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Enhancing Writing Outcomes in Spanish/English Biliteracy Programs

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Abstract: This paper examines the biliterate writing growth of students participating in a one-way Spanish/English dual language program under two different conditions: biliteracy program treatment (n=38) and biliteracy program control (n=72) over two school years. Utilizing the theoretical framework of holistic biliteracy, the study utilized a longitudinal study design that examined growth in students' writing in Spanish and English in grades 1-3 from a quantitative perspective. Results of the quantitative analysis indicated a statistically significant difference between the Literacy Squared program and control group students in Spanish/English writing outcomes.

Keywords: biliteracy, emerging bilingual, writing instruction, mixed methods

Enhancing Writing Outcomes in Spanish/English Biliteracy Programs

"Children think about writing and their thinking demonstrates interest, coherence, value and extraordinary educational potential. We've got to listen to them. We've got to see the child as a person who thinks and attempts to incorporate into his or her own knowledge this marvelous medium of representing and recreating language which is writing, all writing" (Emilia Ferreiro, 2003, p. 34)

Introduction

Spanish speaking children comprise a growing segment of the K-12 population in the United States. The majority of these children are not immigrants; they are US born simultaneous bilinguals (U.S. Census Bureau, 2015). In this paper, we will refer to these children as emerging bilingual children. It is important to note while we refer to these students as emerging bilinguals, the government in the US classifies all of the students in this study as English Language Learners (ELL). The term emerging bilinguals is used to capture the bilingual potential of each child and the bilingual practices in schools that will hopefully enable the child to develop full repertoires of bilingualism and biliteracy as well as the bilingual practices that will characterize a bilingual child's life. In contrast, the term ELL is used as a label to define children who are not yet proficient in English. This term is used only in the US and while it has been severely criticized for its deficit orientation, its label carries a legal mandate that entitles children to targeted educational programs while they are learning English (de Jong, 2011).

Simultaneous bilingualism is not well understood or widely used in designing bilingual/dual language programs in the US. Briefly defined, simultaneous bilinguals are children who begin to acquire two languages between the ages of 0-5 (Baker, 2001). Emerging bilingual children who were born in the US are likely to be simultaneous bilinguals because many live in homes where two languages are used and/or come from monolingual Spanish homes, but live in bilingual neighborhoods and/or have attended preschools where English is the medium of instruction. For these children, bilingualism is their dominant language and the development of bilingualism and biliteracy can capitalize on the knowledge that these children have of two languages. The U.S. Department of Education (2015) reported that 85% of Emerging Bilingual children in grades K-5 were U.S. born.

Historically, the teaching of literacy in English in the US, for all children (emerging bilingual children and others) has been primarily focused on teaching children to read with little attention to teaching elementary children to write (Gallagher, 2009; Gentry, 2006). Recent research (Ouellette & Senechal, 2017) concludes that the most valuable early literacy skill to encourage in kindergarten is neither alphabetic knowledge nor memorization of key sight words. In fact, it is not a reading skill at all. The best indicator of future success as a reader is actually a child's ability to use invented spelling as she/he writes. This study was conducted with monolingual English speaking children in Canada; however, it parallels recent research on literacy assessment of Spanish speaking children (Soltero-González & Butvilofsky, 2015).

Literature Review

Over the past two decades, primarily as a result of high stakes testing and assessments that have included writing as well as reading assessments, some attention has been focused on teaching children to write. However, because the focus of these high stakes assessments has been assessment in English, research exploring biliterate writing using bilingual assessments is almost nonexistent (de Jong, 2011). The need for more research in the area of teaching writing to emerging bilingual children has been identified as one of the field's most pressing needs (August & Shanahan, 2006; Escamilla, Butvilofsky & Hopewell, 2018).

In early work in the area of biliterate writing development, Edelsky (1986) conducted extensive research on Spanish-speaking children's writing in English. A team of researchers analyzed 500 written texts from first, second, and third graders attending a semi-rural, migrant school. Edelsky concluded that literacy in Spanish supported the acquisition of literacy in English. When the students in Edelsky's research wrote in English, they used what they knew about literacy in their first language. Edelsky's research is important because it demonstrated that learners' strategies were not evidence of linguistic interference, but rather they revealed an integrated reasoning across language systems.

Fu (2003) proposed the use of a bilingual process approach to develop Chinese students' writing abilities in English. She suggested that reasoning, imagination, and the ability to organize ideas are equally, or even more, important than language skills in learning to write. For this reason she suggested that if we let students express themselves and present their ideas in their primary language, we give them opportunities to continue the development of their thinking. With this development uninterrupted, they will be able to write well in a second language once they develop proficiency in it.

Gort (2012) examined code-switching patterns in the writing-related talk of six emerging Spanish-English bilingual first-grade children over the course of six months. Four general categories of code-switching functions emerged: (a) evaluation and self-regulation skills, (b) sociolinguistic and sociocultural competence, (c) metalinguistic insights, and (d) use of code-switching to indicate a shift in topic, person, or syntactic form. Findings suggest that children have a capacity to exploit their developing bilingual linguistic repertoire for a variety of academic and social purposes and illuminate the potential of code-switching as a cognitive and linguistic resource in the process of writing. This work indicates the importance of interactional spaces where children can use their two languages can serve to support bilingual literacy skills. Of importance to this study, she shows how the two languages remain activated throughout the writing process in order to carry out writing-related tasks.

In a study with four high school students labeled as English learners with no access to bilingual instruction, Kibler (2010) examines the use of students' first language to broker second language interactions in classroom writing to demonstrate the potential of a student's first language as a tool to facilitate communication with teachers and also allow students to demonstrate their rhetorical and linguistic potential in relation to writing in a second language. These findings offer insight into the writing process as it is influenced by bilingual language proficiencies and classroom interaction.

Research by Velasco and García (2014) analyzes five written texts produced by young bilingual writers using translanguaging theory. Similar to holistic bilingual theory,

translanguaging does not view the languages of bilinguals as separate linguistic systems. The term stresses the flexible and meaningful actions through which bilinguals select features in their linguistic repertoire in order to communicate appropriately. From this perspective, the authors argue that the language practices being learned by emerging bilinguals are in functional interrelationship with other language practices and form an integrated system. The authors demonstrate that children use translanguaging in the planning, drafting, and production stages of writing. This research analyzes how and why translanguaging is used, as well as the effect it has in the development of writing and of voice. The study is significant in that it demonstrates that emerging bilingual children use both of their languages are they are developing (bi)literacy.

In short, there is emerging research across the past three decades that presents evidence of how writing in one language can support the acquisition of writing in another language (Edelsky, 1986). More recent research has primarily focused on biliterate writing processes including planning, drafting and production in which emerging bilingual children use two languages to acquire biliteracy skills in writing (Velasco & García, 2014), on interactional spaces in the classroom where children can use their two languages to support the acquisition of (bi)literacy skills (Gort, 2006, 2012) and how bilingual children utilize both languages to enact expertise in different elements of the writing task (Kibler, 2010). As demonstrated in this Literature Review, the writing processes of emerging bilingual learners have been well documented. What is lacking and what this study adds to this literature is the examination of biliterate writing outcomes in children participating in Spanish/English dual language programs using different biliteracy models of instruction. We argue that in order to understand biliterate development deeply, we must examine both the processes and the outcomes of biliterate writing instruction.

Purpose

This paper presents the results of a two-year quasi-experimental, longitudinal study that examines growth in emerging bilingual students' writing in Spanish and English. The study design includes two cohorts of students in grades 1-2 and grades 2-3. who participated in a biliteracy program titled, "Literacy Squared," (n=38) and a comparable control group (n=72). The purpose of this study is to examine the two year biliterate writing growth of students participating in one-way dual language programs under two different conditions [Literacy Squared (LS)and control] to examine whether the use of the Literacy Squared program in the LS school may be associated with enhanced academic writing outcomes of students enrolled in the one-way dual language strand in this school compared with those of students enrolled in the one-way dual language strand in the control school where the Literacy Squared program was not implemented.

Research Questions

Two research questions were posed to address the quasi-experimental and quantitative nature of the study. Research questions included:

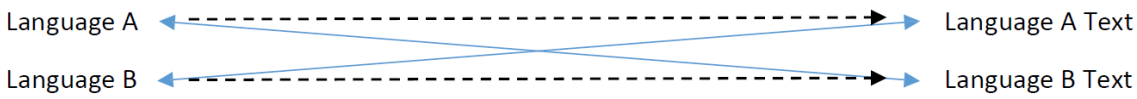
1. What gains do LS and control students make in Spanish and English writing on biliterate writing assessments?
2. How do the writing outcomes for students in the LS school compare to those in the control school?

Conceptual Framework

There are two conceptual frameworks that undergird this study. The first framework is the flexible multiple biliteracy model. This model represents the biliteracy model in Literacy Squared. Additionally, the model supports the empirically tested strategies utilized by teachers in the study. The second framework is that of holistic bilingualism. This framework supports the development and utilization of the research-based writing assessment and analytic lens that is used to analyze quantitatively and qualitatively childrens' writing samples, as well as to plot the developmental trajectories toward biliteracy in writing.

Biliteracy Models

García (2009) has posited that there are four models of language and literacy use in biliteracy practices. These models are quite different from the traditional bilingual models that primarily lay out minutes of instruction to be devoted to each language in various content areas. García's models are specific to literacy and language use to develop biliteracy. Of these, we employ the fourth which is known as a flexible multiple model**.** In this case, the two languages are used to transact with and write about texts written in both languages and in other media according to a bilingual flexible norm, capable of both integration and separation of languages. This model was created on the theoretical principles of translanguaging (Garcia, 2009; Velasco & Garcia, 2014). It does not view the languages of bilinguals as separate linguistic systems. Rather, the model stresses the flexible and meaningful actions through which bilinguals select features in their linguistic repertoire in order to communicate appropriately. From this perspective, the language practices being learned by emerging bilinguals are in functional interrelationship with other language practices and form an integrated system. Bilinguals possess only one complex linguistic repertoire from which bilingual learners select features that are socioculturally appropriate for the academic (or communicative) task at hand. Bilinguals do not have simply an L1 and an L2, but one linguistic repertoire with features that have been socially assigned to constructions that are considered "languages" including academic ones.



The flexible multiple model reflects the type of biliteracy that is characterized by the *Literacy Squared Biliteracy Framework* used in this study and developed Escamilla and colleagues (2014). According to this framework, literacy contexts and topics across languages are interrelated and cross-language connections are explicitly made.

Holistic Bilingualism

In addition to the flexible multiple biliteracy model, the study also used holistic bilingualism as a conceptual framework to analyze students' developing biliteracy in both Spanish and English writing in the treatment and control schools. A holistic vision of language and literacy begins with the recognition that what is known and understood in one language contributes to what is known and understood in the other, and that all languages contribute to a comprehensive linguistic and cognitive system. In much of the literature, this vision is referred to as "holistic bilingualism" (Cenoz & Gorter, 2011, p. 1; Duran & Palmer, 2014, p. 378). Adherents to a holistic or multicompetence conceptualization of bilingualism hold that the sum

total of a person's linguistic repertoire creates the conditions by which to acquire, create, and accomplish more than when named languages are conceived of as independent and mutually exclusive or fractional (Cook, 1992; Grosjean, 1982).

A fractional view of bilingualism holds that the bilingual speaker must be measured in comparison to a monolingual speaker of either language, thereby creating the conditions by which most bilingual speakers are viewed as less than their monolingual counterparts. This approach has been referred to as "monolingual bias" (Grosjean, 1989, p. 4). The fracturing, or compartmentalizing of languages, has led to bilingual programing that interprets and tests each language one at a time and adheres to policies of strictly separating languages. These policies and practices have been referred to as "code-segregation" (Guerra, 2012, p 30), "parallel monolingualism" (Fitts, 2006, p. 352; Heller, 2001, p. 219), or "two solitudes" (Cummins, 2005, p. 4).

Methods

Research Context and Design

Data from this study come from a larger longitudinal study on the impact of the Literacy Squared paired literacy project that examines the development of biliteracy in Spanish and English in a large urban district in Texas. Typical of many large urban school districts, the Texas district in this study has about 85,000 students of whom 56% are Latinx, 30% are White, and 7% are African-American. Also typical of other large urban school districts, 27% of the students are labeled English Language Learners (who researchers is this study label as emerging bilingual children) and 52% are considered economically disadvantaged based on free and reduced lunch (FRL) data (Austin ISD District website, June 2019). The school district has implemented various forms of bilingual education since the late 1960's and most recently has converted the majority of their schools to dual language programs including two-way and one-way dual language programs.

Data from the study reported herein uses a quasi-experimental design to examine growth in student Spanish and English writing across two school years (academic years 2015-2016 and 2016-2017) (Shadish, Cook & Campbell, 2002). In this paper, growth in writing between two cohorts of students enrolled in the one-way dual language bilingual strand in a Literacy Squared school and a control school are examined and compared. The quasi-experimental design was employed because the assignment to Literacy Squared or the control school was not randomized. The Literacy Squared school in this study volunteered to be a research site for the Literacy Squared program. The control school was chosen because it was located in a similar part of the city, and because it had a similar demographic of students including the percentage of emerging bilingual/ELL students, Latinx students, and students on free and reduced lunch. The control school was given the option to receive Literacy Squared teacher professional development, but opted out.

Participants

Schools. In the spring of 2015, the school district contracted with Literacy Squared researchers to provide teacher professional development and to conduct research in two K-5 schools within their district: a Literacy Squared school (Blandon Elementary) with both a one-way and two-way

program and a control school (Ponder Elementary) with a one-way program. School names used throughout this manuscript are pseudonyms. During the 2016-2017 school year, Blandon had an enrollment of 841 students, with 75% of students qualifying for free- or reduced-price lunch, 34% of students designated as English Language Learners (ELL), and 80% of students identifying as Latinx. In comparison, during the 2016-2017 school year, Ponder had an enrollment of 696 students, with 96% of students qualifying for free- or reduced-price lunch, 77% of students designated as ELL, and 91% of students identifying as Latinx. It should be noted that despite differences at the school-level, all of the students included in this study (both from Blandon and from Ponder) identified at Latinx and had a district-assigned ELL designation – ELL designation is a requirement for participation in the one-way dual language program at the two schools.

Teachers. Four teachers participated in the study from Blandon and six teachers participated in the study from Ponder. All teachers met Texas state requirements to be a bilingual teacher. All teachers had professional development related to the type of program they were implementing.

Students. Given the longitudinal design of the research project, students in both schools were assigned a cohort group depending on which grade they were in when the study started. Students in Cohort I are those who started first grade in fall 2015 and progressed to second grade by the second year of the study. There were 2 classrooms of students in Cohort I at Blandon and 3 classrooms of students in Cohort I at Ponder. Cohort II students are those who were in second grade in the fall of 2015 and progressed to third grade by the second year of the study. There were 2 classrooms of students in Cohort II at Blandon and 3 classrooms of students in Cohort II at Ponder. As there is a lot of movement both within the district and with students moving out of the district, Cohort I experienced an attrition rate of 30% for the control school and 37% for the treatment school between the first and second year of the study. Cohort II experienced an attrition rate of 22% for the control school and 23% for the Literacy Squared school between the first and second year of the study. These students were not included in the data for this study, as they did not provide the complete set of writing samples in both Spanish and English. Writing outcomes are reported for the following students: Blandon Cohort I – 15 students; Blandon Cohort II – 23 students; Ponder Cohort I – 32 students; and Ponder Cohort II – 40 students).

Biliteracy Models Adopted by Study Schools

Blandon Elementary took up a flexible multiple biliteracy model within their one-way dual language program and used Literacy Squared strategies to encourage flexible language use. Ponder Elementary maintained their existing model - a separation biliteracy model common among one-way dual language programs within the district. In alignment with Literacy Squared, Blandon dedicated 25% of the literacy block allocation to writing instruction. This instruction was to be conducted daily in both Spanish and English, and to be connected to reading. Ponder, on the other hand, followed a program that recommended alternating the language of instruction daily with Spanish writing instruction on Monday, Wednesday, and Friday and English writing instruction on Tuesday and Thursday. Students in the control school also participated in daily journal writing that could happen in either Spanish or English.

Despite taking up different biliteracy models, the one-way dual language programs had complementary, and often overlapping, writing programs. Both schools used the district yearly planning guide to pace and sequence instruction according to the Texas writing standards, and both programs used a hybrid of various district resources and teacher-made resources. For

English and Spanish writing instruction, resources used at both schools included *Countdown to Writing, America Writes* and *STAAR Releases*. **Critical Features of the Study Intervention**

Literacy Squared is an integrated language arts instructional model designed to develop biliteracy in Spanish and English simultaneously for Spanish speaking emerging bilingual children in the United States. In its totality and in accord with the flexible multiple model, Literacy Squared has four components: 1) a holistic biliteracy instructional framework including paired literacy instruction beginning in kindergarten; 2) assessment focused on developing biliteracy; 3) professional development; and 4) research. Over the past decade, empirical research has established the general efficacy of Literacy Squared in various research studies (Soltero-González, Sparrow, Butvilofsky, Escamilla, & Hopewell, 2016; Sparrow, Butvilofsky, Escamilla, Hopewell, & Tolento, 2014) and the potential and promise of biliterate assessment frameworks (Butvilofsky, Hopewell, Escamilla & Sparrow, 2016; Hopewell & Escamilla, 2014). Literacy Squared focuses on improving the quality of literacy instruction and assessment in bilingual/dual language programs. In this particular study, the treatment school received face-to-face professional development in four key strategies of the Literacy Squared holistic instructional framework: Paired Literacy, theDictado, Lotta Lara, and the Literacy Squared writing rubric. Each of these strategies helps teachers integrate reading, writing, oracy and explicit cross-language connections throughout the entire English and Spanish language arts block with the goal of supporting biliterate writing.

Fidelity of implimentation was ensured by systematic classroom visits by an assistant principal and a literacy coach. Adiditonally, researcher led labs were carried out during each school visit in which two or more teachers volunteered to model a paired literacy lesson using one of the critical features of the interventon.

Paired Literacy. Paired Literacy is a holistic approach to teaching reading and writing, operationalizing the flexible multiple model for language arts instruction. Students learn to read and write in two languages simultaneously beginning in kindergarten. Paired literacy practices are particularly suited for simultaneous emerging bilingual children who enter school having some level of proficiency in two languages. Paired literacy practices are not duplicative and do not involve concurrent translation. Further, paired literacy involves choosing books that are related by theme, genre or bilingual narrative to explicitly connect the two languages through reading and writing (Escamilla et. al., 2014).

TheDictado. TheDictado is a strategy used to teach content, spelling, conventions and grammar in an integrated way. It is meant to help develop automaticity in writing through a practice that relies upon self-correction to develop within and across language metalanguage in writing. Intervention participants were expected to do 12-15 dictados in Spanish and 12-15 dictados in English alternating languages by week.

Lotta Lara. Lotta Lara is a three-day strategy that was developed to improve students' reading fluency, oral language skills (oracy), and writing through explicit planning, repeated readings, and writing activities that build on rehearsed oracy structures. Intervention teachers were to do Lotta Lara a minimum of one time per unit alternating Spanish and English by unit. Unit length varied by grade level; therefore, some grades implemented more Lotta Lara lessons than others.

Literacy Squared Quantitative Writing Rubric The *Literacy Squared Quantitative Writing Rubric* (see Appendix A), enables teachers and researchers to evaluate quantitatively the content, structural elements, and spelling of students' writing. The writing rubric does not assign equal weight to each of the three areas, instead it distributes scores in ways that do not penalize students for errors or approximations that are due to the acquisition of two writing systems.

These components yield a possible composite score of 21: 10 points for content, 5 points for structural elements, and 6 points for spelling. The Literacy Squared writing rubric is designed to assess the Spanish and English writing of emerging bilingual children in the elementary grades. It has the potential for use with various genres and can be used as either a formative or summative measure. Validity of the instrument was established via expert review and interrater reliability was established along with validity via expert review (Butvilosky & Sparrow, 2012). To our knowledge, this is one of the few instruments designed to assess Spanish/English bilingual writing development holistically. A strength of this assessment is that is looks longitudinally (K-5) at children's biliterate writing gains over time. Knowing that emerging bilingual children are likely to distribute their knowledge and competencies across two languages, we designed an instrument that allowed us to evaluate and record a child's Spanish and English writing outcomes using a single rubric which enable a side-by-side analysis and understanding of of students writing in Spanish and English and allows for observation of how children use their knowledge of their languages, their environments and their cultures to express themselves in writing.

Essentially the rubric is designed to give children credit for what they can do and for their cross-language approximations rather than penalizing them for what a monolingual system would label as an error. For example, if a child writes jis for his, a bilingual lens allows the reader to understand that the child is applying Spanish phonetic principles to English encoding. Bilingual raters are asked to use bilingual lenses to interpret students' outputs in writing.

Training: Extended Face-to-Face Professional Development

As part of the treatment, participating teachers at Blandon Elementary received a total of sixteen full-day face-to-face professional development (PD) sessions over the course of two school years (2015-2016 and 2016-2017). These PD sessions focused on the overall Literacy Squared approach. During the 2015-2016 academic year, five sessions were focused on learning and developing the strategies of Paired Literacy, Lotta Lara and theDictado and learning how to use and interpret the Literacy Squared writing rubric. Two of the PD session were learning labs in which teachers modeled the strategies with their students. They were observed by the research team and their peers and were given feedback to improve implementation. During the 2016-2017 academic year, five professional development sessions were focused learning and continuing to develop the strategies of Paired Literacy, Lotta Lara and theDictado, as well as deepening understanding of the Literacy Squared writing rubric and how to use writing sample outcomes to inform instructional decisions. Three days were devoted to teacher Learning Labs.

Teachers at Ponder Elementary did not receive any professional development by the Literacy Squared trainers or have other contact with the Literacy Squared research team. It is possible that they were aware of the Literacy Squared framework through attendance at national bilingual education conferences where Literacy Squared trainers demonstrated strategies. It is also possible that they might have knowledge of Literacy Squared through the program's publicly available book (Escamilla et al, 2014**).** While exposure to Literacy Squared strategies through these avenues is possible, this study is focused on understanding the association between face-to-face professional development sessions over an extended period of time and student writing outcomes. As mentioned previously, other conditions, such as time allocations for one-way dual language programs in Spanish and English, teacher qualifications, the writing program utilized, and material resources were comparable between the treatment and control groups.

Data Sources

The Literacy Squared Writing Samples. The Literacy Squared program collects writing samples at least once per year in both Spanish and English. The purpose of collecting student writing samples is to give students the opportunity to demonstrate what they know about standard writing conventions with regard to spelling and structural elements as well as to effectively communicate a message. Each student responded to a total of six writing prompts (three Spanish prompts and three English prompts) over the course of the study. See Table 1 for the prompts by cohort, language and administration date.

Table 1

Literacy Squared Writing Prompts, by cohort, language and administration date

Administration Date	Cohort I	Cohort II
Fall 2015	Spanish: *Haz un dibujo de tu familia. Escríbenos cómo es tu familia. (Draw a picture of your family. Write about your family.)* English: n/a	Spanish: *Dibuja el animal que más te gusta. Escríbenos por qué te gusta más. (Draw a picture of the animal you like the most. Write why you like it the most.)* English: *Draw a picture of your favorite toy. Write about why it is your favorite.*
Spring 2017	Spanish: *Escribe lo que te gusta hacer cuando no* estás *en la escuela. Y dí por qué. (Write what you like to do when you are not in school. And explain why.)* English: *What do you like to do at recess? Why?*	Spanish: *Escribe lo mejor que te ha pasado en la escuela y ¿por qué piensas que fue lo mejor? (Write the best thing that has happened to you at school. And why do you think it was the best?)* English: *Write the best thing that has ever happened to you. Why was it the best thing?*

Data Collection Procedures

One Spanish and one English writing sample were collected from each student in the fall of 2015, in the spring of 2016 and in the spring of 2017. The Spanish and English samples collected in the fall of 2015 are used as a baseline score to understand the comparability of Blandon and Ponder students at the beginning of the study. At each data collection point, Literacy Squared staff sent the Spanish and English writing prompts to teachers, along with

instructions for administration and a script for them to read to the students before administration. Students were given a writing prompt and were then given 30 minutes to write to the prompt. They were not permitted to use dictionaries or to discuss their ideas with their teacher or classmates. Data were collected first in Spanish and then two weeks later in English using the same protocol and a related, but different, prompt.

Data Analysis

After each administration period, Literacy Squared staff collected and de-identified students' writing samples. At Blandon, teachers, who had been trained to score writing samples quantitatively using the Literacy Squared Writing Rubric at a day-long PD session that included establishing acceptable levels of inter-rater reliability (Butvilofsky & Sparrow, 2012), evaluated a random de-identified set of Blandon and Ponder students' writing samples using the Literacy Squared Writing Rubric. In addition to Blandon teachers scoring writing samples, a random set of twenty percent of the total samples were scored by a Literacy Squared researcher and an acceptable level of rater agreement was found (Cohen's Kappa: 0.55).

It is important to note that student writing analysis is done via a method referred to as "Side-by-Side," wherein students' Spanish and English samples are examined holistically with both samples analyzed simultaneously and side by side (Escamilla et. al., 2014). This allows for general observations about similarities and differences across languages, for example, the amount of text written in each language, physical organization of words and paragraphs on the page, and the use of structural elements.

Findings

Research question 1. Research question one asked, "What gains do Literacy Squared (Blandon) and control (Ponder) students make in Spanish and English writing on biliterate writing assessments?" Cohort group I students were those who began first grade in fall 2015 and finished second grade in spring 2017. Cohort group II students were those who began second grade in fall 2015 and ended third grade in spring 2017. Data in Table 2, below, demonstrates the growth in Spanish and English writing samples for Cohorts I and II at the Literacy Squared and control school.

Table 2. *Mean composite writing scores and growth, by school, cohort and prompt*

School	Cohort	Writing Prompt Language	*n*	Writing Sample Date: Fall 2015 Mean (SD)	Spring 2016 Mean (SD)	Spring 2017 Mean (SD)	Score Growth
Blandon	I	Spanish	*15*	8.7 (3.4)	11.3 (3.7)	12.8 (1.3)	4.1 ***
		English	*15*	n/a	9.3 (3.5)	11.6 (3.8)	2.3 [a]
	II	Spanish	*23*	11.3 (1.1)	11.4 (1.3)	12.4 (1.5)	1.1 **
		English	*23*	8.8 (2.0)	10.4 (1.5)	11.7 (1.7)	2.9 ***
Ponder	I	Spanish	*32*	7.5 (3.7)	10.7 (1.6)	11.1 (1.4)	3.6 ***
		English	*32*	n/a	8.2 (2.8)	9.2 (2.3)	1.0 [a]
	II	Spanish	*40*	10.7 (1.5)	11.2 (1.3)	11.2 (1.3)	0.5
		English	*40*	8.7 (2.2)	9.9 (1.7)	10.3 (1.6)	1.6 ***

[a] Score growth is based on Spring 2016 to Spring 2017 data, as no data was available Fall 2015
*p < 0.05; **p < 0.01; ***p <0.001

Table 2 illustrates several important findings with regard to growth in writing in English and Spanish in both the Literacy Squared and the control schools. First, mean scores from the writing assessments indicated that Cohort I students posted statistically significant gains in Spanish writing over the course of the two-year period and posted English writing gains between spring 2016-spring 2017 (since these students did not produce writing samples in English during fall 2015). The outcome scores at Blandon (treatment school) were higher than for Ponder in Spanish and English, possibly indicating an association between the Literacy Squared at Blandon and Blandon students' outcome scores. Also, significant to the study of biliteracy is the fact that the distance between the outcomes in Spanish and English decreases over time at both schools,

and student writing in Spanish and English is starting to reach the same level, indicating emerging biliteracy in writing in both treatment and control schools.

With regard to Cohort II, similar findings are reported. Blandon posted statistically significant gains in writing achievement over the two-year period in both Spanish and English, and Ponder posted gains in Spanish writing between fall 2015 and spring 2016, but then showed no growth between spring 2016 and spring 2017. Ponder posted statistically significant gains across the two years in English writing. These findings, again, point to a potential association between teachers' exposure to Literacy Squared and the enhanced quality of student writing in two languages. Again, significant to the study of developing biliteracy is the narrowing of the distance between Spanish writing and English writing in both schools across the two-years of the study.

Research question 2

Research question 2 asked, "How do the writing outcomes for students in the treatment school compare to those in the control school?" To address this question, we first used a simple regression analysis to assess the statistical significance of Cohort I and Cohort II students' pre-test scores on the Literacy Squared writing assessment (Y_i) as a function of whether students were enrolled in the treatment or control school (X_i).

$$Y_i = \beta_0 + \beta_1(X_i) + \varepsilon_i$$

It is important to demonstrate that there were no statistically significant existing differences in pre-test Spanish and English writing scores between the treatment and control schools so that we can ultimately make stronger associations between the Literacy Squared program treatment and any differences in writing outcomes for students in the treatment and control schools as measured by Spanish and English writing post-test data. The results reported are based on two-tailed statistics, a more conservative approach.

The mean difference for Cohort I pre-test composite writing scores between Blandon and Ponder on the Spanish writing assessment was 1.167 points (*df*=45; *t*=1.032; *p*=0.308). That is to say that, on average, Cohort I students at Blandon (the Literacy Squared school) had composite Spanish writing scores that were 1.167 points higher than the scores for Cohort I students at Ponder (the control school). However, it should be noted that this result was not statistically significant, meaning that the difference observed could have been due to chance and not to anything fundamentally different about the students or the schools. Similarly, the results for Cohort II indicate that the mean difference for pre-test composite writing scores between the two schools on the Spanish writing assessment was 0.604 points (*df*=61; *t*=1.695 *p*=0.095) -- meaning that students at Blandon, on average, scored 0.604 points higher than students at Ponder. This result was also not statistically significant. Finally, the mean difference for pre-test English composite writing scores between the two schools for Cohort II was 0.176 points (*df*=61; *t*=0.318; *p*=0.751). This indicated that students in Cohort II at Blandon, on average, scored 0.176 points higher than students in Cohort II at Ponder. As with the other two results, this one was also not statistically significant.

After establishing that there were no statistical differences in pre-test scores between Blandon and Ponder, we used multiple regression analysis to compare students' spring 2017 outcomes in the Literacy Squared quantitative writing rubric in both Spanish and English, separately, (as a function of whether students were enrolled in the Literacy Squared or control

school). In order to strengthen our model, we held constant students' pre-test scores (and clustered by the standard errors of the treatment versus the control group).

By holding constant students' pre-test scores, a given student's post-test scores were compared against a different student with similar pre-test scores. The significance tests reported are based on two-tailed statistics, again, a more conservative approach.

The results indicate that Cohort I students in Blandon and Ponder had an average difference of 1.481 points (*df*=45; *t*=253.78; *p*=0.003) for spring 2017 Spanish writing scores, with students at Blandon outperforming those at Ponder. Unlike the pre-test difference, the difference in post-test scores was statistically significant at the $p<0.01$ level. This level of statistical significance means that, on average, 99% of the time the difference observed was not due to chance, but was, in fact, due to something fundamentally different about the two groups of students.

Looking at Cohort II, the multiple regression model indicates that students at Blandon scored, on average, 1.099 points (*df*=61; *t*=40.65; *p*=0.016) higher than students at Ponder on the spring 2017 Spanish writing assessment and 1.319 points (*df*=61; *t*=128.58; *p*=0.005) higher than Ponder students on the spring 2017 English writing assessment. Both of these numbers were statistically significant. The Spanish writing assessment difference was statistically significant at the $p<0.05$ level (meaning that there is a 95% probability that the results were not due to chance) and the English writing assessment difference was statistically significant at the $p<0.01$ level (meaning that there is a 99% probability that the results were not due to chance). While there could be other things about these schools that could account for the differences seen here, based on everything that we can see, the implication of these findings is that there is a strong association between teacher exposure Literacy Squared practices and the Spanish and English writing outcomes for two cohorts of students.

Limitations

It must be noted, however, that while study findings indicate possible associations between teacher exposure to the Literacy Squared biliteracy model and improved writing outcomes of emerging bilingual children in bilingual programs in this study, the significance of this paper is limited because we could not conduct robust statistical analyses to test the significance of the growth pattern differences by cohort at the two schools due to the small number of participants at the treatment school. For this reason, the results should be viewed with both optimism and caution. More research is needed at different sites and with a larger number of students to further examine the potential benefits of these particular strategies. It should further be noted that both the treatment and control schools are making progress in terms of developing students' biliteracy in writing in Spanish and English. Students in Cohorts I and II at both Blandon and Ponder are on positive trajectories toward biliteracy; however, study results indicate that students at the Literacy Squared school are at higher levels of biliteracy than are student at the control school. Findings from this study have specific implications for instruction and merit replication in other sites and grade levels. Although more research is needed in this area, results indicate positive trajectories toward biliteracy for Latino Spanish/English-speaking students in the Literacy Squared program, and we argue that biliteracy, as we have conceptualized it, is a higher form of literacy than monoliteracy.

Discussion and Implications

This study is significant for several reasons. First, it examines the longitudinal impact of a biliteracy model designed to enhance writing instruction in Spanish and English for emerging bilingual students utilizing a flexible multiple biliteracy model (García, 2009). Few longitudinal studies of any type exist in dual language/bilingual programs in the U.S., and few, if any, have examined a flexible multiple biliteracy model such as Literacy Squared. Even fewer utilize quasi-experimental approaches to examine outcomes-based growth in student writing in Spanish and English. Further, even in dual language or late exit studies of bilingual education in the US, very few studies examine bilingualism and biliteracy as measures of efficacy. Most studies still rely on efficacy of programs as measured by English outcomes (Arias & Markos, 2017).

This study is also significant in that it presented a novel way to assess and interpret trajectories to biliteracy in writing. Study findings complement and expand the work in biliterate reading trajectories conducted in previous studies (Butvilofsky et. al., 2016; Hopewell, Butvilofsky &Escamilla, 2016). The study offers a research-tested means of determining if students are making adequate progress toward attaining literacy in two or more languages. Moreover, the rubrics used to evaluate student-writing can, and should, be used to inform instruction. The combination of research on biliterate trajectories in reading, writing and oral language could assist in the development of new theories related to bilingual/biliterate trajectories of simultaneous emerging bilingual children from an asset based perspective that would hopefully replace the deficit based discourse which is currently so pervasive in bilingual/dual language programs in the US. Little research has been conducted on how to look at biliterate development from a holistic lens.

Results from this study validate the potential of Literacy Squared for developing biliteracy in Latinx Spanish/English-speaking students in the United States. This study further presents a framework for interpreting the acquisition of Spanish and English literacy among emerging bilingual learners that is aligned to biliterate instruction. Too often emerging bilingual learners are evaluated on monolingual English assessments that cannot measure or validate the acquisition of two language and literacy systems.. Biliterate assessment systems are sorely needed if researchers are to adequately understand what emerging bilingual children are capable of learning and doing. Spanish-speaking emerging bilingual children have enormous potential for academic achievement in two languages. Researchers must continue to study the pedagogies and methods that enable emerging bilingual students to reach a high level of biliteracy and bilingualism along with the assessment systems that measure and validate this phenomenon.

References

Arias, M. B. & Markos, A. (2017). *Achieving the promises of dual language education: Goals achieved, goals overlooked and goals reimagined.* Paper presented at the annual conference of the *American Educational Research Association* (AERA), San Antonio, TX.

August, D. & Shanahan, T. (2006). *Developing literacy in second language learners: Report of the National Literacy Panel on Language Minority Students and Youth.* Mahwah, NJ: Erlbaum.

Austin ISD District Webpage, Demographics, Retrieved June 2019 from https://www.austinisd.org/about-us

Baker, C. (2001). *Foundations of bilingual education and bilingualism.* (3rd ed.). Clevedon, England: Multilingual Matters.

Butvilofsky, S., Hopewell, S., Escamilla, K. & Sparrow, W. (2017). Shifting deficit paradigms of Latino emerging bilingual students' literacy achievement: Documenting biliterate trajectories. *Journal of Latinos and Education,* 16(2), 85-97.

Butvilofsky, S. & Sparrow, W. (2012). Training teachers to evaluate emerging bilingual students' biliterate writing. *Language and Education, 26*(5), 383-403.

Cenoz, J. & Gorter, D. (2011). A holistic approach to multilingual education: Introduction. *Modern Language Journal, 95*(3), 339-343.

Cook, V. (1992). Evidence for multicompetence. *Language Learning, 42*(4), 557-591.

Cummins, J. (2005). *Teaching for cross-language transfer in dual language education: Possibilities and pitfalls*. TESOL Symposium of Dual Language Education: Teaching and Learning Two Languages in the EFL Setting. Istanbul, Turkey. Sept. 23. Accessed December 3, 2017 at www.tesol.org/docs/default-source/new-resource-library/symposium-on-dual-language-education-3.pdf?sfvrsn=0

de Jong, E. (2011). *Foundations for multilingualism in education: From principles to practice.* Philadelphia: Caslon.

Duran, L. & Palmer, D. (2014). Pluralist discourses of bilingualism and translanguaging talk in classrooms. *Journal of Early Childhood Literacy, 14*(3), 367-388.

Edelsky, C. (1986). Writing in a bilingual program: Habia una vez. Norwood, NJ: Ablex.

Escamilla, K., Butvilofsky, S., & Hopewell, S. (2018). What gets lost when English only writing assessment is used to assess writing proficiency in Spanish-English emerging bilingual learners? *International Multilingual Research Journal, 12*(4), 221-236.

Escamilla, K., Hopewell, S., Butvilofsky, S., Sparrow, W., Soltero-Gónzalez, L., Ruiz-Figueroa, O., & Escamilla, M.. (2014). *Biliteracy from the start: Literacy Squared in action.* Philadelphia: Caslon.

Ferreiro, E. (2003). *Past and present of the words to read and write: Essays on literacy.* (Mark Fried, Trans.) Toronto: Groundwork Books.

Fitts, S. (2006). Reconstructing the status quo: Linguistic interaction in a dual-language school. *Bilingual Research Journal*, *30*(2), 337 – 366.

Fu, D. (2003). *An island of English: Teaching ESL in Chinatown*. Portsmouth, NH: Heinemann.

Gallagher, K. (2009). *Readicide: How schools are killing reading and what you can do about it.* Portsmouth, NH: Stenhouse.

García, O. (2009). *Bilingual education in the 21st Century: A global perspective.* Malden, MA: Wiley/Blackwell.

Gentry, J.H. (2006). *Breaking the code: The new science of beginning reading and writing.* Portsmouth, NH: Heinemann.

Gort, M. (2006) Strategic codeswitching, interliteracy, and other phenomena of emergent bilingual writing: Lessons from first grade dual language classrooms. *Journal of Early Childhood Literacy,* https://doi.org/10.1177/1468798406069796.

Gort, M. (2012) Code-Switching patterns in the writing-related talk of young emergent bilinguals. *Journal of Literacy Research, https://doi.org/10.1177/1086296X11431626.*

Grosjean, F. (1982). *Life with two languages: An introduction to bilingualism.* Cambridge: Harvard University Press.

Grosjean, F. (1989). Neurolinguists, beware! The bilingual is not two monolinguals in one. *Brain and Language*, *36*, 3-15.

Guerra, J. C. (2012). From code-segregation to code-switching to code-meshing: Finding deliverance from deficit thinking through language awareness and performance. In P. J. Dunston, S. K. Fullerton, C. C. Bates, K. N. Headley, & P. M. Stecker (Eds.). *61st Literacy Research Association Yearbook*. (pp. 29 – 39). Oak Creek, WI: Literacy Research Association.

Heller, M. (2001). Undoing the macro/micro dichotomy: Ideology and categorization in a linguistic minority school. In N. Coupland, S. Sarangi, & C. N. Candlin (Eds.). *Sociolinguistics and social theory*. (pp. 212 – 234). New York/London: Routledge.

Hopewell, S. Butvilofsky, S. & Escamilla, K. (2016). Complimenting the Common Core with holistic biliteracy. *Journal of Education, 196*(2), 89-100.

Hopewell, S. & Escamilla, K. (2014). Struggling reader or emerging bilingual student? Reevaluating the criteria for labeling emerging bilingual students as low achieving. *Journal of Literacy Research, 46*(1), 68-89.

Kibler, A. (2010). Writing through two languages: First language expertise in a language minority classroom. *Journal of Second Language Writing, 19*(3), 121-142.

Ouellette, G. & Senechal, M, (2017). Invented spelling in kindergarten as a predictor of reading and spelling in Grade 1: A new pathway to literacy, or just the same road less known? *Journal of Developmental Psychology, 53*(1), 77-88.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston, MA, US: Houghton, Mifflin and Company.

Soltero-Gónzalez, L., Sparrow, W., Butvilofsky, S., Escamilla, K., & Hopewell, S.. (2016). Effects of a paired literacy program on emerging bilingual children's biliteracy outcomes in third grade. *Journal of Literacy Research, 48*(2),1-25.

Soltero-González, L., & Butvilofsky, S. (2015).The early Spanish and English writing development of simultaneous bilingual preschoolers. *Journal of Early Childhood Literacy, 16*(4), 473-497.

Sparrow, W., Butvilofsky, S., Escamilla, K., Hopewell, S. & Tolento, T. (2014). Examining the longitudinal biliterate trajectory of emerging bilingual learners in a paired literacy instructional model. *Bilingual Research Journal, 37*(1), 24-42.

U.S. Census Bureau. (2015). U.S. English Learners (EL) students ages 5 to 17 enrolled – native born and foreign born. Washington DC: US Census Bureau 2015 ACS.

U.S. Department of Education (2015). Fast Facts. Retrieved Junne 18, 2019 from https://www.2.ed.gov/about/oela/englishlearners

Velasco, P. & García, O. (2014). Translanguaging and the writing of bilingual learners. *Bilingual Research Journal*, *37*(1), 6-23.

Appendix A

Rater ID: •
_____
Student ID:

Not to prompt *(Circle)*
Span | Eng

Literacy Squared® Writing Rubric: Grades K, 1, 2, 3, 4 & 5
(Circle Grade)

SPANISH SCORE	CONTENT	ENGLISH SCORE
10	Focused composition, conveys emotion or uses figurative language, is engaging to the reader; clearly addresses the prompt; book language	**10**
9	Organization of composition includes effective transitions & vivid examples	**9**
8	Writing includes complex **sentence** structures and has a discernable, consistent structure	**8**
7	Sense of completeness – Clear introduction and clear conclusion	**7**
6	Includes descriptive language (use of adjectives, adverbs at the word level) or varied sentence structures	**6**
5	Main idea discernable with supporting details, or main idea can be inferred or stated explicitly, or repetitive vocabulary: may include unrelated ideas	**5**
4	Two ideas– *I like my bike **and/because** it is blue*	**4**
3	One idea expressed through a subject & predicate, subject may be implied (*I like my bike, amo,* or *run)*	**3**
2	Label(s), list of words. May communicate an idea w/o subject & predicate	**2**
1	Prewriting: Picture only, not readable, or written in a language other than the prompt	**1**
0	The student did not prepare a sample	**0**
	STRUCTURAL ELEMENTS	
5	Multi-paragraph composition with accurate punctuation and capitalization	**5**
4	Controls most structural elements and includes paragraphing	**4**
3	Controls beginning and ending punctuation in ways that make sense and is attempting additional structural elements (commas, question marks, guiones, apostrophes, ellipses, parentheses, hyphens, and indentation)	**3**
2	Uses one or more of the structural elements **correctly**	**2**
1	Uses one or more of the structural elements **incorrectly**	**1**
0	Structural elements not evident	**0**
	SPELLING	
6	Accurate spelling	**6**
5	Most words are spelled conventionally	**5**
4	Majority of HFWs are correct and child is approximating standardization in errors	**4**
3	Most words are not spelled conventionally but demonstrates an emerging knowledge of common spelling patterns	**3**
2	Represents most sounds in words and most high frequency words are spelled incorrectly	**2**
1	Represents some sounds in words	**1**
0	Message is not discernable	**0**

Literacy Squared® Qualitative Analysis of Student Writing

Bilingual Strategies

	(Spanish → English)	(English → Spanish)	Spanish ←→ English (bidirectional)
DISCOURSE ❑ ***Rhetorical structures*** (first, next, last) ❑ ***Punctuation*** (signals awareness of code-switches- *me gusta* "basketball," or ¡Run fast!)			
SENTENCE/PHRASE ❑***Syntax*** (subject omission, word order- the bike of my sister) ❑***Literal Translations*** (*agarré todas bien*/I got them all right) ❑ ***Code-switching*** (*no puedo hablar* in just one language)			
WORD LEVEL ❑ ***Code-switching*** ❑ ***Loan words*** (soccer, mall) ❑ ***Nativized words*** (spláchate/splashed)			
PHONICS Spanish→ English (japi/happy) English → Spanish (awua/*agua*) Spanish ←→ English (bihave/behave, lecktura/*lectura*)			

Developmental Language Specific Approximations

SPANISH	ENGLISH
Structural elements, syntax, spelling, hypo/hyper segmentation	**Structural elements, syntax, spelling, hypo/hyper segmentation**