

**An Alternative ESL/Dual-Language Approach:
Narrowing Achievement Gaps for Newly-Arrived Hispanic Students?**

¹José A. Cardoza. ²Kathleen M. Brown

Abstract

This study investigated the extent to which Hispanic newcomer ELLs in grades 4 and 5, who received math instruction in Spanish, improved their math scores in district and state tests as compared to ELLs who received math instruction in English only. Descriptive and inferential statistics such as frequency distribution, variability, and t-tests informed the analysis. Cummins' (1981) Common Underlying Proficiency Theory served as the conceptual framework. Results indicate that the treatment group exhibited higher gains (7%) than the comparison group (< 3%). Those interested in closing achievement gaps may consider adding dual-language alternatives to their ESL programs.

Keywords: Dual Language; English Language Learners (ELLs); Newcomers; Alternative ESL Program

¹**José A. Cardoza**, Ed.D. is an Assistant Principal of a large high school in Durham, North Carolina. Throughout his 23-year teaching and administrative career, he has taught elementary, middle, and adult English learners (ELLs), as well as held various leadership roles. As a former English learner himself and now current practitioner, he is aware of challenges ELLs face in public schools. Since he is passionate about working on possible solutions to help these students, his research interests include bilingual education, social justice, and educational leadership. Jose received his Ed.D. in Educational Leadership from the University of North Carolina at Chapel Hill.

²**Kathleen M. Brown**, Ed.D. is a Professor of Educational Leadership and Policy at the University of North Carolina at Chapel Hill. She brings 25 years of teaching, administrative, and evaluation research experience to the professorate. As a scholar-practitioner, her research interests include effective, site-based servant leadership that connects theory, practice and issues of social justice in breaking down walls and building a unified profession of educators working toward equitable schooling for all. Kathleen approaches education from an ethic of social care and works toward changing the metaphor of schools from hierarchical bureaucracies to nurturing communities.

Recommended Citation: Cardoza, J., & Brown, K. (2019). An alternative ESL/Dual-language approach: Narrowing achievement gaps for newly-arrived Hispanic students? *Journal of Educational Leadership and Policy Studies, Special Issue #2 on Educational Leadership and Social Justice*, 3(2).

Introduction

In the last five years, American schools have experienced an unprecedented influx of immigrant school-age children from Central American countries such as El Salvador, Guatemala, and Honduras (Chishti & Hipsman, 2016). According to a recent report conducted by the United States Customs and Border Protection, a division of the U.S. Department of Homeland Security (2016), 68,541 school-age, unaccompanied, immigrant children entered the U.S. from Central American countries in 2014 alone, reflecting a 43% increase from the previous year. These “newcomers,” by definition, are students who enter U.S. schools with little or no English and, in most cases, have gaps

in their educational background (Short & Boyson, 2012). As this trend of unaccompanied immigrant children entering the U.S. is projected to continue (Chishti & Hipsman, 2016), the need to accommodate these English as a Second Language (ESL) “newcomers” becomes a concern to school principals wanting to support teachers who often see themselves as unprepared and ill-equipped to provide effective classroom instruction (DeCapua & Marshall, 2009).

To address this issue, several school districts across the country have implemented initiatives to support newcomer students, including one-year dual-language on-site and off-site transition programs, with some exhibiting signs of success (Short & Boyson, 2012; National Center for Education Statistics, 2015). Yet, most districts continue to rely on standard ESL services as the main support for English Language Learners (ELLs)—services often described as inadequate and least effective (Short & Boyson; Thomas & Collier, 2011, 2012). For example, at the elementary level, such programs are predominantly English-based and most of the focus is placed on learning the English language rather than content areas like math and science (Thomas & Collier, 2012). Consequently, ELLs have less opportunity to access the standard curriculum; thus, maintaining the social status quo of underachievement (Ovando, Combs, & Collier, 2006). Addressing the needs of these students may require a complete paradigm shift in the way most current ESL programs serve ELLs; in particular, when essential elements are left out such as caring and culturally competent teachers, proper human and financial resources, newcomer family outreach and support, and, most importantly, the use of students’ first language.

The U.S. schooled approximately five million ELLs in K-12 public schools in 2017—many of whom were newcomers—representing 10% of the K-12 overall student population. Of this number, approximately 77.1% were of Hispanic origin (Migration Policy Institute, 2015). As increasing federal and state accountability initiatives continue to put pressure on districts and schools to demonstrate students’ academic growth and proficiency, or adequate yearly progress on reading and math state tests (Lindholm-Leary, 2012), a study that addresses academic gaps among the lowest-performing students (i.e., ELL newcomers) is warranted.

There is plenty of research supporting bilingual education (i.e., when two languages are used to teach language and content) as an instructional option to support these students. However, many school districts are still reluctant to experiment with alternatives that would incorporate such a feature into their current standard ESL programs; even small, somewhat innovative ones. Finding solutions to improve ELLs’ performance will require that schools re-examine their approaches and move toward research-based initiatives with proven results—dual-language instruction being one of them (Howard, Sugarman, & Christian, 2003; Lindholm-Leary, 2001; Marian, Shook & Schroeder, 2013; Mora, Wink & Wink, 2001; Thomas & Collier, 2002).

Statement of the Problem

Academic achievement gaps among students who are disadvantaged represent a significant problem in the educational community, with no impending solution in sight (Morris & Perry, 2016). Certainly, some gaps are more extreme for certain groups than for others, as is the case for ELLs (newcomers in particular). Despite positive changes achieved since the passing of one of the most significant Supreme Court rulings involving language education in the U.S. (*Lau v. Nichols* in 1974), researchers agree that some of the major causes for these gaps may have to do with the following:

- a) the failure of public schools to provide appropriate interventions to fill literacy educational gaps when newcomers first enroll in U.S. schools (Calderon & Minaya-Rowe, 2003; Cloud, Genesee, & Hamayan, 2000);
- b) lack of bilingual support in widely-used standard ESL programs in public schools, causing ELLs to take up to seven years to acquire English language skills to fully understand and participate in a regular English, mainstream classroom (Cummins, 2012; Krashen, 1981, 1999, 2003; Lopez & Tashakkori, 2006; Thomas & Collier, 2011, 2012);
- c) family-related issues such as poverty, marital status at birth, and single family homes (Hedges & Nowell, 1999; Hernandez, Denton & McCartney, 2008; Snyder & Sickmund, 1995);
- d) accountability measures that assess ELL newcomers' academic achievement in a language they do not understand (Echevarria & Vogt, 2010); and
- e) lack of legal immigration status (The Migration Policy Institute, 2016).

Hispanic ELLs, in particular, are by far the group that performs the lowest in reading and math in U.S. schools and, thus, experiences the highest dropout rate (August et al., 2012; Orfield & Lee, 2005). As the high number of ELLs moving to U.S. schools in recent years continues to be noteworthy, school principals and district leaders across the nation wanting to effectively support these students are being challenged by this trend (Chishti & Hipsman, 2016). "The gaps in academic achievement between these increasing numbers of ELLs and their English-proficient peers continue to be a problem" (August et al., 2012, p. 2). The inability of public schools to accommodate these students' academic deficiencies and language barriers presents by far the greatest challenge.

Several leading researchers and advocates of dual-language approaches confirm the benefits of using ELLs' first language in an academic setting as a means of supporting their transition to the new language, highlighting how the gradual language transfer can help ELLs improve academically. Hispanic ELLs, who struggle to master grade-appropriate content, can particularly benefit from these types of instructional approaches (August et al., 2012). Interestingly, even when these students receive instruction in Spanish and are tested in English, they perform better than those who receive content instruction in English only (Genese & Lindholm-Leary, 2011).

Purpose of the Study

During the last several years, persuasive empirical research has driven a number of schools and districts to incorporate variations of dual-language programs in an effort to help ELLs and non-ELLs improve academically, with some changing their traditional settings completely (Burchinal, Field, Lopez, Howes & Pianta, 2012; Thomas & Collier, 1997, 2011, 2012). The program examined in this study resembles a typical in-site, dual-language program in the sense that students' first language was used for instruction; yet, it differs in some aspects. For instance, both ELLs and non-ELLs are typically instructed in the same classroom in a structured, two-way, dual-language program, whereas the program implemented here served only recently-arrived ELLs in a much smaller, semi-structured math class.

According to language acquisition theories, there is a clear benefit in instructing ELLs in a language they understand as they gradually learn the second language (Cummins, 1981). In fact, the literature highlights content area (e.g., math) development as its main benefit. With models that use both languages, newcomer ELLs continue to receive content instruction in their native language (partially, depending on the specificity of the dual-language model) as they adjust to the new culture and language. Thus, the

continuity of content learning is not lost. A shift from standard ESL instruction, which often focuses on language acquisition, to a more differentiated approach that uses ELLs' first language as a support, could potentially help narrow academic gaps and increase graduation rates on a broader scale.

The purpose of this quantitative study was to investigate how using dual-language features as a form of instruction could improve academic performance for ELL newcomers enrolled in grades 4 and 5. To conduct the study, the researchers selected students who would comprise the treatment and the comparison group with comparable characteristics by using the same selection criteria for both groups (i.e., Hispanic newcomer ELLs with less than 3 years in U.S. schools enrolled in grades 4 or 5 with < 3.5 in ACCESS score, who qualified for free and reduced lunch, etc.). The treatment group (n=15 students) received a one-hour block of math instruction daily in their primary language (Spanish) for a period of six months (the treatment), while the comparison groups (n=48 students) received such instruction in English (their second language) per the norm. For consistency in content covered, the regular classroom teacher and the bilingual instructor participated in structured weekly professional learning communities (PLC) led by a math coach who facilitated co-planning of lessons based on the North Carolina Common Core curriculum standards for grades 4 and 5. Students were assessed on such standards every two or three weeks (tests were all in English). In addition to weekly PLCs, instructors received professional development on math best instructional practices during the six months of the study. Quarterly district-level assessment data obtained from both groups were then compared, and the treatment effect was examined.

While ELL newcomers are considered those students who have been in U.S. schools for two years or less, this research expanded the criteria to include third-year ELLs who had attained a maximum of a 3.5 overall score in their latest language proficiency ACCESS test. Overall ACCESS scores range from 1 to 6, with 1 being the lowest and 6 being the highest. Newly arrived ELLs usually score a 1 overall. ACCESS is a state test given annually to all K-12 students identified as ELL. This test assesses ELLs' English language proficiency in four main language areas—speaking, reading, listening, and writing.

Conceptual Framework

While equity-based lenses such as vertical equity were helpful for understanding inequities affecting ELLs, this research mainly drew from language acquisition theories to ground this research. The equity lens helped explain and describe how inequitable practices and funding at the state, district, and school levels continue to place newcomer students at a disadvantage, impeding attempts to improve ELL education. The language acquisition and bilingual lenses provided insight on how ELLs use conceptual knowledge learned in their first language to make sense of new concepts, such as in math, in the new language.

According to Krashen (1981), students learn a second language when what they hear or read (input) is comprehensible to them. Cummins (1981) added that in order to help make that input comprehensible, ELLs should be able to use the conceptual knowledge learned in their native language. To put it differently, ELLs learn a new language more effectively and develop content language more quickly when their first language is used for instruction. This can help them by both lowering the “affective filter” (i.e., emotional variables of stress, anxiousness, self-consciousness, etc.) and leveraging what they already know (i.e., funds of knowledge) to effectively make the knowledge transfer between the two languages.

Dual-language theories provide an empirical foundation in favor of using students' first language as one of the main supports to facilitate not only second language acquisition but also content area development (Howard et al., 2003; Krashen, 1981, 1999; Lindholm-Leary, 2001; Mora et al., 2001; Thomas & Collier, 2011). According to Thomas and Collier, ELLs can achieve greater academic success when instructed in both languages for several school years. These experts assert that a dual-language model offers more benefits than standard English-focused pullout ESL services, claiming that the exposure to the two languages may shorten the time required for ELLs to reach proficiency and adequate academic language (e.g., Cognitive Academic Language Proficiency—CALP) necessary to succeed as students (Cummins, 1979; Thomas & Collier).

Methods

To examine the treatment effect, this quantitative study compared 2017- 2018 quarterly assessment data on newcomer ELLs enrolled in grades 4 and 5 who received math instruction in Spanish against secondary archival data from the prior three years (2014-15, 2015-16, and 2016-17 school years' cohorts) for newcomer ELLs who had received math instruction in English only. Both the treatment and the comparison data included pretest and posttest quarterly math scores, allowing for a six-month math academic growth comparison between the two groups. Descriptive (frequencies, percentages, and proportions) and inferential statistical tools such as t-tests were used to calculate significance in mean variance within and across groups. To further evaluate and validate the magnitude of the alternative approach, Cohen's d tests were calculated.

In general, data indicate that ELLs who received math instruction in Spanish exhibited higher gains (in that subject) than those instructed in English-only settings. However, when controlling for gender, time in U.S., grade, and English proficiency, the results were mixed.

Research Questions

This study was guided by the following research questions: Does dual-language instruction improve achievement in math for Hispanic ELL newcomers enrolled in an urban Title 1 elementary school in grades 4 and 5 more than English-only instruction? If so, to what extent do such ELL newcomers improve their math scores in district and state tests as compared to ELLs who receive math instruction in English only?

Instruments

This study relied mainly on district-level assessment scores that included end-of-quarter cumulative district measurements (or CDMs) test scores. As it stands, the district currently uses one main quarterly benchmark test to assess students' progress in math—the I-Ready. This test is mostly multiple-choice and directly resembles the quarterly content that is covered in the district end-of-grade test (EOG). The I-Ready tests are given three times a year. The first test, or pretest, is given in August/September within a few weeks of the start of the school year, then again in December/January, and once again in February/early March. Student scores are reported by showing the percentage of correct responses attained and the projected achievement level. In addition to CDMs, this study relied on students' ACCESS test overall score as a means of identifying language proficiency levels in English.

Research Site

This study was conducted in one of the largest Title 1 elementary schools in the district, Star Public School (a pseudonym), located in a mid-size county in the Southeast U.S. The district served more than 34,000 pre-K to 12th grade students in 53 schools during

the 2016-2017 academic year. Of those, 4,953 students (14%) were labeled ELLs (National Center for Educational Statistics, 2017). While the percentage of ELLs enrolled in the study district is higher than that of the state overall (6.2%) and nationally (10%), note that the population of ELLs varies widely across the U.S. with some districts serving close to 25% or ELLs. As is typical, ELLs in the study school were supported with language instruction by certified ESL teachers via the standard pull-out model.

As of the 2017-2018 school year, Star Elementary had a total enrollment of about 650 students (kindergarten through 5th grade). Of these, 171 students (or 26%) received ESL services. Thirty of those students had been in U.S. schools for less than three years. They came from different parts of the world, including Rwanda, Vietnam, and Ethiopia. However, those coming from Latin countries such as El Salvador, Honduras, Mexico, and Guatemala made up the great majority, or 90%. Further, 98% of the school's students were eligible to receive free and/or reduced lunch, while 100% of ELL participants were in that category.

In terms of academics, an average of 40.6% of the students in grades 3 through 5 attained a passing score on the state end of grade (EOG) math test and 38.4% attained a passing score in reading in the 2016-2017 school year. When comparing academic achievement by subgroups in the preview year, it was evident that the subgroups of African American and Hispanic students were underperforming White students by a wide margin. Table 1 outlines students grouped by gender and ethnicity, among other factors, and the percentage of those who reached proficiency levels on both reading and math tests.

Table 1

Percentages of Students Who Reached Proficiency in Reading and Math in 2015-16 School Year— Research Site vs. District and State

	All	Male	Female	White	Black	Hispanic	ELLs
Site	16.8%	18.9%	15.2%	39.1%	14.3%	12.8%	8.8%
District	22.2%	20.9%	23.5%	55.0%	12.9%	12.9%	<5%
State	32.0%	30.6%	33.5%	43.5%	14.2%	19.3%	5.8%

Participants

Approximately 30 ELLs were enrolled from 2014 to 2018 in grades 4 and 5 in this urban Title 1 school during each school year examined—approximately 120 ELLs in total. Of these, only 63 students fit the sample selection criteria, 48 of whom comprised the comparison group and 15 of whom comprised the treatment group. That is, for both groups the researchers selected only students who (1) were enrolled in U.S. schools for no more than three years; (2) scored no higher than 3.5 overall in the latest ACCESS evaluation, indicating beginning-intermediate levels of English proficiency; (3) spoke Spanish as their first language; (4) were literate in reading and writing in Spanish, but with clear academic gaps in that language (e.g., reading below-level based on reading assessment in Spanish); (5) qualified for reduced and free lunches; and (6) were not enrolled in other programs such as Exceptional Education (EC) or Academically Intellectually Gifted (AIG).

Students comprising the treatment group were all enrolled in the study school at the time of the study, while many of the students comprising the comparison group had already transitioned to middle school (e.g., those from the 2014-2015 and 2015-2016 cohorts). Table 2 describes the demographic and language proficiency characteristics of the population in each of the years studied (2014-2018). Looking at the treatment cohort

(2017-2018) in Table 2, results indicate that this group (n = 15) was representative of the comparison group linguistically, economically, educationally, etc. Specifically, this group was comprised of 15 ELLs; seven of whom were enrolled in grade 4 and eight enrolled in grade 5. Of the 15 participants, eight were girls and seven were boys. The 15 participants came from Latin American countries—mostly from Mexico. Table 2 reports the frequency and the percentage of participant characteristics overall, verifying that despite slight differences (e.g., a younger comparison group (67% were in grade 4 versus 47% in the treatment group) and more newly-arrived ELLs in the comparison group than the treatment group (29% versus 20%, respectively, with < 1 year in a U.S. school)) the distribution was largely consistent between the two groups.

To exemplify such consistency, both the comparison and the treatment groups' percentage of students eligible for free and reduced-price lunch was roughly 100%. Similarly, gender distribution was consistent in both groups, varying only by a few percentage points (i.e., 50% in the comparison group were males vs. 47% in the treatment group). Additionally, the range of ACCESS scores, indicating English proficiency, was comparable. Such commonality in the population's characteristics, as well as the fact that all cohorts came from the same school, added a level of validity to the study by reducing both the margin of error and other external validity threats. Additionally, both cohorts' control and treatment groups were instructed by a different teacher, which simultaneously added a level of validation and a limitation to the study in the sense that it eliminated teacher quality as a factor. Both groups were tested in English at the end of each quarter and continued to receive ESL services via traditional pullout. However, during their roughly-one-hour math block, students in the comparison group received math instruction in English while the treatment group received instruction in Spanish.

Table 2

Demographics of Students Who Received Math Instruction in English and Those Who Received Math Instruction in Spanish

Descriptor	Comparison Group (Math in English)				Treatment Group (Math in Spanish)	
	2014-2015 (n = 12)	2015-2016 (n = 15)	2016-2017 (n = 21)	2014-2017	2017-2018 (n = 15)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Boys	5	42%	8	53%	11	50%
Girls	7	58%	7	47%	10	50%
Enrolled in grade 4	10	83%	8	53%	14	67%
Enrolled in grade 5	2	17%	7	47%	7	33%
< 1 year in U.S. schools	5	42%	3	20%	6	29%
Free/Reduced Lunch	12	100%	15	100%	21	100%
English Proficiency **						
ACCESS Score of 1 - 1.5	5	42%	6	40%	9	42%
ACCESS Score of 1.5 - 2	2	17%	4	27%	6	25%
ACCESS Score of 2 - 2.5	3	25%	2	13%	2	15%
ACCESS Score of 2.5 - 3	1	8%	2	13%	3	12%
ACCESS Score of 3 - 3.5	1	8%	1	7%	1	6%

Note. *Total percentage of the three years of the comparison group.

**English proficiency as measured by the ACCESS test, ranging from the level of 1 (beginner) to the level of 6 (advanced, exit level).

Limitations

Limitations in this research, which limited the scope of the generalizability of its findings primarily, included: a) the small sample size (n = 15 in the treatment group and n = 48 in the comparison group); b) the research being conducted with elementary newcomers in grades 4 and 5 only, or those 4th and 5th grade ELLs in their first, second, or third year in U.S. schools; c) focusing on math instruction only; d) limiting participants to newcomers from Spanish-speaking countries only; e) giving participants the intervention (or treatment) for only one hour a day for six months, which is a short period of time in which to demonstrate success and adequately validate the study's findings especially since noted previous research suggests three or more years to be ideal for optimizing treatment results (Thomas & Collier, 2012); f) not randomizing participants but, instead, selecting them using a set of criteria that fit the desired profile described earlier including that they came from a low socioeconomic background; g) the relocation of some ELL participants to another school in the middle of the study (could compromise the findings' validity; and h) that one of the researchers was also the provider of treatment.

Summary of the Results

To validate mean differences and to assess the magnitude of the treatment effect, standard effect size between means was evaluated by using Cohen's d test. According to Cohen's d test, a d effect size that results in less than 0.2 SD between the two means is considered to be non-significant; a d effect size of 0.2 represents a small effect, a d effect size of 0.5 represents a medium effect, and a d effect size of 0.8 or higher represents a large effect (Gravetter & Wallnau, 2013). The final analysis for this study involved conducting independent t-tests across groups, keeping a confidence level of 95%. This meant that a resulting t value at, or greater than, 0.05 would represent a significant difference between the means, leading to a rejection of the null hypothesis. The results of these test calculations follow.

Figure 1 illustrates the average pretest scale score of 403.7 in the 2014-2015 school year; 393.5 in 2015-2016; 414 in 2016-2017; and 420.8 in the treatment year. While data indicate that students in the treatment year actually scored slightly higher initially, statistical significance differences were calculated using relative pretest to posttest growth. This determined that the higher pretest average had no impact in growth calculations.

Average pretest scale scores by cohort

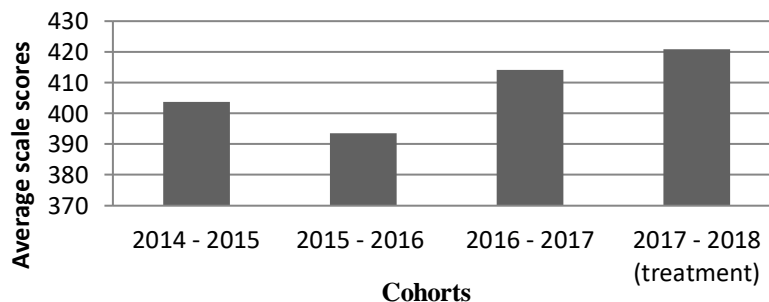


Figure 1. I-Ready math pretest scale scores for each year studied

Figure 2 displays the average posttest scores for all four years studied. Both January and February posttest data for the treatment group are presented in Figure 2.

Average posttest scale scores by cohort

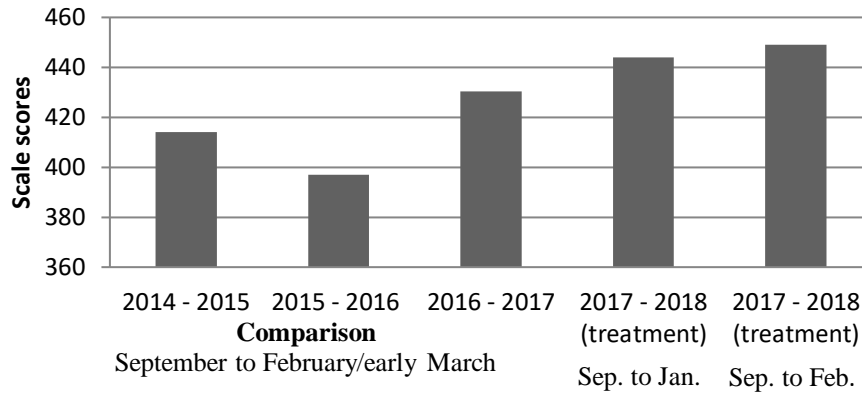


Figure 2. I-Ready math posttest scale scores for each year studied

In general, the data indicate that ELLs who received the treatment of one hour of math instruction in Spanish per day exhibited higher rates of growth than those who did not. Specifically, Tables 3 and 4 reveal that ELLs enrolled in the 2014-2015 school year grew in math competency from a pretest mean scale score of 403.7 points to a posttest mean scale score of 414 points in the September to February period—a total 10.4-point gain. Similarly, the 2015-2016 cohort started the year with an average scale score of 393.5 and ended with a scale score mean of 396.9—a total gain of 3.4 points. The 2016-2017 cohort started the year with a mean score of 414.0 and ended at 430.2—a total gain of 16.2 points. Averaging the scores of three years of the comparison population resulted in approximately 10 points (rounded) of pretest to posttest growth. While both study groups grew in math competency, the treatment group experienced a greater gain where math achievement grew 23.3 points from September to January (5 months) (a scale score mean of 420.8 to 444.1) and 28.1 points September to February (6 months) (a scale score mean of 420.8 to 448.9).

Table 3

Math Academic Achievement Growth for Students in the Two Groups

	ELL newcomers in grades 4 and 5 receiving math instruction in English n = 48		ELL newcomers in grades 4 and 5 receiving math instruction in Spanish n = 15	
	Mean	SD	Mean	SD
Pretest - September, 2014	403.7	32.2	Pretest - September, 2017	420.8 31.5
Posttest - February, 2015	414	25.7	Posttest - January, 2018	444.1 23.7
Pretest - September, 2015	393.5	41.3	Pretest - September, 2017	420.8 31.5
Posttest - February, 2016	396.9	45.3	Posttest - February, 2018	448.9 27.1
Pretest - September, 2016	414	34.9		
Posttest - February, 2017	430.2	22.8		
Pretest - All three years	405.4	36.8		
Posttest - All three years	415.8	34.6		

Table 4

Math Academic Achievement Growth for Students in the Two Groups by Average-Point Gain

2014-2015 Sept. to Feb.	2015-2016 Sept. to Feb.	2016-2017 Sept. to Feb.	Normal Growth Sept. to Feb. instructed in English	2017-2018 Sept. to Jan.	2017-2018 Sept. to Feb.
10.4 points	3.3 point	16.2 points	10 points	23.3 points	28.1 points

Major Findings

The pretest to posttest (six months) mean math overall score gain in the comparison group was 10 scale points of growth versus 28.1 points of growth for the treatment group over the same time period. In percentage terms, the 10-point gain in the comparison group equaled a < 3% gain, while the treatment group experienced a 7% gain (Figure 3). The difference in mean gains was statistically significant and provided evidence to reject the null hypothesis. That is, overall mean scale scores attained by ELLs who received math instruction in their first language (Spanish) were significantly higher than mean scale scores attained by ELLs receiving math instruction in a second language only (English), $t(61) = 3.58$. $p < 0.05$. These findings were further validated by conducting a Cohen’s d test, which generated a 0.87 effect size, which is considered to be a large effect.

Controlling for gender, paired t-test results revealed that the comparison group had lower math mean scale scores than the treatment group. In addition, gains experienced by female students were higher than those of male students in both the comparison and the treatment groups. Specifically, for the comparison group this calculation resulted in a pretest to posttest gain of a 15.3-point scale score mean for the female subgroup and 6.5-point gain for males, while the average gain for females in the treatment group was a 30.7-point gain and a 14.8-point gain for males (Table 5).

Figure 3. Average pretest—posttest gain by cohort

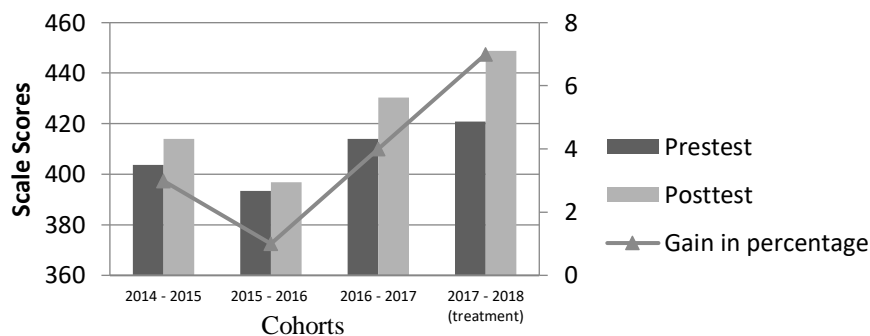


Table 5*Pretest to Posttest Math Academic Gains by Gender Over a Six-Month Period*

	Comparison Group—ELL newcomers in grades 4 and 5 receiving math instruction in English		Treatment Group—ELL newcomers in grades 4 and 5 receiving math instruction in Spanish	
	n = 48		n = 15	
	Pretest to Posttest Mean Change	Number of Students	Pretest to Posttest Mean Change	Number of Students
Male	6.1	24	14.8	7
Female	15.3	24	30.7	8

Independent t-tests conducted within groups further demonstrated that means between males and females were significantly different at the pretest and posttest level for the comparison and the treatment group alike. However, when posttest means were compared, males scores in the comparison group were not significantly different from male scores in the treatment group, $t(29) = 0.064$, $p > 0.05$. This was not true for female students. Posttest data revealed that scores from female ELLs who received math instruction in Spanish were significantly different from scores for those who received math instruction in English, $t(30) = 7.31$, $p < 0.05$.

Controlling for grade, paired t-tests results revealed that the math mean scale scores for the comparison group were lower than those of the treatment group in both grades. Specifically, students in grade 4 in the treatment group gained almost three times as many scale points as did those students in the comparison group (Table 6).

Table 6*Pretest to Posttest Math Academic Gains by Grade over a Six-Month Period*

	Comparison Group—ELL newcomers in grades 4 and 5 receiving math instruction in English		Treatment Group—ELL newcomers in grades 4 and 5 receiving math instruction in Spanish	
	n = 48		n = 15	
	Pretest to Posttest Mean Change	Number of Students	Pretest to Posttest Mean Change	Number of Students
Grade 4	8.5	32	21.3	7
Grade 5	15.3	16	24.9	8

Controlling for English language proficiency and time enrolled in U.S. schools, t-test results demonstrate that those students who received math instruction in Spanish made greater gains than those who received instruction in English only (Table 7). Students in the treatment group who had been enrolled in U.S. schools for less than one year with an ACCESS score of < 1.5 outperformed the comparison students under the same conditions. For this calculation, it was not necessary to control for time enrolled in U.S. schools and English proficiency separately, since all ELLs enrolled in U.S. for < 1 year had an ACCESS score of < 1.5 .

Table 7

Pretest to Posttest Math Academic Gains by Year-One ELLs and Year-Two and Year-Three ELLs over a Six-Month Period

ACCESS Scores	Comparison Group—ELL newcomers in grades 4 and 5 receiving math instruction in English		Treatment Group—ELL newcomers in grades 4 and 5 receiving math instruction in Spanish	
	n = 48		n = 15	
	Pretest to Posttest Mean Change	Number of Students	Pretest to Posttest Mean Change	Number of Students
1 - 1.5	44	20	30	7
1.5 - 3.5	-13	28	20	8

While the pretest to posttest mean changes for students enrolled in U.S. schools longer than one year (and with > 1.5 ACCESS scores) were higher for the treatment group than for the respective comparison group, independent t-tests examining treatment impact overall indicate that the difference in scores was not significant. ELLs enrolled in U.S. schools with a score of < 1.5 who received math instruction in Spanish (n = 7)—with a mean of 426.7 and standard deviation of 22.8—and those who received math instruction in English (n = 20)—with a mean of 419.4 and a SD of 31.9—were not significantly different, $t(25) = 0.62$, $p = 0.55$. Similar results were found when examining students who had been enrolled in U.S. schools for more than one year (and with ACCESS scores > 1.5), as math scores from students in the treatment group were not significantly different than scores from students in the comparison group, $t(34) = 2.07$, $p > 0.05$.

Discussion and Recommendations

Clearly, not all outcomes in this research were as predicted. When controlling for time in U.S. schools, the researchers hypothesized that ELLs who had just moved to the country (< one year) and were able to continue learning in their first language without interrupting the continuity of content learning would benefit more than those ELLs who had been given such instruction in earlier years in a language they did not understand. Based on the results of the research discussed here, this prediction was not completely validated. It is possible that ELL newcomers who have been enrolled in U.S. schools for two or three years and who had received math instruction in English missed the learning of mathematical content that would have taken place in earlier grades due to the language barrier. For example, if a newcomer in grade 5 came to the U.S. at grade 3 and received math instruction in English-only settings before reaching grade 5, it is possible that the math concepts and skills expected to be learned in grades 3 and 4 were not strong due to the language barrier. Consequently, lack of such concepts and skills would have impacted these ELLs as they moved on to the upper grades. Yet no significant difference in scores was found between ELLs in the comparison group and those ELLs in the treatment group under the same conditions.

Interestingly, further analysis indicates that those ELLs enrolled in U.S. schools for longer than one year and with an ACCESS score higher than 1.5 were the ones who experienced greater treatment effect (i.e., -13 pretest-posttest scale-point difference in the comparison group versus 20 pretest-posttest scale-point difference for the treatment group). One explanation may have to do with the short time frame in which this treatment was given. Another reason might point to the discrepancy in age between the comparison and the treatment group, as there were more ELLs in grade 4 in the comparison group (67%) than in the treatment group (47%). These results do, however,

confirm the language transfer theory suggested by Cummins (1981), according to which students need to develop a threshold of proficiency in their first language to facilitate language transfer into the second language. This was not the case in this study, as most in the treatment group showed academic deficiencies in Spanish. These results validate the idea that continued support in the development of proficiency in their first language may become key to the success of content learning transfer in the second language.

When controlling for grade, results indicate that those ELLs in grade 4 outperformed those enrolled in grade 5. Interpreting these results may point to the disproportionate number of ELLs within their first year in U.S. schools that were present among the grades. There were more year-one ELLs in grade 4 (who generally outperformed year-two and year-three ELLs) than in grade 5; this may have skewed these results. While the question of why students enrolled in year-one outperformed those in year two or year three was discussed in this research, further exploration may be warranted.

Finally, controlling for subject content (reading vs. math), results demonstrate that the positive treatment effects on math may not have replicated to other subjects. Such a discrepancy in academic growth may be explained by the fact that ELL participants received content instruction in Spanish for math and not for reading. These results may validate previous research that suggests that students' conceptual knowledge learned in one language is likely to transfer into the second language, yet the language skills acquired in the transfer do not necessarily generalize to other academic areas. Here the focus was math content, and therefore the predicted outcome happened to be in that particular subject. Treatment was given for a relative short time frame (six months), which may have also contributed to achievement discrepancy.

In sum, statistical analyses indicate that ELLs who received math content instruction (one hour a day) in their first language experienced more academic growth than did those who received math instruction in English. Yet while this study is unique in the participants (ELL newcomers) and subject examined, there is still room for improvement. These findings may inspire future researchers to look further into how a longer time frame of treatment, a wider range of elementary grades, and a larger number of participants could significantly enhance the quality of these results.

These findings may also raise questions about more subtle causes that could have impacted the treatment effect: Was the positive treatment effect attributable to the fact that these ELLs received math instruction in Spanish, or was it due to the cultural congruence of instructor (also one of the researchers), or both? According to the affective filter—or the level of stress and anxiety ELLs experience as they learn a new language—the fact that students received instruction in a low-anxiety environment could affect how well the comprehensible input was received (Krashen, 2003). In this study the instructor knew much about the culture of his students being himself a former ELL. Those interpreting these results may also consider to what extent the favorable results were impacted by the fact that the assigned teacher was a language teacher. Would the outcome have been more favorable if the teacher had been a math teacher or both a language and a math teacher combined? Perhaps some would argue that a language teacher would know better how to facilitate math instruction to this unique group of ELLs. For others, a math teacher, and not necessarily a language teacher, would have done a better job due to their greater familiarity with the content material. Arguably, a combination of both attributes would be ideal.

Conclusion and Recommendations

As Central American immigrant children continue to enter American's schools (Chishti & Hipsman, 2016)—often with limited academic backgrounds (Cloud et al., 2000)—reforms and practices to better accommodate them should be considered. Sadly, some policymakers seem to think that spending more on educating immigrant children is unnecessary because there is no gain in doing so—there is no clear or quick return on investment (ROI). McMahon (2006) has an alternate view, observing that although some educational reforms may see quick positive results (e.g., five to ten years), others may take generations (up to 40 years). Investing in education—for minority groups, in particular—must be viewed as a long-term investment, since the positive effects of that higher education and higher academic student achievement “will spill over” to future generations (McMahon, 2006).

Funding high-quality bilingual programs presents another positive financial implication, as overall savings can be expected as a result of reducing the number of years ELLs would need ESL services. The research on standard, less effective pull-out programs indicates that ELLs take approximately two to three years to reach the level of having Basic Interpersonal Communicative Skills (BICS—i.e., informal, survival language) and five to seven years to reach Cognitive Academic Language Proficiency (CALP—i.e., academic language), at which point ELLs no longer need ESL services. Language programs with dual-language features can not only shorten the number of years ELLs would need to remain in those programs but may also narrow academic achievement gaps. This can create tremendous cost benefits and more equitable outcomes. To that end, school principals at the elementary level may have several vehicles for providing ELL newcomers with the supplemental support that may expedite their transition to their new culture and language, potentially narrowing the achievement gaps.

In essence, part of the solution for an elementary school leader lies in his or her ability to increase the number of high-quality bilingual personnel in their schools. Because of their bilingual abilities and cultural knowledge, these teachers enhance the engagement and academic learning for ELLs and are a great asset to any ESL program overall (August & Shanahan, 2006). Granted, limitations in bringing such initiatives up to scale exist, including the shortage of bilingual teachers who would assume these teaching roles. However, an effort should be made to strengthen current international teaching exchange programs such as the popular Visiting International Faculty (VIF) initiative. Even if the teachers hired are not bilingual, understanding that the success of an ESL program for elementary newcomer ELLs will greatly depend on how much value the newcomers' language and culture is given as a resource to scaffold learning and academically challenge these students, as well as making it imperative for prospective teachers to understand how cultural competency can function in education (Ladson-Billings & Tate, 1995, p. 483) can be fundamental.

Further, it is important that these children have access to, and opportunity with high-quality teachers, which can have an impact on their intellectual development as well as “significant long-term” financial and other positive effects (Chetty, Friedman & Rockoff, 2011). They should also have access to the standard curriculum through their first language (August & Shanahan, 2006; Cheung & Slavin, 2005; Genesee, Lindholm-Leary, Saunders, & Christian, 2005; Krashen, 2003). One example of such a program would include features of late-exit bilingual programs where students can continue to learn core content in a language they understand for longer periods of time (Fillmore, 2000; Krashen, 1999; Thomas & Collier, 2012). Such practices would not only satisfy equity by providing students the tools they need, but also excellence as students are

likely to succeed as they move into upper grades, thus narrowing academic achievement gaps (Fillmore, 2000).

Principals should also make an effort to work with community partners—local universities and community colleges—to develop programs that can better reach and support newcomer families (e.g., through adult literacy and ESL programs). Pfautz, Huguley and McClain (1975) and others found that school-community relations improved when the school leader acted as a “street leader” socially attached to the community he serves (Khalifa, 2012).

It is equally vital for school principals to understand that allocation disparities that have a negative effect on minority students do not just happen at the district and intra-district levels, but can, and often do, occur within a school. Therefore, principals—especially those leading schools with high numbers of ELL newcomers—should reflect on their financial and human resource allocation priorities with social justice in mind by asking themselves if they are (1) prioritizing expenditures on cultural competency professional development for regular classroom teachers; (2) hiring the right person who is able to culturally understand their students; and (3) allocating teachers adequately for this minority group in their schools. Some principals assign students with greater needs (e.g., ELLs) to effective teachers. Yet, there are those who unethically assign these students to less experienced teachers, “perhaps to avoid conflict with senior staff who resist those assignments” (Baker et al., 2010, p. 11).

Finally, while convincing research supports bilingual education as an instructional option to support ELLs (e.g., one-way dual-language or two-way dual language models) (U.S. Department of Education, 2015), only a relatively small number of such programs exists. There were more than 98,300 public schools in 2011-2012 in the U.S. compared to only 2000 dual-language programs in the U.S., in the same year (Gross, 2016; National Center for Educational Statistic, 2018). Bilingual teacher shortages, program design, accountability issues, and the like may be part of the challenge in implementation (Lindholm-Leary, 2012). As such, expecting to bring bilingual programs up to scale where traditional schools with high numbers of newcomer ELLs shift their programs to a complete dual-language setting in an effort to accommodate these students is not realistic. These are limitations, indeed; but a third, middle ground alternative may exist. This study sought to examine that middle ground.

Table 8 illustrates the approach recommended by comparing and contrasting the dual language approach explored here with structured dual-language programs and the standard pullout model. Specifically, the alternative approach—used for this study—requires that at least one teacher be bilingual at each site. The program operated for six months, from September 2017 to February/March 2018 Monday through Friday during school hours, serving a total of 15 ELLs. These 15 ELLs (1) were enrolled in U.S. schools for no more than three years; (2) scored no higher than 3.5 overall in the latest ACCESS evaluation, indicating beginning-intermediate levels of English proficiency; (3) spoke Spanish as their first language; (4) were literate in reading and writing in Spanish, but had clear academic gaps in that language (e.g., reading below-level based on reading assessment in Spanish); (5) qualified for reduced and free lunch; and (6) were not enrolled in other programs such as Exceptional Education (EC) or Academically Intellectually Gifted (AIG). Additionally, ELLs were divided by grade level (seven ELLs in grade 4 and eight ELLs in grade 5). This helped the instructor to (1) cover content specific to that grade level and (2) keep the groups small. The bilingual instructor, a veteran teacher certified in both content and ESL, pulled students into a separate classroom and instructed math lessons in Spanish (English was used at a minimum) during a one-hour block. For extra support, participants continued to receive

ESL services focused on English language arts and English language development (not on math). For consistency in content covered, the regular classroom teacher and the bilingual instructor participated in structured weekly professional learning communities (PLC) led by a math coach who facilitated co-planning of lessons based on the North Carolina Common Core curriculum standards for grades 4 and 5. Students were assessed on such standards every two or three weeks (tests were all in English). In addition to weekly PLCs, instructors received professional development on math best instructional practices during the six months of the study.

Table 8

Comparison of ESL Models—Dual-Language, Proposed Model, and Current Standard ESL Models

	Dual-language model	Proposed middle-ground model	Current standard ESL Model
General description of program in elementary schools	Uses two languages to instruct content to minority-language students and majority-language students.	Hispanic ELL newcomers receive content (e.g., math) instruction in Spanish for a period of six months to a year. This model does not require the school to adopt school-wide dual-language approaches, as the focus is on newcomer ELLs only—instructing them in Spanish for a relatively short period of time as they develop English proficiency	Pullout English-based models that focus on language development and to a lesser extent on content. This model does not directly address achievement gaps.
Effectiveness in narrowing academic achievement gaps	Research-based approach in narrowing achievement gaps for ELLs (Thomas and Collier, 2012). Majority and minority-language groups may benefit from this approach.	Based on empirical evidence found in this study, ELL newcomers who receive instruction in their first language for six months to a year may increase math achievement, leading to narrower academic achievement gaps.	Most commonly used models to serve ELLs—expensive and ineffective in narrowing achievement gaps. The focus is placed on language acquisition, oftentimes sacrificing content development.
Challenges in implementation	Bilingual teacher shortage, program design, accountability issues, etc. (Lindholm-Leary, 2012)	Bilingual teacher shortage; funding; may be too short a time to truly see the benefits of language transfer.	While there might be challenges in implementation, this is the most widely used model in U.S. schools.
Teachers needed	Depending on the depth of program, up to 50% of teachers must be bilingual.	One bilingual teacher per school to teach content (math, science, and reading) to newcomer students in grades 4-5.	Teacher-student ratio may vary by state; in NC it requires one ESL teacher for every 50 ELLs.

Taken together, identifying ways to shorten the time of ELLs' transition into a mainstream classroom is not only fair but cost effective with long-term individual cultural, social, and economic benefits. The alternative approach recommended here may provide suggestions for principals to better serve the ELL newcomer populations at their schools more equitably.

From a social justice perspective, a call has been made to school leaders to “take the roles of transformative intellectuals, public intellectuals, and critical intellectuals.” (Cambron-McCabe, 2005, p. 202). This means that school leaders have an opportunity to change the status quo of inequality placed on a minority group such as ELLs. Understanding that there are deeper racial issues embedded in this society that may be impeding implementing researched-based bilingual programs (Gorski, 2012) is of great importance since the absence of policies that address the academic challenges ELLs face—in particular, newcomers—can have undesired generational effects going forward. Well-designed, dual-language, on-site programs, supported by high-quality bilingual teachers, culturally competent and supportive staff, and family outreach support can potentially narrow achievement gaps, increase graduation rates, and achieve more overall social justice. Ignoring these facts would be a mistake.

References

- August, D., Estrada, J., & Boyle, A. (2012). *Supporting English language learners: A pocket guide for state and district leaders*. Washington, DC: American Institutes for Research.
- August, D., & Shanahan, T. (2006). *Developing literacy in second-language learners: Report of the national literacy panel on language-minority children and youth. Executive Summary*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Baker, E. L., Barton, P. E., Darling-Hammond, L., Haertel, E., Ladd, H. F., Linn, R. L., & Shepard, L. A. (2010). *Problems with the use of student test scores to evaluate teachers*. EPI Briefing Paper# 278. Economic Policy Institute.
- Burchinal, M., Field, S., López, M. L., Howes, C., & Pianta, R. (2012). Instruction in Spanish in pre-kindergarten classrooms and child outcomes for English language learners. *Early Childhood Research Quarterly, 27*(2), 188-197.
- Calderon, M. E., & Minaya-Rowe, L. (Eds.). (2003). *Designing and implementing two-way bilingual programs: A step-by-step guide for administrators, teachers, and parents*. Thousand Oaks, CA: Corwin Press.
- Cambron-McCabe, N. (2005). *The superintendent's fieldbook: A guide for leaders of learning*. Thousand Oaks, CA: Corwin Press.
- Chetty, R., Friedman, J. N., & Rockoff, J. E. (2011). *The long-term impacts of teachers: Teacher value-added and student outcomes in adulthood* (No. w17699). National Bureau of Economic Research.
- Cheung, A., & Slavin, R. E. (2005). Effective reading programs for English language learners and other language-minority students. *Bilingual Research Journal, 29*(2), 241-267.
- Chishti, M., & Hipsman, F. (2016). *Increased Central American migration to the United States may prove an enduring phenomenon*. Migration Information Source, Policy Beat. New York, NY: Migration Policy Institute. Retrieved from <http://www.migrationpolicy.org/article/increased-central-american-migration-united-states-may-prove-enduring-phenomenon>
- Cloud, N., Genesee, F., & Hamayan, E. (2000). *Dual language instruction: A handbook for enriched education* (pp. 113-138). Boston, MA: Heinle & Heinle.
- Cummins, J. (1981). *The role of primary language development in promoting educational success for language minority students. Schooling and language minority students: A theoretical framework*. Los Angeles, CA: California State University.
- Cummins, J. (1979). The language and culture issue in the education of minority language children. *Interchange, 10*(4), 72-88.
- Cummins, J., Mirza, R., & Stille, S. (2012). English language learners in Canadian schools: Emerging directions for school-based policies. *TESL Canada Journal, 29*, 25.
- Customs, U. S., & Protection, B. (2016). United States Border Patrol Southwest Family Unit Subject and Unaccompanied Alien Children Apprehensions Fiscal Year 2016. Retrieved from http://defenseassistance.org/primarydocs/160812_cbp_uac_ocr_sm.pdf
- DeCapua, A., & Marshall, H. W. (2009). Limited formally schooled English language learners in US classrooms. *Urban Review, 42*, 159-173.
- Echevarria, J., & Vogt, M. (2010). Using the SIOP Model to improve literacy for English learners. *New England Reading Association Journal, 46*(1), 8.
- Fillmore, L. W. (2000). Loss of family languages: Should educators be concerned? *Theory into Practice, 39*(4), 203-210.
- Genesee, F., Lindholm-Leary, K., Saunders, W., & Christian, D. (2005). English language learners in US schools: An overview of research findings. *Journal of Education for Students Placed at Risk, 10*(4), 363-385.

- Genesee, F., & Lindholm-Leary, K. (2011). The education of English language learners. In K. Harris, S. Graham, & T. Urdan (Eds.), *APA Educational Psychology Handbook*, Vol III, pp. 499-526. Washington DC: APA Books.
- Gorski, P. C. (2012). Perceiving the problem of poverty and schooling: Deconstructing the classstereotypes that mis-shape education practice and policy. *Equity & Excellence in Education*, 45(2), 302-319.
- Gravetter, F. J., & Wallnau, L. B. (2013). *Statistics for the behavioral sciences* (9th edition). London, UK: Thomson Wadsworth.
- Gross, N. (2016, August 3). Dual-language Programs on the Rise Across the U.S. [Web log post]. Retrieved from <https://www.ewa.org/blog-latino-ed-beat/dual-language-programs-rise-across-us>
- Hedges, L. V., & Nowell, A. (1999). Changes in the black-white gap in achievement test scores. *Sociology of Education*, 111-135.
- Hernandez, D. J., Denton, N. A., & Macartney, S. E. (2008). Children in immigrant families: Looking to America's future. Social Policy Report. *Society for Research in Child Development*, 22(3), 3-23.
- Howard, E. R., Sugarman, J., & Christian, D. (2003). *Trends in two-way immersion education: A review of the research*. Washington, DC: Center for Applied Linguistics.
- Khalifa, M. (2012). A re-new-ed paradigm in successful urban school leadership principal as community leader. *Education Administration Quarterly*, 48, 424-467.
- Krashen, S. D. (1981). Bilingual education and second language acquisition theory. Schooling and language minority students: A theoretical framework, 51-79.
- Krashen, S. D. (1999). *Condemned without a trial: Bogus arguments against bilingual education*. Portsmouth, NH: Heinemann.
- Krashen, S. D. (2003). *Explorations in language acquisition and use* (pp. 1-27). Portsmouth, NH: Heinemann.
- Ladson-Billings, G., & Tate, W. F. (1995). Toward a critical race theory of education. *Teachers College Record*, 97(1), 47.
- Lau v. Nichols, 414 U.S. 563 (1974).
- Lindholm-Leary, K. J. (2001). Dual language education (Vol. 28). *Multilingual Matters*.
- Lindholm-Leary, K. (2012). Success and challenges in dual language education. *Theory Into Practice*, 51(4), 256-262.
- Lopez, M. G., & Tashakkori, A. (2006). Differential outcomes of two bilingual education programs on English language learners. *Bilingual Research Journal*, 30(1), 123-145.
- Marian, V., Shook, A., & Schroeder, S. R. (2013). Bilingual two-way immersion programs benefit academic achievement. *Bilingual Research Journal*, 36(2), 167-186.
- McMahon, W. W. (2006). Education finance policy: Financing the non-market and social benefits. *Journal of Education Finance*, 32(2), 264-284.
- Migration Policy Institute (2015). Top languages spoken by English language learners nationally and by state. Retrieved on January 2, 2017 from <http://www.migrationpolicy.org/sites/default/files/publications/ELLFact%20Sheet-No4.pdf>
- Migration Policy Institute (2016). A Profile of U.S. Children with Unauthorized Immigrant Parents. Retrieved on December 15, 2016 <http://www.migrationpolicy.org/sites/default/files/publications/ChildrenofUnauthorized-FactSheet-FINAL.pdf>
- Mora, J. K., Wink, J., & Wink, D. (2001). Dueling models of dual language instruction: A critical review of the literature and program implementation guide. *Bilingual Research Journal*, 25(4), 435-460.

- Morris, E. W., & Perry, B. L. (2016). The punishment gap: School suspension and racial disparities in achievement. *Social Problems*, 63(1), 68-86.
- Orfield, G., & Lee, C. (2005). New faces, old patterns? Segregation in the multiracial South. Civil Rights Project at Harvard University (The).
- Ovando, C. J., Combs, M. C. & Collier, V. P. (2006). *Bilingual and ESL classrooms: Teaching in multicultural contexts* (4th Ed). Boston, MA: McGraw-Hill
- Pfautz, H. W., Huguley, H. C., & McClain, J. W. (1975). Changes in reputed Black community leadership, 1962-72: A case study. *Social Forces*, 53(3), 460-467.
- Snyder, H. N., & Sickmund, M. (1995). *Juvenile Offenders & Victims: A National Report*. DIANE Publishing.
- Short, D. J., & Boyson, B. A. (2012). *Helping newcomer students succeed in secondary schools and beyond*. Washington, DC: Center for Applied Linguistics.
Retrieved on December 15th, 2016 from
http://swmcdn.com/site_0207/Tenino_ELLTeacerResources_100913.pdf
- Thomas, W. P., & Collier, V. (1997). *School Effectiveness for Language Minority Students*. NCBE Resource Collection Series, No. 9.
- Thomas, W. P., & Collier, V. P. (2002). A national study of school effectiveness for language minority students' long-term academic achievement.
- Thomas, W. P., & Collier V. P. (T. Brody, personal communication, May 2, 2011)
Retrieved from http://www.thomasandcollier.com/assets/2011_interview-with-thomas-and-collier.pdf
- Thomas, W.P., & Collier, V. P. (2012) *Dual language education for a transformed world*. Albuquerque, NM: Dual Language Education of New Mexico, Fuentes Press.
- U.S. Department of Education, National Center for Education Statistics. (2018). *Digest of Education Statistics, 2016* (NCES 2017-094), Table 105.50. Retrieved from <https://nces.ed.gov/fastfacts/display.asp?id=84>
- U.S. Department of Education, Office of English Language Acquisition, *Dual Language Education Programs: Current State Policies and Practices*, Washington, D.C.