 39 percent of Hispanic English language learners passed the 2004 English language arts section of the California High School Exit Exam (CSHEE) (Los Angeles Unified School District, 2009). This figure is even more alarming in that it only includes those students who had yet to dropout of high school prior to taking this exam.

Schools typically are not concerned with the native-language proficiency of their Hispanic English language learners, focusing only on their level of English language proficiency. This study demonstrates that first language proficiency in Spanish is associated with the acquisition of English language proficiency.

Theoretical Framework

Laws and public pressure emphasizing the rapid acquisition of English for entering linguistic minorities continue to make school success a difficult challenge for those in the United States whose first language is Spanish. Many Hispanic English language learners are not only linguistically challenged, but also arrive at our schools impeded by the effects of poverty and a lack of first language enrichment at home (Esquivel & Yoshida, 1985). They often arrive to our schools lacking proficiency in any language.

Much of the research in the field of language acquisition comes from the work of James Cummins at the University of Toronto. In his theory, the concept of a *Common Underlying Proficiency*, Cummins (1979) asserts that the developed proficiency of a first language facilitates the acquisition of a second language. This was opposed to the view that languages are learned and stored separately by the brain (Lindholm, 1991).

This concept goes hand-in-hand with Cummins' (1979) *Interdependence Hypothesis*. Cummins posited that the development of a second language is a function of one's primary language development at the time exposure to a second language begins. The more developed the primary language, the more rapidly occurs the acquisition of a second language. Said another way, the less developed one's primary language, the more impeded the acquisition of a second language (Gandara, Moran, & Garcia, 2005). Cummins examined the relationship between primary language development and one's future academic success. His *Threshold Hypothesis* asserted that one's school success is a function of the development of one's primary language. The lower the developed primary language, the more interference between languages; the higher developed the primary language, the more reinforcing is each language to the other. Cummins' *Facilitation Hypothesis* took this concept one step further. Cummins stated that one's second language development occurs at a rate influenced by how developed one's primary language is upon entering school. The work by Cummins took place, largely, twenty years ago, and remains accepted today. It is in bilingual education, not language acquisition theory, where the controversy resides (Gandara, et al., 2005).

In 1998, Californians passed Proposition 227, the English Language in Public Schools initiative, by an overwhelming 61-39 margin (Mitchell, Destino, Karam, & Colon-Munoz, 1999). Proposition 227 mandated an English language immersion approach, and allowed only one year for students to become fluent in English. Proponents of this proposition avoided the usual anti-immigration politics, and instead focused on the failure of bilingual programs to teach English (Karam, 2005; Herrera & Murray, 1999). Teachers were now required to implement a program many believed conflicted with the research on second language acquisition for linguistic minority students (Ovando, 2003).

Ironically, it was as recent as 1992 that California adopted progressive credentialing requirements to prepare teachers for instructing linguistic minorities. Teachers were expected to be fluent in areas such as (a) first and second language acquisition theories; (b) bilingual and English as a second language (ESL) models; (c) the nature of culture and its impact on learning and instruction; (d) language strategies for literacy and content in the primary language; (e) culture specific knowledge; and (f) primary language ability"

(Barreto, 1997, p.12). California deserved strong focus in this study due to its combination of both restrictive laws emphasizing English and its very large Hispanic English language learner population.

Opportunities for the development of the primary language of Hispanic English language learners are rare. In a low-income, majority Hispanic local subdistrict of the Los Angeles Unified School District, for example, only one of forty elementary schools offers a truly bilingual education (Los Angeles Unified School District, 2009). Dual language programs are hard to find and require tremendous levels of dedication and administrative support to implement. Maintenance Bilingual Education late-exit programs are nearly non-existent in California, Arizona, and Massachusetts, those states most affected by recent legislation.

Students classified as English language learners are not a homogenous group (Abedi, Huie, & Lord, 2004), and one area of variance concerns initial primary language proficiency (Guerrero, 2004). There is very little research on the relationship between differing levels of Spanish language proficiency and later English academic achievement (Medina & Mishra, 1994). Medina and Mishra (1994) found significant differences between those students who were in Maintenance Bilingual Education programs, with primary language instruction continuing into the middle school grades, and Transitional Bilingual Programs lasting only until 3rd grade, in Spanish academic achievement but did not examine English measures. Escamilla and Medina (1993) found benefits of primary language instruction for both proficient Spanish English language learners and non-proficient Spanish English language learners, but did not compare these students to similar ones in non-Bilingual programs. More research is needed into the relationship of differing levels of initial Spanish language proficiency of Hispanic English language learners entering our schools and their later language arts achievement in English, as well as the consequences attached to differing levels of entering primary language proficiency and incidence of retentions and special education placements. This study is unique in that it tracks the progress of students through their entire school experience. This leads to the following research questions that are addressed in this paper:

1. Are differing levels of Spanish primary language proficiency of entering Hispanic English language learners associated with differential levels of English language arts achievement?

2. Are poverty status, gender, initial Spanish language proficiency, initial English language proficiency, nativity, and bilingual program of entering Hispanic English language learners significant predictors of future English language arts achievement?

Methods

In order to gain insight into both the proximal and the distal influence that initial Spanish language proficiency has on future English language arts school outcomes, and how it fits into an overall explanatory model of Hispanic English language learner school achievement, two samples are used for this study.

Sample 1. The first sample for this study is all 5th grade Hispanic English language learners who have been enrolled since Kindergarten in a subdistrict of a very large urban school district. There are approximately 727,000 students in this district, and approximately 95,000 students in the specific subdistrict. Only students with initial assessments in both English and Spanish language proficiency (in Kindergarten) and not identified as having mental retardation were included in the sample. The approximate sample size is 4,500 students. The ethnic breakdown of the subdistrict student population is 93.3% Hispanic, 3.1% African-American, and 2.5% Asian. 92.8% of the students in the subdistrict are English language learners. All the students in the subdistrict participate in the free or reduced lunch program.

Sample 2. The second sample of students were 5th graders in the same subdistrict, during the 1998–99 school year (the year Proposition 227 was passed), and should have been seniors in high school during the 2005–6 school year. All students who have been enrolled since kindergarten and have available initial assessments in both English and Spanish language proficiency are included. This approximate sample size is 3,000 students.

The use of two samples provides a cross-validation if similar effects are found. It also provides a way to examine differences in the strengths of relationships between initial language proficiency and academic outcomes in elementary and high school.

Measures

The following measures were obtained from school records on each student:

1. Initial Spanish Language Proficiency (Pre-LAS-Espanol Oral Scaled Scores; Interval, Continuous, and associated ordinal levels of proficiency).
2. Initial English Language Proficiency (Pre-LAS-English Oral Scaled Scores; Interval, Continuous, and associated ordinal levels of proficiency).
3. California Standards Test-English Language Arts Scaled Scores for grades 2-10.

Achievement scores on the California Standards Test for English language Arts were used because they assess the progressively more demanding domains of listening, speaking, reading and writing that English language learners must negotiate in their second language, regardless of any first language proficiency.

Dependent Variables

California Standards Test for English Language Arts. The California Standards Test for English language arts is administered in all public schools in California during the spring for all students in grades 2-10. Results are reported as scaled scores, ranging from 150-600. Students need to score at least 350 to be considered proficient.

Independent Variables

Pre-Language Assessment Scales-Spanish Version. The Pre-Language Assessment Scales (Spanish) is administered to all Hispanic English language learners when they enroll in a California school in Kindergarten or first grade. Results are expressed in scale scores, ranging from 0-100. Results are also expressed as ordinal levels of language proficiency ranging from "5" as the highest to "1" as the lowest.

Pre-Language Assessment Scales-English Version. The Pre-Language Assessment Scales (English) was administered to all Hispanic English language learners when they enrolled in a California school in Kindergarten or first grade. The Pre-Las measures a child's receptive and expressive abilities in the areas of morphology, syntax and semantics. Subtests have internal consistency reliabilities in the .80s and range from the .80s to .90s

(Clearinghouse on Assessment and Evaluation). Results are expressed in scale scores, ranging from 0-100. Results are also expressed as ordinal levels of language proficiency ranging from “5” as most proficient to “1” as the lowest.

Nativity. Many Hispanic English language learners are actually born in the United States, but enroll in our schools with little or no English proficiency. This variable was included to determine whether one’s country of origin is an explanatory independent variable.

Poverty. While school district data indicate that all students in both Sample 1 and Sample 2 receive a free lunch, data from the U.S. Census website shows that the schools where both samples emanate have diverse poverty percentages. The United States Census Office has defined the poverty threshold for a family of 4 in 2000 to be \$17,463 (United States Bureau of Census, 2009). The schools in the two samples have a range of percentage of students at poverty level from 10.0% to 60.2%, so there is much diversity amongst schools with regard to this poverty variable.

Program. Students in Sample 1 were either in a Transitional Bilingual Education program for up to 4 years or were instructed using a Structured English Immersion model. This study examined whether bilingual instruction mediates the academic achievement of these Hispanic English language learners for Sample 1, however these data were unavailable for Sample 2.

Gender. Data were explored to determine if there is a significant effect for gender on any dependent measure.

Results

Question 1:

Are differing levels of Spanish primary language proficiency of entering Hispanic English language learners associated with differential levels of English language arts achievement?

Predicted ranges. Descriptive statistics were computed for students’ achievement in language arts for grades two through five. See Table 1 for predicted ranges based on the lower bound confidence interval of a scale score of 25 and the upper bound confidence

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interval of a scale score of 75 for Sample 1 English language arts. These two score levels were chosen to illustrate the differential outcomes associated with a higher than average entering initial Spanish proficiency as opposed to a lower than average entering initial Spanish proficiency.

Table 1

Predicted Ranges (Lower Bound–Upper Bound Scale Scores) on English Language Arts Achievement Tests Based on Two Score Levels of Initial Spanish Pre–Las for Sample 1.

Measure	<u>25 on Pre–Las</u>	<u>75 on Pre–Las</u>
	Lower Bound ELA at 95% C.I.	Upper Bound ELA Score at 95% C.I.
ELA2	283.46	305.46
ELA3	274.40	299.50
ELA4	299.58	324.00
ELA5	304.10	329.17

Note: Proficiency = 350

See Table 2 for predicted mean scores based on the lower bound confidence interval of a scale score of 25 and the upper bound confidence interval of a scale score of 75 for Sample 2 English language arts.

Table 2

Predicted Means Based on Two Score Levels of Initial Spanish Pre–Las for Sample 2 English Language Arts

Measure	<u>25 on Pre–Las</u>	<u>75 on Pre–Las</u>
	Lower Bound ELA at 95% C.I.	Upper Bound ELA Score at 95% C.I.
ELA8	262.52	290.27
ELA10	263.23	288.06

Note: Proficiency = 350

The results of this study suggest that one's level of Spanish language proficiency when entering school may be an important predictor of academic outcomes throughout schooling. To illustrate this relationship, we can examine the range of differences associated with students who enter with a score of 25 on the Spanish Pre-Las, as compared to those entering with a score of 75 on the Spanish Pre-Las, and see the advantage those starting with higher proficiency have.

For the English language arts outcomes, we can say with 95% confidence, that a student entering with an initial Spanish language proficiency scaled score of 25 would score, in round numbers, between 283 and 287 on 2nd grade English language arts achievement. By comparison, with 95% confidence, a student entering with an initial Spanish language proficiency scaled score of 75 would score between 296 and 305 on 2nd grade English language arts achievement.

The predicted scores also make it clear that even an initial score of 75 on the Spanish Pre-Las does not predict that a student will achieve proficiency on a California Standards Test. A score of 75 is considered to be solidly in the proficient range, while a score of 25 is considered far from proficient. Students in this study achieved means of 350 or above on only two of the California Standards Tests. Students closer to proficiency often are likely to receive different, more accelerated programs and supplemental instruction than those far below proficient. Schools may assume that students closer to proficient, if they receive targeted assistance, are most likely to raise a school's AYP score, the metric used to evaluate schools under No Child Left Behind. Therefore, students who start out with academic deficiencies are less likely to be provided the help that will improve their performance on standardized tests.

Question 2:

Are poverty status, gender, initial Spanish language proficiency, initial English language proficiency, nativity, and bilingual program of entering Hispanic English language learners significant predictors of future English language arts achievement?

A series of multiple regressions were performed to analyze the relationship between the independent variables (initial Spanish language proficiency scaled scores, initial English

language proficiency scaled scores, SES, instructional program, gender, and nativity) and the dependent variables (English language arts achievement) for Sample 1. The analyses were performed using the SPSS multiple regression procedure. The assumptions of the regression procedure were tested using normal probability plots of residuals and scatter plots of residuals versus predicted residuals. Due to the large sample size, violations of regression assumptions for linearity, normality, and homoscedasticity were not present, and outliers contributed little to results. Collinearity diagnostics were also performed and findings were not problematic for the model. Regression analysis confirmed that the model significantly predicted 2nd grade English language arts achievement, $F(6,4474) = 107.688, p < .001$. The R^2 for the model was .126, and the adjusted R^2 was .125. Regression analysis also confirmed that the model predicted 3rd grade English language arts achievement was significant, $F(6,4286) = 85.471, p < .001$. The R^2 for the model was .107, and the adjusted R^2 was .106. Regression analysis also confirmed that the model significantly predicted 4th grade English language arts achievement, $F(6,4100) = 78.217, p < .001$. The R^2 for the model was .103, and the adjusted R^2 was .101. Regression analysis also confirmed that the model significantly predicted 5th grade English language arts achievement, $F(6,3579) = 60.275, p < .001$. The R^2 for the model was .092, and the adjusted R^2 was .090.

2nd grade English language arts achievement is significantly predicted by gender ($t = 3.058, p < .01$), nativity ($t = 2.076, p < .05$), instructional program ($t = -16.083, p < .01$), initial Spanish language proficiency ($t = 9.76, p < .001$), and initial English language proficiency ($t = 13.482, p < .001$). Initial English language proficiency accounts for the most variance ($\beta = .194$), girls ($M = 307.44, SD = 45.83$) outperformed boys ($M = 303.11, SD = 44.91$), students born in the United States ($M = 306.07, SD = 45.287$) outperformed those from other countries ($M = 299.03, SD = 46.05$), and students in English Only programs ($M = 310.8, SD = 45.53$) outperformed those in “bilingual” programs ($M = 280.71, SD = 35.89$).

3rd grade English language arts achievement is significantly predicted by SES ($t = -4.455, p < .001$), gender ($t = 3.904, p < .001$), instructional program ($t = -12.707, p < .001$), initial Spanish language proficiency ($t = 11.028, p < .001$), and initial English

language proficiency ($t = 11.446, p < .001$). Instructional program accounts for the most variance ($\beta = -.188$). Students in English Only programs ($M = 293.98, SD = 47.07$) outperformed those in “bilingual” programs ($M = 270.13, SD = 35.8$), and girls ($M = 292.42, SD = 46.36$) outperformed boys ($M = 286.27, SD = 45.6$).

4th grade English language arts achievement is significantly predicted by SES ($t = -4.973, p < .001$), gender ($t = 5.432, p < .001$), nativity ($t = 2.140, p < .05$), instructional program ($t = -11.137, p < .001$), initial Spanish language proficiency ($t = 10.882, p < .001$), and initial English language proficiency ($t = 10.721, p < .001$). Instructional program accounts for the most variance ($\beta = -.169$). Students in English Only programs ($M = 320.11, SD = 44.5$) outperformed those in “bilingual” programs ($M = 300.08, SD = 36.57$), girls ($M = 319.86, SD = 43.14$) outperformed boys ($M = 312.24, SD = 44.05$), and students born in the United States ($M = 316.82, SD = 43.74$) outperformed those from other countries ($M = 309.85, SD = 43.46$).

5th grade English language arts achievement is significantly predicted by SES ($t = -4.474, p < .001$), gender ($t = 4.558, p < .001$), instructional program ($t = -9.162, p < .001$), initial Spanish language proficiency ($t = 9.285, p < .001$), and initial English language proficiency ($t = 10.394, p < .001$). Initial English language proficiency accounts for the most variance ($\beta = .171$). Girls ($M = 321.39, SD = 44.02$) outperformed boys ($M = 314.41, SD = 46.75$), and students in English Only programs ($M = 321.83, SD = 46.4$) outperformed those in “bilingual” programs ($M = 302.87, SD = 38.32$). See Tables 3-6 for unstandardized regression coefficients (B), standard error (SE), and standardized regression coefficients (β) for English language arts achievement outcomes for Sample 1.

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Table 3

An Explanatory Model of 2nd Grade English Language Arts Achievement for Sample 1

Predictors	B	SE	β
Poverty Status	-.0076	.066	-.016*
Gender	3.915	1.28	.043*
Initial Spanish	.314	.032	.138*
Initial English	.337	.025	.194*
Nativity	4.254	2.05	.029*
BilingProgram	-27.028	1.681	-.230*

$R^2 = .126$ * $p < .01$ N = 4,480

Table 4

An Explanatory Model of 3rd grade English Language Arts Achievement for Sample 1

Predictors	B	SE	β
Poverty Status	-.310	.07	-.065*
Gender	5.238	1.342	.057*
Initial Spanish	.370	.034	.161*
Initial English	.301	.026	.170*
Nativity	2.214	2.164	.015*
BilingProgram	-21.957	1.728	-.188*

$R^2 = .107$ * $p < .05$ N = 4,292

Table 5

An Explanatory Model of 4th Grade English Language Arts Achievement for Sample 1

Predictors	B	SE	β
Poverty Status	-.336	.068	-.074*
Gender	7.092	1.306	.081*
Initial Spanish	.360	.033	.163*
Initial English	.274	.026	.164*
Nativity	4.546	2.124	.032*
BilingProgram	-18.460	1.658	-.169*

$R^2 = .103$ * $p < .05$ N = 4,106

Table 6

An Explanatory Model of 5th Grade English Language Arts Achievement for Sample 1

Predictors	B	SE	β
Poverty Status	-.340	.076	-.072*
Gender	6.662	1.462	.073*
Initial Spanish	.352	.038	.150*
Initial English	.296	.028	.171*
Nativity	.835	2.401	.006
BilingProgram	-16.979	1.853	-.150*

$R^2 = .092$ * $p < .05$ N = 3,585

Two multiple regressions were performed to analyze the relationship between the independent variables (initial Spanish language proficiency scaled scores, initial English language proficiency scaled scores, SES, gender, and nativity) and the dependent variables (English language arts achievement) for Sample 2. The assumptions of the regression procedure were examined using normal probability plots of residuals and scatter plots of residuals versus predicted residuals. Violations of regression assumptions for linearity, normality, and homoscedasticity were not present, and outliers contributed little to results. Collinearity diagnostics were also performed and findings were not problematic for the model. Regression analysis confirmed that the model significantly predicted 8th grade English language arts achievement, $F(5,2238) = 26.549, p < .001$. The R^2 for the model was .056, and the adjusted R^2 was .054. Regression analysis also confirmed that the model significantly predicted 10th grade English language arts achievement, $F(5,2724) = 40.752, p < .001$. The R^2 for the model was .07, and the adjusted R^2 was .068. 8th grade English language arts achievement is significantly predicted by gender ($t = 7.666, p < .001$), initial Spanish language proficiency ($t = 7.077, p < .001$), and initial English language proficiency ($t = 2.861, p < .01$). Gender accounts for the most variance ($\beta = .159$). Girls ($M = 299.62, SD = 38.14$) outperformed boys ($M = 286.3, SD = 38.56$). 10th grade English language arts achievement is significantly predicted by SES ($t = -4.353, p < .001$), gender ($t = 8.417, p < .001$), initial Spanish language proficiency ($t = 7.464, p < .001$), and initial English language proficiency ($t = 5.571, p < .001$). Gender accounts for the most variance ($\beta = .157$). Girls ($M = 287.58, SD = 36.8$) outperformed boys ($M = 275.1, SD = 36.01$). See Table 7-8 for unstandardized regression coefficients (B), standard error (SE), and standardized regression coefficients (β) for each English language arts achievement outcomes for Sample 2.

Table 7

An Explanatory Model of 8th Grade English Language Arts Achievement for Sample 2

Predictors	B	SE	β
Poverty Status	-.0121	.086	-.003
Gender	12.327	1.608	.159*
Initial Spanish	.357	.050	.147*
Initial English	.111	.039	.059*
Nativity	1.461	1.961	.015

$R^2 = .056$ * $p < .05$ N = 2,243

Table 8

An Explanatory Model of 10th Grade English Language Arts Achievement for Sample 2

Predictors	B	SE	β
Poverty Status	-.327	.075	-.081
Gender	11.705	1.391	.157*
Initial Spanish	.325	.044	.140*
Initial English	.190	.034	.104*
Nativity	.740	1.710	.008

$R^2 = .07$ * $p < .05$ N = 2,729

Discussion

There are two important findings in this study. The first important finding is that initial first language is related to later English language acquisition, and maintains this consistent relationship throughout elementary school. Initial Spanish language proficiency was a statistically significant explanatory predictor for all of the outcomes included in this study.

This is consistent with the research of Cummins mentioned in the introductory section. First language Spanish proficiency was significantly related to all future English language arts outcomes, for both samples. Levels of English language arts achievement for both samples were indeed related to levels of entering Spanish language proficiency.

The second important finding of this study is that the four betas of the initial Spanish predictors in the elementary grades were smaller than the initial English betas, but the opposite occurred in high school. The initial Spanish predictors were larger betas than the initial English predictors in the high school sample. Figure 1 provides a visual of this relationship.

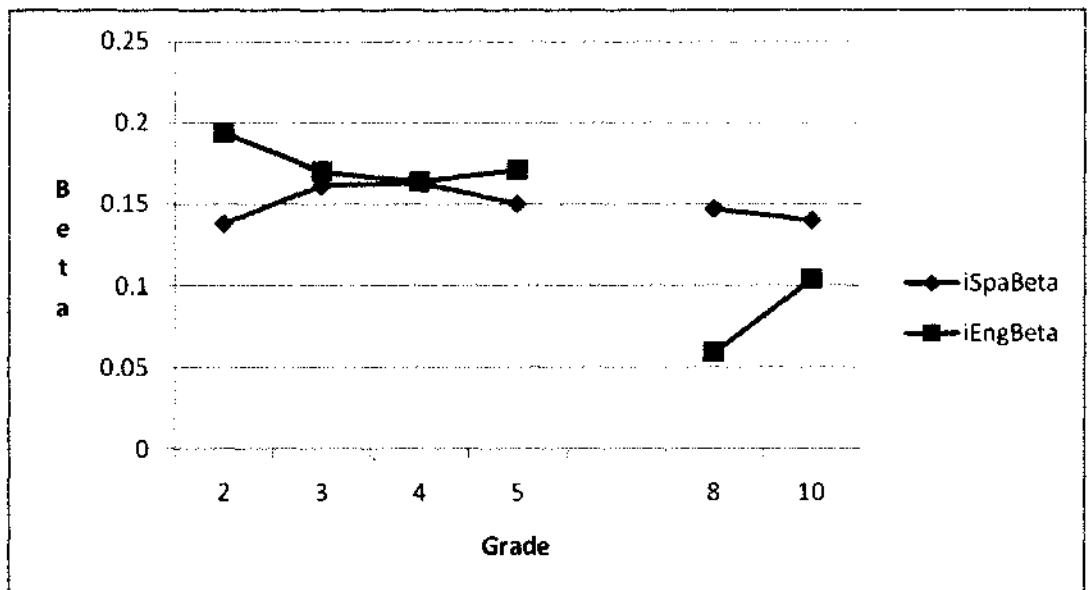


Figure 1 Comparison of Initial Beta Weights Across Grade Levels

In addition to the aforementioned important findings of this study, another finding warrants mention. An overwhelming majority of students in both samples were born in the United States. It is surprising that fewer than 1% of students had entered Kindergarten with English proficiency above Level 1. Further, 51.7% of entering students lacked proficiency in both English and Spanish. This suggests that bilingual education is not simply an immigration issue.

Implications for Further Study

A better understanding of the relationships between initial language proficiency in Spanish and English, educational programs, and academic achievement can have important implications for both policy and practice.

Students in special education often require more time, and are given that time, to progress academically despite their learning issues. Further research should examine whether Hispanic English language learners would benefit from a longer school day and/or a longer school year in order to be successful academically. It is during these extended periods when supplemental first language instruction might be offered. Although this is provided in the bilingual classrooms, this study showed the importance of primary language proficiency for all Hispanic English language learners, and, at most, only 20% of the students had been in bilingual classrooms.

Although bilingual education has been curtailed in California post Proposition 227, there are a few schools that offer Dual Language programs. These programs make a commitment to biliteracy over an entire K-12 curriculum. Unfortunately, these programs are virtually non-existent for the students in schools for the low socioeconomic demographically. The district studied had but one Dual Language program in the 66-school sample.

Limitations of Study

This study linked all future academic achievement to initial language assessment scores obtained early in a student's Kindergarten year. Different results might have been found if language proficiency had been evaluated annually and examined in relation to academic outcomes.

This study was conducted in a single district in California. California is one of three states to limit bilingual education by statute, and it contains a very large number of Hispanic English language learners. Other states, such as Texas and New Mexico, possess bilingual programs whose scope and sequence are far different than the program examined in this study. Results from this study cannot be generalized to other states.

The entire sample included in this study received free lunches, an indicator of the poverty experienced by this group. Results of this study cannot be generalized to more affluent Spanish-speaking populations in this country.

Final Thoughts

This study revealed important findings that could potentially impact the way in which Hispanic English language learners are instructed in our schools. With knowledge that the initial primary language fluency with which children enter school has implications for their entire schooling, programs might be developed that assist students who enter lacking this important foundation.

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