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Transitions to Biliteracy: Beyond Spanish and English

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Abstract

This study had two major purposes. The first was to examine the potential of an instructional intervention designed to teach reading and writing in Spanish and English simultaneously to children in grades 1-3. A secondary purpose was to examine the relationship between Spanish and English literacy development as a means for developing a trajectory toward biliteracy. The research design was quasi-experimental, included an intervention group (n= 433) and a control group (n=148) and addressed six research questions. The study administered informal reading assessments in Spanish and English in the fall of 2005 and again in the spring of 2006, and informal writing assessments in Dec./Jan. 2005-2006. Findings indicated that students in both intervention and control groups grew in Spanish and English reading in all grades. However, growth in English reading was greater for intervention students particularly in the first grade. Mean scores on writing in Spanish were similar for intervention and control students, however mean scores in English writing favored the intervention students. Further, the number of students in the study's hypothesized 'Trajectory toward Biliteracy' was significantly greater for intervention than control students. The correlational results showed that Spanish reading and Spanish writing were significantly related to English reading and writing for both intervention and control students. Finally, findings indicate a significant correlation between the informal Spanish reading assessment used in the study and a formal state mandated literacy test. Overall findings suggest there is potential in the Literacy Squared Intervention and in simultaneous literacy acquisition as implemented in this study.

Transitions to Biliteracy: Beyond Spanish and English

Introduction

Improving academic achievement for the 5 million English Language Learners in U.S. schools is a national imperative. There is little disagreement that improving academic achievement must center on improving literacy acquisition for these children of whom 75% speak Spanish as a first language. The need to improve literacy instruction for this population is a given among researchers and practitioners in the U.S. However, the question of how to improve academic achievement has been the subject of much controversy and debate spanning the past four decades.

Much of the debate and controversy has centered on the language of instruction for initial literacy acquisition. Proponents of bilingual approaches advocate that initial literacy instruction be in Spanish (or other native languages), while proponents of English medium approaches advocate for initial literacy instruction to be in English. Points of contention about the language of instruction have frequently overshadowed debate and discussion about development of effective methodology, or quality of instruction.

School program responses to debates about language of instruction have taken dichotomous forms. That is children either receive initial literacy instruction in Spanish or English but rarely both. Further, little attention has been paid in either approach to how to assist children in making cross-language connections between Spanish and English.

Newly released syntheses of research on this topic (August & Shanahan, 2006; Gersten & Baker, 2000; Slavin & Cheung, 2003; Thomas & Collier, 2003) suggest that if literacy achievement in emerging bilinguals is to be improved, debates, discussions

and program development must move beyond the issue of language of instruction. Each synthesis cites the need for new educational approaches that focus on the quality of instruction in both languages, and the need for research that has been designed specifically for emerging bilinguals.

It is noteworthy that the syntheses cited above reaffirm the value of learning to read in Spanish and all conclude that there is a positive correlation between learning to read in Spanish and subsequently learning to read in English. They add, however, that learning to read first in Spanish when combined with oral proficiency in English is the best predictor of success in English literacy for second language learners.

Several other findings from these syntheses are relevant to this study. Gersten & Baker's work (2000), for example, raises concerns about the overall direction and effectiveness of current approaches to teaching ESL. They conclude that teaching English to ELLs has become more focused on teaching content (e.g. math, social studies and science) and that this focus on content based ESL has diminished, and in some cases eliminated, the direct teaching of literacy in English to ELLs. Gersten & Baker conclude that because of the focus on content-based ESL, teachers have focused on subject matter content at the expense of teaching language arts in English. They suggest that there continues to be a need for ELL students to receive explicit instruction in English language arts.

Furthermore, work by Bernhardt (2003) and Genesee et. al. (2005) have concluded that instructional approaches that are effective for monolingual English children may not be effective for second language children. Genesee et. al. suggest that the dominant instructional paradigms for teaching reading and writing to monolingual

English children that are based on process approaches are not, in and of themselves, effective with second language children. His synthesis concludes that explicit direct approaches to teaching ELLs combined with interactive approaches are the most effective. Bernhardt concludes that there is a need for the development of a new theory about literacy for second language children.

The research project reported herein was designed to utilize findings from the research syntheses discussed above in order to create and implement an intervention specifically designed for development of biliteracy in Spanish/English emerging bilinguals. The intervention titled “Literacy Squared” was implemented as a pilot project during the 2005-2006 school -year and has three foci (language of instruction + quality of instruction + explicit cross language connections). Specifically, the study examined the efficacy of using of a child’s native language in initial literacy instruction in combination with a Literacy-based ESL program beginning in first grade. The study was not intended to further argue whether initial instruction for ELLs is most effective when offered in a child’s native language or English as this seen by the researchers as a false dichotomy. Rather, the research focus was to examine how to utilize a child’s native language (in this case Spanish) concomitantly with a Literacy-based ESL program to advance our understanding of how we might create a positive trajectory toward biliteracy for emerging Spanish/English bilinguals.

In 2004, the authors of this paper along with teachers, and administrators in 7 school districts and 15 schools in Colorado and Texas began to conceptualize an instructional intervention that would serve to focus much needed attention on issues in quality of instruction as well as language of instruction. The intervention titled “Literacy

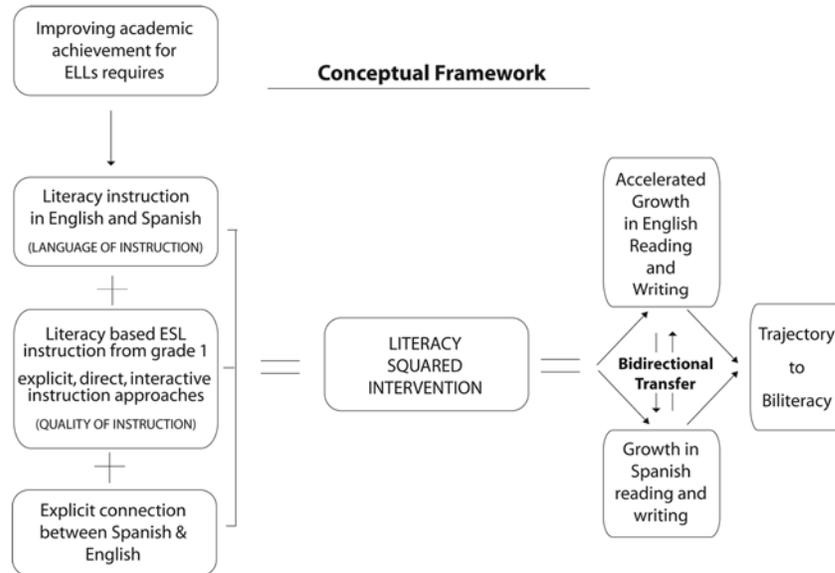
Squared” was field tested in 2004-2005 and implemented as a more formal pilot program in 2005-2006. It is now being fully implemented and studied as a part of a three-year longitudinal study (2006-2009). The pilot year study involved over 1,000 children in grades 1-3, all of whom are Spanish/English emerging bilinguals.

Purpose and Conceptual Framework

The study had two major purposes. The first was to examine the potential of the Literacy Squared intervention on the literacy development in Spanish/English of emerging bilinguals in early elementary grades. A secondary purpose was to examine the relationship between Spanish and English literacy development as a means for developing a trajectory toward biliteracy.

The conceptual framework for this study utilized the work of recent syntheses of research in the field (reported above) as the underpinnings for the intervention. In short, these syntheses posit that development of biliteracy requires that programs pay attention to the language of instruction, the quality of instruction and to making explicit cross language connections for children. We propose that programs have historically paid great attention to the language of instruction, but have paid less attention to the quality of instruction, and even less attention to helping children make cross-language connections. We consider quality of instruction to include such things as utilization of effective teaching methods and strategies, effective organizational structures and strategies, particularly methods and techniques that have been developed especially for second language learners. The graphic below illustrates the study’s conceptual framework. In this study, Literacy Squared (the intervention) is the independent variable that was studied vis a vis its impact on the dependent variables of English and Spanish reading and writing

achievement, and children's progress toward becoming biliterate.



Research Questions

The following research questions were addressed in this pilot study:

1. What gains in Spanish and English reading achievement were made by 1st, 2nd, and 3rd grade students in intervention schools as measured by informal Spanish and English reading measures? How did these gains compare to the control schools?
2. What were intervention students' outcomes in Spanish and English writing and how did they compare to control schools?
3. Is there a relationship between Spanish reading and writing achievement and English reading and writing achievement for 1st, 2nd and 3rd grade students in schools in the study (intervention and control students)?
4. What is the trajectory toward biliteracy demonstrated by Spanish and English reading and outcomes of 1st, 2nd, and 3rd grade students in the study? How does this trajectory compare to control schools?

5. What were 3rd grade student outcomes in intervention schools on formal reading and writing measures in Spanish?
6. Is there a relationship between informal reading and writing measures and formal reading and writing measures?

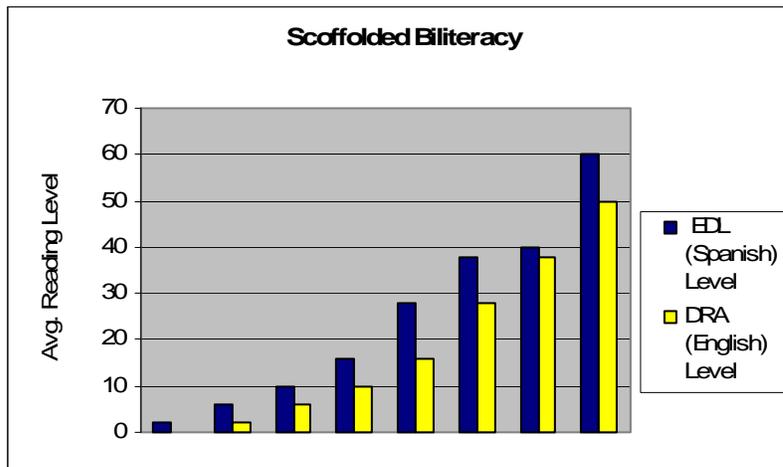
The Intervention: What is Literacy Squared?

The Literacy Squared Program was created as a way to operationalize the study's conceptual framework into a Spanish/English biliteracy program for grades 1-3. The Literacy Squared Intervention in this pilot study had four major components.

The Development of a Trajectory toward Biliteracy – The first component of the program consisted of developing a framework that could be utilized by the research team and project teachers to document and observe children's literacy development in Spanish and English. Literacy development in both languages begins in first grade. This framework is key to the project for several reasons. First, although the research is clear that there is a strong and positive correlation between Spanish and English literacy, there has never been clear articulation for teachers and practitioners about how literacy in the two languages might develop. Unanswered questions include should literacy development in two languages be parallel? Should there be a lag between Spanish and English? If there is a lag, how large or small should it be? Should Spanish literacy skills be fully developed before English literacy instruction is begun?

For the purposes of this project, the research team developed a theoretical trajectory toward biliteracy hypothesizing that literacy development in English need not be delayed while children are learning to read and write in Spanish. Moreover, we

hypothesized that Spanish development would provide the foundation and scaffold for English literacy development, meaning that literacy development in Spanish would likely be ahead of English development, but only slightly. In short, we intended to examine if effective instruction in both Spanish and English could result in a positive biliteracy trajectory. The graphic below provides a visual representation of the proposed trajectory toward biliteracy. For the purposes of the research in this pilot program, informal reading assessments were used to examine the trajectory of intervention and control students toward biliteracy. In order to assist teachers in utilizing the trajectory toward biliteracy, a biliteracy continuum outlining skills and strategies in Spanish and English needed to develop biliteracy was developed [Author, 2004]. For purposes of this study, the trajectory became the visual symbol to describe the intervention’s ends, the continuum became the vehicle to describe the means.



Assessment – The second component of the study consisted of identification of formal and informal reading and writing assessments in English and Spanish. Informal assessments included the Spanish Evaluación del Desarrollo de Lecto-escritura (EDL) and the English Developmental Reading Assessment (DRA). These tools were identified

because they are available in both Spanish and English, and they are useful in addressing the research questions posed above. Moreover, in addition to being useful for researchers, these tools are useful in helping teachers to design and deliver instruction for children. Formal reading and writing assessments in this study included the Colorado Student Assessment Program (CSAP) and the Texas Assessment of Knowledge and Skills (TAKS). These assessments respectively are the high stakes measures used in each state to assess student achievement and school performance. Utilizing these measures in this intervention was important given that almost all major policy decisions with regard to literacy programs and instruction are currently being made based on outcomes of these measures. Further, assessment of the correlation between informal and formal reading and writing measures is viewed as important so that instruction and assessment are aligned.

The Literacy Squared Instructional Program - The instructional components of this intervention constitute the meat of the intervention, and its unique elements. They include: 1) *Spanish literacy instruction* – Intervention students received daily instruction in literacy in Spanish. Intervention teachers were encouraged to use direct and explicit teaching methods and to use methods that are authentic to teaching literacy in Spanish rather than methods that had been developed in English and translated into Spanish. Further, teachers were asked to use the Biliteracy Continuum developed for this intervention to guide them in their lesson planning. Finally, an oracy component was added to the Spanish literacy methods. Oracy is defined as those aspects of oral language that highly correlate to literacy acquisition (Gentile, 2003). Spanish literacy instruction in the biliteracy framework provides the foundation for biliteracy development; 2)

Direct instruction in English literacy beginning in first grade - This aspect of the instructional component which we have termed Literacy-Based ESL is unique in that it starts literacy instruction in English in grade one. Literacy-Based ESL instruction involves direct, explicit lessons designed specifically for emerging bilingual children. During the pilot year, demonstration lessons for Literacy-Based ESL were designed and compiled into a booklet that each intervention teacher received [Author, 2006]. Literacy-Based ESL provided the instructional support to scaffold students in English along the biliteracy continuum; 3) *Oral ESL (focus on oracy)* – ESL instruction consisted of explicit instruction in ESL with a focus on oracy. For the purposes of this intervention, as defined above, oracy includes aspects of oral language that highly correlate to literacy acquisition (Gentile, 2003). It is important to note that this intervention was designed to focus the teaching of ESL on language arts/literacy. Literacy-Based ESL was added to the program, but did not eliminate oral ESL. It added literacy based ESL, but did not eliminate oral ESL.

In sum, the instructional components were tied to a continuum of skills, but not to any particular set of instructional materials. Teachers and schools were free to utilize any materials they felt were appropriate and/or were mandated to use.

The Professional Development Component– The intervention implemented two types of professional development. The first was for school leadership and site coordinators. This involved eight days of professional development so that leaders in intervention schools fully understood the theoretical frameworks of the project, the data collection and analysis techniques, and so that they were able to successfully monitor full implementation of the intervention. The second type of professional development was for intervention teachers. This development consisted of four days of

professional development so that teachers understand the theoretical underpinnings of the intervention, so that they learned teaching strategies and techniques required to implement the intervention, and so that they learned to administer, score and use the assessment instruments in the intervention to guide and inform their instructional decisions so that they could better assess student progress.

It is important to note that the Literacy Squared Intervention is different from other bilingual instructional approaches in several significant ways. First, the Literacy Squared Intervention provides specific benchmarks for literacy development in both Spanish and English, and a concrete framework for scaffolding the development of biliteracy. Second, the intervention does not choose to develop Spanish literacy at the expense of English literacy, or vice versa, rather it seeks to explore how both can be developed simultaneously. Third, the intervention does not delay the introduction of English literacy until some arbitrary transition criteria have been attained. Biliteracy is developed beginning in first grade. Finally, the intervention has created a special instructional program in English for second language learners that builds on their first language and that addresses unique issues in the development of literacy in a second language.

Methods and Data Collection

The research design for this study was quasi-experimental and utilized an intervention/control design with pre-tests and post-tests to address the six research questions. Thirteen schools volunteered to participate in the study as intervention schools and an additional 6 schools agreed to serve as control schools. Control schools agreed to participate in the pilot study with the understanding that they would become intervention schools in 2006-2007. Intervention and control schools came from 7 school districts

(four in Colorado and three in Texas). Intervention schools included 433 students in grades 1-3 and control schools included 148 students (total N=581). In total over 1,000 students participated in some aspect of the study. However, complete data sets were only available for 581 students. Data analysis included both descriptive and inferential statistics.

Study Subjects and Schools

Intervention and control schools were similar in terms of demographics and prior to the Literacy Squared Intervention, both intervention and control schools were implementing similar types of transitional bilingual programs. Table 1 below provides a profile of intervention and control schools with regard to student population, SES, ethnicity, student language background and state rankings.

Insert Table 1 Here

Table 1 illustrates that the intervention and control schools share many demographic characteristics including large numbers of Latinos and ELL students, and large numbers of students who come from low SES backgrounds. Most critical to this study is that all intervention and control schools were highly motivated to improve their ratings with regard to state high stakes testing mandates and to better serve their emerging bilingual students.

Data Collection and Instrumentation

Study subjects in intervention and control schools were given the DRA (Developmental Reading Assessment) (Celebration Press, 2000) and the EDL (Evaluación del Desarrollo de Lecto-escritura) (Celebration Press, 2001) in the fall of 2005 and again in the spring of 2006 to measure their progress in reading and writing in Spanish and English. The DRA is offered in English and EDL is offered in Spanish. They are parallel instruments and are informal measures of reading in both languages. Together they provide information on student progress in each language and in this study were used to examine students' trajectories toward biliteracy. Moreover, they were used in the study because they also provide information that teachers could use to develop instructional lessons for students. The DRA and EDL have been studied and determined to be valid and reliable measures of reading in Spanish and English (Weber, 2001). Writing samples in Spanish and English were collected on all students in the intervention and control schools in Dec./Jan. 2005-2006. Children were given a writing prompt and 30 minutes to respond to the prompt. Writing samples were rated on a rubric developed by Literacy Squared researchers and determined to have high rates of inter-rater reliability in scoring [Author, 2005]. Data analysis included both descriptive and inferential statistics. In addition, children in the third grade took either the Colorado Student Assessment Program (CSAP) test or the Texas Assessment of Knowledge and Skills (TAKS). These tests are the statewide high stakes assessments used to comply with No Child Left Behind and the performance standards set in each state. Third grade children took either CSAP or TAKS in Spanish in March-April of 2006. Only children who had complete data sets in reading and writing were included in the analyses.

Findings

Overall results from the pilot year from both descriptive and inferential statistical analyses indicate that the Literacy Squared Intervention has potential to create a trajectory toward biliteracy via a program that develops biliteracy simultaneously. Results related to each research question are presented and discussed below.

Research Question 1: Research question 1 compared growth in Spanish (EDL) and English (DRA) reading from fall 2005 to spring 2006 between intervention and control schools. The EDL and DRA used during this pilot year have similar scoring protocols and student scores can range from A-80 for DRA and A-50 for EDL . The publishing company has established benchmark criteria for the beginning and end of each grade and these benchmarks are the same for Spanish and English. Using the trajectory toward biliteracy framework discussed above, the Literacy Squared Intervention utilized the publisher’s criteria for benchmarks for EDL (Spanish), but created a different benchmark for DRA (English). The Literacy Squared DRA benchmark was hypothesized to be more appropriate for second language learners as the publisher’s criteria were established for monolingual English children. Table 2 below summarizes growth in Spanish and English reading for intervention and control students during this pilot year.

Insert Table 2 Here

Findings indicate that students in both intervention and control groups grew in Spanish and English reading. Further, growth in Spanish reading between fall and spring

was comparable for both groups in Spanish. This is not surprising as Spanish literacy instruction was a priority in both intervention and control classrooms. Findings also indicate that neither the intervention nor the control group met EDL (Spanish benchmarks), however the intervention group at first grade was close to the benchmark at the end of the pilot year (first grade benchmark is 16 and intervention student mean was 15.6).

Further, while growth in Spanish reading was comparable, growth in English reading achievement favored students in the intervention group. Again, both groups demonstrated growth in English reading based on the DRA from fall to spring, however the growth was greatest in intervention classrooms, particularly at the 1st and 3rd grades. Neither group met the benchmarks established on the trajectory toward biliteracy scale, however, the intervention group was well ahead of the control group in this area.

In addition to the descriptive statistics, t test analyses were done to test whether the differences between intervention and control groups were statistically significant. This analysis found there was a significant difference in English reading growth between intervention and control classrooms at the first grade level ($p < .05$). It will be especially important to follow this group of students across the next several years. This finding indicates the potential of the Literacy Squared intervention to improve literacy in English while continuing to develop Spanish literacy at the same time. It also illustrates that beginning English literacy instruction in first grade may assist in English reading growth, and not have a negative impact on the development of literacy in Spanish.

Research Question 2: This question examined student outcomes in Spanish and English writing based on writing samples collected in Spanish and English during Dec.

2005 and Jan. 2006. Students at each grade level were given 30 minutes to write a constructed response to a specific prompts. All students wrote first in Spanish and then 2 weeks later wrote in English. Prompts were similar in Spanish and English but were not the same. Prompts varied by grade level and by language. Data were analyzed via the use of the Literacy Squared writing rubric developed specifically for this study [Author, 2006]. The rubric has three components: 1) Content and ideas (ratings from 0-7); 2) Punctuation (ratings from 0-3); and 3) Spelling (ratings from 0-3). Maximum score on the rubric is 13 (content + punctuation + spelling). In addition, the rubric has a qualitative section where raters mark what conventions, syntax, spelling etc. is seen crossing from one language to another. Qualitative analyses include an examination of code-switching behaviors. Overall mean scores for intervention and control students are presented in Table 3 below. Scoring was done by trained site coordinators and project researchers who had gone through a training process to determine inter-rater reliability.

Insert Table 3 Here

Mean scores on Spanish writing are very similar for intervention and control student across all three grades. Further, mean scores in Spanish show growth in writing across all three grades for both the intervention and the control group. Findings for this question indicate that for this year there were no significant differences between the writing outcomes of intervention and control students in Spanish. Scores in writing in English were considerably lower than for Spanish in both the intervention and control

group. However, there were no significant differences between intervention and control group scores in English, and in English, just as in Spanish, English writing scores showed improvement across grade levels. Particularly noteworthy is the significant increase in writing scores between the 2nd and 3rd grade for both intervention and control schools. Also noteworthy is that the mean writing scores for both the intervention and control groups were higher in English than in Spanish at the 3rd grade.

This finding (consistent with findings in Research Question #1) suggest that learning to write in English and Spanish simultaneously (as in the case of this intervention) does not negatively impact writing development in Spanish. Further, as will be further demonstrated in Research Question 3, the correlation between writing development in Spanish and English is stronger in intervention schools than in control schools especially in writing.

Research Question 3: This question examined the relationship between reading and writing outcomes in Spanish and English for intervention and control schools. For this question, correlation coefficients (Pearson) were calculated for all intervention and control students. Intervention schools had significant correlations between reading and writing in Spanish and English at all three grade levels. Further, correlations between writing in Spanish and English were significant for intervention students at all grade levels ($p < 0.01$). Control schools had significant correlations in reading, but only small to moderate correlations in writing. Furthermore, correlation coefficients are higher for intervention than control schools both in reading and writing. Differences between intervention and control groups are consistent across all three grade levels. An important component of the Literacy Squared conceptual framework and instructional program is

helping students engage in positive cross-language connections. Findings on this question suggest that while there are positive correlations between Spanish and English for all students in the study, there may be enhanced correlations with explicit instruction in cross-language connections. Further, as demonstrated in Research Questions 1 and 2, findings here demonstrate that literacy instruction in Spanish combined with literacy instruction in English enhances cross-language correlations. Findings here suggest that it may not be simply the simultaneous teaching of English and Spanish literacy that is making an impact, but rather the simultaneous instruction in two languages combined with explicit instruction in cross-language connections.

Insert Table 4 Here

Research Question 4: This question examined the extent to which students in intervention and control classes are on trajectories toward biliteracy. A trajectory toward biliteracy is defined as reading outcomes in Spanish and English that parallel each other. For this study this means that achievement in English (DRA) lags only one range below achievement in Spanish (EDL). For study purposes, this has been labeled the “biliteracy zone.” A visual of the Trajectory Toward Biliteracy is included on pg. __ (above) and the graphic below indicates the range scores on the Spanish EDL and parallel English DRA scores that were considered to address this research question. Using the outcomes on the spring 2006 scores on EDL and DRA, the number and percent of students whose English reading level was in the biliteracy zone was calculated for intervention and control students. For example, a student whose Spanish EDL score was in the 8-10 range

and whose English DRA score was in the 3-6 range was considered in the Biliteracy Zone. Conversely, a student whose Spanish EDL was in the 12-16 range, but whose English DRA score was in the A-2 range was not considered to be in the Biliteracy Zone. While all of the students in the study might be considered to be in some trajectory toward biliteracy (even those who have not met the benchmark), the intervention is meant to help English literacy develop in a parallel way to Spanish without lagging behind. Again our hypothesis is that with direct explicit instruction children’s literacy development in Spanish and English could reach high benchmarks. This finding is significant in that it demonstrates that we have many more students in the ‘biliteracy zone’ than we have who are reaching year-end benchmarks. Because this was only a pilot – hence first year- it will be important to note whether or not these students (whose biliteracy development has been carefully attended to by intervention teachers) maintain these trajectories.

Biliteracy Zone	
EDL Range, Spanish	DRA Range, English
A-2	***
3-6	A-2
8-10	3-6
12-16	8-10
18-28	12-16
30-38	18-28
40	30-38
50-60	40+

Table 5 below compares the number and percent of students at each grade level whose spring EDL/DRA reading scores placed them in the Biliteracy Zone. Findings are presented for both students in the intervention and control group. Findings indicate that greater percentages of students in the intervention group are in the biliteracy zone at second and third grade. Most promising is that 69% of intervention students are in the biliteracy zone in third grade. Findings related to this question are interesting and important to the study for several reasons. First, in many studies on bilingual literacy approaches, literacy achievement in Spanish and English is presented as separate finding (similar to Tables 2 and 3 in this study). However, a critical difference in the Literacy Squared Pilot program and a central aspect of this pilot study was to propose that the development of literacy in Spanish and English should not be treated as separate and unrelated processes, but instead should be connected in the teaching and learning process and seen as mutually beneficial. In short, a literacy profile of any emerging bilingual child should include Spanish and English progress. Findings related to this question demonstrate the potential for developing skills in Spanish and English in a scaffolded manner.

Insert Table 5 Here

Research Questions 5 and 6: These two questions were included in this study as a way to begin to investigate the relationship of the informal measures used in the study to the formal high-stakes tests that children in Colorado and Texas have to begin taking

in the third grade. In both of these states, children take either CSAP or TAKS in Spanish or English and not both. Further, each state has various stipulations that enable children under some circumstances to be exempt from this formal assessment. As a result of various, and at times confusing, testing policies, in each state, it was only possible to include data in this study from Colorado intervention students who took the CSAP in Spanish in 3rd grade. Results on the CSAP place students into one of 4 categories (Unsatisfactory, Partially Proficient, Proficient, or Advanced). With regard to Research Question #5, 66% of the students in the 3rd grade intervention schools were considered to be proficient or advanced on the Spanish version of the CSAP (Lectura). Further, 90% were considered to be partially proficient or above. This is important as the state considers partially proficient when calculating AYP. These findings compare very favorably to the overall Colorado results on the 3rd grade Spanish CSAP where 63% of the children are proficient or above and 86% are partially proficient or above (http://www.cde.state.co.us/cdeassess/documents/csap/2006/CSAP06_LE_ST.xls). Table 6 below illustrates the number of intervention children at the 3rd grade and their outcomes on the 3rd grade CSAP Spanish reading test.

Insert Table 6 Here

Furthermore, the correlation between the spring 2006 Spanish EDL (informal) measures and the 2006 Spanish CSAP scores was a .59. This high correlation is important to future studies of this intervention as it establishes a relationship between the informal measures used in the intervention and the high stakes tests children must

eventually face. Future studies are needed to determine if this correlation also exists between the English DRA (informal) measure and the CSAP and/or TAKS. These findings, if consistent, could prove useful to informing a policy discussion.

Discussion

This study is significant because it seeks to operationally define and implement an instructional program that utilizes the findings of the most recent syntheses of research in the field in an attempt to improve literacy instruction and academic achievement for Spanish/English emerging bilinguals in the U.S.

The Literacy Squared Pilot Study reported here implemented a pilot program to apply the concepts reported in these syntheses to classroom literacy instructional practices. Specific to this study were the suggestions that, for Spanish speaking children, literacy instruction in Spanish is highly beneficial. However, these same studies called for an earlier introduction into English literacy than has traditionally occurred, and a focus on literacy and language arts in the ESL program in addition to the current focus on content based ESL. The Literacy Squared Intervention program was created and implemented to examine the impact of a new type of literacy instruction for emerging Spanish/English Bilinguals in early elementary grades. The program combined the traditional focus on Spanish literacy with a concomitant focus on Literacy-Based ESL beginning in the first grade. A critical feature of the Literacy Squared Program was that literacy instruction in Spanish and English was neither duplicative nor redundant, nor was literacy instruction in English based on monolingual English approaches. Further, literacy instruction in the two languages was seen as inter-connected and mutually beneficial, not as separate cognitive and linguistic processes. A central component of this intervention was the creation of a

‘Trajectory toward Biliteracy’ combined with simultaneous instruction in literacy in Spanish and English.

The research questions addressed in this study raise questions with regard to conventional wisdom and current practice both in bilingual and all English programs. Dominant thought has called for developing Spanish literacy well before introducing literacy in a second language. Further, current practice has cautioned that simultaneous literacy instruction may cause children to become confused in both languages which could result in low literacy achievement in both (Cummins, 1981, Slavin & Cheung, 2003) In short, current practice cautions teachers to delay the introduction of literacy in English until students reach certain levels of proficiency in Spanish literacy. In a similar manner, current ESL programs delay introduction of English literacy until certain levels of oral proficiency are attained in English.

Results of this pilot study support the conclusions of the recent research syntheses and raise questions with conventional wisdom and current practices outlined above. Findings in Research Question 1 demonstrated that intervention children made growth in Spanish reading and their growth exceeded that of control students on informal Spanish reading measures. This suggests that simultaneous literacy instruction did not retard growth in Spanish. In fact, intervention students came much closer to achieving grade level benchmarks in Spanish than control students. Furthermore, intervention students grew more in English reading at all grade levels than control students suggesting that focused attention in Literacy-Based ESL may help students learn to read in English as a second language while they are learning to read in Spanish. These findings support the research syntheses suggestions that simultaneous literacy acquisition is possible, and early

acquisition of English literacy need not happen at the expense of Spanish.

Findings reported in Research Question 2 lend further support to the notion that literacy development in Spanish and English simultaneously does not impede progress in either Spanish or English. Further, with regard to the development of writing in Spanish and English, this study provides important new information to the field. Studies on the development of biliteracy have historically focused on reading and not writing. August & Shanahan (2006) particularly lament this dearth of research in writing and emphasize the need for more research that examines writing developing as well as reading development of emerging bilinguals. Research question 2 specifically examined the writing development in Spanish and English of students in the Literacy Squared Pilot Study as compared to the Spanish and English writing development of students in more traditional bilingual programs. As with reading outcomes discussed above, the findings indicate that learning to write in Spanish and English simultaneously does not negatively affect either Spanish or English writing development. Outcomes in Spanish writing between intervention and control groups were parallel as were writing outcomes in English.

Research question 3 examined the correlation between reading and writing in Spanish and English on informal reading and writing measures. Findings revealed positive correlations in reading and writing for both intervention and control groups. This finding is not surprising as there is a plethora of research that has concluded the positive correlation between reading achievement in Spanish and subsequent reading achievement in English. This study provides one more piece of evidence to support this theory. Moreover, as stated above, there is less evidence establishing this correlation between writing in Spanish and writing in English. Findings from this study indicate the

correlations in writing may be equally as strong as those in reading. However, the correlations reported with regard to this research question provide perhaps the strongest evidence to support the potential of the Literacy Squared Intervention. One component of the Literacy Squared Intervention was for teachers to create explicit and direct connections between Spanish and English in their literacy instruction. This explicit and direct teaching of cross language connections may improve children's ability to use knowledge of Spanish when reading and writing in English and vice-versa.

Findings related to the correlation between Spanish and English reading outcomes were significant for both intervention and control groups, however the correlation coefficients for the intervention group in reading was much higher than for the control group at all grade levels. Furthermore, the correlation coefficients in writing were significant for the intervention group at all grade levels but not for the control group indicating that perhaps making explicit cross language connections may be more important in writing instruction than in reading.

Ironically, as stated above, literacy development in Spanish and English has been traditionally conceptualized and taught as separate and unrelated skills, strategies and processes even as research was concluding the high and positive correlations across languages. Central to the development of a simultaneous literacy program in Spanish/English in this study was the development of a framework that conceptualizes a Trajectory toward Biliteracy. Critical to this trajectory are concrete benchmarks that teachers and schools may utilize to observe whether children are developing positive trajectories toward biliteracy and utilizing skills, strategies and knowledge learned in one language to learn to read and write in a second language. Research question 4 examined

whether the implementation of a Trajectory toward Biliteracy with concrete benchmarks could be used to examine student achievement in Spanish and English as a connected process. Teachers in the pilot study were given the trajectory along with a reading and writing continuum that demonstrated the processes and procedures to develop Spanish and English in a parallel way that scaffolded English along side of Spanish rather than as a separate subject. Findings from this study were encouraging as intervention classrooms consistently had a greater percentage of students in the Biliteracy Zone than control classrooms. Moreover and most encouraging at the 3rd grade level, 69% of the intervention students were in the biliteracy zone.

Findings from Research Questions 5 and 6 are promising as they establish a preliminary finding that intervention students who are learning to read and write in Spanish and English simultaneously are doing well on high stakes tests in Spanish at the 3rd grade. Further, correlations indicate a high and positive correlation between the Spanish EDL and CSAP test. Given that this finding relates only to 3rd grade Spanish, it is promising, but tentative and needs to be studied in greater depth in future studies.

In sum, findings presented in this pilot study indicate that initial literacy instruction for Spanish/English bilinguals may well be accomplished in a program that supports and implements simultaneous literacy instruction. Results reported here indicate that Spanish literacy outcomes did not suffer as a result of earlier introduction of English literacy instruction. Further, the correlations between Spanish and English literacy were higher for students in the intervention classrooms that employed simultaneous literacy instruction. It is important to note, however, that the study reported above was a pilot year study only, and literacy instruction was specially designed so as not to be redundant and duplicative

across languages. This type of instruction may have enormous potential to improve literacy instruction and academic achievement for Spanish/English bilinguals, however more studies including longitudinal research need to be conducted to better examine the power and potential of the conceptual framework and the intervention.

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Boulder Valley School District: Columbine

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Jefferson County Public Schools: Foster, Stein

St. Vrain Public Schools: Frederick, Indian Peaks, Loma Linda

Texas:

Clear Creek Independent School District: Stewart, McWhirter

Ft. Bend Independent School District: Mission West, Ridgeway

Midland Independent School District: DeZavala, South

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Table 1

Demographic Characteristics of Literacy Squared Intervention and Control Schools 2005-2006

Research Group	State Site	Total Students	Latino	ELL	Percent Free/Reduced Lunch	State Rating
Int.	CO-1	432	88%	55%	88%	Low
Int.	CO-2	368	83%	78%	87%	Low
Int.	CO-3	516	87%	34%	78%	Low
Int.	CO-4	582	87%	42%	85%	Low
Int.	CO-5	338	61%	45%	59%	Avg.
Int.	CO-6	280	54%	37%	68%	Low
Int.	CO-7	490	48%	22%	40%	Avg.
Int.	CO-8	668	94%	66%	94%	Low
Int.	CO-9	551	94%	58%	91%	Low
Int.	CO-10	410	92%	51%	87%	Low
Int.	TX-1	340	91%	31%	89%	Recognized
Int.	TX-2	773	60%	54%	64%	Recognized
Int.	TX-3	559	48%	40%	55%	Recognized
Control	CO-1	456	64%	25%	59%	Low
Control	CO-2	480	90%	64%	84%	Low
Control	CO-3	580	73%		72%	Avg.
Control	TX-1	653	60%	50%	70%	Acceptable
Control	TX-2	798	61%	44%	80%	Acceptable
Control	TX-3	398	93%	42%	91%	Acceptable

Table 2

Pre-test and Post-test Comparison in Spanish and English Between Intervention and Control Students

Study Group	n	Measure	Grade	Mean - Fall	SD	Mean - Spring	SD	Gain in reading level	Grade Level Benchmark
Intervention	153	EDL (Spanish)	1	2.12	2.6	15.6	6.9	13.48	16
	159		2	11	7.4	23	10.2	12	28
	121		3	21.58	10.5	31	10.4	9.42	38
Control	45	EDL	1	1.51	1.8	12.6	8.6	11.2	16
	58		2	10.67	7.2	23	7.9	12.3	28
	45		3	20.2	10.5	31	9.3	10.8	38
Intervention	153	DRA (English)	1	.73	.86	5.4	4.7	4.7	12
	159		2	3.18	3.5	9	6.8	5.9	16
	121		3	8.65	8	18.3	10.2	9.7	28
Control	45	DRA	1	.38	.74	2.4	3.3	2	12
	58		2	2.36	2.1	8	5.9	5.6	16
	45		3	8.32	8.6	15.7	9.5	7.4	28

Table 3

*Literacy Squared and Control Group Spanish and English Writing Achievement
2005-2006*

	Grade	Study Status	N	Mean	Std. Dev.
Spanish Writing	1	Intervention	94	6.88	3.09
		Control	34	7.41	2.48
	2	Intervention	113	7.8	2.22
		Control	36	7.67	2.01
	3	Intervention	76	8.22	2.27
		Control	27	8.85	1.54
English Writing	1	Intervention	93	4.43	2.26
		Control	31	4.32	2.61
	2	Intervention	108	5.11	2.33
		Control	35	5.09	2.01
	3	Intervention	75	9.08	2.49
		Control	24	9.92	2.30

Table 4

Correlation between Reading Achievement in Spanish and English

Grade	Intervention/ Control	Γ Reading Spring 2006	Γ Writing	N
1	Intervention	.64	.62	92
	Control	.43	.18	31
2	Intervention	.52	.46	108
	Control	.47	.30	35
3	Intervention	.54	.58	75
	Control	.52	.38	31

Table 5

Intervention and Control Students in Biliteracy Zone

	Grade	Total N	Number in Zone	Percent
Intervention	1	153	56	37
	2	159	61	39
	3	121	83	69
Control	1	45	22	49
	2	58	16	28
	3	45	19	42

Table 6

2006 Colorado Student Assessment Program (CSAP) Reading (Lectura) Outcomes for Colorado 3rd Grade Intervention Students

Students (n=109)	Unsatisfactory	Partially Proficient	Proficient	Advanced
Number	11	27	61	10
Percent	10	24	66	10