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**Reading and Language Outcomes of a
Five-Year Randomized Evaluation
Of Transitional Bilingual Education**

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Abstract

This paper reports the fifth-year results of a study comparing the English and Spanish language and reading performance of Spanish-dominant children randomly assigned beginning in kindergarten to Transitional Bilingual Education (TBE) or Structured English Immersion (SEI). This is the first randomized study to compare TBE and SEI reading approaches over a period as long as five years. As expected, on the Peabody Picture Vocabulary Test (PPVT) and its Spanish equivalent (TVIP) and on English and Spanish versions of three Woodcock Reading Scales, kindergartners and first graders in TBE performed significantly better in Spanish and worse in English than their SEI counterparts, controlling for PPVT and TVIP. After transitioning to English, TBE children in grades 2-4 scored significantly lower than those in SEI on the measure of receptive vocabulary, the PPVT, but there were no significant differences on most English reading measures. On the Spanish language (TVIP) and reading measures, TBE students scored significantly higher than SEI in grades K-3, but not grade 4. Both groups gained substantially in English receptive language skills over the years. These findings suggest that Spanish-dominant students learn to read in English (as well as Spanish) equally well in TBE and SEI.

There is considerable controversy among policy makers, researchers, and educators about how best to ensure the reading success of English language learners. While there are many aspects of instruction that are important in the reading success of English language learners, one question has dominated all others: What is the appropriate role of the native language in the instruction of English language learners? In the 1970s and 1980s, policies and practice favored bilingual education, in which children were taught partially or entirely in their native language, and then transitioned at some point during the elementary grades to English-only instruction. Such programs are still widespread, but from the 1990s to the present, the political tide has turned against all types of bilingual education. California, Arizona, Massachusetts, and other states have enacted policies to greatly curtail bilingual education. Recent federal policies are restricting the amount of time children can be taught in their native language. Although federal policy has not endorsed or opposed bilingual education in recent years, policy changes have had the effect of discouraging bilingual education. Among researchers, the debate between advocates of bilingual and English-only reading instruction has been fierce, and ideology has often trumped evidence on both sides of the debate (Hakuta, Butler, & Witt, 2000).

Proponents of bilingual instruction argue that while children are learning to speak English, they should be taught to read in their native language first, to avoid the failure experience that is likely if children are asked to learn both oral English and English reading at the same time. Programs based on this philosophy transition children to English-only instruction when their English is sufficient to ensure success, usually in second or third grade. Alternatively, many bilingual programs teach young children to read both in their native language and in English at different times of the day. There is a great deal of evidence that

children's reading proficiency in their native language is a strong predictor of their ultimate English reading performance (August & Shanahan, 2006; Garcia, 2000; Lee & Schallert, 1997; Reese, Garnier, Gallimore, & Goldenberg, 2000), and that bilingualism itself does not interfere with performance in either language (Yeung, Marsh, & Suliman, 2000). Bilingual advocates also argue that without native language instruction, English language learners are likely to lose their native language proficiency, or fail to learn to read in their native language, losing skills that are of economic and social value in the world today. Opponents of bilingual education, on the other hand, argue that native language instruction interferes with or delays English language development, and relegates children who receive such instruction to a second-class, separate status within the school and, ultimately, within society. They reason that more time on English reading should translate into more learning (see Rossell & Baker, 1996).

English Immersion and Bilingual Programs

When a child enters kindergarten with limited proficiency in English, the school faces a serious dilemma. How can the child be expected to learn the skills and content taught in the early grades while he or she is learning English? There may be many solutions, but two fundamental categories of solutions have predominated: *English immersion* and *bilingual education*.

English Immersion

In immersion strategies, English language learners are expected to learn in English from the beginning, and their native language plays little or no role in daily reading lessons. Formal or informal support is likely to be given to ELLs to help them cope in an all-English classroom.

This might or might not include help from a bilingual aide who provides occasional translation or explanation, a separate English as a Second Language class to help build oral English skills, or use of a careful progression from simplified English to full English as children's skills grow. Teachers of English language learners might use language development strategies, such as total physical response (acting out words) and realia (concrete objects to represent words), to help them internalize new vocabulary. They might simplify their language and teach specific vocabulary likely to be unfamiliar to ELLs (see Calderón, 2001; Carlo et al., 2004). Immersion may involve placing English language learners immediately in classes containing English monolingual children, or it may involve a separate class of ELLs for some time until children are ready to be mainstreamed. These variations may well have importance in the outcomes of immersion strategies, but their key common feature is the exclusive use of English texts, with instruction overwhelmingly or entirely in English.

Bilingual Education

Bilingual education differs fundamentally from English immersion in that it gives English language learners significant amounts of instruction in reading and/or other subjects in their native language. In the U.S., the overwhelming majority of bilingual programs involve Spanish, due to the greater likelihood of a critical mass of students who are Spanish-dominant and to the greater availability of Spanish materials than those for other languages. In transitional bilingual programs, children are taught to read primarily or entirely in their native language through the primary grades and then transition to English reading instruction somewhere between second and third grade. English oracy is taught from the beginning, and subjects other than reading may be taught in English, but the hallmark of transitional bilingual education is the

teaching of reading in the native language for a period of time. Such programs can be “early-exit” models, with transition to English completed in second or third grade, or “late-exit” models, in which children may remain throughout elementary school in native-language instruction to ensure their mastery of reading and content before transition (see Ramirez, Pasta, Yuen, Billings, & Ramey, 1991). Alternatively, “paired bilingual” models teach children to read in both English and their native language at different time periods each day or on alternating days.

Two-way bilingual programs, also called dual language or dual immersion, provide reading instruction in the native language (usually Spanish) and in English both to ELLs and to English speakers (Calderón & Minaya-Rowe, 2003; Howard, Sugarman, & Christian, 2003). For the ELLs, a two-way program is like a paired bilingual model, in that they learn to read both in English and in their native language at different times each day.

Reviews of the educational outcomes of bilingual instruction have reached sharply conflicting conclusions. In a meta-analysis, Willig (1985) concluded that bilingual education was more effective than English-only instruction. Wong-Fillmore & Valadez (1986) came to the same conclusion. However, a review by Rossell & Baker (1996) claimed that most methodologically adequate studies found bilingual education to be no more effective than English-only programs. Greene (1997) re-analyzed the studies cited by Rossell & Baker and reported that many of the studies they cited lacked control groups, mischaracterized the treatments, or had other serious methodological flaws. Among the studies that met an acceptable standard of methodological adequacy, including all of the studies using random assignment to conditions, Greene found that the evidence favored programs that made significant use of native

language instruction. August & Shanahan (2006) similarly found that the evidence favored bilingual approaches.

Slavin & Cheung (2005) reviewed experimental studies of the effects of language of instruction on English reading. They found that most studies on this topic evaluated paired bilingual education strategies, in which ELL children were taught to read in both Spanish and English at different times of the day. Among studies that met established criteria for methodological adequacy, most favored bilingual education, with a median effect size of +0.45 on English reading measures.

The studies reviewed by Slavin & Cheung (2005), Greene (1997), August & Shanahan (2006), and earlier reviewers generally took place in the 1970s. Bilingual education practices have changed a great deal since then, and the social and educational contexts for bilingual education are very different. In the 1970's, bilingual education was novel, exciting, and strongly supported among educators and advocates for English learners. None of these is true today. Further, most studies used matching, rather than random assignment, which leaves open the possibility that selection bias might have influenced the findings (e.g., more motivated or higher-achieving children may have been selected into bilingual programs). The few randomized experiments had small sample sizes, meaning that outcomes could have been confounded with teacher or school effects. Finally, few of the studies took place over a long enough time period to follow students past the point of transition to English-only reading. The one five-year matched study, by Maldonado (1977), found no difference in fifth-grade English reading between children taught only in English and those taught in Spanish and English through fourth grade. A four-year matched study of early-exit TBE by Ramirez et al. (1991) also found no differences in third

grade reading, but the longitudinal aspect of this study has been criticized for failing to control adequately for pretests (Meyer & Fienberg, 1992; Slavin & Cheung, 2005).

The present paper reports on fifth-year findings of a longitudinal study in which three successive years of kindergarteners were randomly assigned to bilingual or English-only conditions, and then followed to grade 4. Early-exit transitional bilingual education and structured English immersion, the most common approaches today in English language instruction, were compared.

The importance of random assignment for studies on this topic cannot be overstated. Random assignment is valuable in any experimental study, as a means of eliminating selection bias (Mosteller & Boruch, 2002; Shadish, Cook, & Campbell, 2002; Phye, Robinson, & Levin, 2005). In studies of bilingual education, selection bias is particularly problematic. Within schools, there are many systematic reasons why, among two ELL students, one will be assigned to bilingual and one to English-only instruction. Parents who prefer bilingual instruction for their child may be different from those who prefer English-only instruction. Spanish dominant children who are not doing well, or are felt to be at risk, may be assigned to bilingual instruction as an “easier” option. Schools that choose or qualify for bilingual education may serve different types of neighborhoods or have different philosophies. All of these factors could influence student outcomes in English regardless of the true impact of bilingual education. For this reason, random assignment is essential in studies of bilingual education (see Slavin & Cheung, 2005).

Another essential feature of studies of bilingual education is a multi-year duration. Especially in studies of transitional bilingual education before transition takes place, ELL students taught in English will temporarily perform better in English (and worse in their home language) than students taught in their home language who have not yet been transitioned to

English. Studies need to be long enough to follow students past the point of transition to see whether the experience of bilingual education was beneficial for their English reading. The present article is the first to report findings of a randomized evaluation of TBE as long as five years.

Finally, a critical design feature for studies of language of instruction is provision of consistent, high-quality curriculum and instruction to all children, to ensure that language of instruction is the only factor that differentiates experimental groups and that instructional quality is sufficient in both groups (see August & Hakuta, 1997). In the present study, this design feature was accomplished by providing the Success for All program to all children. Success for All has been extensively used and evaluated with Hispanic children, and it has parallel versions in Spanish and English (see Slavin, Madden, Chambers, & Haxby, 2009). Both versions have been found to improve the reading performance of English language learners and of other Hispanic students (August & Shanahan, 2006; Cheung & Slavin, 2005) as well as the achievement of students in general (Borman, Hewes, Overman, & Brown, 2003; Borman, Slavin, Madden, Cheung, Chamberlain, & Chambers, 2007; Comprehensive School Reform Quality Center, 2006; Correnti, 2009). The present study does not evaluate Success for All, but uses it to provide consistent, high-quality reading instruction to all children.

Methods

Subjects

Students in the TBE study* attended 6 schools located in Los Angeles, Denver, Albuquerque, St. Paul, Rockford (IL), and Alamo (TX). All had been using the Success for All reading program in English and Spanish for at least three years before the study began. Three successive cohorts of students entering kindergarten in 2004, 2005, and 2006 were combined to increase sample size. Across all schools and both cohorts, varying numbers of children remained in the schools and were assessed at each grade level, K-4.

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Table 1 summarizes data on the demographic characteristics of the schools. They were quite diverse in location, ranging from small towns to big cities, from Texas to Minnesota. All schools served very impoverished neighborhoods (76% to 100% free lunch). Some school populations were almost entirely Hispanic, but two had significant African American groups and one had 23% White, non-Hispanic students. The percent of students categorized as ELL varied from 27% to 93%, but since ELL definitions vary widely from state to state and district to district, these percentages should not be considered definitive. All schools had transitional bilingual and structured English immersion programs before the study began, and they represent the broad range of types of schools and locations likely to have bilingual programs.

* A small study of two-way bilingual education (TWB) was also carried out, but the most advanced cohort in that study has only completed second grade at this writing. The findings of the TWB study will be reported when those children reach fourth grade.

Design

The study used a randomized within-school design, in which children entering kindergarten, whose parents had agreed to study participation, were assigned at random to TBE or SEI conditions. Beginning in Spring, 2004, and again in Spring, 2005, and Spring, 2006, Spanish-speaking parents expected to enroll children in kindergarten in the fall were invited to meetings at which the study was described in Spanish. For participating in the study, parents were offered \$100, and promised several story books (in Spanish or English, depending on treatment) for their children during kindergarten. Parents had to sign a form allowing project staff to randomly assign their children to English or Spanish instruction. Parents who did not wish to participate could specify their preferred language of instruction, as consistent with district policies, but their children were excluded from the study. Additional meetings and letters to parents continued through the summer, and in the fall, parents who had not signed up for the study were approached as they brought their children to school. Among parents whose children were eligible to participate, almost all agreed to have them do so.

Children were pretested on the English Peabody Picture Vocabulary Test (PPVT) and its Spanish equivalent, the Test de Vocabulario en Imagenes Peabody (TVIP). Children's age equivalence scores on these tests were compared in order to determine language dominance. Children whose age equivalence scores were at least six months greater on the TVIP were defined as Spanish dominant. Children who did not meet this criterion were excluded from the study.

Treatments

Transitional bilingual education (TBE). During their kindergarten year, children in the TBE classes were taught reading entirely in Spanish, using the Success for All Spanish kindergarten program, *Descubre Conmigo* (“Discover With Me”). This is identical in approach to the English KinderCorner program used in the SEI schools, except that it uses materials written in Spanish that follow sequences of letter sounds, phonics, vocabulary, and concept development appropriate to the Spanish language. In *Descubre Conmigo*, kindergarten children work in pairs and small groups. The curriculum incorporates thematic units to introduce vocabulary and background knowledge, as well as story activities to develop concepts of print and story structure. Instruction is provided in phonemic awareness and phonics, and children work with decodable minibooks, each devoted to an additional phoneme. Spanish vocabulary and comprehension skills are taught and practiced throughout. Little or no English was used during reading periods in TBE, although children did receive English as a Second Language instruction during other parts of the day and may have received some instruction in English in subjects other than reading. In first grade, TBE students experienced *Lee Conmigo*, which emphasizes phonemic awareness and phonics, continuing phonetic mini-books, and teaching of sound blending skills in Spanish. Vocabulary, comprehension, and fluency are emphasized in a fast-paced sequence of instructional activities. Second grade instruction emphasizes cooperative learning activities built around Spanish basals and novels, with teaching of reading comprehension strategies in cooperative learning groups. Transition to English reading began as early as first grade, and was completed by third grade. All TBE students were being taught in English in grades 3 and 4. English instruction in grades 3-4 also emphasized cooperative learning activities built around English basals and novels. Transitioning students from Spanish to English

in second grade makes this form of TBE an “early exit” program (Ramirez et al., 1991). The TBE procedures, including the early exit, were believed to be typical of TBE in the 2000’s.

Structured English Immersion (SEI). The children assigned to the SEI treatment used the English Success for All programs, which have the instructional elements described above but use English only. All materials were in English, and teachers taught in English except for occasional Spanish explanations. Children participated in daily English as a Second Language sessions, as in the TBE condition, to help them build English oracy. The SEI procedures were believed to be typical of those used nationally in the 2000’s.

Measures

In kindergarten, children were individually assessed on the Peabody Picture Vocabulary Test (PPVT) and the Test de Vocabulario en Imagenes Peabody (TVIP), and (in the second and third cohorts) on Spanish and English versions of the Woodcock Language Proficiency Battery (WLPB) Letter-Word Identification and Word Attack scales. Students in grades 1-4 were given the same measures in addition to the Woodcock Passage Comprehension scale.

Results

Pretests

The study findings are summarized in Tables 1-3. In each case, results are shown for each cohort that began in kindergarten at the same time. In other words, the data shown are not longitudinal, but represent 3 cohorts of children who have been in the schools for different amounts of time. Differences between TBE and SEI are shown in effect sizes, computed as mean

differences divided by pooled standard deviations. Effect sizes were arbitrarily labeled as positive if they favored TBE and negative if they favored SEI.

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Table 2 shows the pretests for the English PPVT and its Spanish equivalent, TVIP. On both scales, 100 is the norm and the standard deviation is scaled to be 15. As is apparent from the table, students entering kindergarten were below standards on TVIP, but far below on PPVT. Most students did not know any English at pretest. Pretests directionally favored the TBE group on the PPVT and the TVIP, but only the first and third grade TVIP pretest differences were statistically significant. To control for these initial differences, all analyses controlled for both TVIP and PPVT pretests.

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English Measures

Outcomes on English language and reading measures are summarized in Table 3. Not surprisingly, before they were transitioned to English in the second grade, students in the Transitional Bilingual Education condition scored significantly less well than those in the Structured English Immersion groups on all English language and reading measures. The English reading differences averaged an effect size of -0.54 in kindergarten and -0.42 in first grade. In second grade and beyond, the English PPVT language measures continued to significantly favor

the Structured English Immersion group, but reading measures did not, except for second grade Word Attack. Across the three English reading measures, differences averaged an effect size of -0.20 in second grade, -0.16 in third grade, and -0.25 in fourth grade. These differences directionally favored the SEI group but were statistically significant in only one of the nine comparisons.

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Spanish Measures

Outcomes on Spanish language and reading measures are shown in Table 4. On the TVIP language measure, differences significantly favored TBE students in kindergarten ($p < .05$) and first grade ($p < .001$), and non-significantly favored TBE in second and third grades. By fourth grade, however, there was no difference between the groups on TVIP ($ES = +0.04$, n.s.). TBE students scored substantially higher than SEI students on all Spanish reading measures in grades K-3, with an average effect size of +0.57 in kindergarten, +0.63 in first grade, +0.57 in second grade, and +0.44 in third grade. All differences were highly significant ($p < .001$). In fourth grade, however, differences on the three reading measures were smaller and significant only on Passage Comprehension, averaging $ES = +0.34$.

It is important to note that both groups gained each year on the English PPVT. By the fourth grade, TBE students scored almost as well on the English PPVT (88.1) as they did on the Spanish TVIP (91.0). Students in the SEI group scored slightly higher on PPVT

(90.4) than on TVIP (86.3). In other words, all students were fully bilingual in English and Spanish by fourth grade, at least as indicated by relative PPVT and TVIP scores.

Discussion

The findings of this longitudinal, randomized evaluation of bilingual education agree with those of the only previous long-term evaluations of bilingual education, matched evaluations by Maldonado (1977) and Ramirez et al. (1991). They do not unequivocally support the positions of either side in the debate over bilingual education. Advocates of transitional bilingual education argue that native-language instruction in beginning reading should ultimately help Spanish-dominant children read better in English, but the data from this study do not find this to be true, at least by fourth grade. They argue that even if English reading is no better in bilingual education than in English-only instruction, students taught bilingually will gain important skills in Spanish language and reading. Yet in this study, fourth graders who had been taught to read in Spanish from kindergarten to second grade scored non-significantly better than those taught only in English on measures of Spanish language and reading. The trend in the data suggests that as the students continue into fifth and sixth grade being taught in English, any remaining (non-significant) advantages in Spanish reading will fade away. In both TBE and SEI conditions, fourth graders retain their Spanish language and reading skills, and speak and read English and Spanish with similar facility.

The data do not, on the other hand, support the superiority of structured English immersion. Students in SEI had much higher scores on English reading than those in TBE in the early grades, but by fourth grade there were few significant differences in reading scores. Although the direction of the differences favored the SEI group, the differences diminished each

year, and by fifth or sixth grade it seems unlikely that there will be any differences at all. These data correspond with the findings of state tests in California, for example, indicating that English reading scores among ELLs did not rise after Proposition 227 caused a statewide shift toward English-only instruction. A 5-year study by Parrish et al. (2006) found that a reduction from 30% to 8% of California ELLs receiving primary language instruction did not lead to any corresponding changes in either direction on state reading tests.

The findings of the present study reinforce the frequently stated conclusion that what matters most in the education of English language learners is the quality of instruction, not the language of instruction (August & Shanahan, 2006; Cheung & Slavin, 2005). Schools may choose to teach English language learners in either their native language or in English for many reasons, including cultural, economic, or political rationales. Yet the claims that this choice is crucial for ultimate learning of English or Spanish reading are not supported by the data from this experiment.

References

- August, D., & Hakuta, K. (1997). *Improving schooling for language-minority children: A research agenda*. Washington, DC: National Research Council.
- August, D., & Shanahan, T. (Eds.) (2006). *Developing literacy in second-language learners*. Mahwah, NJ: Erlbaum.
- Borman, G.D., Hewes, G.M., Overman, L.T., & Brown, S. (2003) Comprehensive school reform and achievement: A meta-analysis. *Review of Educational Research*, 73 (2), 125-230.
- Borman, G., Slavin, R.E., Cheung, A., Chamberlain, A., Madden, N.A., & Chambers, B. (2007). Final reading outcomes of the national randomized field trial of Success for All. *American Educational Research Journal*, 44 (3), 701-731.
- Calderón, M. (2001). Curricula and methodologies used to teach Spanish-speaking limited English proficient students to read English. In R.E. Slavin & M. Calderón (Eds.), *Effective programs for Latino students*. Mahwah, NJ: Erlbaum.
- Calderón, M., & Minaya-Rowe, L. (2003). *Designing and implementing two-way bilingual programs*. Thousand Oaks, CA: Corwin.
- Carlo, M.S., August, D., McLaughlin, B., Snow, C.E., Dressler, C., Lippman, D., Lively, T., & White, C. (2004). Closing the gap: Addressing the vocabulary needs of English language learners in bilingual and mainstream classrooms. *Reading Research Quarterly*, 39 (2), 188-215.
- 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.

- Comprehensive School Reform Quality Center (2006). *CSRQ Center report on elementary school comprehensive school reform models*. Available at www.csrq.org.
- Correnti, R. (2009). *Examining CSR Program Effects on Student Achievement: Causal Explanation Through Examination of Implementation Rates and Student Mobility*. Paper presented at the 2nd annual conference of the Society for Research on Educational Effectiveness, Washington, DC, March, 2009
- Garcia, G. (2000). Bilingual children's reading. In M.L. Kamil, P.B. Mosenthal, P.D. Pearson, & R. Barr (Eds.), *Handbook of reading research*, Vol. III (pp. 813-834). Mahway, NJ: Erlbaum.
- Greene, J.P. (1997). A meta-analysis of the Rossell & Baker review of bilingual education research. *Bilingual Research Journal*, 21 (2/3).
- Hakuta, K., Butler, Y.G., & Witt, D. (2000). *How long does it take English learners to attain proficiency?* Berkeley, CA: The University of California Linguistic Minority Research Institute, Policy Report 2000-1.
- Howard, E.R., Sugarman, J., & Christian, D. (2003). *Two-way immersion education: What we know and what we need to know*. Baltimore, MD: Johns Hopkins University, Center for Research on the Education of Students Placed at Risk.
- Lee, J., & Schallert, D. L. (1997). The relative contribution of L2 language proficiency and L1 reading ability to L2 reading performance: A test of the threshold hypothesis in an EFL context. *TESOL Quarterly*, 31, 713-739.
- Maldonado, J.R. (1977). *The effect of the ESEA Title VII program on the cognitive development of Mexican American students*. Unpublished doctoral dissertation, University of Houston.

- Meyer, M.M., & Fienberg, S.E. (1992). *Assessing evaluation studies: The case of bilingual education strategies*. Washington, DC: National Academy of Sciences.
- Mosteller, F., & Boruch, R. (2002). *Evidence matters: Randomized trials in education research*. Washington, DC: Brookings Institution.
- National Assessment of Educational Progress (2005). *The nation's report card*. Washington, DC: National Center for Education Statistics.
- National Center for Education Statistics (2004). *Language minorities and their educational and labor market indicators-recent trends*. Washington, DC: U.S. Department of Education.
- Parrish, T. B. et al. (2006). *Effects of the implementation of Proposition 227 on the education of English learners, K-12; Findings from a five-year evaluation*. Washington, DC: American Institutes for Research.
- Phye, G., Robinson, D., & Levin, J. (2005). *Empirical methods for evaluating educational interventions*. New York, NY: Elsevier.
- Ramirez, J., Pasta, D.J, Yuen, S., Billings, D. K., and Ramey, D. R. (1991). *Final report: Longitudinal study of structural immersion strategy, early-exit, and late-exit transitional bilingual education programs for language-minority children*. San Mateo, CA: Aguirre International (Report to the U.S. Department of Education).
- Reese, L., Garnier, H., Gallimore, R., & Goldenberg, C. (2000). Longitudinal analysis of the antecedents of emergent Spanish literacy and middle-school English reading achievement of Spanish-speaking students. *American Educational Research Journal*, 37 (3), 633-662.
- Rossell, C.H. & Baker, K. (1996). The educational effectiveness of bilingual education. *Research in the Teaching of English*, 30 (1), pp. 7-69.

- Shadish, W., Cook, T., & Campbell, D. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston: Houghton-Mifflin.
- Slavin, R. E., & Cheung, A. (2005). A synthesis of research on language of reading instruction. *Review of Educational Research*, 75 (2), 247-284.
- Slavin, R. E., Madden, N. A., Chambers, B., & Haxby, B. (2009). *Two million children: Success for All*. Thousand Oaks, CA: Corwin.
- Willig, A. (1985). A meta-analysis of selected studies on the effectiveness of bilingual education. *Review of Educational Research*, 55 (3), 269-317.
- Wong-Fillmore, L., & Valadez, C. (1986). Teaching bilingual learners. In M.C. Wittrock (Ed.), *Handbook of research on teaching* (3rd Ed.). New York: Macmillan.
- Yeung, A.E., Marsh, H.W., & Suliman, R. (2000). Can two tongues live in harmony?: Analysis of the National Education Longitudinal Study of 1988 (NELS88) longitudinal data on the maintenance of home language. *American Educational Research Journal*, 37 (4), 1001-1026.