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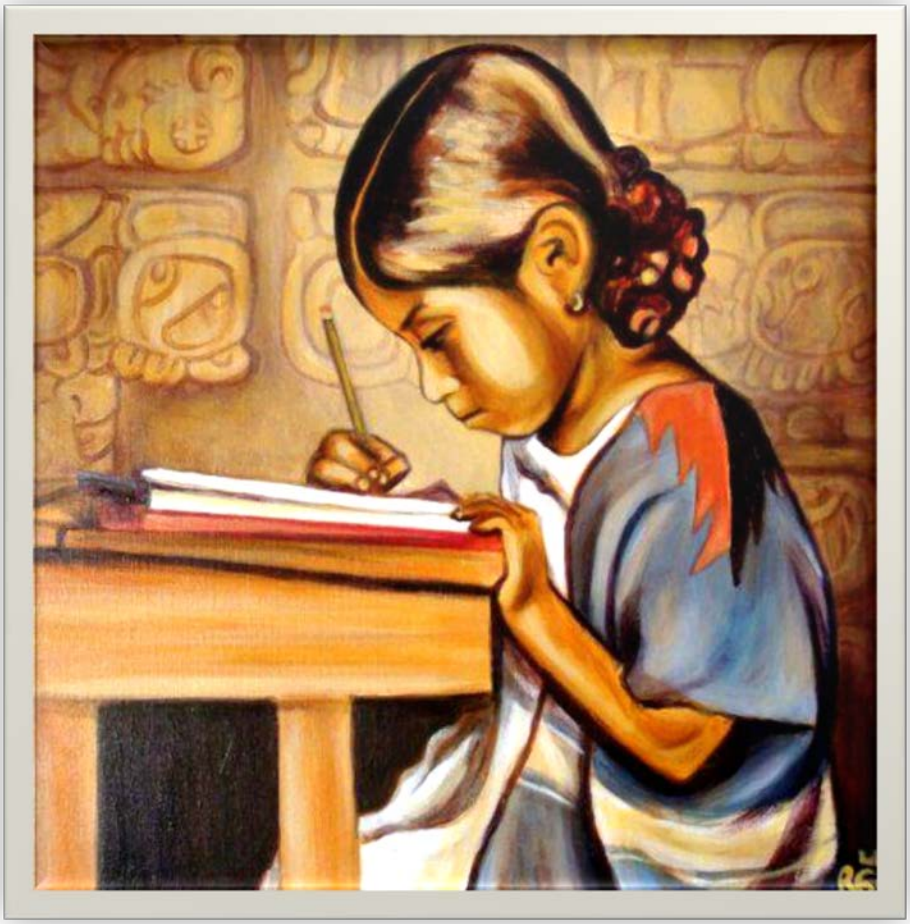

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Table of Contents

Editorial Introduction

The publication you have before you represents the inaugural issue of the *Journal of Bilingual Education Research & Instruction*, formerly known as the *TABE Journal*. The previous 2011-12 TABE Executive Board approved the transition to the new title for the journal in accordance with fostering a wider readership and scope for the dissemination of scholarly research and practitioner articles that address seminal issues within bilingual education. The work of the journal could not be possible without acknowledging the time and commitment of the *Editorial Advisory Board* who performed the valuable service of reviewing the scholarly manuscripts submitted for publication. All of the members of the Editorial Advisory Board share a distinct professional expertise in various areas related to bilingual education. As part of a commitment toward mentoring emerging scholars, this issue also includes reviews by doctoral students evolving within their own unique expertise in the area of bilingual education. Special thanks needs to also be given to Lorena Veleta, editorial assistant for the journal, who spent a considerable amount of work in coordinating the review process with authors and reviewers.

We begin the inaugural issue with a focus on research related to literacy and biliteracy instructional practices. Mikyung Shin and Audrey M. Sorrells lead the section with an article entitled "*How first-grade Korean English language learners respond to scientifically-validated instruction in reading comprehension.*" Their focus on optimal reading comprehension practices with Korean American children provides us with insightful observations for an often overlooked population of students. Second, Valentina Blonski Hardin's article entitled "*Three bilingual pre-service teachers explore balanced literacy through bookmaking with reluctant readers*" focuses on the perspective of newly emerging teachers to the bilingual education field. Three case studies examine early childhood instructional technique designed to complement the cultivation of a child's genuine connection to reading and the mediation of often scrutinized standards for teaching reading in public schools. Third, the number one predictor of reading success among children is vocabulary, and Amelia Medina's article entitled "*Vocabularly instruction for young bilinguals with language impairment*" provides us with an extremely valuable perspective on how to accommodate the serious challenges for learning vocabulary faced by bilingual children with special needs.

In the following section, Carla Amaro-Jiménez and Annette Torres-Elías's article entitled "*Getting the elephant out of the room: Teachers and administrators' perceptions of the challenges and future of bilingual education*," provides us with provocative observations on the authentic status of bilingual education as gauged by the perspectives and attitudes that are often suffused or neglected, but nonetheless serve as a reminder to all educators in the bilingual education field that there remain serious hurdles to overcome in terms of historically negative assumptions related to bilingual education. The next three articles are oriented on the emerging emphasis on content-area and technology instruction for bilingual children. In keeping with the journal's promotion of bilingualism, we proudly present a Spanish-language article, "*Alfabetizando matemáticamente a estudiantes bilingües"* by Zumaris Diaz, Joy Esquierdo and

Isela Almaguer. They present an insider perspective on the nuances of Spanish-language mathematics instruction for bilingual students in US public schools. Next, another perspective on Spanish-language mathematics instruction is presented by Sandra Musanti and Sylvia Celedón-Pattichis in their article entitled "*They need to know they can do math: Reaching for equity through the native language in mathematics instruction with Spanish-speaking students*." René Ríco, Patricia Sánchez and Ana Pallares-Weissling also present their article on "*A snapshot of Lantina/o bilingual teacher candidates and their use of iPads in an after-school technology program*."

The last two articles represent a shift for the usual presentation of articles and a desire to continue to promote research-oriented briefs and scholarly book reviews consistent with the emerging national emphasis of the *Journal of Bilingual Education Research & Instruction*. Francisco Ramos shares his perspective on the span of political criticism upon bilingual education in his research brief entitled "Norman Podhoretz's attacks on bilingual education." Oliana Alikaj also shares her book review, summary and opinion of the recently published "*Cambridge Guide to Pedagogy and Practice in Second Language Teaching,"* edited by Anne Burnes and Jack Richards. We believe that the span of articles presented in this inaugural issue reflect a broad depth of expertise in quantitative, qualitative and theoretical methodology all focused upon enhancing the quality of bilingual education for children in the classroom.

Finally, if you will be attending the forthcoming 2012 *Texas Association for Bilingual Education annual conference* in San Antonio, Texas, we would like to invite you to a session on "Publishing in the Journal of Bilingual Education Research & Instruction" held on Thursday, October 25, 2012, at 2:45-3:45 PM in Room 204A, Concourse Level of the Convention Center. The editorial team will be there to answer any questions about the submission and review process. We would also like to invite interested scholars and educators to join our editorial advisory board. As part of our continued mentorship of emerging bilingual education professionals, doctoral students are especially welcome to conduct reviews and to also submit articles for review for the journal.

Overall, it is our sincere desire for our audience of readers and on behalf of the esteemed scholars who dedicate themselves to the hard work of conducting research and composing manuscripts that the *Journal of Bilingual Education Research & Instruction* will benefit the evolution of bilingual education for children everywhere.

Josefina Villamil Tinajero, Editor
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Journal of Bilingual Education Research & Instruction

How First-grade Korean English Language Learners Respond to Scientifically-validated Instruction in Reading Comprehension

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Abstract

By applying Collaborative Strategic Reading to the reading comprehension instruction of three English language learners from Korean cultural backgrounds in the first grade (i.e., 7 years old), this qualitative study describes interactions while applying the *preview* and the *click and clunk* strategies in a group, the percentage of utterances and the nature of the discourse, and the participants' understanding of cooperative learning experiences in the group. Students expressed more voluntary and active participation in the *preview* activities, especially when the topic was familiar to them. Students mainly spoke English, yet one of the students, Hyunjoo, demonstrated relatively active responses in Korean language compared to the other students. The three students showed indecisive reactions as to how well they liked cooperative learning for reading comprehension in the study. Suggestions for future studies and implications of culturally responsive instruction for English language learners are discussed.

Key words: Collaborative Strategic Reading, English language learners, qualitative studies, reading comprehension, cooperative learning

The growth in the number of English language learners (ELLs) has continued to explode in Texas public schools (Batalova & McHugh, 2010). Likewise, the percentage of English language learners who are of Asian heritage has climbed steadily for nearly two decades. The percentage of Asian/Pacific Islanders enrolled in Texas public elementary and secondary schools grew from 2.2% (82,107 Asian/Pacific Islanders among 3,672,198 total students) in 1993-94 to 3.7% (180,008 Asian/Pacific Islanders among 4,847,844 total students) in 2009-10 (Texas Education Agency, 2010). An Asian/Pacific Islander is "a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands" (Office of Management and Budget, 1977).

In Texas, the terms ELLs and limited English proficient (LEP) students are used interchangeably. Texas Education Code §29.052 defines a LEP student as "a student whose

primary language is other than English and whose English language skills are such that the student has difficulty performing ordinary class work in English," and he/she is eligible to participate in bilingual or English as a second language (ESL) programs. Of the students enrolled in Texas public schools, the number of students identified as LEP increased by 43.2% between 2000-01 (570,603) and 2009-10 (817,074) (Texas Education Agency, 2010); among the LEP population, the percentage of Asian/Pacific Islanders grew from 4.7% (26,837 among 570,603) in 2000-01 to 5.4% (43,774 among 817,074) in 2009-10 (Texas Education Agency, 2003, 2010). According to census data, in the United States, Spanish was the most common language of LEP students for 81.5% of districts (Zehler et al., 2003). After Spanish, the other most common languages were Russian (1.6 percent of districts), Korean (1.3 percent), and Hmong (1.3 percent) (Zehler et al., 2003). Demographers predict that population growth trends as well as increasing school enrollments of Asian ELLs or LEP students in elementary and secondary public schools will continue, as well as the need for improved understanding of their academic needs and the sociocultural factors that influence their learning and response to instruction.

Together with increased P-12 enrollment of culturally and linguistically diverse students in public schools is current legislation and policy that mandates scientifically validated reading instruction for all students. According to the No Child Left Behind Act of 2001 (NCLB, 2002), states have to reduce the number of students in grades 1 to 3 who are reading below grade level, and all third- through eighth-grade public school students are expected to read at least on their grade level by the year 2014 (U.S. Department of Education, 2005). In addition, schools and districts are required to monitor Adequate Yearly Progress (AYP) in reading and assess AYP for all students, including ELLs (U.S. Department of Education, 2005). Thus, greater emphasis has been given to the quantity and quality of instruction, as well as the ability of classroom teachers to provide adequate academic and behavioral interventions, particularly for ELLs and students from families of low socioeconomic status.

Klingner and colleagues concur that instructional methods, regardless of their "evidence-based" qualifiers, should not be implemented without considering how culturally and linguistically diverse students may respond. Instructional methods do not work or fail as decontextualized practices, but only in relation to the socio-cultural contexts in which they are implemented (Klingner & Soltero-González, 2009; Klingner, Sorrells, & Barrera, 2007). It is widely accepted that just because an evidence-supported intervention works its use with all students is not warranted. In fact, it is imperative that we can answer more precisely with whom the intervention works, by whom, and within what contexts (Gee, 2007; Klingner & Sorrells et al., 2007) and determine which practices work with ELLs as designed and implemented, which ones work with ELLs but not as efficiently or effectively as they do with some other learners, and which ones do not work at all for ELLs.

The increased demand of scientifically validated instruction in reading for all students has resulted in the over-generalized nature of reading instruction in classrooms across the country. Moreover, classroom teachers have limited understanding of culturally responsive reading instruction for students who are ELLs (Klingner & Sorrells et al., 2007; Reed, Sorrells, Cole, & Takakawa, in press). Although reading is a holistic performance that needs the integrated efforts of all essential elements such as phonemic awareness, phonics, fluency, vocabulary, and comprehension (Anderson, Hiebert, Scott, & Wilkinson, 1985), reading initiatives such as

Reading First programs emphasize mainly decoding skills and preventive methods (Harper, Jong, & Platt, 2008). Harper et al. (2008) criticized the National Reading Panel's exaggeration of the importance of phonics instruction as effective reading instruction for all students, including ELLs, and argued that their report did not reveal substantial differences between first and second language reading instruction according to students' sociocultural and linguistic diversity. Furthermore, Orosco and Klingner (2010) found that the majority of teachers in their study of one school's implementation of a response to instruction approach lacked cultural and academic understanding of ELLs, and even worse, they did not realize that they had provided unresponsive instruction for their students. Ortiz and Yates (2008) aver that we lack scientifically validated instruction for ELLs. With the growing number of heterogeneous populations in public schools, educators need to be fully aware of the significance of developing culturally responsive programs and services for ELLs.

Despite research that has highlighted the importance of the alphabetic principle, which enhances word-level decoding and reading (Foorman, Francis, Fletcher, Schatschneider, & Mehta, 1998), many students who had acquired these word-level skills still showed difficulty on reading comprehension tests (Vaughn, Klingner, & Bryant, 2001). Unfortunately, few studies have been conducted on reading comprehension for ELLs, and, in particular, ELLs of Korean descent/heritage who are taught to use collaborative techniques in their implementation of scientifically validated comprehension strategies to derive meaning from text. To date, no study has been conducted to analyze how these children interact and help each other using interventions based on collaboration in pairs or groups. In this study, we focused on describing how Korean ELLs learned and interacted through the application of Collaborative Strategic Reading (CSR), a well-researched, evidence-based reading comprehension intervention found to have impressive results in diverse cultural and linguistic classrooms with elementary aged students. Furthermore, we explored the cultural aspects of CSR by focusing on students' experiences and understanding of collaborative learning. We approached our work as an exploratory pilot, a first step to understanding how collaborative components of scientifically validated instruction in reading comprehension influences reading comprehension skills, helping behaviors and discourse during instruction for young ELLs of Korean heritage.

Theoretical Background of CSR

For reading comprehension instruction, researchers have suggested CSR. CSR is based on both reciprocal reading comprehension strategy (Palincsar & Brown, 1984; Klingner & Vaughn, 1996) and cooperative learning (Johnson & John, 1989, 1999). Two bodies of literature provided the theoretical framework for this study: reciprocal teaching and cooperative learning.

Reciprocal teaching. Reciprocal teaching is an instructional strategy in which an adult teacher and students take turns leading a conversation to understand the text. During this procedure, the assigned teacher, an adult or a student, summarizes the content, asks questions concerning the main ideas, clarifies any misunderstandings of contexts, and predicts future events or contents (Palincsar & Brown, 1984).

In the scaffolding model of reciprocal teaching, teachers' roles are to model four strategies (i.e., summarizing, asking, clarifying, and predicting) by facilitating students to adopt expert roles. Furthermore, each student gets enough opportunities to be the expert in the reciprocal teaching

skills according to their level of comprehension competence (Brown & Palincsar, 1985). Reciprocal teaching also advocates that peer and cross-age tutoring can help both tutors and tutees by improving their comprehension skills (Brown & Palincsar, 1985).

To prove the effectiveness of reciprocal teaching, Palincsar and Brown (1984) researched heterogeneous elementary classrooms. Reciprocal teaching was effective with students who could decode but could not comprehend text; however, as Klingner et al. (1998) mentioned, the reciprocal teaching strategy focused more on teacher-facilitated groups than student-centered cooperative learning groups.

Cooperative learning. Cohen (1994) defined "cooperative learning" as students working together in a small group where everyone takes part in a collaborative task that has been assigned to each one. In cooperative learning, students are expected to accomplish their task without the direct and immediate supervision of their teacher. In this process, students share responsibilities of their roles by actively joining in teamwork (Cohen, 1986).

For culturally diverse students in heterogeneous classrooms, cooperative learning is a promising instructional method (Slavin, 1983; Kagan, 1986). In the cooperative setting, teachers can equally distribute their expectations and pay more attention to groups than individuals. In addition, Kagan (1986) also concluded that cooperative classroom structures equalized the status of high and low achievers, namely language majority and minority groups, respectively. Thus, equal status among students promoted friendships across diverse racial groups in the collaborative learning setting.

Cooperative learning gives ELL students more opportunities to interact with each other in a student-centered environment. Cohen and Kulik (1981) revealed that the rate of communication among students, including LEP students, increased in cooperatively structured classrooms. In addition, Garcia (1994) added that peer-mediated instruction provided chances to communicate in regard to academic issues with a low level of anxiety. The open atmosphere that encourages people to converse without any requirements for accuracy was found to promote positive classroom participation by increasing ESL students' motivation to learn (Long & Porter, 1985).

Collaborative Strategic Reading: Theory and practice. Klingner and Vaughn (2000) described three educational purposes of CSR: (a) meeting the learning needs of culturally and linguistically diverse students, including English-language learners and students with learning disabilities; (b) providing an instructional practice that strengthens comprehension skills from text; and (c) providing strategies that facilitate peer-mediated instruction. During CSR instruction, students practice *preview*, *click and clunk*, *get the gist,* and *wrap-up* strategies with CSR cue cards (Klingner & Vaughn, 1999, 2000). The *preview* strategy helps students scan the text to gather background knowledge and make predictions about the text. *Click and clunk* is employed during reading of unfamiliar words. The *get the gist* strategy practiced during the reading session prompts students to write in ten or less words the main idea of the text. *Wrap-up* is an after reading strategy that helps students acknowledge the most critical ideas of the text and remember what they learned.

Studies have shown that struggling learners had improved their achievements in reading comprehension through CSR (Fan, 2010; Klingner, Vaughn, & Schumm, 1998; Klingner & Vaughn, 1999, 2000; Klingner, Vaughn, Arguelles, Hughes, & Leftwich, 2004; Vaughn et al., 2011; Vaughn & Bryant, 2002). Klingner et al. (1998) have investigated the effectiveness of CSR in five heterogeneous fourth-grade classrooms. The research demonstrated that students in CSR interventions not only earned higher scores on reading comprehension, but also demonstrated the same degree of content knowledge understanding as students who received traditional teacher-led lessons. With the help of CSR, Chinese-speaking English learners with learning disabilities also improved in content learning and English acquisition as well as reading comprehension (Chang & Shimizu, 1997). In Fan's study (2010), Taiwanese university students receiving CSR instruction improved their reading comprehension skills related to getting the main idea and finding the supporting details. In a recent study by Vaughn et al. (2011), 7th and 8th graders with reading difficulties in English/Language Arts classes outperformed their comparison groups after receiving CSR instruction for 18 weeks.

CSR instruction makes it possible for students to interact actively with other students who struggle in reading as well as students with LD and ELLs. When students apply CSR strategies, their participation in group discussion significantly increases as compared to the traditional teacher-led classrooms (Chang & Shimizu, 1997; Klingner et al., 1998). Studies support this increased level of interaction between students and show that native language support from bilingual peers, through cooperative learning, help ELLs actively participate in reading comprehension groups (Cohen, 1986; Klingner & Vaughn, 2000). In this way, CSR strategies promote students' reading achievement and their helping behaviors.

CSR offers peer-mediated learning instruction that can be used effectively in the general education classroom (Vaughn et al., 2001). Another study on fifth grade bilingual students showed tendencies to help others and ELL peers through CSR instruction (Klingner & Vaughn, 2000). Students learn from each other by giving and receiving help, by recognizing and resolving contradictions between their own and other students' perspectives, and by internalizing problem-solving processes and strategies that emerge during group work (Brown & Palincsar, 1989; Webb & Palincsar, 1996). Although groups had different styles of helping behaviors based on their personalities and skills, students helped each other by checking comprehension, elaborating, and proving feedback on academic content (Klingner & Vaughn, 2000).

For second language learners, language learning and practice is influenced by a combination of their individual and cultural traits. As children from diverse cultural and linguistic backgrounds come to school with various behaviors related to their home culture (Xu & Drame, 2008), their actions can rebut the presumption theory related to language learning. For that reason, teachers should make accommodations for instruction to be culturally responsive (Klingner & Sorrells et al., 2007). In a *preview* strategy, given sufficient strategy training in integrating new knowledge and prior knowledge, ELL students can facilitate their new ideas (Brown & Palincsar, 1985). By applying *click and clunk* strategies, teachers can also promote students' helping behaviors (Klingner & Vaughn, 2000). In this way, strategies of sheltered instruction (Pray & Monhardt, 2009) can be combined with CSR. By applying CSR to the reading comprehension instruction of three first-grade ELL students from a Korean cultural background, this study describes how students interacted in a CSR group. Table 1 summarizes the features and effects of CSR instruction.

Summary of the Features and Effects of Collaborative Strategic Reading

Study	Participants/ Ethnicity	Ethnicity	Language/ Disabilities	Research design/ Measure	Duration	Training	Finding
Fan (2010)	110 (56 C, 54 T) university students	110 Taiwanese	• NR • NR	• QED • Multiple choice	14 weeks	ST: Researcher's demonstration for 2 weeks	T significantly outperformed C on getting the main idea and finding the supporting details
Kim et al. (2006)	34 (18 C, 16 T) 6th to 8th graders	7 AA, 15 Ang, 12 His	• NR • 28 LD, 6 Other	• RCT • WRMT-R • CSR	• 50 min. • 2 days/week • 10-12 weeks	ST: CA training for 5 days	T significantly outperformed C
Klingner et al. (1998)	141(56 C, 85 T) 4th graders	7% AA, 24% Ang, 1% Asi or AI, 68% His	• 71 ESL • 12 LD, 45 LA	• QED • GMRT • Content	• 45 min. • 11 days	ST: Researcher's facilitation for 3 days	T's gains in reading comprehension and content knowledge
Klingner et al. (2004)	211 (98 C, 113 T) 5th graders	Most His	• LEP • 20 LD, 24 LA	• QED • GMRT	• 35 min. • 2days/week	TT: Researcher's demonstration for more than 2 hours	T significantly outperformed C
Klingner & Vaughn (2000)	37 5th graders	35 His	• NR • 2 LD, 8 LA	• SP • Qualitative • Vocabulary • Log	• 30-40 min. • 2-3 days/week • 4 weeks	ST: Researcher's demonstration for 5 days	T significantly improved on the posttest
Vaughn et al. (2011)	782 (382 C, 400 T) 7th and 8th graders	26 AA, 308 Ang, 11 Asi; 371 His, 7 NA	• 21 ELL • 84 SED	• RCT • GMRT • AIMSweb • TOWRE	• 50 min. • 2 days/week • 18 weeks	TT: 18 hours ST: 4-6 weeks	T significantly outperformed C

Note. AA = African American; AI = American Indian; Ang = Anglo; Asi = Asian; C = comparison or control group; CA = computer-assisted; ELL = English language learners; ESL = English as Second Language; GMRT = Gates-MacGinitie Reading Tests; His = Hispanic; LA = low achieving; LD = learning disabilities; LEP = limited English proficient; NA = Native American; NR = not reported; Other = other disabilities; QED = quasi-experimental; RCT = randomized controlled trial; SED = special education; SP = single-group pre-posttest; ST = student training; T = treatment group; TOWRE = Test of Word Reading Efficiency; TT = teacher training; WRMT-R = Woodcock Reading Mastery Test-Revised.

In this study we attempted to explore how the CSR instructional method helped culturally and linguistically diverse students who might have otherwise encountered difficulty in reading comprehension. The study placed particular emphasis on Korean English language learners (KELLs). It is likely that when KELL students know how to cooperate with peers and comprehend reading materials together, they will apply these collaborative skills to other academic fields. Through the application of this learning strategy, KELLs had more chances to learn reading comprehension by supporting one another and communicating with their fellows in the small-group setting. This study also reported the perceptions of three KELLs about their group work from a multicultural perspective. The research questions that guided our exploration were as follows: How do KELLs interact with each other through the *preview* and *click and clunk* CSR strategies in a CSR group? What percentage of utterances in a group was devoted to responses through the Korean language, and what was the nature of this discourse? How do KELLs perceive their cooperative learning experiences in a CSR group?

Method

Participants. The participants included three first-grade KELL students (1 female, 2 males) who were enrolled in an ESL class at their public elementary school in a large urban school district located in Central Texas. Based on familiarity with the Korean students' community, the author asked by phone or in person at the parents' convenience if the parents and children were willing to participate in the study. Considering the four CSR strategies and roles in the group as *prediction*, *clunk*, *gist*, and *wrap-up* expert, at first, four KELL participants were recruited; however, one second-grade student decided not to participate. Ultimately, three first-grade KELL students participated in the study. The students selected to participate met the following criteria: (a) were of Korean descent/heritage, (b) at the time of the study, were receiving special language program instruction in an ESL class, (c) were in grades 1 or 2, and (d) provided parent and self-consent to participate in the study. Pseudonyms are used to refer to the participants in the study. The participants were similar to each other in terms of their length of stay in the U.S., which was about five years. All students were born in South Korea. They were Korean and English bilingual speakers. The participants' primary language was English at school; two students' (Hyunjoo and Junyoung) dominant language was Korean at home and only one student (Minhyuk) spoke English at home. All of them reported middle class status and were not receiving a free lunch.

In addition, the first author was a teacher and a group leader in this study. She too is an ELL student of Korean heritage and at the time of the study was enrolled in her final semester of a master's program in a large public university. She prepared herself by teaching CSR strategies for Korean bilingual students at a Korean school. For the interview protocol, she modified the content and the level of questions by asking the interview questions to the same age groups of students prior to the study. Thorne (2008) found that for a descriptive analysis effort, an insider as researcher could get into the contextual information in a straightforward manner. Notably, as the participants in the study came from the same ethnicity and shared ideas by belonging to the same Korean community as the researcher, by establishing rapport with the participants, the researcher could comprehend students' behaviors and linguistic habits based not only on their ages and gender but also the culture.

Data Collection. Educational ethnography was used in this study as a qualitative research design. By applying the educational ethnographic design, we could examine the participants'

behaviors and the inquiry procedures (Goetz & LeCompte, 1984). In this study, we observed participants' interactive behaviors while they were implementing *preview* and *clink and clunk* strategies. During the observation, field notes including observation checklists and additional anecdotal events of what, who, and how were written. Additionally, students' actual conversations were audio-recorded for twenty minutes on two different days in order to check and describe their use of utterances in the CSR group. Finally, a follow-up semi-structured focus group interview was conducted for their perceptions on the collaborative activities in the study. Students received training on the use of CSR strategies for six sessions over two weeks. After students learned how to use CSR strategies, they were observed during the next six sessions for two weeks, and each session lasted 30 minutes. We used expository texts (i.e., science) for children in grade 1 from *Nonfiction Reading Comprehension* (Housel, 2002) and *Read Naturally: Sequenced Level 1.0*. During the period of the study, a group mind map and a learning log were used as supplemental tools to provide students a space for predicting as a group and for expressing thoughts (Klingner, Vaughn, & Boardman, 2007) as well as referring to the instructional sequence. Additionally, through the entire study, cue cards were used to prompt students' self-monitoring behaviors and the questions of the group. During the lesson, students were designated to specific collaborative roles of experts in *prediction*, *click and clunk*, *get the gist*, or *wrap-up* and they rotated the roles (Klingner & Vaughn, 2000).

Data Analysis. Analysis was conducted from subsequent observation field notes, audio-clips of participants' conversations, and interviews. In the first stage we reviewed the three data sources to extract categories of student's interactive behaviors, the number and nature of utterances of Korean language, and their perception of collaborative learning in the study. Next, we coded and highlighted categories and themes generated from the notes and transcripts.

Results

Interactive Behaviors through the *Preview* and *Click and Clunk* Strategies; Topical familiarity matters. While applying *preview* strategies, the three KELL students were actively involved in the process of brainstorming, using the group mind map activity and cue cards. Depending on the topic, the KELLs responded differently. Even when all the stories were expository texts, the readers' familiarity with the topics and their background knowledge seemed to affect their degree of participation in the *preview* activities. For example, students freely participated in the prediction activity by taking part in the discussion when the topic was "Water" (Housel, 2002).

Teacher: What's today's topic?

Hyunjoo: Water.

Minhyuk: Water.

Teacher: What else?

Minhyuk: Different water.

Teacher: Very good!

Teacher: Where do you use water in your life?

Junyoung: Drinking, washing, brushing.

Teacher: How do you use water?

Minhyuk: Flushing faucet.

For an expository science-related topic, such as "Chewing the Cud" (Housel, 2002), however, participants made less frequent, self-motivated answers for prediction questions.

Teacher: What do you know about the topic?

Minhyuk: Umm.

Junyoung: Umm.

Hyunjoo: (Silent).

Teacher: Can you tell me about today's topic?

Teacher: Hyunjoo, can you read today's topic?

Hyunjoo: Chewing the cud.

Vocabulary matters. For the *clunk* strategy, students also showed different interactive behaviors depending on the levels of the stories and the readers' familiarity with the vocabulary. For instance, when stories were easy to understand, the KELLs only shared familiar *click* words, easy words or concepts that they already knew, and encountered little or no difficulty with understanding the stories. At this time, students seldom used *clunk* strategies. On the contrary, for stories such as "An Odd Fish" (Housel, 2002) and "Chewing the Cud" (Housel, 2002), which included several difficult words and concepts, students tried to use *clunk* strategies to get help from their peers to find the meaning of "snout," "cud," and "chewing." When students read difficult topics that included several challenging words, students' use of *clunk* strategies increased, yet their active and voluntary conversation were interrupted by attempts to find the meaning of the vocabulary words. Additionally, in order to help peers to understand the meaning of their *clunk* words, the young KELLs liked using body language instead of expressing the definition of the words in academic language.

Junyoung: What's "stomach"?

Hyunjoo: It's kind of belly.

Minhyuk: (He pointed to his stomach).

Junyoung: The food goes into my stomach. (He also pointed to his stomach).

Minhyuk: That's right.

All three KELLs also demonstrated a lack of cognitive academic language use in the aspect of vocabulary. For example, students could not understand the meaning of some of the vocabulary on the prediction cards. Minhyuk, who could speak English significantly better than Korean based on the classroom observation and interactions, and Junyoung, who could speak both

English and Korean, did not get the meaning of "reread" and "prediction". Between those two words, students experienced more difficulty in understanding the meaning of "prediction" and they seemed to be not accustomed to using academic vocabulary for their reading.

Teacher: Do you remember what "predict" is?

Minhyuk: I forgot.

Teacher: Is there anyone who remembers what "predict" or "imagine" is?

Teacher: What is "imagine"?"

Junyoung: Imagine is imagine.

Teacher dependence. Between the teacher-facilitated prediction activity and the *prediction* expert-directed cooperative learning activity with cue cards, the children participated more frequently when the teacher was involved during the prediction activity and assisted the *prediction* expert. When the teacher did not intervene at all, the cooperative group lost attention, and their answers were simpler and shorter than in the other case. When the teacher interrupted the group activity by generating additional questions and linking students' ideas to the story, participants paid more attention and their answers became longer than the previous case. For instance, when the topic was "Apple", the teacher kept asking questions as to whether students had seen only a red-colored apple before. In that question, students actively raised their hands and expressed their opinions by saying that there were yellow, green, and orange-colored apples around them.

Even in the peer-mediated collaborative learning condition applying *clunk* strategies with cue cards, young KELLs often depended on the teacher's responses and feedback. Even when Minhyuk used a self-talking strategy by creating his own sentence like "people eat cud" to understand the meaning of "cud," he looked at the teacher as if for confirmation or corrective feedback. Additionally, participants could not distinguish which cue cards would be suitable for certain *clunk* words. Many times, when it was suggested that students think one more time before selecting *clunk* cards to ask their peers for appropriate clunk strategies, the KELL students often used the strategy of asking friends or asking the teacher. These learning styles indicated the young KELLs' relied on the teacher, regardless of the collaborative learning context.

As a result, the KELLs' interactive behaviors during *preview* and *click and clunk* activities varied. Depending on their degree of familiarity with the topic and vocabulary, students demonstrated different interactive behaviors. The use of vocabulary indicated a high degree of basic interpersonal communication skills and simple words with a relatively infrequent use of words related to cognitive academic language skills. Students also showed frequent participation when the teacher facilitated questions by connecting to their prior knowledge. Noticeably, all the KELLs were unable to distinguish *clunk* strategies by randomly picking up cards or selecting the cue card of *asking friends* or *asking a teacher*, and sometimes they used body language in order to explain *clunk* words to their peers.

Utterances of Korean Language in a Group

Fewer Korean utterances, more English utterances. The percentage of utterances in a group

that were devoted to responding in Korean was very low. The two samples were taken during the *prediction* activities as no Korean utterance was found when students read stories by applying *clunk* strategies. Two samples of utterances (10 minutes in length) during the beginning part of the lessons were analyzed; the Korean utterances were divided by both Koran utterances and English utterances and timed 100%. According to the data analysis, Hyunjoo (2 Korean utterances out of total 17 utterances; 12%), the author (7 Korean utterances out of total 110 utterances; 6%), Junyoung (1 Korean utterance out of total 38 utterances; 3%), and Minhyuk (1 Korean utterance out of total 43 utterances; 2%) demonstrated different percentages of Korean utterances.

Different opportunities to respond through Korean utterances. Participants used Korean words when they were asked questions about Korean words or sentences related to the topic during *prediction* activities. In response to questions relating to Korean language, Minhyuk, Junyoung, and Hyunjoo responded differently to the use of Korean words. When participants heard questions about Korean words, Hyunjoo, who had remained generally passive during *prediction* activities, demonstrated active participation by raising her hand when asked to express to the group any Korean words she knew about the topic while Minhyuk and Junyoung, who demonstrated active participation and dominated most opportunities to respond during the activities, usually kept quiet or said that they did not know. Hyunjoo showed motivation to talk and write Korean words on the topic. She even liked to help Minhyuk and Junyoung to write Korean words during the group mind map activity. The following example from "An Odd Fish" (Housel, 2002) demonstrates Hyunjoo's attitude toward questions about Korean words. This example represents a relatively active action for her as she was likely to answer only when the teacher specifically called her name.

> Teacher: Do you know any Korean words related to the topic?
>
> Hyunjoo: (Bada) "Sea."
>
> Teacher: (Bada)? What else? "Sea?"
>
> Hyunjoo: (Ojingeo) "Squid."
>
> Teacher: Does anyone know any other Korean words about this topic?
>
> Teacher: Minhyuk?
>
> Minhyuk: No. Fish.

Teacher utterances as a facilitator. In terms of the teacher's utterances, the teacher also mainly spoke English and accounted for 6% of her utterances in Korean (7 Korean utterances out of 110 total utterances). Even though the teacher used few Korean utterances, similar to the participants, there was a noticeable difference between her utterances and those of the participants. The teacher's Korean utterances were self-generated directions or questions; however, students used Korean utterances to respond to a question about their background knowledge in Korean related to the topics. More specifically, most of the time, the teacher used Korean at the beginning of the CSR instruction to get the participants' attention.

> Teacher: (Seon-saeng-nim-i mueo gat-go wat-ji)?

"What did the teacher bring?"

Junyoung: Animal deer.

Minhyuk: Deer.

The teacher also used the Korean language to prompt students to answer the prediction question that asked them to speak Korean words related to the topic.

Teacher: "Farms" ("Farms"wa gwan-ryeon-doen han-guk-mal-e mueo-ga it-na-yo)?

"What do you know about Korean words related to "Farm"?"

Hyunjoo: (So) "Cow."

Junyoung: (Gae) "Dog."

Therefore, the group mainly used English utterances throughout the CSR practice. During c*lick* activities, participants did not express any Korean utterances, yet students spoke some Korean words during *prediction* activities. Specifically, students' Korean utterances were almost always responses to the question about their background information related to the topic. The teacher's Korean utterances were composed of sequential instructions and verbal prompts.

Korean English Language Learners' Perceptions on Group Work

Enjoy reading books alone. When the teacher asked the young children about what they preferred, reading alone or reading together by helping each other, all three students responded similarly. Although the participants had different educational histories related to reading, they liked reading books (especially story books) alone. Minhyuk said that even though he had a lot of experience reading at school, he usually read books alone. Junyoung said he had learned to read in preschool, and that he often read books alone. Hyunjoo learned to read at home and school, both in Korean and English. For her, cooperative reading as a group was a new experience, and she also read books alone.

"I don't know." When the teacher asked the young KELLs about their likes and dislikes in relation to cooperative learning in a CSR group, they showed somewhat indecisive attitudes toward their cooperative learning work. Minhyuk and Hyunjoo gave unclear responses by saying, "I don't know." While Junyoung said that he liked the reading, he also did not indicate clearly whether he liked reading in a group.

Teacher: Did you like helping each other while you were reading?

Minhyuk: I don't know.

Teacher: Then, what part did you like or dislike during our reading?

Minhyuk: I don't know. I don't like reading.

Teacher: Okay, Minjyuk. What about Junyoung? Did you like working with your friends

while you were reading?

Junyoung: I liked reading the story.

Teacher: You did? What about Hyunjoo? Did you enjoy reading together by helping each other?

Hyunjoo: I don't know.

Enjoy *prediction* activities better than *clunk* activities. Young KELLs showed clear preferences when the interviewer asked about specific activities of CSR instruction. Students replied that they liked the prediction activity better than reading stories with challenging words using *clunk* cards. Participants felt less challenged when they predicted the story and had activities where they could generate their prior background knowledge related to the title and topics. They responded that the use of *clunk* strategies and activities during the reading of a story gave them more challenges to respond to the reading comprehension. Specifically when they were asked which *prediction* activities they liked the most, all of them answered that the group mind map activity was very fun.

Teacher: What do you like about *prediction* and *clunk* cards?

Hyunjoo: Prediction is easy.

Teacher: Were *clunk* cards difficult?

Minhyuk: Yes.

Hyunjoo: (Nodding her head).

Teacher: What about the group mind map? (She showed a sample of group mind map work). Did you like helping each other with this?

Junyoung: Fun.

Hyunjoo: It's fine.

Overall, some KELLs' preference of reading alone and their indecisive attitude toward their likes and dislikes regarding their cooperative learning work could be interpreted in terms of the cultural perspective of Korean culture and young students' culture. Regardless of whether the context was their home or their school, the students liked to read books alone like many other Korean students who may be unaccustomed to reading books in cooperative settings.

Discussion

We have learned about the interactions, helping behaviors and responses to scientifically validated strategies in reading comprehension instruction with young ELL students from Korean heritage and culture, a group of culturally and linguistically diverse students who have not been included in previous studies on the efficacy of CSR. This study's findings demonstrated how previously established and validated instruction, in particular CSR, could be applied and understood for first grade KELLs. Their interactive behaviors while they were implementing

preview and *click and clunk* strategies were specifically described and analyzed from the viewpoint of an insider of the group, the teacher who also is a KELL.

Interactive Behaviors through the *Preview* and *Click and Clunk* Strategies

The KELLs' degree of interaction in the *prediction* and *click and clunk* activities varied depending on topic and their background vocabulary knowledge on texts. When the topic was familiar to the three participants, they actively participated in the *prediction* activity, and their voluntary group participations were encouraged. On the contrary, when the topic included new words and concepts, students used more *clunk* strategies; yet, their voluntary participation decreased. Guthrie et al. (2007) explained that students' lack of confidence in their ability to find challenging words diminishes reading motivation, which is critical for reading comprehension. Likewise, when the KELLs had the choice of selecting one *clunk* card, students often liked to use a *clunk* strategy of asking questions to other peers or the teacher rather than applying various strategies such as rereading the context or finding prefixes. Notably, these students' limited application of *clunk* strategies could be interpreted as a lack of awareness of how to help each other and provide academic assistance to their peers in the CSR group (Klingner & Vaughn, 2000).

Throughout the study, students demonstrated limited cognitive academic language use in the aspect of vocabulary. In the discourse of the *prediction* group activity, although students made very few Korean utterances (4 utterances out of 98; 4%) and made English utterances most of the instructional time, they showed limited utterances and understanding of cognitive academic language in English, frequently forgetting the meaning of "predict" and "imagine," and mainly demonstrated voluntary discourses, consisting of basic conversational language skills during academic learning. Cummins (1994) emphasized children who did not develop cognitive academic language proficiency in either their native language or a second language would have significant academic difficulty. When considering the students' ages (i.e., 7 years old) and their learning English as ELLs, these KELLs might not have fully developed cognitive academic language proficiency in both English and Korean and struggled with academic language use and understanding. For that reason, these results suggest the need of language instruction for academic purposes. KELLs, who have substantial input in both English and Korean, might have to acquire cognitive academic language based on specifically targeted skills such as reading comprehension of expository text (e.g., science text). Emphasizing the importance of developing academic English of ELLs, Gersten et al. (2007) recommended teachers provide daily academic-based English instruction within core curriculum such as science and literacy from the earliest grades and to demonstrate "proper use of words" (p. 27), limiting redundant error correction and systematically connecting their new vocabulary to lessons.

Additionally, when they tried to explain the definition of words to peers in the group, students liked using body language and pointing to parts of a body (i.e., belly) rather than verbally explaining the meanings of words. The use of body language was natural among young ELLs, and children might have used body language in order to overcome miscommunication (Mohamed, Tumin, & Omar, 2008). The use of gestures and facial expression as a means of delivering meanings to others rather than relying on linguistic use and contexts (Cummins, 1999) reflects that KELLs' language development remains on the level of basic interpersonal communication skills. Cummins (1994) has argued that children developed cognitive academic language proficiency with more difficulty than basic interpersonal communication skills.

In addition, students' communicative and interactive behaviors showed teacher dependence. During *prediction* activities, students participated more frequently when the teacher was involved and assisted their collaboration than when the *prediction* expert directed a cooperative learning activity with cue cards. Moreover, during *clunk* activities, the young KELLs tried to get confirmation from the teacher when they had a group discussion. Students' attitude of depending on the teacher can be interpreted as a Korean cultural behavior. Chung (2006) found that Korean culture includes hierarchic relations according to sex, age, and social status at the family and community levels. Even if the teacher participated as one of the team leaders in the collaborative group, students relied more on the teacher's feedback than that of their peers.

Utterances of Korean Language in a Group

There were also individual differences in responding behaviors even though the group shared the cultural and linguistic background of Korean heritage. The National Association for the Education of Young Children (1995) stated that children learned and responded differently reflecting their diverse cultural and linguistic backgrounds and learning styles. Likewise, three KELLs demonstrated various rates of utterance. Hyunjoo spoke 12% Korean utterances, while Junyoung and Minhyuk only spoke 3% and 2%, respectively. Additionally, Minhyuk, Junyoung, and Hyunjoo showed different degrees and types of interactions. The degree of fluency in either Korean or English made them respond actively in their language of highest competency. Throughout the entire group activity, Junyoung and Minhyuk were active participants responding to questions and asking questions, yet Hyunjoo was not an active responder. However, when Hyunjoo, who was more fluent in Korean language than Minhyuk and Junyoung and went to Korean Saturday school, had a chance to present questions and responses in Korean, she was the most active responder among the three participants in the group. Her active participation in the group work and voluntary answering of Korean words were noticeable, considering she usually responded to the group participation by listening to her friends or was shy to answer in the group. Similarly, the teacher, who is also a KELL, mainly made English utterances (6% Korean utterances), yet she used more Korean words than the students to gain the attention of the students or as a procedural prompt. The total number of utterances the teacher made (110 utterances) compared to that of three students (98 utterances) also reflected a teacher-facilitated learning environment rather than student-led cooperative learning. As students paid more attention when they were facilitated in Korean, the teacher was forced to direct the group when students did not pay attention.

Korean English Language Learners' Perceptions on Group Work

Students' ambivalent responses to perceptions on *prediction* and *click and clunk* also add understanding about young readers' learning processes and cognitive development. Their enjoyment of *prediction* activities, especially the group mind map, and unclear responses to *clunk* activities showed that collaborative learning and strategic reading might be difficult for early childhood students (K-2), especially English language learners. During the group mind map activity, students participated freely and expressed what they knew in both Korean and English; *prediction* cards and its activities did not impose a lot of pressure for using difficult words. However, *clunk* cards and its application made students think more deeply and find the definition of difficult words. For young KELLs, for whom the group reading activities were new, this CSR might have been challenging.

Additionally, KELLs' indecisive responses toward liking collaborative learning emphasize cultural understanding for interpreting their responses. This result corroborates the findings of Liang (2004) that Chinese immigrant high school students demonstrated various and even contradictory reactions of likes and dislikes of cooperative learning. In regard to cultural differences, for KELLs who might have directly or indirectly been influenced by the Korean education system, which lacks "self-directed learning" and promotes a comparative educational environment within the high demand of academic work (Ashton, Green, James, & Sung, 1999), it was likely that they did not know how to independently help each other in the collaborative learning environment. The KELLs' Korean cultural traits of large-power distance (Hofstede & Hofstede, 2005), accepting unequal distribution of power and hierarchical orders (Ting-Toomey & Chung, 2005) in family and Korean community relationships, may have limited the practice of equal power distribution when acting as independent readers in the collaborative learning process. The study by Guthrie et al. (2007) showed that students who were most likely to collaborate in reading usually read books with their family at home, yet other students who read books primarily for the purpose of caring for their baby siblings at home did not enjoy collaborative reading. Thus, it is likely that the KELLs who responded that they did not have many experiences in reading together at home with their parents might have had less motivation for collaborative reading and demonstrated an indecisive affinity of it.

In conclusion, KELLs' interactive behaviors and their understanding of collaborative learning in the CSR group should be interpreted as sociocultural practices (Liang, 2004). The research-based effective reading instruction for ELLs such as CSR or collaborative learning (e.g., Chang & Shimizu, 1997; Cohen, 1986; Klingner et al., 1998; Klingner & Vaughn, 1999, 2000) may not be equally practiced as a means of promoting helping behaviors or active participation within different cultural groups: KELLs' collaborative practices are different from other ELLs from different cultural and linguistic backgrounds (i.e., Spanish). Moreover, since individual cultural value patterns are fluid and are in a continuum process (Guerra &, García, 2000), individual KELLs, even from the same ethnicity (Korean), showed unique features from each other based on their different degree of exposure to American or Korean culture, dominant language at home or school, and previous experiences of learning with others.

Limitations and Future Research

While this serves as a pilot study, it remains unclear as to the extent to which ELLs from Korean cultural backgrounds might experience CSR, or more explicitly improve their comprehension of text and vocabulary that is decontextualized from their cultural ways of knowing and engaging in classroom discourse. The generalization of the findings is also limited considering the small sample size. Only three participants were included in this study, and only first grade KELLs were included, limiting the findings to the first graders. Additionally, to correspond more with the standards of qualitative research, the study period should be extended beyond 12 sessions. The researcher needed more time to establish rapport with the participants by sharing ideas and understanding the participants.

It is interesting that even when the teacher shared the students' cultural and linguistic backgrounds, and encouraged use of students' dominant and proficient language, there were still noted differences in their interactions with one another and helping behaviors, reactions to the text and words when vocabulary was difficult and unfamiliar, and in their perceptions of the benefit and implementation of the strategies to assist their understanding of the text.

In future research, credibility measures must be improved by including external auditors with collaborative work (Brantlinoer, Jimenez, Klingner, Pugach, & Richardson, 2005) and more systematic field notes (e.g., videotapes or audiotapes spanning all sessions). In addition, researchers should cover the entire length of every session to increase the accuracy of the outcomes that are obtained through the teamwork process. A greater number of students, rather than three participants as in this study, and participants from different cultures, languages, and grades need to be observed to fully understand diversity across cultures, ethnicities, gender, and age, while applying CSR for reading comprehension. We also need to keep considering with whom the intervention works, by whom, and within what contexts (Gee, 2007; Klingner & Sorrells et al., 2007) to argue more conclusively as to the effects of scientifically validated evidence-based instruction for ELLs and whether these effects can be generalized to these populations.

Implications for Teachers Who Work with ELLs

When applying CSR for ELLs, teachers should consider if students have previously experienced collaborative learning and feel comfortable in that environment. Klingner and Soltero-González (2009) emphasized that culturally and linguistically responsive teachers respected students' own experiences and helped students connect their life experiences to school. When teachers decide on evidence-based instruction for ELLs, they need to consider if teacher-led, student-led, or a combination is appropriate for their specific students. Sohn (1986) said that Americans were more egalitarian and individualistic than Koreans, and Koreans were more hierarchical and collectivistic than Americans. Even English bilingual or English-dominant ELLs of Korean heritage use Korean terms of kinship for respecting elders rather than following the American style of calling each other by name (Chung, 2006). With cross-cultural understanding, teachers need to accommodate instruction within the cultural contexts of ELLs.

Considering the learners' young age (i.e., first grade) and their within group differences (i.e., language proficiency in English and Korean, motivation, and learning contexts), the results here must be viewed carefully; teachers should keep in mind that individual ELLs from a homogenous group may demonstrate their responses in diverse ways depending on topics, vocabulary, academic language proficiency, learning environment, language dominance and group characteristics. In the CSR group, students demonstrated active participation when the topics were familiar, and Hyunjoo showed relatively active participation when she had opportunities to respond in Korean.

This study also emphasized vocabulary instruction, particularly focusing on cognitive academic knowledge and words. Even if the KELLs made English utterances most of the instructional time, they showed limited utterances and understanding of cognitive academic language. Proctor, Carlo, August, and Snow (2005) found that for ELLs, English vocabulary knowledge has a strong relationship with reading comprehension so that vocabulary instruction is significant for enhancing reading comprehension. Based on the importance of vocabulary instruction for ELL students, teachers should specifically focus on teaching academic words in addition to basic communication skills from early reading instruction as a way of enhancing their students reading comprehension. More importantly, when teaching cognitive academic language, teachers need to consider how to help students *recontextualize* their language learning by embedding new learning into learner-friendly contexts and trying to understand their learning through their lenses (Aukerman, 2007).

Finally, for ELL students, second language acquisition, focusing on understanding cultural differences, should be emphasized for teaching reading comprehension. Ortiz (1997) emphasized that understanding first and second language acquisition and the relations between those languages are essential for teachers who teach ELLs. ELLs, who are exposed to two cultures and receive input at home and in the community in their first language, need to learn English within the process of learning a new culture (Williams, 1994). Additionally, in line with preventing failure in school, teachers may need to share knowledge about the effective ways to teach ELLs such as "second language acquisition, the relationship of native language proficiency to the development of English, sociocultural influences on learning, [and] effective first and second language acquisition" (Ortiz, 2001).

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Three Bilingual Pre-Service Teachers Explore Balanced Literacy through Bookmaking with Reluctant Readers

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Abstract

The case studies presented here provide an in-depth description of the work of three bilingual preservice teachers or Teacher Candidates (TCs) who each helped a Spanish-speaking student create books and work with phonics. The three tutees were enrolled in Kindergarten, Grade 1, and Grade 2, and had been described by their teachers as unable to perform academically and uninterested in school work. During the tutoring sessions, the TCs read leveled books of interest to the students, modeled and assisted with the writing of books, and used student's artifacts to contextualize the explicit instruction of phonics. Behavior observations, informal conversations, and literacy evaluations indicated positive results for tutees in the areas of reading engagement; motivation to read; positive self-perception as a reader and writer; positive attitude towards learning, reading and writing; and, improvement in print concepts and reading/writing skills. TCs were positively impressed by the results of this balanced literacy approach.

Although phonics instruction is necessary for initial reading development (National Reading Panel, 2000), recent research clearly points to the ineffectiveness of literacy programs based solely on phonics instruction (Gamse, Tepper-Jacob, Horst, Boulay, & Unlu, 2009; Garet, et al., 2008; Slavin, Lake, Chambers, Cheung, & Davis, 2009). Experts are now calling for expanded definitions of literacy that address issues of engagement and motivation, self-agency, and metacognition; and for the use of balanced instructional approaches that ensure attention to these key components (Cummins, 2011; Goldenberg, 1998; Guthrie, 2011; Pressley, 2006).

In the schooling of bilingual populations in the U.S. there has also been an interest in balanced instruction for literacy development. Over a decade ago, Gonzalez and Yawkey (1994), among others, delineated the need for literacy approaches that incorporate cognitive, linguistic, and sociocultural factors for Spanish speaking populations as an effective way to promote transfer of higher-level cognitive literacy behaviors across languages. Goldenberg (1998) reported on the successful implementation of a balanced literacy approach that included both skills-based and meaning-based methods in a bilingual context as a way of improving reading achievement. Within three years, achievement at the school had surpassed the rest of the district and in some areas the state and national norms. Yet, looking at the big picture, we find that: a) Instruction of

reading for Spanish speakers in the U.S. (as in Latin America) has been primarily based on phonics approaches (Condemarín, 1991; Freeman & Freeman, 2007; Goldenberg, 1998); b) results of the National Assessment of Educational Progress (U.S. Department of Education, 2009) continue to indicate that Spanish-speaking students lag behind other groups in reading achievement; and, 3) the recent Federal Government's Reading First Initiative has offered no support for programs that appeared "too balanced" (Cummins, 2011). Based on his work with English Learners and at-risk minority student populations, Cummins (2011) summarizes the effects of this initiative stating that: "As a consequence, no improvement in literacy achievement has resulted from these policy initiatives" (p. 9).

Although Hardin (2010) found that her bilingual pre-service teachers at the university did not readily implement new models of literacy, the above facts point to the need to explore ways that encourage bilingual teachers to re-conceptualize literacy away from framing it only in terms of the mechanics of reading (functional literacy). To this effect, this case study of three bilingual pre-service teachers in an urban context, explored answers to the broad question: How would a holistic activity that contextualizes phonics instruction, such as making little books, influence bilingual pre-service teachers' perceptions of a balanced literacy approach based on changes in young readers' engagement, motivation, self-agency, and independence in reading and writing?

Theoretical Framework

Traditional phonics instruction has been taken to task, not because it is not deemed necessary to literacy development, but because of the limitations it can impose on effective instructional practices. The skills-emphasis approach is predicated on developing a number of decoding competencies that are considered to be prerequisites to others. Because of this, students who are motivated and/or capable to engage in much reading and writing are precluded from doing so in order to go through predetermined curricular steps (Pressley, 2006). Additionally, the program assumes that decoding is the cornerstone of reading development, that reading comprehension proceeds automatically, and that writing is not an integral part of the reading process (Pressley, 2006). Thus, the instructional focus is on low-level skills rather than reading comprehension and strategic reading behaviors, motivation, or student autonomy.

Our understanding of the learning process, informed by the constructivist psychological theory of Piaget (1973) and the social learning views of Vygotsky (1978) holds that learning is an active construction of meaning and should take place in a social context where an "expert" facilitates the learning of a novice. Within this theoretical paradigm, the optimum instructional context must involve a community of learners, differentiated instruction, student voice and choice in what they learn, hands-on activities, and multiple perspectives of assessment (rubrics and portfolios) (Cunningham & Allington, 2003; Perez & Torres-Guzman, 1996). Effective literacy, then, must take place within an active, student-centered context, and involve lots of reading and writing from the start of the process. When phonics programs take place within an instructional paradigm where teacher and textbooks are the sole purveyors of knowledge and the focus is drill practice, seat work, competition among peers, and assessment based exclusively on the use of tests, many students become alienated from language arts (Pressley, 2006).

Instruction of beginning reading is moving away from the extremes of focusing entirely on holistic activities or the exclusive attention to synthetic phonics (Cowen, 2003). A multi-componential approach has been suggested, which would include: quality literature books,

authentic reading and writing, attention to motivation, attention to self-monitoring, self-regulation, development of decoding skills, sight words, rich vocabulary, reading with fluency, development of comprehension skills and strategies, all within an appropriate sociocultural context (Goldenberg, 1998; Guthrie, 2011; Pressley, 2006). Specifically, there is a call for programs to foster life-long learners through attention to engagement, motivation, self-efficacy, and epistemological empowerment (Guthrie, 2011; Pressley, 2006). The role of these specific elements in literacy development is discussed below.

Engagement and intrinsic motivation. Engagement has been defined as "a merger of motivation and thoughtfulness" (Guthrie, 2011). "Engaged readers seek to understand; they enjoy learning and they believe in their reading abilities" (Guthrie, 2011, p. 1). Research findings indicate that engagement is related to reading achievement. The work of Campbell, Voelkl, and Donahue (1997, as cited in Guthrie, 2011), demonstrated that 13-year-old students with higher reading engagement achieved at a higher level than 17-year old students who were less engaged readers. Furthermore, less engaged readers from higher income and educational backgrounds reached lower achievement levels than more engaged readers from a lower income and educational backgrounds. To promote engagement in reading, teachers must provide texts interesting to children, familiar, meaningful, relevant, connected to their real world, and at their cognitive competence level.

Guthrie (2011) sees motivation as closely linked to engagement and defines it in terms of affective processes of goal setting. Researchers have found motivation to be multifaceted and proposed the concepts of intrinsic motivation and extrinsic motivation (Guthrie, 2011; Oldfather & Dahl, 1994). The first seek to understand content; whereas, those that lean to extrinsic or a performance orientation do so out of desire to please or fear of failure (Guthrie, 2011; Oldfather & Dahl, 1994). Oldfather and Dahl (1994) hold that intrinsic motivation for literacy learning "originates in, and is defined by, the cognitive, affective, and social processes that learners experience as they engage in meaning construction" (p. 142). Both authors contend that intrinsic motivation is not only student-centered, constructivist, but imperative for literacy learning.

Self-efficacy and epistemological empowerment. Self-efficacy—people's judgment of their own capabilities to perform, and epistemological empowerment—the ability to seek knowledge as a way of internal growth, have both been linked to intrinsic motivation (Guthrie, 2011; Oldfather & Dahl, 1994). Learners who have both qualities experience learning as an internal process of construction and not as transmission from teachers and books, and they try to make sense of things (Oldfather & Dahl, 1994). On the other hand, those without a sense of epistemological empowerment look to external sources of knowledge, think of facts as outside the human mind, and view learning and knowledge as coming from instructor to student. One way for learners to develop a sense of empowerment related to their own learning is to allow them to freely express ideas and to feel ownership in the classroom. The concepts of self-efficacy and epistemological empowerment are key elements in intrinsic motivation for literacy learning (Guthrie, 2011; Oldfather & Dahl, 1994).

If teachers are to produce involved, life-long learners and motivated readers, they must realize that student engagement, intrinsic motivation, self-efficacy, and epistemological empowerment are gateways to learning. We can no longer teach phonics outside of the context of effective "pedagogical practices," we must balance it with other key elements of effective literacy

development. This study offers an in-depth description and analysis of how three students gained interest in learning how to read and write based on balanced instruction.

Method

Design and Validity. Case study provides a means to illustrate how to solve a problem (Gall, Borg, & Gall, 1996); thus, it is an appropriate design for the present study. A key issue in this type of design is the extent to which it can be generalized to other populations. Although it has been argued that case studies have no predictive generalization, one can learn a great deal about students from a detailed study of a particular student; a unique case can help understand more typical cases; and, finally, a case study can be very valid to whom it provides accurate and useful information on a similar case (Gall et al., 1996).

Participants. The present action research study focused on three (out of 10) bilingual Teacher Candidates or TCs enrolled in a university Spanish reading methods course, conducted in Spanish by the researcher. All were paraprofessionals working in urban elementary schools with Spanish-speaking minority children. Each TC selected a teacher in the school where she worked; and the classroom teacher chose a child to be tutored. The three children were students in bilingual transitional programs; they were enrolled in Kindergarten, Grade 1, and Grade 2, in different schools. Spanish was the children's dominant language and the language they spoke at home with their parents. These three TCs were chosen for this study because their tutees were struggling with reading and writing and demonstrated little motivation in engaging with school work. A balanced literacy approach held promise for them.

Data Collection. Data collection took place in the spring of 2011, in the second semester of the school year. Data on tutees' work was collected by TCs, who administered pre- and post-literacy evaluations in Spanish (McMillan/McGraw-Hill, 1993), developed lesson plans, kept notes on their tutees' progress, and helped them produce artifacts (small books in Spanish). Data collected by the university instructor (researcher) included: TCs' oral discussions of their tutoring sessions, informal interviews with TCs, a video-taped formal exit interview with each TC, and a final written report (in English).

The Tutoring. A total of 11-15 tutoring sessions took place, conducted in Spanish. Each session took place once a week, lasting approximately 30-45 minutes per session. The tutoring sessions took place in the tutees' classrooms, where the TCs were able to observe the classroom teacher's instructional and management style as well as the relationship between classroom teacher and the young tutee. Bookmaking was chosen as a holistic activity that could address affective components of the reading/writing process as well as phonics instruction, within a context meaningful to the student. TCs were instructed to pay close attention to Vygotsky's socio-cultural theory of learning, especially the concepts of zone of proximal development (ZPD) and scaffolding (Vygotsky, 1978). Each TC had to choose reading material of interest to the student and at his/her independent reading level. An important goal was to seek student success in all initial tasks to ensure connections to prior knowledge and to develop motivation. All new tasks were to be modeled to help students carry them out, but TCs were to slowly relinquish control over each task (Freeman & Freeman, 2007). Explicit instruction was to be offered as needed while developing student independence, within a social context where "expert" and "novice" collaborated on a hands-on project.

Analysis. This descriptive study sought to provide insights into TCs' experiences as they applied a model of instruction new to them. Reflective analysis was conducted as described by Gall et al. (1996); that is, no explicit technical procedures were followed in a prescribed sequence, such as in interpretational or structural analysis. Reflective analysis relies on the researcher's "intuition and personal judgment to analyze the data rather than on technical procedures involving an explicit category classification system" (Gall et. al., p. 570). The researcher examined TCs' and tutees' work in order to draw conclusions related to the research question. TCs' oral discussions, informal and formal interviews, case-study written report, lesson plans for tutoring, artifacts produced by tutees (books), and youngsters' pre- and post-diagnostic literacy evaluations were examined. Reporting of this study, however, follows an analytic style of conventional organization of topics (introduction, literature review, methodology, results, etc).

Case Studies

Ms. Martínez tutors Ana (Grade level: Kindergarten (All names are pseudonyms and used to protect the identity of the participants)**; Background**. Ms. Martínez tutored Ana, a 5-year old Kindergarten student, who was not performing at the expected grade level in her reading and writing. When Ms. Martínez started the tutoring sessions, Ana's teacher told her: "…the possibilities of her learning…are not great; she's an immature child, easily distracted and with a lack of motivation to learn." Ms. Martínez states: "I really began to worry because the way she had detailed the child, it would discourage anyone." There seemed to be so little hope for the academic future of this kindergartener.

Ms. Martínez soon found out that Ana did not receive any academic support at home: her mother is illiterate, ignores the child's school life; and the father, though literate, works long hours and has little time to help. Ana told Ms. Martínez that her mother has called her dumb. Ms. Martínez felt that the child had low self-esteem. The classroom teacher reported that Ana had no motivation. She did not finish assignments or turn in homework and did not pay attention to the class activities. On the plus side, Ms. Martínez states that Ana is never still and loves to ask questions, indicating that she is an inquisitive child. Also, though only in her second year of teaching and follows a traditional phonics method, Ana's teacher "worries about her and she has tried different adequate methods and the necessary support to help."

According to the pre-diagnostic, Ana had good knowledge of print concepts and book handling; she could hold a book correctly, show the front and back covers, point to the title, and differentiate letters and numbers, but was unfamiliar with the concepts of author, word, sentence, and the only sign of punctuation she recognized was a period. She named all the vowels, the letters x and q, and "she knew the majority of her sounds." She could blend syllables to form simple words but not sounds to form syllables, and had trouble identifying the initial syllable of a word. Ana's writing was at Level 4 of Ferreiro and Teberosky's scale (1982), meaning she had a grasp of the alphabetic principle, the relationship between grapheme and phoneme (symbol and sound). Ana had a basic understanding of the process of reading and writing in Spanish.

The tutoring experience. During the initial session together, Ms. Martínez administered the literacy pre-diagnostic using a simple book about the family, discussed the author and the topic, and previewed the illustrations. She read the book aloud, re-read it pointing to the words, then asked Ana to point to the words as she re-read it for a third time. Punctuation marks were explained. So, the initial evaluation process served as an instructional opportunity. Afterwards, Ms. Martínez presented a small book she had made called *"Mi familia" (My family)* and read it

aloud. Ana showed great interest and asked if she could make one like it. She made her little book and wrote her name on it with great pride. She was now an author herself.

Ana and Ms. Martínez met for a total of 11 sessions. The classroom teacher had said that Ana could not copy sentences from the board. Starting with the second session, Ms. Martínez began presenting sentence strips with sentences originating from leveled books. Ana matched the sentences to those in the book, copied the sentences into her journal, and drew pictures. Ana demonstrated satisfaction when she was able to read an entire sentence. She also worked at matching words from the book, written on sentence strips. This task revealed that Ana still depended on the size of the word and initial syllable to figure out the word. Over various sessions, Ana practiced breaking words into syllables. She always wanted to make a book like the one Ms. Martínez had made and smiled with delight when she took it home.

Ms Martínez reports that initially Ana had trouble concentrating on the lessons, but "making the little books, writing in her journal and reading the flashcards began to catch her attention and she began to take an interest in learning." Ana made a little book of numbers and practiced counting (of her own initiative) as she colored the pages. They also worked on colors and read a book Ms. Martínez had made, *"Pájaros de colores" (Colorful Birds)*. Out of her own initiative Ana started making her own book of colors, by reading, copying sentences, and illustrating the book. Ms. Martínez reports that she became very adept at "pseudo reading," felt happy and satisfied with her work; and began directing the activities of the day. As the sessions wound down, Ms. Martínez came prepared to make a book about frogs, Ana's favorite animal. This time Ana made the book first and Ms. Martínez followed. Ana made statements about each cutout and then wrote the statements in the book. Ms. Martínez said that she always made sure Ana worked at her own pace but did give small presents to motivate her. At the end of the tutoring, she stated that Ana's motivation seemed at an all-time peak demonstrated by her engagement and interest in her own books.

Ms. González tutors Ramiro (Level: Grade 1); Background. Ms. González did not provide as rich descriptions as the other two TCs. However, her work is included because her tutoring experience followed a similar pattern and supports the other two cases. When she started tutoring Ramiro, his classroom teacher told her: "He cannot learn and is always distracted." The teacher also said that he refused to participate in classroom activities and his negative attitude towards school work made it difficult to teach him. She was considering referring him for retention and possibly for special education. This teacher had been using a traditional method of literacy development and teaching Ramiro the sounds of letters, and how to blend syllables to form words, all without any progress. The teacher felt he was a "lost case" and that if Ms. González wanted to "work with him is fine because he will be retained in first grade anyway." Parental support for his academic endeavors was non-existent; both parents were too busy working.

When Ms. González first started the tutoring with Ramiro, he would look the other way, talk to someone, or would tell her that did not want to read. However, when she told him that they would be making a book and drawing, he became very attentive. He loved to draw. According to Ms. González, Ramiro was a creative and imaginative child, who was not very interested in following instructions. Since the classroom teacher made all the curricular decisions, Ms. González felt that Ramiro's temperament did not fit well in the classroom.

Results of the pre-diagnostic evaluation revealed that Ramiro had trouble with directionality (left to right), recognizing the title and the author of the book, and identifying upper and lower case letters. As for the alphabet, he could recognize a few letters and their corresponding sounds. He had trouble identifying initial syllables and blending syllables. He also demonstrated having difficulty in retelling the beginning, middle, and end of a story. In terms of writing, he was still using one letter to represent syllables and words (stage 3 of Ferreiro and Teberosky), so he only had an incipient understanding the alphabetic principle, the relationship between phonemes (sounds), graphemes (symbols), and oral language.

The tutoring experience. Ms. González and Ramiro met for a total of 15 sessions, most of which were 45 minutes long, and took place once a week. During the first six sessions, they read leveled books related to the family and worked on concepts of directionality, identifying the title and author of a book, recognizing letters and sounds, forming syllables, and forming words, identifying the main idea of a story, its beginning, middle, and end. From session seven on, they read books of general interest and made books related to those topics. There is no indication as to who chose the topics but he made several little books on his own and practiced writing. Ms. González states that he preferred to create books on topics related to the family and to adventures. Ramiro's favorite book was the one he wrote about his father being a policeman.

Although Ramiro experienced difficulties in blending syllables because he did not know all the letters and sounds, when he memorized the syllables, he was able to blend them to form words. By the end of the sessions, Ramiro was able to identify the titles and the authors, mastered the concepts of directionality, letters, and words, identified some sight words, and was able to talk about characters, the main idea of a story, the beginning, middle and end of the stories. However, his excitement about the tutoring was at its highest when he was creating books. Ms. González states: "He was so excited to do it [that] he kept going on, and he did not want to stop telling the story and writing at the same time."

Ms. Cárdenas tutors Mario (Level: Grade 2); Background. On their initial meeting, Mario told her immediately that he could not read. Ms. Cárdenas writes: "My biggest challenge was gaining his trust, and getting him to participate. He was retained last year so he has to be promoted to third grade. I asked why he doesn't do any homework and his response was that de didn't have time to do it." The classroom teacher also reported being frustrated with Mario due to his lack of participation in class, lack of parental support, and because he never turned in homework.

Ms. Cárdenas did not know exactly how to describe Mario's initial attitude; she suggested the words insolent or rebellious. He seemed to be challenging her: "You are going to help me? Why?" During the first three tutoring sessions, she had to spend 15 minutes speaking to him so he would participate in the lessons. She felt that first she became a "motivational speaker" and then a tutor. It was her impression that he was used to being told what to do and then proceeded not to do it. Now, she told him that he would work on what he liked.

Ms. Cárdenas found out that Mario does not seem to get enough sleep and misses out on breakfast, served at school. Hungry, tired, and without his homework, he starts the day frustrated. The classroom teacher's frustration "doesn't help [Mario] who is very aware of it." The classroom environment offers neither stability nor comfort. Despite his 5+ years of

experience, the teacher's management style lacks structure and his classroom is chaotic and noisy. According to Ms. Cárdenas, when he is lecturing, "students ignore him, can't hear him over the noise of other students;" and Mario "shuts down, sitting there totally inactive." The classroom teacher expressed a wish to help Mario individually but stated that this was impossible without parental support. Furthermore, he did not offer small-group instruction. During whole-group reading, unable to keep up, Mario tuned out of the practice. In an attempt to individualize instruction, the classroom teacher gave Mario the assignment of conjugating verbs (*yo obtengo, tu obtienes, él obtiene, etc.*), which was neither helpful nor fun for Mario.

In the pre-diagnostic literacy evaluation Mario showed he had good print concepts, identified the title, author, and illustrator of a book. He could blend syllables but "lacks automatic decoding skills" and had trouble in distinguishing differences and similarities between initial syllables and in restating a word without the beginning syllable. He had a good grasp of the alphabetic principle; but had some gaps in his knowledge of letter names and sounds.

The tutoring experience. When she began the tutoring sessions, Ms. Cárdenas asked for the classroom teacher's input and he gave her a book at Mario's frustration level. Once Ms. Cárdenas explained the vocabulary and concepts in less abstract language, Mario understood them and relaxed. Ms. Cárdenas took him to the library where he chose 8 books of his liking to begin their work together. She said that he asked her and himself, in wonderment, whether he would be reading all these books. From then on, the reading material was at Mario's independent level, which he could read with very few errors. He then began to freely discuss topics and to write about them. They met for a total of 13 sessions. From the start she realized that though Mario did not like to read, he loved writing.

Mario preferred to read science material, which they always previewed. At first, he was reluctant to try tasks that she assigned. When they read their first book about serpents, she asked him to draw a snake and write 2-3 sentences about it, but he refused. She then modeled drawing and writing the sentences. From then on, in true Vygotskian tradition, she did the tasks for him and with him (scaffolding) until he was ready to take the lead (Freeman & Freeman, 2007). By the end of the 4th session, she felt that she had gained his trust. On the 5th session, he drew two snakes and wrote three sentences, only asking for help once. She saw much enthusiasm in his work with her and believes the modeling and support helped him lose his fear to try.

For session 6, Ms. Cárdenas brought printed pictures of snakes to make a book, but she did not provide many instructions. Mario wrote a long paragraph. Since he had trouble reading it back, she re-wrote it more legibly. He took a picture home to create a book by himself. In her lesson plans she wrote: "*Hoy fue un día excelente porque al decirle que él era el autor y que podía escribir lo que quisiera, lo impulsé a hacer su mayor esfuerzo.*" ("Today was an excellent day because when I told him that he was an author and that he could write whatever he wanted, he put more effort into his work.")

They continued reading leveled books about cows, apples, and motorcycles, with the TC reading first and Mario reading afterwards; they discussed the topics, and Mario wrote on a topic of his choice. Even though he experienced difficulties with unknown vocabulary and still confused the letters b and d, he now willingly participated in all the activities. He became outspoken about the reading material he liked or disliked, still preferring writing to reading. He engaged in

writing activities with gusto and in a very fluid manner. At each session, he began by eagerly asking whether they would be writing that day.

On session number nine, Ms. Cárdenas introduced the use of flashcards on which she wrote important words from the reading. This activity proved to be a success with Mario and very helpful to practice new vocabulary and automatic word recognition. Mario was now taking the initiative in leading the work during the tutoring sessions.

Results of the Tutoring Sessions

The following themes emerged from the tutoring sessions that TCs held, as summarized from the TCs' lesson plans, informal and formal video-taped interviews, and their written reports.

Teacher Candidates assess classroom instructional contexts. All three TCs reported being surprised by the fact that the classroom teachers were unfamiliar with their students' level of knowledge and their interests. It also bothered them that the young students were presented as academically inept simply based on the youngster's lack of understanding and interest in the institutionalized curriculum; the classroom teachers seemed focused on what their students could not do (a deficit model) and formed an opinion about their abilities solely based on how the young students responded to traditional phonics instruction. The youngsters had no ownership of the curricular activities. TCs also felt that too much responsibility for the teaching was expected of the parents, who did not have the time to invest in teaching their kids. All three TCs agreed that our original goal of finding student "success" as an instructional point of departure in order to connect to prior knowledge and ensure motivation was an effective technique. According to them, the diagnostic literacy evaluation proved helpful in this respect. They thought that equally as important should be attention to student interest, level of reading material, classroom organization, instructional strategies, and knowledge of learning theory; and that the classroom teachers were unfamiliar with these key elements of the instructional context.

Teacher Candidates respond to affective issues in literacy. According to the TCs, when the young tutees started out, they came with various levels of knowledge in print concepts, phonics, reading, and writing; yet, they shared common characteristics as uninterested learners. They showed low motivation, were unengaged, had low self-concept as readers and writers, and lacked confidence in their own abilities. All three demonstrated frustration with academic work, did not want to participate in academic activities, appeared alienated from school, and had been stereotyped as "lost cases." Below are brief, specific descriptions of how the tutees changed.

Ana. Ana showed interest in the activity of book making from the initial session when they made the book *"Mi familia,"* and her motivation kept increasing as the sessions progressed. Towards the end, she, herself, took the initiative in starting the book creation projects. By the time the tutoring sessions came to an end, she had learned the concepts of author, word, and sentence, and also learned to copy sentences. Her classroom teacher reported that now Ana pays attention, finishes her work, and asks questions when she does not understand something. Ana had improved in the areas of motivation, self concept as a reader and writer, and in her weak areas of print concepts. Her teacher admitted that she had seen quite an improvement and said that Ana would be promoted to Grade 1.

Ramiro. As the tutoring sessions neared their end, Ms. González saw much enthusiasm on his part and in completing his work "without reminders." According to her, he enjoyed reading and writing; was cooperative, exhibited interest in learning; and made several books independently. In her opinion, Ramiro was a very creative young person and liked using his imagination to create and tell his own stories. He appeared to become easily bored and seemed to need opportunities to follow his own interests, to be independent. Contrary to his lack of attention and misbehaving during regular class, while creating his books during the tutoring sessions, he never had to be admonished to do his work or finish the tasks he had chosen to do. She felt that Ramiro had improved in his motivation to do work, self concept as a reader and writer, in reading comprehension, and in his weakest areas of print concepts. She said that every time Ramiro saw her, he wanted to know when they would work together again. His teacher admitted that she saw some improvement but said that she still felt that he should be retained.

Mario. The tutor felt that she succeeded in gaining Mario's trust; she saw an enthusiasm not present before as he began to seriously engage with the work. By session nine, he was initiating most tasks that took place during the tutoring. Mario showed his love of writing, his interest in science, engagement, motivation, positive self-perception, self-initiative, and interest in working with flashcards to increase his vocabulary and sight words. According to Ms. Cárdenas, he loved making the little books himself; specifically, he liked the idea of seeing himself as an author. After a while, whenever Mario saw Ms. Cárdenas in the hallways, he always asked her when she was going to work with him. Although she said that he needed more fluency and "his reading barely improved," and that having him bring homework continued to be a challenge, Ms. Cárdenas felt that the child's self-esteem and self-assuredness had improved. She said: "I hope this is the beginning of a successful story." Mario's classroom teacher agreed that reviewing the vocabulary on flashcards was of great help to Mario's reading. However, he said that the student's motivation was due to the fact that Ms. Cárdenas had given him presents and that the student still refused to do work. In Ms. Cárdenas' opinion: "I know his ways of teaching him are boring and irrelevant to [Mario]."

Quality of tutoring. During initial discussions, TCs had speculated that the reason for the tutees' positive affective change towards reading, writing, and learning had been due to the individual attention they had received. However, deeper discussions led them to remember other occasions when, as paraprofessionals, they had been given worksheets to tutor students without much success. In fact, Ms. Cárdenas noted that when she had asked Mario's teacher for suggestions as to how to start her tutoring, he gave her a book that was at the student's frustration level. The TCs decided that the positive impact was brought about by the quality of the instruction, and specifically, the holistic activity of creating books. During this activity, the TCs learned to create an instructional context that allowed them to pay attention to the student's area of interest, reconnect to his/her prior knowledge within a context meaningful to the student, provide modeling, scaffolding, and affective support, allow for mistakes without demands of perfection in order to encourage risk-taking, and gradually allow students to take the lead. However, all of them felt that 30-45 minutes per week was not enough time to help these students master the skills necessary to become successful readers and writers.

In conclusion, TCs saw that their students' work showed some improvement in reading and writing skills; but, particularly, they saw that the young learners became more motivated and engaged when they saw themselves as authors. The TCs also became keenly aware that these

students, who had been reported to be apathetic and incapable of doing academic work, experienced a positive attitude change after a relatively few number of tutoring sessions.

Discussion and Implications

The present study explored ways to encourage bilingual TCs working in urban contexts understand instructional models of literacy development that support higher-level thinking. Book making provided an opportunity to implement a balanced literacy approach, which addresses affective factors as well as skills. As TCs witnessed the positive changes in their young learner's attitudes and behaviors, they realized that initial literacy development involves more than the teaching of phonics and became more receptive to questioning their own assumptions about the nature of literacy instruction.

The key elements of balanced instruction were easy to practice within the context of the book making activity, a holistic, creative, hands-on project. Engagement and intrinsic motivation were fostered because active learning was involved; and the project was personally meaningful, related to a topic of the student's choice, connected to his/her world, and fun. Explicit instruction, modeling, and assistance with the task, within a collaborative context, resulted in self-perceived competence. Lack of competition and of correct or incorrect answers promoted risk-taking, autonomy, and independence on the part of the student. The vocabulary involved was at the student's level, which brought self-perceived competence and self-efficacy. The perception that understanding of and caring for the work was more important than answering correctly promoted a deep interest in the academic work and sense of epistemological empowerment.

An implication of the present study is the importance of differentiated instruction, a concept that encompasses student grouping strategies (whole group, homogeneous small groups, heterogeneous small groups, individual instruction, and pair-share). A balanced literacy approach involves differentiated instruction because it calls for access to books that appeal to individual interests, material that is at the student's appropriate reading level, and attention to classroom organization through various grouping strategies (Freeman & Freeman, 2007). Given the diversity of student populations, teachers and TCs must know how to attend to individual needs rather than just work at "covering the curriculum." As this study shows, without small-group or individual instruction, a teacher can hardly hope to know his/her students.

Another implication of this qualitative study shows what happens when teachers in bilingual programs believe a phonics method to be the only way to develop initial literacy and encounter students who do not respond. They tend to negatively stereotype them as having limited abilities for school work even though the concepts taught may not be within the student's ZPD and too abstract to grasp. Furthermore, as with the classroom teachers in this study, they may not be prepared with other tools to meet the challenge. There is a pervasive assumption that the "institutionalized" curriculum is the "correct" and only one to use. It is very hard for a student to enter the world of literacy when they are expected to do so in such a restricted manner.

Balanced literacy (in this case implemented at the individual level through book-making projects) brings together skills and meaning, integrates reading with writing, and allows the opportunity to address affective factors of instructional context. Teachers and TCs can no longer think of engagement, motivation, self-efficacy, and independence as outside of their purview.

The present case study demonstrates that affective issues are the filters through which students allow or reject all learning. When these bilingual TCs witnessed a positive transformational event, they became receptive to using a balanced literacy approach. At the end of our course, TCs in this study synthesized the goal of our tutoring in the motto "Phonics through the heart."

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Journal of Bilingual Education Research & Instruction

Vocabulary Instruction for Young Bilinguals with Language Impairment: A Research Synthesis

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Abstract

Very little research in the area of special education and communication disorders addresses the clinical treatment of bilingual children with primary language impairment (PLI). This paper highlights the gap in the empirical literature about intervention planning for young bilinguals with PLI marked by vocabulary deficits, i.e. late talkers. The author examines intervention theory and application for children entering English-only school settings and summarizes the preliminary research available on young bilinguals receiving vocabulary intervention for early signs of language impairment, i.e. overt delays in acquiring first words.

Keywords: vocabulary intervention, bilingual, primary language impairment

Language is central to the human experience, central to our identities, how we solve problems, think, learn, and interact with our environments. Perhaps it is our most powerful tool to access social, academic, and vocational opportunities in life. Acknowledging a rapid racial and ethnic diversification in the U.S., educators and related service providers have begun to pay more attention to promoting culturally relevant practices to better serve students from culturally and linguistically diverse (CLD) backgrounds. While the majority of the world's population speaks at least two languages, recent estimates suggest one-in-five children in the U.S. learn two languages beginning in early childhood (U.S. Department of Education & National Institute of Child Health and Human Development, 2003). As such, bilingualism and English-language acquisition have become central topics in public and educational policy making in recent years. That being said, however, past and current research reveals an over-representation of minorities being placed in special education programs (Donovan & Cross, 2002), requiring continued advocacy for CLD assessment and intervention reform.

U.S. professionals in communication disorders, as in other education and health-related fields, have been mandated to provide services via evidence-based practice (EBP) by their governing body, the American Speech-Language-Hearing Association (ASHA, 2004). EBP is an integrated approach to clinical service delivery that combines research-based evidence, clinical expertise, and consumer preferences and values. Empirical evidence--or the lack thereof--often receives the

most attention for its relevance in clinical decision making. With increased pressure for accountability, clinicians must provide evidence of intervention efficacy in treating all clients. Recent estimates suggest English Language Learners (ELLs) make up 7% of the U.S. national public school population (4.6 million students)(Goldstein, 2000). Since bilingual environments do not increase the risk or severity of speech-language disorders, we anticipate that a small but important subset of bilingual learners will have developmental language delays manifesting in both their first (L1) and second (L2) languages (Kohnert, Yim, Nett, Kan, & Duran, 2005). In general, very little of the research on primary language impairment (PLI) addresses the treatment of bilingual children. EBP mandates paired with missing research on multilingual demographics can leave clinicians without clear direction for prevention, assessment, and treatment of disorders in their bilingual clientele.

Background

In the area of childhood language disorders, PLI has gained special attention due to high prevalence rates in young children with typical development and average IQ but with language skills that fall far below age level. Although no epidemiological studies yet exist of ELLs with PLI, Kohnert (2008) predicts bilingual rates similar to the 5-10% currently suggested for monolingual populations (Tomblin et al., 1997). Delays in acquiring and combining early vocabulary and morphology are the expressive hallmarks of PLI. It is also likely that phonological weaknesses delay lexical growth in these children (initially characterized as "late talkers;" see Rescorla & Ratner, 1996).

Vocabulary Intervention with Young Bilinguals. Since low vocabulary is often an early marker of PLI, it is also a common first treatment target for young children with overt expressive delays. Testing components of a treatment package for bilingual children with expressive PLI remains relatively unexplored. The available evidence to construct such a protocol is derived from three sources: 1) the extant literature on monolingual PLI; 2) strategies in English as a Second Language (ESL) with typically developing bilinguals, and 3) studies that treat bilinguals diagnosed with PLI.

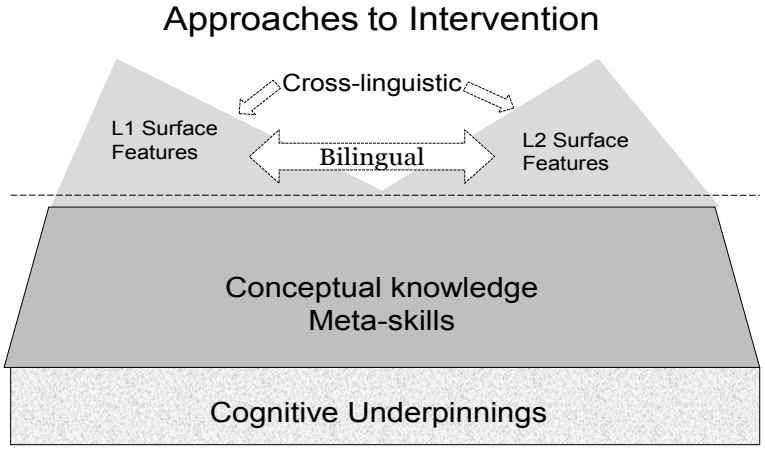
First, the literature on monolingual preschoolers with PLI cites child-centered, interactional and focused modeling, as effective techniques to teach early vocabulary and expand phonetic skills (Girolametto, Steig-Pearce, & Weitzman, 1997; Kouri, 2005; Kovarsky & Duchan, 1997; Warren & Yoder, 1997). Second, in futher support of vocabulary instruction, meta-analyses from the ESL literature suggest hybrid experiences that combine incidental and explicit learning during regular preschool activities (Marulis & Neuman, 2010; Won, 2008); researchers also recommend shifts to intensive word training in both their home and second language to promote literacy gains via explicit strategy training, immediate keyword choice and responsive feedback in school-aged children (see Shepard & Sheng, 2009). Third, the preliminary guidelines for training early vocabulary in bilingual children with PLI are based on three clinical studies (Perozzi, 1982; Perozzi & Sanchez, 1992; Thordardottir, Weismer, & Smith, 1997). The studies to date have focused only on the language of treatment and suggest carryover effects between first and second language.

To Transfer or Not To Transfer. Practioners and researchers often disagree as to the nature of bilingualism and best instructional practices for students who learn English in addition to the language/s they speak at home once having entered the schooling system. The well-known

Interdependence Hypothesis (Cummins, 1979) proposes a minimal level of proficiency in L1 as a precursor for success in L2, based on a shared foundation for academic/cognitive skills. In this sense, we hypothesize that the conceptual and cognitive underpinnings to language are linked, but that surface features such as language-specific morphology, syntax, and word production are unlikely to transfer. Recent theory centers on assessing—via cognitive and linguistic representations— not only a unified model of language acquisition (MacWhinney, 2005) that explores interwoven processes shared between first and second languages, but also the influence of socio-culturally embedded factors. The Dynamic Interactive Processing Perspective (Kohnert, 2008) predicts language use and development as a function of nested but interacting internal and external resources of a child, including the hypothesized bidirectionality between L1 and L2. This theoretical framework is especially useful for clinical research with ELLs diagnosed with PLI as it targets the individual level for complexities not only in mechanism strengths and weaknesses, but with interacting history and life participation needs.

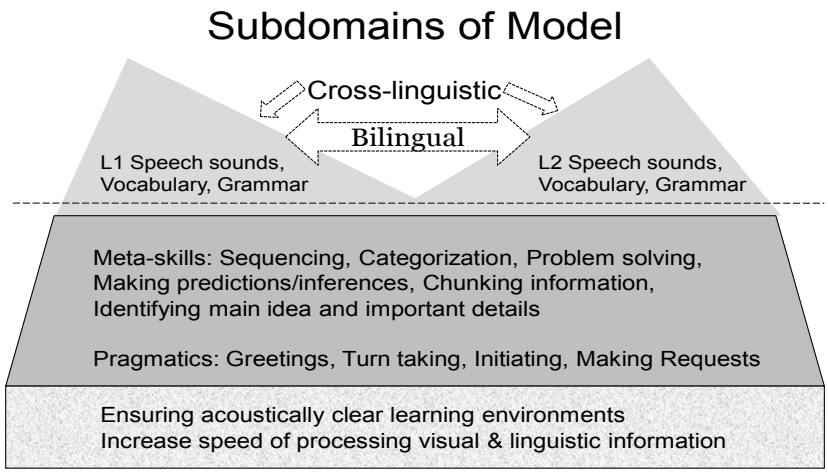
Empirically, spontaneous cross-linguistic transfer has been found to occur in certain areas, such as literacy and cognitive processing control for typically developing older bilingual children and adults (e.g. Bialystok, 2007). In young children, however, it remains unknown if skills will transfer from a treated language to an untreated language without explicit and systematic planning for transfer (see Figures 1a-b for theoretical correlates; Kohnert & Derr, 2004). Although difficult, practicioners should directly investigate the efficiency differences of vocabulary acquistion by instructional language conditions and probe for cross-linguistic generalization (L1-L2) following single-language training.

Figure 1a.



Cummins, 2005; Kohnert & Derr, 2004; Kohnert, 2008

Figure 1b.



Cummins, 2005; Kohnert & Derr, 2004; Kohnert, 2008

The Risk of First Language Loss. In the U.S., English is the language for academic and long-term advancement. Recent immigrants learn the importance of English quickly, but often at the cost of the first language. Similar to typical bilinguals, language proficiencies are expected to fluctuate as a function of input and use. In the U.S. context, minority language children tend to quickly shift to English (L2) dominance, the language of the broader society (Pearson, 2007). Typically the L1 continues to develop albeit at a slower rate with likely plateaus or decreases over time, termed "First Language Loss" in the literature (see Kohnert, 2008 for review). A longitudinal study by Anderson (2004) of children from Spanish-English families found that 25% of children stopped using the minority home language by age 3. Even within classrooms where the minority language is the language of instruction, child-to-child conversations were often in English. Furthermore, Pearson (2007) suggests low status may contribute to decreased minority language use and input, which in turn may lead to first language attrition and negatively impact parent-child relationships, ethnic identity, and school graduation rates.

Studies Addressing Language Impairment. A recent review of the literature (Kohnert & Medina, 2009) identified 116 studies at the intersection of bilingualism and childhood PLI by searching post 1950 for original data studies (see Figure 2a-b for publication trends).

Figure 2a.

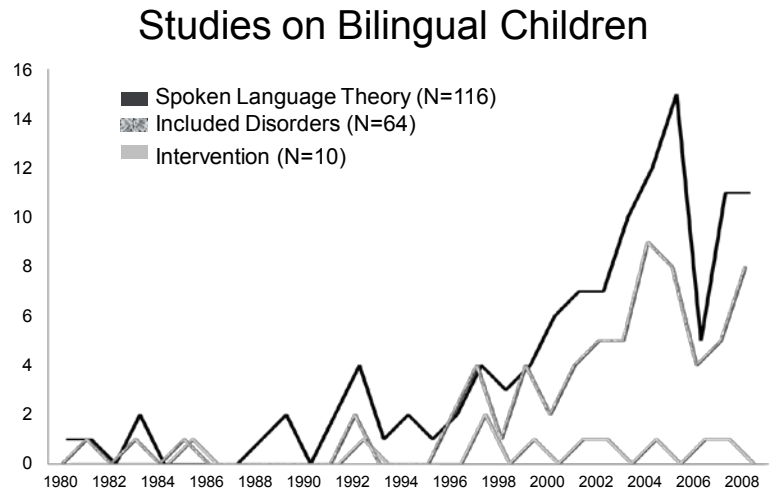
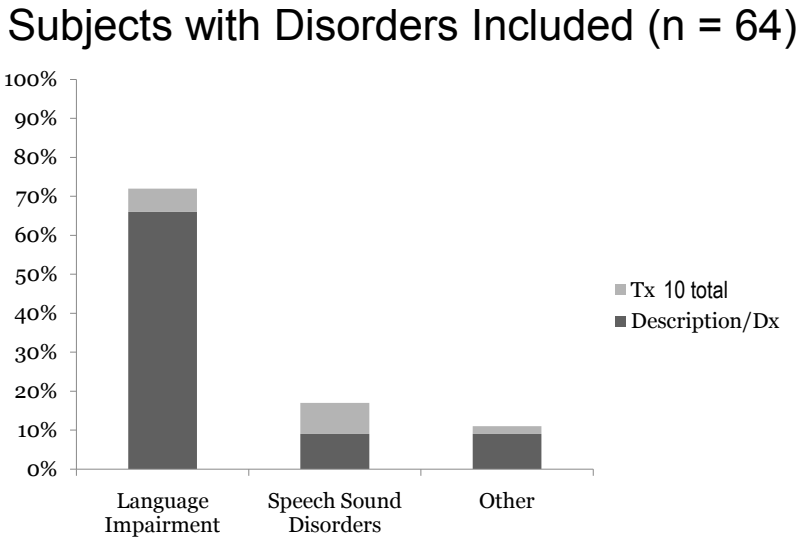


Figure 2b.



Of 64 articles including bilingual children with PLI, 32 between-group studies investigated assessment practices for L2 learners with PLI and 10 studies examined treatment outcomes with this population. First, the assessment articles diverge to examine the use of standardized and non-standardized measures of grammar, pragmatics, processing and learning with L2 learners, with typical and atypical language development. Measures of learning are an important part of a multi-methods assessment to distinguish language differences from disorders. Measures characterized by a test-teach-retest administration can include limited training tasks or describing how well an individual can perform after being given assistance, i.e. dynamic assessment. Overall, about 72% of the studies investigated children with PLI while another 19% of the sample was based on articulation and phonological disorders. These proportions are also

representative of the 10 assessment articles (see Figure 2b), revealing only three case studies and one group study on treatment effects for bilinguals with PLI (Perozzi, 1982; Perozzi & Sanchez, 1992; Thordardottir, et al., 1997; Tzivinikou, 2004).

Preliminary Intervention Research. Since surface forms of sound, word, and grammatical structures are unlikely to spontaneously transfer according to Cummin's (1979) interdependence theory, emerging research seeks to extend knowledge about the comparative effects of expressive vocabulary treatment based on instructional language.

Thordardottir et al. (1997) employed a single-subject alternating treatments designs of single language, English-only, and bilingual Icelandic-English conditions. The authors found that bilingual intervention produced comparable gains in English vocabulary when compared to the English-only condition. It remains unclear as to whether sequence or carryover effects can be expected between L1 and L2. Further study is needed to clarify the potential advantage of bilingual treatment leading to improved lexical skills in L1 without trade-off effects in acquiring the proficiency in English necessary for a child's participation in academic settings.

Medina and Kohnert (2009) also conducted a study using a single-subject method, specifically, a parallel treatment design (PTD) to investigate the absolute and relative effectiveness of Spanish-only (SO), English-only (EO), and Bilingual (BI) training conditions on vocabulary learning for three Spanish-dominant bilingual preschoolers with expressive language delay (ages 3;1, 3;3, and 3;9). Vocabulary training was administered by the first author, a bilingual nationally certified speech-language pathologist, during 15-20 minute individual pull-out sessions, 6-8 times per week, over a five-week period. Twenty-four new words, 8 in each of three categories (actions, occupations, descriptors) that were balanced for phonetic difficulty and likeness by language were assigned to treatment conditions. Response to vocabulary and pre-post global language performance was assessed for change. Overall, the children improved performance in producing targeted vocabulary words in response to each of the three training conditions (SO, EO, and BI). At the same time, response to trained vocabulary was better in SO and BI conditions as compared to the EO training condition for all three children. These findings are consistent with previous studies investigating vocabulary learning in bilingual children with PLI (e.g., Perozzi & Sanchez, 1992) and add to the growing evidence that vocabulary training is most effective when bridging home and school languages.

Conclusion

The key factors for learning two languages for children with or without internally-comprised language learning skills seem to include positive family and community attitudes toward bilingualism, critical mass of L1 and L2 input within rich vocabulary and complex language environments, and sufficient language proficiency to capitalize on cross-linguistic transfer (Anderson, 2004; Kohnert, 2008; Pearson, 2007). Despite the intersection of the available literatures on monolingual intervention, cross-linguistic transfer and first language loss, empirical knowledge that can guide clinical treatment of PLI with young bilinguals is scant.

To gain understanding of bilingual-vocabulary intervention effects, research is needed to examine PLI while accounting for differences in children's cultural and linguistic experiences. This includes, but is not limited to, language input and use history, the diagnostic profile, previous treatment experiences, and social regard of bilingualism. Complexity theorists Larsen-

Freeman and Cameron (2008) further argue the methodological importance of capturing inter- and intra- participant variability to highlight the many interactions (environmental, social, relational, and personal) by which language learning occurs. In this sense, the need to locate interface between quantitative and qualitative data by participant is critical for understanding individual variability. Perhaps a mixed-methods approach—that is, a design in which interview and interactional qualitative data provides support for interpreting numerical data—could help address why young bilinguals with PLI respond variably to language used during intervention, determine efficiency rates and if training in one language benefits an untrained language based on the individual combinations of these ingredients for L1 and L2 success.

In these times of evidence-based practice (EBP), we face immediate demands for PLI treatment research for children who need multiple languages for successful communication across home, school, and community contexts. It is important practitioners operate under the social and academic concerns that minority-language children with language disorders are susceptible to first language attrition, perhaps even more so than their typical peers, due to a slower language learning rate and difficulty retaining information. Most importantly, we must embrace bilingualism as a tool for the many children with and without PLI, a social necessity for communicating within diverse contexts across the lifespan.

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Journal of Bilingual Education Research & Instruction

"Getting the Elephant out of the Room:" Teachers and Administrators' Perceptions of the Challenges and Future of Bilingual Education

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Abstract

By drawing on qualitative data, in this paper we identify the challenges perceived by in-service bilingual teachers and future administrators as well as the hopes they have for the future of bilingual education. Challenges identified include a lack of training for working with English learners and bilingual students, removing deficit perspectives at their campuses, and lowering the percentage of parental denials, among others. Findings also indicate participants hope that their work will be supported beyond financial means and that bilingual education will be available and provided to all students. Implications and suggestions for teacher preparation and research are provided.

> "We have a long way to go. We have a lot of gaps to fill and a lot of people to teach about bilingual education. When all this falls into place, we can talk about being on our way to a strong first world bilingual education. We have to start fixing the basics now." (Yorly, ESL teacher)

Introduction

Latina/o children have become the majority group in many public school districts in Texas. A recent report by the Texas Education Agency (2011) shows that 50.2 % or 2,480,000 of the 4,933,617 student population in our classrooms is Latina/o. While many efforts are underway to ensure that more highly qualified bilingual teachers are entering the profession and will be teaching in our classrooms (U.S. Department of Education, 2004), many Latina/o children are still struggling in school. Statistics in fact show that the achievement gap between these students and their mainstream counterparts has not closed yet. Latina/o students are still underperforming and dropping out of school at alarming rates (Johnson, 2010).

There is consensus that the best way to teach our Latina/o children, particularly bilingual students, is through quality dual language education programs, because it affords them the opportunity to become biliterate, bicultural, and prepared to achieve academically in two languages (Thomas & Collier, 2002). To achieve this goal, the literature suggests that educators need to be not only knowledgeable in matters related to actual practice in bilingual education

settings, but they must also understand how theory and research can inform practice and vice versa (Alanís, 2006; Lindholm-Leary, 2005). Initial training and ongoing professional development opportunities are critical to this understanding.

Knowledgeable administrators are also key to the successful implementation of an exemplary bilingual education program (Tellez, 2004-2005; Thomas & Collier, 2002). Administrators must understand the needs and strengths of bilingual students and their teachers, and address three levels of factors that are critical to the implementation of an exemplary instructional program. These factors incorporate features at the school level, at the teacher level, and at the student level. Factors at the school level include the overall school environment, the educational goals set, the quality of the curriculum, the level of professionalism and collegiality of the teachers, and the effective involvement from parents and the community. Factors at the teacher level include instructional strategies, curriculum design, and classroom management. Factors at the student level include home environment, background knowledge, and student motivation. Leadership is probably the most important factor on effective school reform because it impacts learning at every level (Marzano, 2003). Ultimately, the whole school community, including administrators, teachers, instructional aides, support staff, students, and parents need to embrace and understand the key components of bilingual education in order to see its potential.

Our work with in-service bilingual and English as a Second Language (ESL) teachers, as well as current and prospective administrators of bilingual programs, has given us, as teacher educators, a great opportunity to listen to the challenges and successes they face, as well as the hopes they have for the field. Interestingly, during conversations about their beliefs, they all seem to use the language that they have appropriated from the discourse in their textbooks and classroom discussions: they want Latina/o students to perform academically in both languages, they want to give students opportunities to maintain their home language, and they have a desire to establish the best home-school connection possible in order to raise these students' academic achievement. While it is true that these are the beliefs that we as educators want to instill in them, the perceptions they hold and the reasons they provide behind closed doors are the ones that need to be heard. As one of our former students indicated, "Most of us value and believe in bilingual education, that's for sure, but there are things that happen in our classrooms and schools that no one wants to talk about. It's like having an elephant in the room" (Samantha, bilingual teacher).

In this paper we share data from an ongoing, two year-long qualitative investigation that attempts to uncover the beliefs held by both in-service bilingual and ESL teachers and future administrators working in bilingual and dual language campuses. More specifically, this component of the study attempts to identify the challenges they face as school personnel and the hopes they have for the future of bilingual education, in general, and about their teaching and work with Latina/o bilingual children, in particular. The study was conceptualized as a result of discussions held by the first author and a group of students about what in-service teachers and administrators considered were other people's perceptions of bilingual education. As discussions ensued, it became clear that these students were frustrated with the ways in which bilingual and ESL education were being implemented at their campuses. Heated, yet respectful, discussions ensued every time the conversation steered towards an examination of effective and ineffective bilingual education practices, and what they were, as current education professionals, experiencing or not at their campuses.

Moreover, because some of the class' participants had some reservations about bilingual education, either because they were unfamiliar with bilingual education beforehand, or simply because they saw the courses in bilingual education as another required hurdle they had to complete, a need emerged to have them reflect, in writing, on how they felt regarding bilingual education, the future of the field, and the successes and challenges they believed were part of their professional life. Asking participants to initially reflect in writing, as opposed to doing so verbally, gave them the freedom to, as one student argued, "speak their minds in an academic way" (Vanessa, ESL teacher). These critical reflections were then used in class as main discussion points (e.g., quotes from the actual reflections were used as conversation/discussion starters), to create small discussion groups that were centered around main issues or challenges they had identified in their reflections over the course of a semester (e.g., to group students with either similar or differing views on topics to have a broad representation of views within the same group), and to develop participatory action research studies (e.g., to identify what were key issues they could research at their own workplaces and develop plans of action). What was learned from 32 bilingual/ESL education teachers and administrators' reflections and discussions are the focus of this paper. The research questions that guided the writing of this article are: (1) What do bilingual/ESL teachers and administrators perceive to be the challenges of working in bilingual and/or ESL classrooms/schools? and (2) What are bilingual/ESL teachers and administrators' hopes for the future of bilingual education?

Background

The implementation of effective bilingual education programs is necessary for the academic success and achievement of bilingual Latina/o children nationwide (Padrón, Waxman, & Rivera, 2002). As such, the need to prepare quality teachers to work with English language learners is evident (Menken & Antunez, 2001). These quality teachers are those who are not only proficient in both the students' native and target language (e.g., Spanish and English, respectively), but who are fully prepared to teach the content areas in both languages (Wong-Fillmore & Snow, 2000). Highly qualified teachers ought to also understand the developmental paths that bilingual children undergo as they learn to use both languages academically as well as understand effective practices so that they can implement them in their own classrooms. Furthermore, it is critical that teachers understand the relationship between language, culture, and learning, within the context of bilingual education, as well as their own attitudes and beliefs about these connections (Rivera, Torres-Elías, Pulte, & Hall, 2008). In fact, research indicates that student achievement increases when teachers, administrators, and the school community in general are inclusive and culturally responsive (Tellez, 2004-2005; Thomas & Collier, 2002). Opportunities for educators to reflect upon their attitudes, beliefs, and practices are an integral component of effective teacher preparation programs (Stuart & Thurlow, 2000). It is only through in-depth reflection, challenge, and discussion of personal and professional experiences that changes in deeply held attitudes based on prior understandings can begin to occur.

While teacher preparation programs are primarily responsible for the initial training of teachers, state licensure requirements are becoming more flexible due to increasing teacher shortages (Mickulecky, Shkodriani, & Wilner, 2004).The number of credit hours required in teacher preparation programs has been reduced and there are a number of alternative paths to initial certification that do not require university coursework (Téllez & Waxman, 2006). Due to these

constraints, teachers may have limited specialized initial preparation to serve an increasingly diverse student population. This has resulted in some gaps in the theoretical and pedagogical understanding of novice educators. Moreover, it has increased the pressure on the need to create 'band-aid' like professional development opportunities for in-service teachers to bridge those gaps and equip teachers with the knowledge and tools they need to effectively serve linguistically and culturally diverse students (Darling-Hammond & Baratz-Snowden, 2005).

However, in this accountability era, the challenges and responsibilities placed upon educators are immense. Teachers and administrators make day to day decisions that affect teaching and learning based on their current level of knowledge and understanding (de Jong & Harper, 2005). These decisions impact the implementation of bilingual education programs at all levels thus affecting student success. After all, the implementation of effective bilingual education programs begin with quality of the teachers and administrators, but rests on the foundation of a cohesive and clear vision for the academic achievement of all students, within the context of a pluralistic society (Garcia, 2009).

Methodology

As mentioned earlier, data for this paper are drawn from a larger, ongoing, qualitative study carried out at Large University (pseudonym, the same is true of all other names in paper) in the Southwest. A total of 32 graduate students were part of the study over the course of two semesters; 25 of the participants were female and 7 participants were male. Twenty three (23) of the participants identified themselves as Latina/os, nine (9) of them as Caucasian, and two (2) considered themselves multiracial. Twenty-two (22) of the participants were currently working in either bilingual or English as a second language classrooms or schools (15 were school teachers and 7 were current administrators), two (2) of them were completing their alternative bilingual teacher certification, and eight (8) of these participants had never worked in ESL or bilingual education settings and were taking the bilingual education classes due to a requirement in their degree plan.

Data Sources. The two main sources of data for this paper are the reflections written by the 32 participants and artifacts resulting from the participants' contributions to small group discussions. Participants' reflections were 8-10 pages long each; a total of 335 pages were analyzed for this component of the study. As mentioned earlier, in the reflections participants were asked to describe what they thought was the current status and the future of bilingual and dual language education in the United States and in the state in which they worked. As part of their reflection, participants were also asked to draw on their own personal and professional experiences as teachers or administrators working in bilingual and/or dual language environments to contextualize their experiences. Those who had not had any experience in bilingual or ESL education were asked to draw on what they had heard about bilingual education, and on any experiences, whether direct or indirect, they had had with learning a second language, as many considered themselves bilingual. To facilitate such reflection, participants were given a list of questions or focal points that were going to be discussed as part of their course. Some sample questions are provided in Table 1.

Table 1. Questions provided to participants for reflection	
What is the current state of bilingual education in Texas? In the United States? In the world?	Do you think that everyone agrees on the value of providing bilingual education services to language minority children? What about mainstream or native English speaking children? Why or why not?
Do you think that all language minority children in the U.S. have the right to receive instruction in their native language? Why or why not?	What does the research say about the effectiveness of bilingual education?
What do researchers say about the pros and cons about bilingual and/or dual language education?	What are your views and beliefs about bilingual and/or dual language education and teaching? Why?
What do you think are other people's views and beliefs about bilingual and/or dual language education and teaching? Why?	To what extent have your own personal experiences shaped your own views and beliefs about bilingual education?
To what extent have your own professional experiences shaped your own views and beliefs about bilingual education?	What do you consider is the most salient advantage/disadvantage of providing bilingual education to children in your district?
What are the biggest challenges you, as a teacher, administrator or both, face when working with bilingual children and families?	What can you, as a teacher, administrator or both, do to improve the services provided to bilingual children and families?
Will the field of bilingual and dual language education change in the next five to ten years? Why or why not? How?	What would you like to see happen in the next five to ten years in the field of bilingual education?

Artifacts created during small group discussions were also collected and are being used as part of the data in this paper. Artifacts such as notes taken by the study's participants and the first author when they interacted in weekly small discussion groups were gathered over the course of a semester. Triads were created at the beginning of each semester for the small group discussions; whenever possible, each triad had an in-service bilingual or ESL teacher, an administrator, and someone without any prior experience in the field. Each group discussed an issue or challenge they had written about in their reflections for about 10 minutes each (approximately 30 minutes of small group discussions), and then each group reported back to the entire group for whole group discussion. To facilitate discussions, participants were asked to bring a hard copy of what they had written up to that point to share with the small group. During their discussions, participants were asked to write collective notes that could be shared with the larger group. As the semester went on, participants then used these notes from small and large group discussions, as well as the actual reflections written, to conceptualize and conduct an action research study in a bilingual or ESL setting (first author, in preparation). These action research studies conducted by the participants were then presented in class both orally and in a poster format.

Data Analyses. Grounded-theory methods were used to analyze all the collected data. The constant-comparative method (Strauss & Corbin, 1990) was used as a macro analytical framework. Open, axial and selective coding of the data allowed for the identification of emergent themes and patterns across participants and to create categories and groups of salient patterns. For instance, open coding allowed us to identify major or grand categories and/or subgroups within the data (e.g., ESL teacher/candidate, bilingual teacher/candidate), and axial coding helped us identify whether there existed any relationships between the data and the initial or emergent themes (e.g., some challenges applied to all participants versus only certain subgroups of participants). Once initial themes had been identified, we went through the data again and employed selective coding to identify salient and predominant themes across all participants (Lincoln & Guba, 1984) that related to, for example, the challenges they had encountered as they worked in bilingual and/or ESL settings. Narrative analysis (Clandinin & Connelly, 2000) was also used to analyze the ways in which the study participants constructed their reflections by drawing on their own personal and professional stories and experiences and the work of others.

Findings and Discussion

In this section of the paper, we provide the findings of this component of the study in two main sections: the challenges encountered by the participants and what the participants hope for the future of bilingual education. As will be shown next, the three main challenges identified include: (a) lack of real training for working with English learners and bilingual children, (b) growing number of parental denials, and (c) moving away from a deficit and biased perspective. Each of these findings are elaborated next.

Challenges of Working in Bilingual/ESL Classrooms and Campuses

Challenge: Lack of real training for working with English learners and bilingual children. Without exception, participants, regardless of their prior teaching preparation background, agreed that those who work with culturally and linguistically diverse students need ample preparation to be effective in the classroom (Menken & Antunez, 2001; Padrón et al., 2002). Discussions held in class revealed that even the most seasoned practitioners felt the need for ongoing professional development as well as analyses of the results of research studies pointing to the benefits of the various kinds of programs available for English learners. To this end, one of the most important challenges reported by participants was related to lacking the training they needed for working with culturally and linguistically diverse children, in general, and bilingual children, in particular. Many of the small and whole group discussions held in class centered around bilingual and ESL teacher certification and the various pathways taken to be certified to teach and work with this diverse population of students. Most often than not, the discourse surrounding this topic was divisive, because those who had a teaching background "blamed" those who did not (e.g., were alternatively certified) about the inefficiency of teaching methods employed in classrooms by those without prior teaching experience. Interestingly, even those who had not pursued or followed a traditional teacher preparation program commented how difficult it was for them to be good teachers when they in fact had little knowledge about classroom instruction beyond what they had learned about it for the certification test. As Tommy stated during one of the small group discussions:

> "I got certified to teach after passing the tests. Did I know anything about teaching? No, no and no. I threw myself into a classroom without any kind of experience. No one is at fault but me" (small group discussion, 9/20).

Along these lines, those who had attended a four-year teacher preparation program were very vocal about some school districts' complacency to hire personnel who were, in their words, "not prepared to teach but had been certified by passing an examination" (Tonya, ESL teacher). As Marianne, a recent bilingual certified teacher also put it in her reflection:

> I received my Bilingual Certification by taking a simple supplementary exam, as I was already certified as a highly-qualified secondary Spanish teacher. I arrived to my new intermediate campus several weeks into the school year, due to maternity leave, and found myself bewildered not only by new elementary procedures and expectations, but also by Bilingual Program procedures and expectations-or the lack thereof. I received my certification and showed up knowing that I would receive a raise, I would be teaching 2 grade levels concurrently, and that I would be qualified to teach content and academic material in two languages. However, I passed the test using common sense, and so was ignorant as to bilingual program types and benefits, and how my classroom was to be run on a daily basis (To be honest, I am still working that one out).

Interestingly, both teachers and administrators agreed that using common sense to pass a certification test was, as stated below, "not enough." As Mary, one of the participants who was hesitant about having to take the bilingual course at the beginning of the semester described:

> There has been a lot of debate whether some current bilingual and second language teachers have the credentials and competency to teach dual language and [in] other schools. In order to achieve this we need to make sure that the school districts are hiring good quality teachers and that they are providing all the resources required to make them successful. A test that you pass is just, simply put, NOT ENOUGH (emphasis in original).

Continuing the practice of "hiring good test takers," as many of the participants called them, was believed to be a detriment not only to their own students but to the schools as a whole. Daniel, a former ESL teacher who was in the process of getting his certification as a school principal indicated:

> I also believe that there are many misconceptions and a great deal of ignorance about ELL needs, programs, and practices. Education is the key to eliminating prejudice and lack of knowledge, and so I hold that at a local, state, and national level, we should strive to promote adequate training of members of our education community.

Participants suggested that the requirements for certification must encompass more than one's ability to know foundational concepts in 'good teaching,' even when there is a need to have more certified teachers in the classroom (Téllez & Waxman, 2006). Providing pre- and in-service teachers opportunities to practice and implement the kinds of effective practices, as well as good teaching methods they read about and study for the test, must be at the core of all teacher certification, as Daniela, a bilingual education teacher suggested:

> I think that, like myself, there are a host of uneducated educators, and I deeply feel that the state should mandate a minimum training requirement and provide for additional ESL, Bilingual, and/or LEP trainings at any level–state, district, or local school. Specifically, such training should be included in the certification requirements, before certifying that a teacher is qualified to understand and meet the academic, linguistic, and sociocultural needs of ESL (or Bilingual) students.

Participants' viewpoints on the pathways to certification validate studies that in-depth training in the areas of linguistics, sociolinguistics, first and second language acquisition theories, and sheltered instruction, among others (see e.g., Téllez & Waxman, 2006), are critical to the preparation of future and current teachers. Moreover, as the data above show, even those participants who had been certified to teach ELLs through the practice of passing an exam felt short in their preparation to work with these learners and were cognizant that they needed 'more' training to understand and become sensitive to the needs of linguistically and culturally diverse students (Ruíz-de-Velasco, Fix, & Clewell, 2000; Wong-Fillmore & Snow, 2000). As they stated, a thorough understanding (or lack thereof) of these students' needs will be reflected in their curriculum and overall teaching practices; thus, unless a stricter mechanism is put into place in the recruitment of teachers, ELLs may continue to underperform in the classroom.

Challenge: Growing number of parental denials. Another predominant challenge pointed out by the participants (26 out of 32 participants) was the growing number of parental denials (i.e., parents denying bilingual and ESL services for their children) at these participants' schools, and the impact that such denials were having on the overall morale of the bilingual and ESL programs being implemented at their schools. For these participants, there were two main reasons why they thought parents denied their children with the opportunity to participate in bilingual and ESL programs. On the one hand, they indicated that parents were too concerned about their children performing well in school in English. To this end, they indicated parents have absorbed the negative discourse surrounding bilingual education and therefore have been led to believe that mainstreaming their children is in their best interest. As Joanna, an ESL teacher, and Veronica, a bilingual teacher, put it:

> I believe parents deny bilingual education services in our schools because they do not understand the benefits and the extra time needed to allow their child to transition into the mainstream classroom successfully. They think it is better to put them in the English only classroom because that will make them better students, at a faster rate. They have been told that being in the bilingual classroom is bad for their children and their development (Joanna, reflection).

> One of the biggest challenges we face as educators in the process of making dual language successful is the opposition of parents and how they are becoming more and more skeptical about why their children should be in our classrooms. They deny and deny services because they think their children will not be learning English. Many believe that the best method for children to learn is to be immersed in the English language fully. They fear that learning in Spanish will slow down their children. It will take a lot of work

> to convince parents that this is a benefit for the students and not a negative and to bring those denials down (Veronica, reflection).

On the other hand, participants also mentioned that parents may not be willing to enroll their children in bilingual education as a safeguard mechanism – one they can use to protect their children and their entire family from being singled out at the school. Several of the participants in fact consider denying services as a strategy parents use to not bring attention to themselves, especially for those who were in the country without proper documentation (Garcia, 2009). As Silvana stated:

> I believe they do not want attention brought to themselves or their child. They want their children to fit into the mainstream classroom as quickly as possible so they can be a part of the community. If the parents are here illegally, they're probably afraid to stand out. We ought to work together now. They need to be free to stand for what is right and bilingual education is right for their children.

Interestingly, many of the participants provided examples of what parents did on key documentation such as the home language survey to ensure their children would not be identified as needing placement or further testing for ESL or bilingual education. For instance, Ramona commented that one of the parents at her school wrote on the home language survey that the child spoke "Inglis no Español" (English not Spanish) at home. Others, like Tatiana and Felipe who worked for the same school district, commented they knew of someone in the community who was helping parents fill out these forms. They also commented that in many instances, parents would write the answers in English in the Spanish version of the form or that they would write in Spanish but in the English version of the form. Needless to say, the participants felt that many of the parents at their schools "just wanted to make sure their kids would be totally out of bilingual ed and ESL" (Patricia).

Parents need to understand the goals of bilingual education and the benefits of bilingualism in order to reduce the percentage of parental denials. While parents of Latino students clearly place a high value on education (Amaro-Jiménez & Semingson, 2011), they may deny bilingual education services because they may mistakenly think students will receive a program of lesser quality than that of the mainstream. In other words, parental denials may be a result of negative or misconstrued perceptions of the program. Parents and even school district personnel may not realize that the goal of such instruction is to foster bilingualism, content area learning in both languages, and biliteracy (Thomas & Collier, 2002). Parents could also be influenced by school or district personnel who while well intentioned, may not have a clear understanding of the program. At times, as mentioned by one of the participants of the study, parents are trying to avoid singling out their children in order to protect their privacy due to unresolved or undocumented status. Barriers pertaining to linguistic and cultural differences combined with the difficulty of understanding the educational system can account for these confusions (Waterman, 2006). Increased collaboration and support can be attained if we address these barriers. A way to reduce parental denials can be achieved by better educating parents and all school district personnel about the benefits of bilingual education, and as it will be shown next, by also removing the deficit perspectives that seem to be permeating the work done with and on behalf of these learners.

Challenge: Moving away from a deficit and biased perspective. Discussions about deficit perspectives (Valencia, 1997) surrounding minority students, their families and their schooling were prevalent in all reflections and in-class discussions. Participants commented how many of the school personnel with whom they worked "simply don't care about these students… because they are "not learning" fast enough in their view" (Javier, seeking principal certification). Brenda, a fourth grade bilingual teacher who was also seeking her principal certification, eloquently said it while citing Ofelia García's (2009) work:

> My personal opinion on why people don't like bilingual education is not so much the actual program itself but who it mostly benefits. In this case it is usually minority children. Those that are poor and non-dominant… and those have completed, shift[ed] to a dominant language (Garcia, 2009). It is heart-breaking to see that these children, who need the most help, are not being serviced appropriately because of who they are. They are denied services and opportunities because personnel feel these children do not deserve a chance. They see them as a nuisance instead of an opportunity.

Likewise, Mary, one of the students who had to take the course because it was a requirement for her master's degree, commented:

> I have friends who are teachers that feel that if you come into this country illegally then you do not deserve the same benefits of someone born in the United States or have entered the United States legally. Before I began teaching I too felt that people coming to [state] illegally should not receive the same benefits as I do. Since entering the education field and teaching at a Title 1 school, I worry about my kids. They did not ask for their parents to pick up everything, leave the only home and friends they know, and come to a new country where everything is different. These are innocent kids who deserve to be treated equally as a child here legally. Most teachers I work with don't see them like that and just want them all to go away.

Participants in fact argued that many of the educators with whom they work not only hold those deficit perspectives, especially towards students who may not be in the country legally, but often use them as a basis for not giving bilingual children the opportunity to excel in school. In fact, many provided examples of how these deficit perspectives have permeated the ways in which both resources and services were allocated (or denied) to bilingual and ESL students and teachers at their campuses. Segregation, for example, was identified as one of the most striking and evident signs of deficit perspectives surrounding these children. As Josh, a newly certified ESL teacher, stated:

> Limited and non-English proficient and native English speakers are segregated. They may learn under the same roof, but not in the same classrooms, even in places were inclusion is attempted. Our LEP students are most often than not in those portables, with little ventilation and light. Our portables do not even have proper AC or heat, which makes it not an ideal setting for learning and teaching.

Interestingly, participants described this was not only happening with the students, but they

themselves felt segregated when it came to teacher training, for example. As Dina explains:

> The [Jacinto] district has many staff development opportunities, but there is a problem, many of them are mandatory trainings for regular education. Last year we have [sic] very few opportunities for bilingual or ESL trainings. Many people still don't believe in the bilingual program, because they think we only teach Spanish, not English. Many teachers think that bilingual is to teach English with Spanish support. We are treated differently. I honestly don't think people care enough about us.

Though deficit perspectives have been well documented in earlier studies (Delgado-Gaitan, 1990, 1992; Valencia & Black, 2002), our data suggest that some educators and school personnel may still hold on to deficit perspectives when it comes to serving diverse students in the classroom. For many, bilingual education in the 21st century is still seen as a remediation, a way to assimilate bilingual students to the mainstream melting pot. Under this perspective, the students' native language and cultural heritage are seen as a problem, not a resource that can indeed enrich their education and academic experience (Darling-Hammond & Baratz-Snowden, 2005; de Jong & Harper, 2005). Moreover, our participants also commented how such perspectives have an impact on their own teaching and the resources they have to work with these learners – from lacking critical resources such as books in Spanish to not receiving adequate, on-going training to improve their teaching. The deficit views mentioned by the study participants reflect the extensive misunderstandings regarding the benefits of bilingual education by those who teach these students. Only when this deficit view is changed for an enrichment one, students will be empowered to succeed and academic success will be achieved (Thomas & Collier, 2002).

Hopes for the Future. Without exception, all participants reflected on the impact that accountability has had on their teaching, and many believe that implementing rigorous accountability measures can help bilingual education grow in popularity if the results consistently demonstrate that children perform better when they are learning in two languages. Many, such as Linda, indicated that they would like the positive components of accountability to be used to increase the effectiveness of bilingual education programs. As she put it, "hopefully with greater accountability there will be a push for excellent programs and with the push for "scientifically-based" programs these will rise in number." However, data showed that there were three main 'hopes' they have which they believe will drive the future of bilingual education: (a) more support beyond financial means, (b) encompassing society, and (c) bilingual education for all. Each of these is elaborated next.

Hope: More than financial support is needed. Participants believe that developing a more supportive base for bilingual education is needed. Without a doubt, financial support was believed to be a critical component. As Janet put it:

> I think that if public school systems will embrace their communities at large and provide a language foundation for all there will be continued upward mobility for the local, national, and even the global economy. Unfortunately, common sense does not often prevail. Some politicians and school board members might think that spending money and other resources only takes away from what is really important and that is learning

> English only. This mistake can be a result of an overwhelming homogenous constituent group, ignorance, and even racism.

Their hope, however, is to extend the conversation about support beyond financial means. Other forms of support they believe will drive the future of bilingual education include a call for the standardization of methods and program models implemented. In fact, discussions around what models were more effective for these students proved to be one of the most critical pieces of in-class discussions. Many of the participants provided examples of how their districts had adopted a specific model to implement in their dual language program, yet each teacher did what they felt was better or more convenient for their own classroom, as mentioned by Lupe, a first grade bilingual teacher:

> Our school has paid I don't even know how much money to adopt the [model of dual language]. We are trained and we are expected to show how we are using their techniques day in and day out. We have passed the routine visits done. But really, when it comes to everyday implementation, we don't really do what the model wants us to do. It is up to each teacher to decide how he or she does what he or she wants in the classroom. Why be trained to do a model or program and then just do what one thinks is better? We need to make sure that there are models that we can all use and that the lingo is the same across schools, models and programs.

For these participants, developing an understanding about what works (and what does not) ought to start with those who run schools. To this end, participants believed that securing support from their school administration is critical for the future of bilingual education, as pointed out by Thomas:

> The programs we have now are good, but they are not the best. We still [sic] having problems in the structure of some models, and most administrators in a lot of districts are not even familiar with bilingual education models, paperwork and curriculum.

Participants believed that with more supportive administrators in place, they will be able to not only perform their jobs more effectively, but that they will have access to resources they currently do not have.

> Bilingual teachers face challenges in their classrooms daily. In my class I have not (sic) enough Spanish books. In Pre-K we have to read in Spanish for the children to develop their L1. I have 1 container of Spanish books that are not linked to my curriculum and 6 containers of English books. This is the kind of gaps that we have to fill to improve bilingual education. We have to make everything work… our curriculum, district assessment and classroom materials they have to match, in my case in Spanish (Pamela, kindergarten bilingual teacher).

Developing a strong support for bilingual education programs must include funding, but also materials, teacher training, program design, planning, and parental involvement (Lindholm-Leary, 2005). As shown in the literature, such support is critical for ensuring that the much needed components of an effective program are in place (Rivera et al., 2008; Stuart & Thurlow,

2000). However, as de Jong & Harper (2005) assert, one of the most important factors of this support lies in the full integration of the program within the school system, from having more resources to providing equitable resources and training for all involved. As such, a cohesive and inclusive vision can ensure that there is an equitable distribution of material and human resources, which can in turn result in student success for all.

Hope: More encompassing society. Without exception participants expressed that they believe the future of bilingual education will be driven by developing a society which is more encompassing and understanding of why all children need to have an opportunity to excel. For participants, becoming agents of change of such society in their classrooms and schools starts by voicing their concerns and educating others.

> I believe that we are educators, and so we must be vocal. We must educate and model for families, for our colleagues, even our political leaders, using research based information, and advocating developmentally appropriate and culturally sensitive programs, to provide equal and meaningful education for all, regardless of national origin, culture, or language (Pat, seeking alternative certification).

However, to develop a more encompassing society, one that understands that diversity is the norm rather than the exception, many gaps need to be filled. One of such gaps is the gap in understanding of the needs present in our communities. As Yorly eloquently put it:

> We have a long way to go. We have a lot of gaps to fill and a lot of people to teach about bilingual education. When all this falls into place, we can talk about being on our way to a strong first world bilingual education. We have to start fixing the basics now to build a strong education in the future and be able to expand this opportunity to monolingual children. I see a multilingual country coming, but unfortunately not any time soon (Yorly, ESL pullout teacher).

It is vital that educators provide a socioculturally supportive school environment for bilingual students that values diversity and fosters and allows language, academic, and cognitive development. This is the beginning of filling achievement and understanding gaps (Thomas & Collier, 2002). Bilingual educators can impact the development of a more encompassing society at the school, district, and community level through their advocacy.

Hope: Bilingual education for all. As pointed out earlier, participants believe more support for bilingual education is needed. Throughout the semester, classroom discussions centered on what was best to do instructionally and for whom, and these conversations often steered to those in which "monolingual children need to be part of the bilingual education equation" (Teresa, ESL teacher). They believed that purposefully opening these programs to all children would allow for bilingual education to garner the support needed. As stated by two of the participants:

> I also believe strongly that we should offer our white children an opportunity to be a part of a program that teaches Spanish from kindergarten to high school. We must provide equal opportunity towards all of our students. Since our white children do not have the

> same opportunity to learn Spanish it puts them behind. This is a disservice to our children (Johny, alternative teacher certification).
>
> I would like to see in the next five years the bilingual education services include the mainstream students. Why do we not offer the white students and African American students Spanish at a young age? Spanish has become a national if not a world language. Why would we not teach all of our students a second language? This would allow them to compete in the world. Many countries teach their children more than one language because they see the benefits of being bilingual. My children were not offered Spanish until they got into high school. Why are we waiting? (Eva, ESL teacher)

Interestingly, participants all echoed how the U.S. is lagging behind other countries because of the lack of support for developing students who are bilingual and even trilingual.

> I think the rest of the world has advanced more than we have since you hear that other countries automatically teach students a second language and in some cases a third language. These countries are way ahead of us just in this aspect. These countries understand the importance of acquiring a second language they understand that it is essential in the children's success (Tomás, bilingual teacher).

As such, participants hope that we will begin to offer students with the opportunity to learn additional languages as soon as possible. In fact, they believe that these enrichment opportunities should start not in high school but rather in the early grades.

> I truly believe if Spanish was offered from kindergarten through high school, a lot of parents would allow their children to be a part of such a program. This would give their child another tool to be successful in the world (Michael, alternative teaching certification).

Bilingual education for all, and better yet a multilingual education, is an achievable goal for our nation. Develop a more encompassing society – one that capitalizes on the richness of our languages and cultures (Garcia, 2009) – can be achieved if more educators and practitioners begin by building upon these ideals and convert them into realities. The linguistic resources of our population are numerous to not tap into them. Educational programs that promote, extend, and expand the rich linguistic and cultural heritage of our students offer the possibility of preparing future generations to construct democratic societies in an ever expanding globalized world (Hornberger, 2010). Likewise, giving young students the opportunity to be part of such a multilingual society will not only open the doors of opportunity for them, but it will allow them to see across cultures and nationalities and to realize the beauty that lies within in each of them.

Conclusion & a Call for Action

This project has opened our eyes to the many opportunities that there are to improve our work with parents, teachers, and administrators. Our findings point to how much work remains to be done to improve communication between parents and schools and teachers and administrators, especially work highlighting the benefits of bilingual education for all (Menken & Antunez, 2001; Padrón et al., 2002). Our findings also point to the impact that miscommunication can have on English learners and the programs we offer to support them in school. A parental denial has a huge impact not only on our learners' future, but on the whole future of bilingual

education. As such, we believe systematic and frank conversations with parents, teachers and administrators need to take place (Wong-Fillmore & Snow, 2000). While many of these conversations do occur on an ongoing basis at schools, teachers and administrators need to be vocal about the benefits of bilingualism, biculturalism and achievement in two languages, as well as the pathway that our bilingual children will go through to achieve bilingualism (Tellez, 2004-2005; Thomas & Collier, 2002). To counteract the deficit perspectives that may be ingrained in schools and classrooms (Valencia, 1997; Valencia & Black, 2002), parents need to be put at the front and center of these conversations, making emphasis on the role that they play in their children's education. In fact, we believe that better services can be provided to these children if parents take the time to question methodologies in place and ask questions, just like the teachers in the study did. Giving parents outlets to voice those concerns and allowing them to share what they have heard about the program(s) as well as the pros and cons is the first step (Waterman, 2006). Many of the participants in the study, for example, described year-long efforts conducted at each of their schools to make this a more transparent process. In Lucia's school, for example, parents are given opportunities to ask questions about the time allotment for each language in the classroom, teachers explain what their children are learning in the classroom, how they are learning it, and how that is connected with what children learned previously as well as what they will be learning in the future.

We believe it is our obligation to hold critical conversations with in-service teachers and administrators as well. These conversations should be those that allow them to challenge their own perceptions and their work in their classrooms (Valencia & Black, 2002). The labeling of teachers as highly qualified (or otherwise) needs to be further explored. Investigating questions such as what being an effective bilingual teacher is should happen both within schools and university classrooms. Assessing teachers' knowledge of theory, research and practice in bilingual and ESL education should become a cornerstone of their preparation and not simply their certification. Ongoing and longitudinal assessments of their knowledge should inform not just the initial hiring of teachers, but their growth and work with bilingual learners.

Moreover, requiring teachers to become certified must account for more than simply being able to pass an examination, even if this means that the quota needed to fill those teacher positions cannot be reached (Mickulecky et al., 2004). While it is clear that current statewide reforms have been put into place to assess bilingual teachers' proficiency in academic Spanish, we must also strive to prepare these teachers to teach in Spanish in an academic context and in the language required to give students an opportunity to excel academically as well. For instance, revamping existing coursework to include an examination of pre- and in-service teachers' academic proficiency in both languages is a fundamental step. Moreover, requiring that all teachers become ESL certified by passing a test "is not enough," to use one of our participant's words; we ought to demand more of our teachers, school and university partners when it comes to their preparation. Asking pre- and in-service teachers to become certified to simply be able to claim they are certified is simply not enough. We need to do more for the millions of students who deserve an equal opportunity to learn, especially for those who rely on having a teacher and principal who understands where they come from, what their needs are, and who they are.

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Alfabetizando Matemáticamente a Estudiantes Bilingües: Un Marco Teórico

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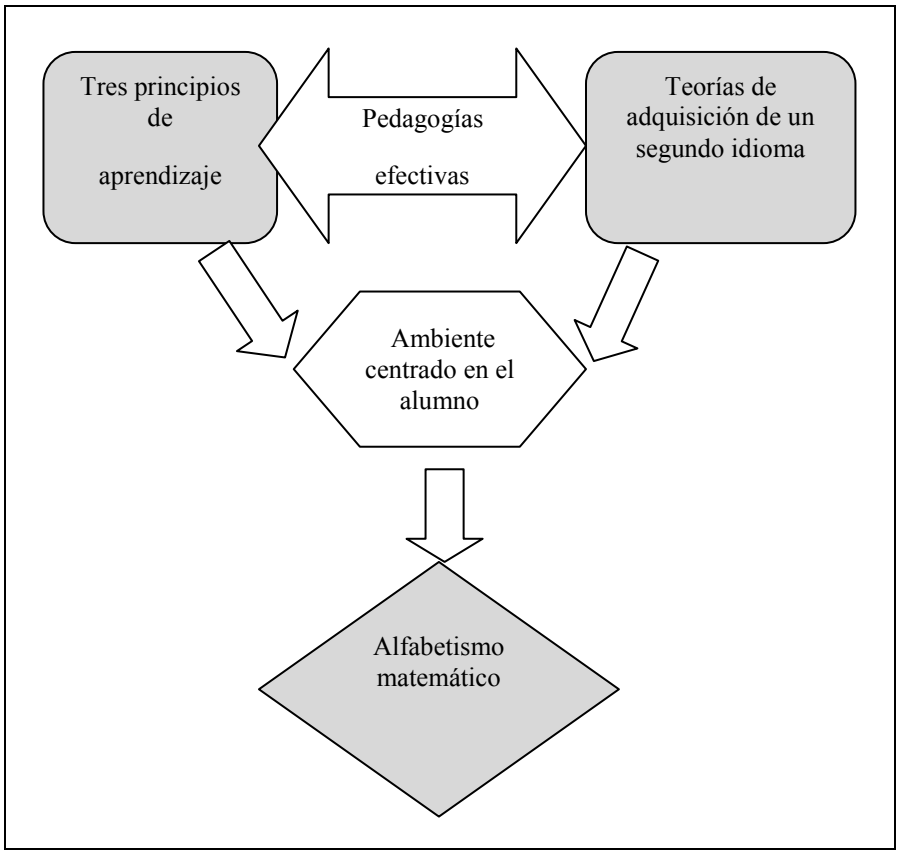
Resumen

Para muchos docentes en las escuelas estadounidenses la enseñanza de matemáticas a alumnos que están aprendiendo dos idiomas, ya sea en un salón de doble inmersión u otro tipo de programa bilingüe, representa un reto, ya que muchas veces se le da más importancia al aprendizaje del segundo idioma, y como resultado la alfabetización matemática pasa a un segundo plano. Este artículo presenta un marco teórico que toma en consideración cómo los estudiantes bilingües desarrollan el conocimiento, el lenguaje y el alfabetismo matemático en el salón de clases. Para entender mejor este proceso, el propuesto marco teórico está basado en tres elementos fundamentales: los principios de aprendizaje, pedagogías efectivas y las teorías de adquisición de un segundo idioma. El artículo también presenta una lección de matemáticas que integra el propuesto marco teórico.

La idea de que las matemáticas son solamente números y por lo tanto puede ser la mejor materia para sumergir completamente a los estudiantes bilingües a un segundo idioma es muy popular, aunque es una creencia completamente errónea. Las matemáticas exigen de muchos requisitos lingüísticos tanto orales como escritos. Esta materia requiere de un vocabulario especializado, representaciones múltiples de un mismo concepto, al igual que el uso de una misma terminología para conceptos variados (Echevarría, Vogt, & Short, 2001). La repetición automática de cálculos, definiciones memorizadas y el completar problemas de cómputos no hace a una persona matemáticamente alfabeta. Martin (2007) define la alfabetización matemática como la habilidad de "razonar, analizar, formular, y resolver problemas de la vida cotidiana *[traducción]*" (p. 28). Por lo tanto, es importantísimo que los estudiantes bilingües no tan solo aprendan el contenido de las matemáticas, sino que también desarrollen el alfabetismo matemático. En este artículo, se propone un marco teórico que toma en consideración como los estudiantes bilingües desarrollan el conocimiento, el lenguaje y el alfabetismo matemático en el salón de clases, y da un ejemplo de cómo incorporar este marco a una lección de matemáticas.

Figura 1. Marco teórico para el desarrollo del alfabetismo matemático en estudiantes bilingües



Nota: Modificado de *Teaching content to Latino bilingual-dual language learners: Maximizing their learning* (p. 24), by Esquierdo, 2010.

Marco teórico para desarrollar el alfabetismo académico. Este marco teórico nace como resultado de una extensa revisión de la literatura referente al desarrollo de conocimiento, lenguaje y alto alfabetismo de personas bilingües. De acuerdo al National Research Council (2000), el alto alfabetismo consiste en lectura y pensamiento crítico, expresión clara y convincentemente, y resolución de problemas complejos de ciencias y matemáticas.

Como resultado, el propuesto marco teórico se centra en tres elementos fundamentales: los principios de aprendizaje, pedagogías efectivas y las teorías de adquisición de un segundo idioma, produciendo así un ambiente centrado en el alumno en donde el aprendizaje y el desarrollo del alto alfabetismo a nivel de grado florecen (Baker, 2006; Cook, 1992, 2002; Cummins, 1981, 1984; Krashen, 1982; National Research Council 2000; Padrón & Waxman, 1999). El modelo presentado en este artículo le provee al docente una estructura que incorpora estos tres elementos esenciales ya que de siempre estos principios han sido planteados en aislamiento.

Tres principios de aprendizaje. Mucho se ha dicho y escrito referente a cómo aprenden las personas, no obstante, el =marco teórico que sirve de base para este modelo se enfoca en tres de los principios de aprendizaje presentados por el National Research Council (2000):

El Principio de aprendizaje #1 dice que todo estudiante trae consigo conocimientos preexistentes que son forjados por sus experiencias previas, ya sea en el hogar o en su comunidad. Estas experiencias, las cuales González, Moll, and Amanti (2005) llaman fondos de conocimiento, influyen en la adquisición del nuevo conocimiento. Por lo tanto, los docentes deben de utilizar estos fondos de conocimiento que trae cada estudiante como peldaño para la enseñanza de conceptos académicos.

Según el Principio de aprendizaje #2, para que los estudiantes demuestren capacidades en áreas investigativas y de razonamiento a nivel superior necesitan una base profunda de saberes factuales o conocimientos y la habilidad de aplicar estos conocimientos. Para lograr esto, es necesario que el docente comprenda que el estudiante bilingüe necesita aprender el nuevo conocimiento en su contexto, para luego aplicar el conocimiento adquirido en cualquier otro entorno. Por ejemplo, si el estudiante aprende a crear gráficas en el contexto de matemáticas, ya luego accede este conocimiento para crear una gráfica de los resultados de una investigación científica llevada a cabo en el laboratorio de ciencias.

El Principio de aprendizaje #3 establece que para ayudar a los estudiantes bilingües a tomar control de su propio aprendizaje y convertirse en aprendices automotivados de por vida, es necesario fomentar un enfoque metacognitivo durante la instrucción. Un estudiante con habilidades metacognitivas conscientemente monitorea y controla su propio aprendizaje por medio de estrategias de aprendizaje (Brown, Bransford, Ferrara, & Campione, 1983). Cabe recalcar que las habilidades metacognitivas no son innatas y que es necesario ayudar a los estudiantes a desarrollarlas. Por tal motivo, se le debe de proveer a los estudiantes bilingües oportunidades en las cuales puedan aplicar y practicar estas destrezas.

Pedagogías efectivas que promueven el desarrollo de una segunda lengua. Es de suma importancia que la enseñanza a estudiantes bilingües este basada en pedagogías efectivas que no solo tomen en consideración las teorías de aprendizaje, pero que también se basen en teorías de adquisición de un segundo idioma. Basados en la investigación, Padrón and Waxman (1999), han propuesto cinco prácticas pedagógicas que promueven la adquisición del lenguaje y desarrollan el conocimiento de los estudiantes bilingües. Estas prácticas pedagógicas son: (1) enseñanza culturalmente relevante; (2) aprendizaje cooperativo; (3) conversaciones instructivas; (4) instrucción con enfoque cognitivo; (5) instrucción enriquecida con tecnología. La tabla 1 define y explica cada una de estas prácticas.

Tabla 1. Pedagogías efectivas que promueven el desarrollo de un segundo idioma

Pedagogías Efectivas	Descripción
Enseñanza culturalmente relevante	Instrucción que incorpora la cultura, el conocimiento y el idioma de los estudiantes (Barrera, Quiroa, & Valdivia, 2003; Slavin & Cheung, 2005).
Aprendizaje cooperativo	Por medio de trabajo en grupo se promueve el aprendizaje de los estudiantes. Algunos beneficios: (1) aumenta las conversaciones instructivas; (2) desarrolla la comunicación social y académica; (3) promueve fluidez en el segundo idioma (Christian, 1995; Waxman & Tellez, 2002).
Conversaciones instructivas	Conversación a fondo sobre temas instructivos entre estudiante y docente (Durán, Dugan, & Weffer, 1997). Provee al estudiante bilingüe la oportunidad de reformular conocimientos previos y conectarlos al nuevo vocabulario (Christian, 1995; Waxman & Tellez, 2002).
Instrucción con enfoque cognitivo	Instrucción que permite al estudiante articular su pensamiento lo cual le provee al docente un mejor entendimiento de como aprenden los niños las matemáticas (Carpenter, Fennema, & Franke, 1996; Reed & Smith, 2005).
Instrucción enriquecida con tecnología	El uso de tecnología le permite al estudiante utilizar el conocimiento adquirido para resolver problemas de la vida real (Means & Olsen, 1994; Verdugo, 2006). De igual manera el estudiante puede tener acceso a la información ya sea en su idioma natal o en el segundo idioma.

Las pedagogías aquí presentadas promueven un ambiente centrado en el alumno, en donde el cimiento de la instrucción es la motivación del alumno por aprender, discutir y resolver problemas, contrario a una instrucción que imparte un aprendizaje "establecido, decidido, y solucionado por el docente [traducción]" (Glickman, 1998, p. 52).

Teorías de adquisición de un segundo idioma. Todo docente que trabaja con estudiantes bilingües debe de estar consciente del proceso de adquisición de un segundo idioma, por tal razón, el propuesto marco teórico toma en consideración algunos principios teóricos de la adquisición de un segundo idioma con el propósito de guiar al docente a planear instrucciones efectivas. Estos principios consideran al estudiante bilingüe centro de su propio desarrollo y aprendizaje del idioma y del conocimiento académico.

Es necesario entender que las personas bilingües no son dos monolingües en uno (Baker, 2006, p. 10), más bien individuos con múltiples competencias comunicativas en ambos idiomas (Cook, 1992, 2002). De acuerdo a Fishman (1971), es casi imposible que una persona bilingüe tenga las mismas capacidades comunicativas en ambos idiomas. El nivel de fluidez y competencia comunicativa va a depender de la necesidad y el uso del idioma (Grosjean, 1998). Por consiguiente, los estudiantes bilingües necesitan oportunidades y acceso a un ambiente rico en el idioma para así poder desarrollar una variedad de capacidades comunicativas en ambos idiomas tanto en contextos sociales y formales. Lo que Cummins (1984) propone como las dos dimensiones claves de habilidades lingüísticas de un idioma: (1) Capacidad de Comunicación Interpersonal Básica (*Basic Interpersonal Communicative Skills, BICS),* la cual se adquiere fácilmente ya que son las capacidades y funciones lingüísticas que se utilizan para comunicarse en el contexto de la vida cotidiana; y (2) Capacidad del Lenguaje Académico Cognitivo *(Cognitive Academic Language Proficiency, CALP)*, es el lenguaje que se aprende en un contexto académico, y es necesario para llevar a cabo con éxito las tareas escolares, que por lo general son más abstractas y descontextualizadas. Es de suma importancia que los docentes expongan a los estudiantes bilingües al vocabulario y la retorica que componen el lenguaje académico (Gándara & Contreras, 2009) y en este caso en particular, al lenguaje de matemáticas.

A medida que el estudiante bilingüe tiene oportunidades de desarrollar competencias múltiples en ambos idiomas, la transferencia de información y conocimiento académico ocurre de un idioma a otro. Aquello que el estudiante aprende en el primer o segundo idioma, mediará el aprendizaje en el otro idioma (Dworin, 2003; Reyes & Costanzo, 2002), lo cual apoya lo ya establecido por *el Principio de Aprendizaje #2.* En otras palabras, la habilidad del estudiante bilingüe de completar tareas cognitivamente demandantes en un idioma sirve de instrumento de mediación para completar tareas similares en el otro idioma.

Bajo estas premisas, se entiende que el idioma se tiene que adquirir por medio de interacciones sociales en diferentes contextos. Stephen Krashen (1982) explica que la clave para la adquisición de un segundo idioma no es la cantidad de exposición al segundo idioma, pero la calidad de instrucción en el segundo idioma. Lo que significa, que cuando el docente está consciente del desarrollo de un segundo idioma, su enfoque primordial es el de facilitar experiencias apropiadas.

Debemos añadir que la adquisición de un segundo idioma y el desarrollo del alfabetismo académico en el segundo idioma, son el resultado de lo que Krashen (1982) cataloga como "*input comprensible*." El "i*nput comprensible*" es el lenguaje oral y escrito a nivel de comprensión del estudiante, cual ha sido presentado en un ambiente complaciente en donde el nivel de ansiedad es bajo.

Ambiente centrado en el alumno. Lo primordial en un ambiente centrado en el alumno es el aprendizaje y la comprensión tomando en consideración las necesidades, habilidades, e intereses del estudiante. En un salón centrado en el alumno, se promueve la exploración y la construcción del conocimiento, alejándose de actividades poco activas como escuchar las lecciones dictadas por el docente y la lectura pasiva del texto. En otras palabras, el aprendiz es responsable de su propio aprendizaje.

El marco teórico aquí propuesto sirve de plataforma para la creación de un ambiente centrado en el alumno. Dos elementos fundamentales de este marco le requieren al docente tomar en consideración al estudiante. Primero, se toma en cuenta como los estudiantes bilingües aprenden de acuerdo a los tres principios de aprendizaje explicados en la sección anterior. Segundo, se presta atención a la adquisición de un segundo idioma y el desarrollo de competencia lingüísticas en ambos idiomas. Al mismo tiempo, el marco teórico aquí presentado promueve el uso de pedagogías efectivas que ayudan a los estudiantes bilingües a tomar control de su propio aprendizaje y a convertirse en aprendices automotivados de por vida. En combinación, todos estos principios ayudan al desarrollo del alfabetismo matemático y no deben ser promovidos aisladamente. En otras palabras, el docente no puede desarrollar el alfabetismo de los estudiantes bilingües basándose únicamente en los principios de aprendizaje, en pedagogías efectivas, o en las teorías de adquisición de una segunda lengua. Los tres principios que componen este marco teórico necesitan ser cuidadosamente orquestados durante la planeación e instrucción. De esta manera, se logra promover la adquisición del alto alfabetismo y en este caso en particular, el alfabetismo matemático en los estudiantes bilingües.

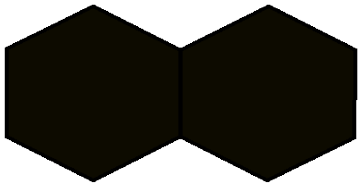
Una visita al salón del Sr. Soto

Para un mejor entendimiento de cómo funciona el marco teórico aquí presentado en un salón de matemáticas, visitemos el aula del Sr. Soto; él enseña cuarto grado en un salón de doble inmersión lingüística donde el 50% de los estudiantes son hispanoparlantes y el otro 50% son angloparlantes, y la clase de matemáticas es impartida en español. La lección que aquí se presenta tiene como objetivo la creación de fracciones equivalentes utilizando objetos concretos.

El Sr. Soto comienza la lección con el siguiente problema: Tienes cinco pedazos de pizza y los tienes que compartir entre tú y dos amigos más. Juan inmediatamente contesta, "le doy un pedazo a cada uno de mis amigos y los tres que me sobran, me los como yo." Toda la clase se ríe y el Sr. Soto les recuerda que cada persona tiene que recibir la misma cantidad. María y Amy se juntan para tratar de resolver el problema. Amy sugiere "let's draw it; that way we can see it better." *[Vamos a dibujarlo, así lo podemos visualizar mejor.]* "Buena idea" responde María. Los estudiantes se juntan con sus parejas bilingües y resuelven el problema. Cuando todos resuelven el problema, el Sr. Soto les pregunta, "¿Cómo resolvieron el problema?" George y Javier explican, "a cada niño le toca uno y dos tercios pedazos de pizza. Nosotros pensamos que lo más fácil era darle a cada niño un pedazo entero. Entonces nos iban a sobrar dos pedazos enteros. Ya que eran tres niños, decidimos dividir cada uno de los dos pedazos enteros en tres pedazos iguales. Entonces de cada pedazo entero de pizza le toca a cada niño un tercio y como eran dos pedazos, le van a tocar a cada niño dos tercios y el pedazo entero." El Sr. Soto elogia la explicación de George y Javier.

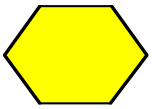
El Sr. Soto les explica a los estudiantes que trabajando con sus parejas bilingües, generarán fracciones equivalentes. Luego les dice, "vamos a ver algunos ejemplos de cómo podemos generar fracciones equivalentes utilizando los bloques para hacer patrones." Utilizando los bloques de patrones, el Sr. Soto los va guiando y demostrando el concepto. El Sr. Soto dice: "haz que dos hexágonos representen un entero. A este entero le llamaremos **doble-hexágono."** Mientras los estudiantes crean el doble-hexágono, el maestro también lo demuestra con los bloques (Ver figura 2).

Figura 2: Doble-hexágono



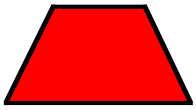
El Sr. Soto continúa la lección y le pide a sus estudiantes lo siguiente, "discute con tu pareja, ¿cuál es el valor fraccionario de las siguiente figura: el hexágono amarillo? Y explica cómo lo sabes." (Ver Figura 3)

Figura 3: Hexágono amarillo



Los estudiantes trabajan en parejas y al unísono responden, "una mitad." El Sr. Soto luego les pregunta, "¿y cuál es el valor fraccionario del trapezoide rojo?" (Ver figura 4).

Figura 4: Trapezoide rojo



Algunos estudiantes contestan "una mitad" mientras otros dicen "no, es un cuarto" El Sr. Soto le pregunta a Glenn, quien responde "one half because two reds trapezoids, fit in one yellow hexagon." [Una mitad porque dos trapezoides rojos caben en un hexágono amarillo.] Margarita salta y dice "Glenn, recuerda que dos hexágonos juntos hacen un entero, entonces necesitas cuatro trapezoides rojos para cubrir el doble-hexágono; ya que dos trapezoides rojos solo cubren un hexágono que representa solo una mitad del entero." Varios estudiantes dicen, "sí, es verdad." El Sr. Soto explica que Margarita tiene razón y continúa preguntándole a los estudiantes el valor fraccionario del rombo azul y del triángulo verde. Esta vez los estudiantes contestan correctamente.

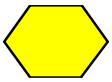
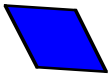
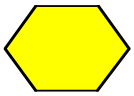
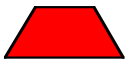
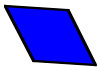
"Ya sabemos el valor de cada uno de los bloques. Ahora vamos a generar fracciones equivalentes. ¿Cuánto dijimos que era el valor del hexágono amarillo?" pregunta el Sr. Soto. Al unísono se escucha "una mitad." El Sr. Soto continúa, "entonces ¿cuántos trapezoides rojos necesito para formar un hexágono amarillo?" Los estudiantes responden "dos." El Sr. Soto continúa:

-Si dos trapezoides rojos, que tienen valor de un cuarto cada uno, forman un hexágono amarillo, con valor fraccionario de un medio; entonces podemos decir que un medio es igual a dos cuartos.

Estas son fracciones equivalentes. Ahora díganme, ¿cuántos rombos azules necesito para formar un hexágono amarillo?

Los estudiantes responden "tres." El Sr. Soto le pregunta a Humberto "¿Cuál crees que serán las fracciones equivalentes en este ejemplo?" Humberto responde, "una mitad, que es el hexágono amarillo, es igual a tres rombos azules, que tienen un valor fraccionario de un sexto, entonces yo digo que una mitad es igual a tres sextos." "Excelente" contesta el Sr. Soto, "ahora quiero que todavía trabajando con sus parejas encuentren todas las fracciones equivalentes posibles. Utilicen la siguiente tabla para anotar sus contestaciones. Ya la primera línea esta contestada" (Ver Tabla 2). Los estudiantes trabajan cooperativamente y anotan sus respuestas, mientras el Sr. Soto camina alrededor del salón haciendo preguntas y conversando con los estudiantes sobre la tarea asignada.

Tabla 2: Fracciones equivalentes

	½ 	1/4 	1/6 	1/12 
1/2 	1	2/4	3/6	6/12
1/4 				
1/6 				
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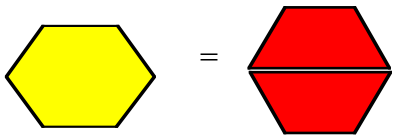
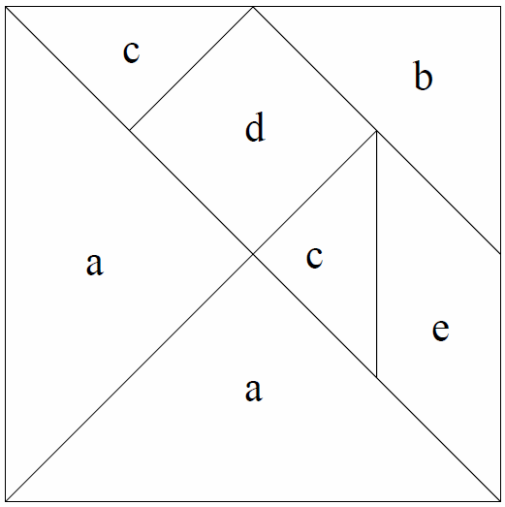
Al terminar de completar la tabla de fracciones equivalentes los estudiantes comparten sus respuesta. Luego el Sr. Soto les recuerda hacer en sus diarios una tabla de vocabulario o *word square* (Winsor, 2007) para el nuevo vocabulario aprendido, que es fracción equivalente (Ver tabla 3).

Tabla 3: Tabla de vocabulario "Word square" para el concepto "fracción equivalente"

Fracción equivalente	**Equivalent fraction**
Las **fraccione equivalentes** tienen el mismo valor o representan la misma parte fraccionaria de un entero. E**quivalent fractions** have the same value or represent the same part of a whole.	 1/2 = 2/4

Al terminar la lección, el Sr. Soto les dice a los estudiantes que de tarea harán un ejercicio similar al que han trabajado hoy. "Utilizando el siguiente tangrama, (ver Figura 5) encuentra el valor fraccionario de cada figura: a, b, c, d, e. Luego crea una tabla de fracciones equivalentes como hicimos hoy en la clase," termina diciendo el Sr. Soto.

Figura 5: Tangrama



Conexión de la lección con el marco teórico. Analicemos la lección aquí presentada a través del marco teórico aquí propuesto.

Tres principios de aprendizaje. En esta lección, el Sr. Soto fomenta el *Principio de aprendizaje #1*, que establece que todo estudiante trae consigo conocimientos preexistentes que son forjados por sus experiencias previas. Cuando comienza la lección, el Sr. Soto les pide a los estudiantes que dividan en partes iguales 5 pedazos de pizzas entre 3 personas. De esta manera crea una conexión con las experiencias y el conocimiento previo de sus estudiantes, la pizza, con el nuevo concepto, la división de un entero en partes fraccionarias.

A través de la tarea asignada para la casa, se desarrolla el *Principio de aprendizaje #2,* el cual explica que para que los estudiantes demuestren capacidades en áreas investigativas y de razonamiento a nivel superior necesitan una base profunda de saberes factuales y la habilidad de aplicar estos conocimientos. La tarea requiere que los estudiantes apliquen el nuevo conocimiento, en este caso encontrar partes fraccionarias equivalentes, a otro objeto concreto un tangrama. En esta tarea los estudiantes tendrán que encontrar el valor fraccionario de cada una de las piezas del tangrama y encontrar todas las fracciones equivalentes posibles.

Para el *Principio de aprendizaje #3,* el cual establece que para ayudar a los estudiantes bilingües a tomar control de su propio aprendizaje es necesario fomentar un enfoque metacognitivo, los estudiantes utilizan como estrategias de aprendizaje organizadores gráficos, en este caso una tabla para encontrar las fracciones equivalentes y la tabla de palabras de vocabulario (w*ord square*). El uso de organizadores gráficos ayuda a los estudiantes a ordenar la nueva información de manera que se le facilite la comprensión. Este tipo de estrategias de aprendizaje promueve en los estudiantes habilidades metacognitivas de manera que aprenden a controlar y monitorear su propio aprendizaje.

Pedagogías efectivas. En la enseñanza previamente presentada, se pueden observar tres de las cinco pedagogías efectivas aquí propuestas: (1) aprendizaje cooperativo; (2) conversaciones instructivas; e (3) instrucción con enfoque cognitivo. A través de toda la lección los estudiantes trabajan cooperativamente, en este caso en particular trabajan en pareja ya que muchas veces los estudiantes que están aprendiendo un segundo idioma, las niñas, y los estudiantes minoritarios tienden a tener una menor participación en actividades de aprendizaje cooperativo cuando son asignados a grupos grandes (Webb, 1984). Al trabajar en parejas, todos los estudiantes tienen la oportunidad de contribuir equitativamente lo cual promueve el desarrollo del discurso matemático, permitiéndoles a los estudiantes bilingües procesar la nueva información a la vez que desarrollan el vocabulario académico mientras resuelven y discuten entre ellos mismos los problemas matemáticos asignados. Cuando el Sr. Soto discute con los estudiantes el nuevo concepto y cuando camina alrededor del salón haciendo preguntas mientras los estudiantes trabajan en la tarea asignada, el Sr. Soto hace uso de conversaciones instructivas para así promover el desarrollo del lenguaje y el alfabetismo matemático. De igual manera, la instrucción con enfoque cognitivo es visible cuando los estudiantes explican como resolvieron los problemas asignados. Durante la enseñanza, se les proveyó a los estudiantes amplia oportunidad para participar en conversaciones académicas tanto con sus parejas, como con toda la clase, y con el maestro.

Teorías de adquisición de un segundo idioma. En esta lección en particular, el docente trabaja bajo la premisa de que un idioma es adquirido por medio de interacciones sociales de "*input comprensible"* en un ambiente complaciente en donde el nivel de ansiedad es bajo. Los estudiantes están aprendiendo español a través del contenido de la lección de matemáticas, no por medio de la memorización de listas de vocabulario y reglas gramaticales. Por el contrario, están aprendiendo y aplicando sus habilidades lingüísticas del español mientras adquieren nuevo vocabulario y conocimiento introducido en la lección y modelado por el docente. Además, el Sr. Soto hace uso de "*input comprensible"* al proveerles objetos concretos, al modelar la lección, y al hacer uso de la tabla de vocabulario "w*ord square,"* la cual les permite la transferencia del concepto matemático y del idioma.Todas estas estrategias sirven de apoyo para la comprensión del concepto matemático al igual que para el desarrollo del segundo idioma. De igual

importancia, la lección esta diseñada para minimizar el filtro afectivo, permitiendo así que los estudiantes bilingües se sientan cómodos y capaces de tomar riesgos no tanto académicos, sino también lingüísticos.

Ambiente centrado en el alumno. Es obvio que el salón del Sr. Soto promueve un ambiente centrado en el alumno, ya que en él están presentes los tres principios de aprendizaje, pedagogías efectivas, y se hace uso de las teorías de adquisición de una segunda lengua. Una tendencia esencial entre los tres principios propuestos en este marco teórico es la orientación a un salón donde el aprendiz se siente libre y seguro de tomar riesgos y como resultado, el alfabetismo matemático en los estudiantes bilingües florece.

Conclusión

El marco teórico propuesto toma en consideración cómo los estudiantes bilingües desarrollan el conocimiento, el lenguaje, y el alfabetismo matemático. Éste le provee a los docentes una estructura teóricamente funcional que embarca colectivamente los principios de aprendizaje, pedagogías efectivas y teorías de adquisición de un segundo idioma, para conducir a la alfabetización matemática en estudiantes bilingües basándose en la premisa de que el bilingüismo es una ventaja y no un obstáculo para la enseñanza y el aprendizaje.

Es de suma importancia que los docentes promuevan el desarrollo de las habilidades de razonamiento de alto nivel por medio de tareas y proyectos. Cuando los estudiantes bilingües tienen la oportunidad de explorar activamente y construir su propio aprendizaje por medio de actividades que promueven el conocimiento a alto nivel en un ambiente centrado en el estudiante, sus habilidades lingüísticas en el primer y/o segundo idioma acrecientan. Semejantemente, la transferencia del conocimiento de un idioma a otro y el alto alfabetismo trascienden. Los estudiantes bilingües logran aplicar el nuevo conocimiento a contextos variados haciendo uso del idioma como herramienta de aprendizaje.

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Glosario de Terminología Pedagógica

Competencia comunicativa: se refiere al uso del lenguaje para comunicarse, negociar, intercambiar e interpretar significados de manera adecuada; ya sea en ambientes sociales, familiares o personales, y determinados a un oficio.

Docente: profesor, maestro

Fondos de conocimiento: conocimientos preexistentes de cada individuo que son forjados por sus experiencias previas, ya sea en el hogar o en su comunidad.

Input comprensible: el lenguaje oral y escrito a nivel de comprensión del estudiante

Conocimiento metacognitivo: es aquel conocimiento que se refiere a cómo aprendemos, pensamos, recordamos

Programa de doble inmersión lingüística: modelo de programa bilingüe y bicultural que consiste de instrucción, aprendizaje y comunicación en dos idiomas.

Tangrama: rompecabezas chino que consiste de siete piezas (5 triángulos, 1 cuadrado y 1 paralelogramo)

Journal of Bilingual Education Research & Instruction

"*They need to know they can do math*": Reaching for Equity through the Native Language in Mathematics Instruction with Spanish-speaking Students

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Abstract

This study explores two K-1 bilingual teachers' approach to mathematics instruction with Spanish-speaking students as they integrated contextualized problem solving into a reform curriculum and as they adapted instruction to meet the needs of Latino Spanish-speaking students. We draw from three bodies of literature: Cognitively Guided Instruction, the use of the native language as a pedagogical resource, and equity issues in mathematics. The data used was from a longitudinal qualitative study focused on a researchers'-teachers' professional development collaborative. Data sources used included classroom observations, videotaped lessons, interviews, and a videotaped teachers' conference presentation. Findings indicate that these teachers 1) prioritized students´ identity as mathematics learners by building confidence and awareness of their capabilities and 2) adapted the reform mathematics curriculum by integrating contextualized word problems to meet the needs of Latino students.
Keywords: Bilingual education, mathematics education, equity in education

Introduction

"Policies, practices, attitudes, and beliefs related to mathematics teaching and learning must be assessed continually to ensure that all students have equal access to the resources with the greatest potential to promote learning" (NCTM, 2008, p. 1). This position statement becomes especially relevant when considering that too many students in the United States are still struggling in mathematics classes repeatedly failing (Boaler, 2008). Latino students in high percentages are falling through the cracks of mathematics testing and inequitable teaching approaches. According to Flores (2007), the achievement gap directly relates to how learning opportunities are unequally distributed, especially among low-income Latino and African American students who are less likely to have access to quality teaching and who typically defy lower learning expectations. Research that investigates how teachers create opportunities for effective learning and enhanced mathematics teaching approaches suited for different contexts becomes an urgent task for more equitable access to quality education for all (Turner & Celedón-Pattichis, 2011).

In this article we discuss findings from a qualitative longitudinal study of K-1 bilingual teachers' professional development experiences in the subject area of mathematics, especially focusing on data gathered during the last year of the project. Our overarching research questions are: How do bilingual teachers adapt their instruction and integrate contextualized word problems into their curriculum to meet students' needs? What are teachers' perceptions regarding the role of native language in their instructional approach? Through classroom episodes that illustrate student and teacher interactions, we explore the use of the native language and its relation to equity aspects of teachers' mathematics instruction with Spanish-speaking students. In the sections that follow we present the theoretical perspectives that inform this work and the methodology. We end with a discussion of the findings and implications of our work.

Theoretical Framework

Our professional development work with teachers focused on comprehending the implications for mathematics teaching of Cognitively Guided Instruction (CGI) (Carpenter, Fennema, Franke, Levi, & Empson, 1999). This framework grows from understanding that all students come to school with plenty and rich informally constructed knowledge about mathematics. One of the basic premises is that teachers can use this informal knowledge as the basis for developing an understanding of basic mathematical concepts and skills. The framework explains how teachers can help students connect their own informal systems of mathematics to the formal symbols and procedures they learn in school. Teachers need to understand the different processes children use to problem solve as they develop understanding of mathematical concepts. Moreover, research has shown that word problems embedded in contextually relevant situations allow young children to enter into a mathematized world, to use their cultural experiences, and to make sense of number patterns and relationships as they learn with understanding (Hiebert & Carpenter, 1992). Previous research has shown that the use of familiar stories to contextualize problem solving supports Latino students' learning, especially to understand and explain mathematical thinking (Turner & Celedón-Pattichis, 2011; Turner, Celedón-Pattichis, Marshall, & Tennison, 2009). Civil (2006) argues that if children can connect what they know in informal learning experiences to formal concepts being learned in the classroom, they can begin to make sense of formal mathematics, see the relevance in what they are learning, and become more secure and flexible in their thinking. In accordance, Turner et al. (2009) and Turner and Celedón-Pattichis (2011) affirm that teaching practices support students´ mathematical understanding when teachers integrate students' cultural knowledge and experiences by using stories that are familiar to children, and use the native language and relevant contexts to introduce new mathematical concepts.

Our work is informed by research that explores the sociocultural and pedagogical implications of language in mathematics learning and the centrality of instruction in students' native language for equitable teaching. In order to effectively address the instruction of bilingual students, it is important to understand how they use language to construct and communicate mathematical ideas (Moschkovich, 2007, 2010). To help students construct mathematical meanings in language, teachers need to see language and mathematics as jointly constructed and not separate (Barwell, 2009). When learning mathematics, students are required to engage with language through listening, speaking, reading and writing as well as to interact with different types of texts.

Moreover, research has shown the central role that native language plays in mathematical learning. Classroom-based research that focuses on equity for Latino students in mathematics makes a strong case for the use of the native language as a pedagogical resource (Celedón-Pattichis, 2008; Chval & Khisty, 2009; Moschkovich, 2007, 2010; Valdés, Bunch, Snow, Lee, & Matos, 2005). For Spanish-speaking Latino students, teaching practices that include Spanish-language support provide the best access to mathematical conceptual development (Thomas & Collier, 2002). As Spanish-speaking students transition to English in U.S. schools, a strong foundation in mathematical communication in their native language will help them develop and advance their mathematical concept knowledge while learning English and keep them abreast of their English-speaking peers academically (Cummins, 2001). Elsewhere, we discussed how native language is an intellectual resource for learning mathematics and provides access to cognitively demanding tasks and the transfer of concepts learned in the first language to the second language, minimizing the effects of ambiguity of language present in the context of problem solving (see Celedón-Pattichis, Musanti, & Marshall, 2010). Several studies have shown that primary grade Latino students from low socioeconomic backgrounds can be successful in cognitively challenging tasks when instruction allows them to draw on social, psychological and linguistic tools based in their native language and culture (Fuson, Smith, & Lo Cicero, 1997; Moschkovich, 2007; Turner & Celedón-Pattichis, 2011).

As mathematics instruction moves increasingly toward word problem-based curricula and the communication emphasis found in the National Council of Teachers of Mathematics standards (2000) and the Common Core State Standards (2010), language support for English Language Learner (ELL) and bilingual Latino students becomes increasingly important. Students will need the language skills necessary to engage in discussions about their mathematical ideas, communicate their thinking, explain their answers, make conjectures and justify their findings. Current research emphasizes the need for instruction that promotes mathematical discourse practices emphasizing multiple venues for meaning construction and the communication of mathematical ideas. An expanded definition of mathematical discourse is found in the work of Moschkovich (2007) and Khisty and Chval (2002). Moschkovich (2007) argues that students benefit from in-class discussions when teachers allow students to use all the resources available to them for communication and explicitly consider these as legitimate tools for expression, including their native language, everyday expressions, gestures and concrete objects. Khisty and Chval (2002) describe an example of this type of supportive classroom environment that is "filled with words – rich words – that students appropriate as their own, use as tools for their thinking, and use as tools to communicate their thinking" (pp. 4-5). The teacher in this study is very purposeful in how she uses and models language for the students. The discussions facilitated and enriched by this teacher begin with student thinking and input.

Equitable teaching and learning require focusing on students having frequent opportunities to solve relevant problems containing important mathematical concepts (NCTM, 2000; Turner & Celedón, 2011). Boaler (2008) and McClain and Cobb (2001) contend that success of reform-oriented approaches depends on teachers' increased attention to teaching strategies that may help students to participate in new learning practices. Specifically, children need practice with problem solving, reasoning, justifying, and communicating their thinking in both what they say and what they do (NCTM, 2000). Boaler (2008) highlights the importance of teachers' social and cultural awareness and sensitivity and the value of redesigning curricular materials based on

students' culture. Too often Latino children from low socioeconomic backgrounds are placed in classrooms where teachers believe students must develop facts through drill and practice before they can engage in more challenging cognitive activities like problem solving (Secada, 1991).

Research provides evidence that instruction can lead students to seeing themselves as participants of a discourse community and to develop an identity as mathematics learners (Schleppegrell, 2010; Willey, 2010). Allexsaht-Snider and Hart (2001) affirm that engagement, belongingness and confidence impact student achievement and are indicators of students being part of a mathematics classroom community. Similarly, Turner et al. (2009) show how kindergartners can become competent and confident problem solvers through a teaching approach that engages them in meaningful and cognitively challenging co-construction of mathematical ideas. Principled instruction is needed that creates a classroom culture that values mathematics, and provides dialogical and rich mathematical and language interactions (Chval & Khisty, 2009). Ultimately, reaching equity in mathematics education will be mirrored in "how deeply and completely [students] engage in efforts to learn mathematics and the degree to which they find the cultural patterns embedded in classroom processes accessible" (Allexsaht-Snider & Hart, 2001, p. 98).

Methodology

Participants. In this paper we present findings from a qualitative longitudinal project that involved seven participants over the course of four years. Specifically, we analyze data collected from the final year of this study concerning two Latina elementary bilingual certified teachers, Mrs. Karmen and Mrs. Norma[1], a kindergarten and first-grade teacher, respectively. Mrs. Karmen had taught less than five years; Mrs. Norma had taught more than 10 years. Although we worked with a unique set of teachers regarding their knowledge of bilingual education, none of them had had experience with CGI prior to the initiation of this study. We selected these participants because they chose to participate in a classroom-based CGI professional development; they were willing to integrate problem-solving lessons into their reform-oriented curriculum; they were teaching in bilingual classrooms with a high percentage of Latino students; they participated in a series of CGI professional development workshops during Spring 2007 and Fall 2008, and each of them was teaching in a different primary grade. In addition, the teachers agreed to participate in La Cosecha Dual Language Conference in 2008 as part of a joint presentation with the researchers. La Cosecha is an annual conference held in New Mexico, and its goal is to share knowledge and experiences that support dual language enrichment education (http://dlenm.org/lacosecha/).

Site. The study took place at an elementary school located in a major city in the southwestern United States. The student population was predominately low income Mexican immigrant and Spanish speakers. The school had a 90:10 bilingual program in which Spanish was used 90 percent and English 10 percent of the time in kindergarten, 80 percent in first grade, gradually increasing the use of English to 50 percent in fourth and fifth grades (Lindholm-Leary, 2001). The teachers were Latina women who spoke Spanish as their first language. They were teaching in bilingual classrooms in which mathematics was taught in Spanish. One English as a second

[1] The names of the participants have been changed to protect their identities.

language class was offered to students in the afternoon to teach basic academic vocabulary in English.

Classroom-based professional development. Our work involved developing professional development opportunities for teachers who were willing to learn about mathematical reasoning, problem solving, and language and culture issues in the mathematics teaching and learning of Latino students. We approached mathematics professional development from a contextualized perspective that responds to the cultural and linguistic needs of the student population, extending this notion to the needs of the teacher as well, and recognizing that each classroom of students has a unique dynamic relationship with each other and their teacher (Celedón-Pattichis et al., 2010; Musanti, Celedón-Pattichis, & Marshall, 2009).

We argue that situating professional development requires collaboration and involves in-depth consideration of the uniqueness of each situation and the multiple factors that affect classroom and school dynamics to propose formative experiences adequate to teachers' and students' needs. Therefore, we invited primary grade bilingual teachers to participate in the following professional development:

Intensive institutes dedicated to learn about CGI (Carpenter et al., 1999) and to deepen teachers' understanding of mathematical problem solving, and issues of language and culture in mathematics teaching and learning. We developed two institutes during the summer, each lasting two weeks and provided 3-hour graduate course credit.
In-class support involved frequent researchers' visits to the teacher's classrooms to model CGI problem solving lessons, to discuss different ways to implement problem solving activities, to collaborate in planning and implementing problem solving sessions with students, to provide resources to supplement mathematics curriculum, and to debrief classroom events related to mathematics instruction.
Workshops: We met six times for two hours during 2007-2008 with all the teachers from the school who were interested in implementing CGI in their classrooms. The workshops focused on learning about CGI.

The school had adopted Everyday Mathematics as its mathematics reform curriculum, which emphasized five process standards (NCTM, 2000): Problem solving, communication, reasoning, connections and representation. The professional development proposal afforded teachers ways to focus on understanding students' mathematical thinking through communication (Hiebert & Carpenter, 1992) and to supplement this curriculum by introducing contextualized problem solving. For instance, the teachers, who were familiar with students' daily experiences in the community or in the school, often invited students to co-construct the stories that were used to pose mathematical tasks. Students were active participants in generating themes connected to their experiences and used these as contexts to co-create word problems (see Turner et al., 2009). This process afforded students opportunities to have ownership of the context that was used to pose word problems.

Data collection. Considering the questions posed in this paper, we focus on data gathered between Fall 2007 and Spring 2008.

Interviews. Two semi-structured interviews were held with each teacher, each lasting between 45-60 minutes. The interviews explored teachers' perceptions of mathematics curriculum, teaching and learning, curriculum integration, the impact of culture and language in students´ mathematics learning, and teachers' knowledge of students. Interviews were audiotaped and later transcribed.

Observations. At the beginning of each semester we arranged a schedule of weekly classrooms´ visits. The schedule was altered only when another school activity was in place or when a teacher was absent. Therefore, we observed teachers´ classes on a regular basis while implementing CGI lessons, and as part of the in-classroom support provided by researchers. Field notes were collected for 23 of each of these lessons in Mrs. Norma´s classroom and 16 in Mrs. Karmen´s. The field notes covered classroom interactions, students' work, teachers' moves, and comments from debriefing sessions during which we reflected on the lesson's related events.

Videotaped lessons. During Fall 2007 and Spring 2008 several of these lessons were videotaped, 12 in Norma´s class and seven in Karmen´s. A content log was created for each videotape that served later to analyze each video and to select episodes of these lessons.

In addition, data were gathered throughout the process of planning and delivering a presentation for *La Cosecha Conference.* In Spring 2008, researchers proposed the teachers work on a joint presentation for La Cosecha conference that took place in November 2008. Four teachers agreed to participate. Their acceptance to the conference generated a collaborative work focused on analyzing classroom data (videotapes and student work) and discussing different aspects related to the way they had integrated CGI in their curriculum and regarding students´ work and learning upon that teaching approach. Each teacher prepared a segment of the presentation. This presentation constituted a sort of closure to the workshop series. The presentation was videotaped and transcribed. For the purpose of this article we focused on Karmen´s and Norma´s presentation segment.

Data Analysis. This study was the result of a collaborative professional development; therefore, data collection and analysis was approached not as an individual endeavor but as a collaborative process of constructing meaning as we collected and analyzed the data (Paulus, Woodside, & Ziegler, 2008). We used a constant comparative method (Strauss & Corbin, 1998) of analysis to our data including four interviews, field notes from 39 classroom observations, 19 videotaped lessons, and the transcript from La Cosecha presentation.

Data analysis consisted of two phases. Phase 1 consisted of researchers viewing all videotaped lessons several times to identify themes and patterns in teachers' instructional approach to integrating CGI problem solving strategies into their curriculum (Cobb & Whitenack, 1996). After watching the videotapes, the researchers identified the following three criteria to select 12 episodes for data analysis: 1) students solving challenging mathematical tasks, 2) verbal interactions between teachers and students showing different aspects of mathematical discourse, and 3) students' solutions to problems. In doing so, we observed recurring teacher patterns in revoicing, building mathematical discourse through retelling the story illustrated in the problems, and scaffolding students' thinking. In Phase 2, the researchers and teachers viewed these episodes for professional development purposes and to further the analysis. We focused on

reflecting to what extent these criteria were reflected in the episodes and if the episodes illustrated what teachers considered were the central elements of their instructional approach to teaching mathematics through problem solving. The researchers asked the teachers to select one episode to represent the findings at the conference. Episodes as a depiction of real events have been effectively used in qualitative research as a means to represent data (Cobb & Whitenack, 1996). Because episodes serve as a lens to zoom into the classroom, we decided the selected episode should illustrate our findings in this paper because it represented what teachers believed was a typical problem solving lesson.

The analysis process also included researchers individually open coding (Strauss & Corbin, 1998) the interviews' transcripts looking for themes in teachers' responses that illustrated the following: 1) their reflections about the impact of professional development on their own teaching and on students and 2) the use of the native language when integrating contextualized problem solving into the curriculum. A similar procedure was used to analyze field notes and later the transcript from La Cosecha Conference.

Internal validity of our findings was pursued through member checking with participants and triangulation in terms of multiple methods and sources of data collection and the involvement of researchers and the teachers to confirm emerging findings (Cobb & Whitenack, 1996). Even though analyzed data is limited to a one-year period, trustworthiness is ensured through our prolonged involvement in the field having worked during four years with the teachers and students developing an in–depth knowledge of them personally, their classrooms, teaching practices and beliefs. Moreover, conjectures raised through our data analysis process became a source of feedback to support and strengthen our professional development work with teachers.

In the next section we discuss our findings by illustrating each one with an episode chosen by the teachers to present at the conference as a way to provide an insight into their mathematics teaching. First, we discuss teachers' perception of students as mathematics learners and the centrality of building confidence on student's capabilities. Second, we present findings related to how teachers integrated a native language teaching approach to contextualize problem solving into their curriculum and the implications for equity. Finally, we present a discussion of the findings in terms of the implications for equitable mathematics teaching with linguistically and culturally diverse students.

Findings

Students´ identity as math learners: Building confidence and awareness of their capabilities.

At the beginning of the school year, Mrs. Karmen's kindergarten students needed a lot of support to stay focused during problem solving. Most of these students had not had previous schooling, some of them were still working on one-on-one correspondence, and some had difficulties expressing themselves verbally. During CGI workshops and debriefing sessions, Mrs. Karmen and researchers discussed how CGI based strategies could better support students' learning. She decided to work with this group on retelling the stories, using their spontaneous strategies for problem solving, and verbalizing their thinking. In general, her CGI lessons involved posing mathematics stories to the whole group and then asking one or more students to share their strategies. This work was followed by small group work. These activities afforded Mrs. Karmen

the opportunity to work closely with students who needed more individualized attention while working on eliciting their mathematical thinking.

Episode 1
The school year was ending and Mrs. Karmen decided to work with students on what counts as a different solution and as an efficient solution to problems. Mrs. Karmen started with the whole group sitting on the carpet. She posed a multiplication problem for the kindergarten students: I had three boxes. In each box I had 5 lollipops. How many lollipops did I have? Carlos and Andres shared their solution strategies and both arrived at a correct solution. Carlos counted by fives, and Andres counted by ones. Then, Mrs. Karmen started this conversation:

T: ¿Pero vieron que los dos tienen la razón? [But did you see that both are correct]
Ss: Sí. [Yes]
T: ¿Están equivocados o están bien? [Are they wrong or right?]
Ss: Están bien. [They are right.]
T: ¿Pero cómo saben que están bien? [*But how do you know they are right?]*
T: ¿Por qué están tan seguros que están bien? [*How are you so sure that they are right?]*
S1:(Showing with his hands) porque hay unos que los cuentan de dedos en dedos así lo van contando y luego él como los contó de cinco en cinco salteándose en cada número, . . .ya supo que eran quince . . .[Well, because there are some who find it [the answer] by counting with their fingers just like that. And then he counted by fives. He skip counted, and then after he skip counted each number, ... he knew it was 15.]
T: Y entonces los dos tenían la razón, uno contó de uno en uno y otro contó de cinco en cinco, pero ¿los dos están bien? [*So, then both of them were right. He counted by ones, and the other one counted by fives but, are both right?]*
Ss:Siiii [Yesss]
T: ¿Y cuál fue más rápido? ¿El que contó de uno en uno o el que contó de cinco en cinco? [Which one was faster? The one who counted by ones or the one who counted by fives?]
Ss: De cinco en cinco. [By fives]
T: ¿Por qué? [Why?]
K: Porque es más rápido. [Because it's faster]
Ss: (Some students start counting by fives) Cinco, diez, quince, veinte. [Five, ten, fifteen, twenty]
T: Muy bien, fue más rápido. [Very good, it was faster.]

Episode 1 shows the importance of teachers' role on scaffolding language as the medium of communication in the classroom and the way to help students understand formal mathematics. For instance, the teacher uses questioning to elicit students´ thinking process asking them how they know the answer is the right one and directing the conversation to identify the characteristics of the mathematical strategies involved by stating "*He counted by ones, and the other one counted by fives."* Mrs. Karmen ended this lesson by explicitly scaffolding students' thinking around what counts as a faster and more efficient strategy for problem solving while validating other ways to reach the right answer (McClain & Cobb, 2001). This type of verbal exchange was a pattern in Mrs. Karmen´s classroom during the CGI lessons.

Data shows how students are confident in their answers and how they articulate their thinking using mathematical language (e.g., "contando de cinco en cinco [counting by fives]") (Allexsaht-

Snider & Hart, 2001). Equitable teaching approaches need to build on Latino students' confidence as mathematics learners. As Mrs. Karmen explained,

Just the fact that math is not scary, that they can do it . . . No matter what it is – no matter if it's wrong: Just that they have that confidence in themselves in explaining things, mathematically and otherwise . . .Then they can do it. That's my main goal, so that they can have that confidence that most of them don't have.

Equity requires putting confidence at the center of students' achievement, especially in kindergarten, and creating teaching situations that make it possible. This means higher teacher expectations in terms of the complexity of students' mathematical learning (Turner & Celedón-Pattichis, 2011). As Mrs. Karmen explained to the audience attending our presentation at La Cosecha, the importance of our work lies in "demonstrating how young students can successfully solve complex word problems, before they master the basic facts. Also how word problems help develop a sense of the numbers. And how word problems lay the foundation for formal mathematical concepts." Overtime students became confident in their capabilities, were able to provide math stories to be solved by peers, took risks solving problems in different ways even when they reached an incorrect answer, and explained their thinking to the class as they solved a problem. This showed important growth compared to the beginning of the year when students struggled verbalizing their thoughts and retelling mathematical stories such as "*My mom bought me three cars. Then my grandmother bought 2 more. How many do I have now?"* We believe this is the result of an intense work of Mrs. Karmen to validate students' voice and thinking, for instance, acknowledging all answers as potentially valid and/or correct.

> I ask different kids and, if I have three that have different answers, I make all three come up and explain to the whole class. And then the class decides, who do you think is right. And then some of them know and some of them don't and then we work out all of those three problems and then they know.

Creating a safe classroom environment in which Latino students feel that they can be heard and they can think freely without being punished or labeled is central to building confidence in their capacity to learn and their identity as mathematics learners (Schleppegrell, 2010; Willey, 2010). Mrs. Karmen's students' achievement solving a multiplication problem and reflecting on the elements of a more efficient solution strategy is possible in the context of more equitable teaching (Boaler, 2008). At the end of the year, Mrs. Karmen reflected on the importance of providing opportunities for building mathematics discourse in Spanish:

> As I was telling you, in the beginning they [the students], many of them, would point to what they wanted but they would not say it. They did not have the words or they did not know the name of things, but not now, now they have to say with words what they want or what is happening to them.

The opportunities afforded to Latino students to learn challenging mathematics and to use their native language to communicate mathematical concepts are an equity issue (Turner & Celedón-Pattichis, 2011). In Episode 1, S1 explains why both students reached the correct answer using different but valid strategies. Building mathematics discourse in student's first language required

emphasizing the use of specific mathematics vocabulary as well as progressively incorporating more precise ways of explaining their ideas and strategies (McClain & Cobb, 2001; Thomas & Collier, 2002). According to Cummins (2001), teachers who use the native language empower students to engage in meaningful interactions. In this regard, Mrs. Karmen used CGI as a framework to understand students' learning and to scaffold students' thinking while probing for details using students' first language, as illustrated in Episode 1. Covering all teacher moves is beyond the scope of this paper, but researchers have documented clearly the ways that kindergarten teachers support the development of students' thinking in other studies (see Turner et al., 2009; Turner & Celedón-Pattichis, 2011).

Integrating problem solving to adapt curriculum to students' needs. During spring 2008, Mrs. Norma developed a series of lessons dedicated to base ten thinking. Mrs. Norma had noticed her first-grade students were struggling with this concept. In collaboration with researchers, a series of lessons were designed that centered on working with problem solving "mathematics stories" involving crayolas, a concrete element students were familiar with and could manipulate while problem solving. Mrs. Norma worked with different word problems that nudged students to develop base-ten thinking such as: Pedro has 4 boxes of crayolas and 14 singles. How many crayolas does he have total?

Episode 2
During the second lesson, Mrs. Norma had told students that they were going to work again on some mathematics stories about crayolas pretending that each bag she is holding is a box that contains 10 crayolas each. They are sitting on the carpet in front of the board. They had already worked on two problems. Now Mrs. Norma calls Andrea.
T: Vamos a suponer que Andrea esta vez tiene 3 cajas, ¿cuántas crayolas hay aquí? [Let´s pretend that Andrea this time has 3 boxes [shows three bags with ten each] …how many crayolas are here?]
Ss: [several students answer thirty]
T: Y además, ella tiene 22 crayolas sueltas. [And besides, she has 22 singles (grabs a bunch of crayolas)]
T: Vamos a ver, ella tiene 3 cajas de crayolas y 22 sueltas, ¿cuántas crayolas tiene? [Let's see, she has three boxes of crayolas and 22 singles, how many does she have?]
Julia says 53, Rolando says 35 – students are guessing. Julia is using the number line to count. Mrs. Norma shows each bag, and students count by tens. Then, she draws 3 boxes with 10 in each. Andrea takes the marker to draw the 22. Norma asks her to do it with tallies. First Andrea starts tallying singles. Then Norma asks if she can group them. She tallies groups of fives. Mrs. Norma draws the attention of all the students to the board. They count to see if there are 52. Andrea counts by 10s, then 5s, then 1s. She writes 52.

Episode 2 shows how the teacher moves from proposing students to solve a problem orally first with concrete support (using bags of crayolas and single crayolas) to representing the solution to the problem using tens and units. Mrs. Norma knows she has to scaffold by extending and by supporting students as they struggle with representation. She intentionally avoids using the "plus" sign in an attempt to provide them with the opportunity to use tally marks as a way to represent and group units. Presenting students with repeated opportunities to solve problems and make sense of the mathematics facilitated the acquisition of a repertoire of strategies that could

eventually become tools for future learning. Students were encouraged to communicate their thinking with words and pictures, which reflected multimodal representations (Chval & Khisty, 2009). In the following quote, Mrs. Norma assesses how as the year progressed the students showed that they were making sense of the mathematics in the problems.

> At the beginning of the year I would say the story or the problem and many would simply wait. Okay we're going to wait until the teacher does something. And now as soon as we start, we are getting the setting, we are getting into the mood, and I say the story and you already see little kids telling you what the answer is, they're already thinking of solving it. They're already solving it; they already did it. That's a big difference.

Students' progress was observed in terms of their ability to orally communicate their thinking process, in their capability to represent it graphically either drawing or with algorithms, and in their production of mathematics stories of increased complexity.

The decision of a prolonged work on this series of problems was to ensure students had opportunities to grasp a concept that the teacher considered fundamental for future successful learning. Mrs. Norma reflects on the need to supplement the curriculum:

> For example, unit 1 we are counting, [the curriculum] introduce[s] counting by tens, by fives, by twos, using the grid. No number stories at all. But in the assessment for unit 1, there is a story and [the curriculum] assume[s] that the kids are going to connect with it.

All the teachers perceived that the reform curriculum they were implementing at school did not provide enough opportunities for contextualized problem solving (Celedón-Pattichis et al., 2010). After more than seven years of experience teaching with this reform curriculum, Mrs. Norma feels capable to assess its potential and its lacking regarding students' learning needs.

> Last year and this year I realized that before I didn't do it. If it was not a part of the program it was like you kind of like forget about it. You don't do it. But the fact that we have that hour separated for that, it's like we're working a little bit every Wednesday and the kids are getting used to talking more, . . . explaining more, being more clear, I think it's crucial.

Mrs. Norma positioned herself as an authority in regards to the decision she has made of allotting time to work with problem solving from a CGI perspective and integrating it into her teaching. The importance of bilingual teachers' agency in relation to curriculum and policy enactment as well as their positioning as authority for curriculum implementation decision-making is a cornerstone element of equitable mathematics teaching (Musanti et al., 2009).

A critical component of using the native language is to understand students' mathematical thinking and to make connections between everyday language and mathematical discourse (Celedón-Pattichis et al., 2010). Accordingly, Mrs. Norma emphasizes enriching students´ vocabulary in a way that puts each new mathematical word into context while providing nexus to students´ culture and daily life (Khisty & Chval, 2002). She explains, "Because I teach in Spanish and I'm addressing them in what they know. But even though it's their native language

for the majority there [are] some words and concepts that they do not know for whatever reason." Mrs. Norma understands how mathematical discourse is constructed in terms of specific structures, lexicon, and practices. She does not lose sight of the sociocultural and linguistic context that makes meaning making possible, especially in relation to the mathematical concept each word represents. She provides an example: "The concept of '*suma*' [addition] would be one [they use more]. Because you are going to the store and you are buying and you are adding . . .so that you can pay the accurate amount." Mrs. Norma is aware of the nuances of native language and the effect it might have in building mathematical concepts if "rich words" learning experiences are provided (Khisty & Chval, 2002). She puts great care in creating situations that contextualize students' thinking and the mathematical problem, and scaffold the use of mathematical language. A follow up lesson in the base ten thinking series involved asking students to create their own stories about boxes and crayolas. She worked on the construction of the problem, the way to clearly formulate it and the identification of the question. Mrs. Norma thinks a requisite for being able to solve a mathematical problem is "That they understand what they are being asked. If it's orally . . . we try with the problems, . . . 'what is a story, tell me what is the story and what is the question'. To make them say it. That's one way."

In summary, Mrs. Karmen and Mrs. Norma offered learning opportunities for Latino students to develop mathematical thinking by providing access to the native language. In doing so, the students developed more sophisticated ways of communicating their own mathematical thinking.

Conclusions and Implications

In this paper, we described the role of language and equity on bilingual teachers' approach to teaching mathematics, and we explored how teachers' perceptions regarding the integration of contextualized word problems into the curriculum when teaching Latino students in Spanish impacted the opportunities for learning. In doing so, we provided illustrations that documented how teachers' instruction scaffolds students' mathematical thinking in their native language.

Mrs. Norma and Mrs. Karmen systematically reflected on the implications of using the students' native language as they integrated CGI into their teaching approach. They supported students' mathematical understanding and created rich language situations through which students could develop tools to enhance practices in communicating mathematically. The teachers' stance clearly shows their understanding of how language works in students' lives and the essential role the teacher plays in supporting students' growth in appropriating mathematical discourse and the specifics of each subject matter (Khisty & Chval, 2002; Valdés et al., 2005).

We acknowledge that classrooms where the language of instruction is the students' native language are not the rule. However, we contend that this work contributes to an understanding of the importance of the native language as a pedagogical resource and how its use can facilitate mathematical understanding and language development that is specific to mathematical explanations in any classroom that has students learning English as a second language. Moreover, research has documented teaching practices that can make a difference in Latino students' learning by providing quality opportunities for solving challenging mathematics problems (Chval & Khisty, 2009; Turner & Celedón-Pattichis, 2011). These practices are built upon teachers' beliefs of Latino students' capabilities as mathematics learners.

Both teachers acknowledged that equitable learning requires opportunities to foster students' mathematical thinking and communication skills in their native language. In this regard, teachers valued scaffolding language and thinking, so students felt confident about their learning capabilities and their mathematical understanding. This is only possible when teachers hold high learning expectations, consistently providing opportunities for Latino students to solve cognitively demanding tasks.

Bilingual teachers' professional development should grant opportunities to make instructional related decisions for equitable mathematics teaching based on their assessment of students' learning needs (Boaler, 2008; Flores, 2007). Building students' mathematical discourse should be a central concern for teachers including instruction that develops specific language structures, lexicon, and practices to effectively communicate mathematical concepts and to use as thinking tools in problem solving. Access to equitable teaching demands that teachers create a classroom community that talks mathematics, engages students in challenging mathematical tasks and positions the native language as a resource for teaching mathematics.

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A Snapshot of Latina/o Bilingual Teacher Candidates and their Use of iPads in an After-School Technology Program

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Abstract

This article draws from a larger three-year study of an after-school technology program with bilingual school children. The present data comes from one semester of data collection, which includes questionnaires with 22 bilingual teacher candidates (undergraduates); field notes of their interactions with their elementary school *compañeros (*or buddies) in the after-school program; and professors' reflective memos of in-class activities and local fieldwork. To the best of our knowledge, this is the first semester (fall 2011) that a university teacher preparation program in the state of Texas has utilized iPads for college classroom instruction simultaneously with local Latina/o elementary school students—all in a Spanish-English bilingual context. The findings indicate that bilingual teacher candidates are not always afforded enough computer technology access and training in their educational coursework nor in their field experience; however, when immersed in a project designed for students to experience advanced technologies such as the use of iPads, the experience benefits both bilingual teacher candidates and the young bilingual learners with whom they work.

Keywords: *Latino preservice bilingual teachers, technology, iPads, teacher education, after-school programs*

Introduction

Unlimited access to technology and its multiple uses is a worthy goal in contemporary educational communities because academic research has found that technology aids educators in preparing students for the workforce needs of the 21st century (Brown, 2009; Macias, 2003; Macias, Cutler, Jones, & Barreto, 2002; Reyes & Rios, 2003b). A closer look at technology accessibility in educational communities indicates a greater need for both access and use of technology by students, teacher candidates, and in-service teachers (Charoula, 2005; Gray, Thomas, & Lewis, 2010); technology self-efficacy perceptions (Bai & Ertmer, 2008); the use of technology to mediate learning that incorporates academic content (DeGennaro, 2010; Duhaney,

2001; Fuller, 2010; Krueger, Hansen, & Smaldino, 2000; Rakes, Fields, & Cox, 2006); and an understanding of the inequity of technology access and use among diverse communities (Bishop, 2000; Brown, Higgins, & Hartley, 2001; Hansen, Donovan, & Fitts, 2009; Macias et al., 2002; Reyes & Rios, 2003a). This last aspect of inequity of technology access is considered the digital divide (Norris, 2001).

The role of bilingual educators in closing the digital divide is particularly critical for Latina/o and other minority populations (Brown et. al., 2001; Macias, 2003; Reyes & Rios, 2003b; Shah & Marschall, 2011; Tripp, 2011) because Latinas/os make-up a rapidly growing population in the US who require better access to and everyday use of technology, both at home and in school settings (Sánchez & Salazar, 2012). Additionally, Brown, et al. (2001) and Hansen, et al. (2009) have presented data indicating that Latina/o teacher candidates and the teacher preparation programs they are enrolled in are among the main groups currently affected by lack of access to technology and usage. This discrepancy is of great significance, as Latina/o teacher candidates and experienced teachers represent the main facilitators of technology use and access for students, particularly in Latina/o-dominant communities, schools, and Hispanic-serving institutions. Research is beginning to provide data on the digital divide, distinguishing between those that have or do not have access to technology and technology use (Fletcher, 2010; Norris, 2001; Tripp, 2011); however, further explanation about the multiple aspects that influence technology use and the impact on Latina/os academic achievement and professional preparation is scarce (Bishop, 2000; Hansen, et al., 2009).

The present qualitative study is part of a larger three-year study of an after-school technology program called *La Clase Mágica* at UTSA (or LCM@UTSA). This particular article focuses on one semester's cohort of Latina/o bilingual teacher candidates and their technology use and access in three spheres: 1) During their participation at LCM@UTSA with young bilingual elementary school children, their *compañeros* or buddies; 2) At the various sites of their field experiences as practicum interns during the same semester; and 3) Their current personal access to technology and experiences with technology as well as those they had during their own childhoods. Our main research questions, then, are the following: What are the perceptions of Latina/o bilingual teacher candidates about their access, knowledge, and use of technology in their teacher preparation program (in the after-school program and in their practica)? What are Latina/o bilingual teacher candidates' perceptions about elementary bilingual students' (their *compañeros'*) proficiency in and access to technology, both at school and at home? Which prior experiences with technology do these same Latina/o bilingual teacher candidates possess?

Theoretically, drawing on Vygotsky's (1986) social interaction framework, this study looks at technology learning and skill development as a result of mediated learning, both through interaction with technology tools (computer and other technology equipment) and with assistance from teachers and other more experienced technology experts. Vygotsky, according to Wertsch (1985), believed that "children solve practical tasks with the help of their speech as well as their eyes and hands" (p. 23). Additionally, social interaction theory proposes that learning in the interpsychological plane is mediated through a process known as scaffolding, in which the learner engages with cultural artifacts and/or another culturally knowledgeable person (Vygotsky, 1986). In this study, teacher candidates, previously trained in their college program,

mediate learning through mentoring students in solving and exploring activities with iPads designed to incorporate speech, visual aids, and hands-on experience.

Moreover, teacher candidates and iPads serve as scaffolding tools to mediate learning within students' levels of language and technology knowledge and in creating new levels of knowledge in both areas. The gap or distance between these two levels is defined in Vygotskian theory as the "zone of proximal development"—the distance between the actual level of development determined by the independent problem solving and the potential level of development occurred in problem solving as guided in collaboration with adult or other capable peers (Wertsch, 1985). In this study, teacher candidates' mentoring and the iPad-centered activities that students complete at their own level are mediating tools which support bilingual Latina/o students´ biliteracy (literacy in two languages) and technology skills.

In the following sections, we discuss the importance of technology access in education and provide readers with an overview of research regarding technology use and access by teacher candidates as well as in-service teachers, both for the general teacher population and findings specific to Latina/o and bilingual educators. We also discuss the background of the after-school technology program, LCM@UTSA, to better ground the study. Next, we detail the setting, describe the 22 bilingual teacher candidates, share some descriptions about their *compañeros*, and elaborate on our data collection and analysis. We then present findings from our study that addresses our three main research questions. Lastly, we provide a discussion related to the findings and how the results may be of importance for teacher preparation programs, along with suggestions for further research.

Teachers, Teacher Candidates, and Technology

A teacher candidate's ability to navigate and create new, technology-based instructional experiences for students is a skill that is at the forefront of what schools today consider necessary competencies. In fact, the Texas Education Agency includes in its annual questionnaire of public school principals questions regarding a first-year teacher's abilities in technology (Texas Education Agency, 2009). However, technology is not at the forefront of most teacher education program thinking and planning (Stobaugh & Tassell, 2011). Charoula (2005) reported that only 44% of new teachers (1-3 years of experience) feel prepared to integrate technology in teaching and learning.

Technology learning and integration through adequate opportunity, guidance, and support for teacher preparation programs in colleges and universities is fundamental in the 21st century (Brown et. al., 2001). According to Stobaugh and Tassell (2011), universities are altering their courses to include the introduction and use of technological tools to enhance classroom instruction. Their study found that for teachers to expand their use of technology, they need training that addresses their specific instructional needs, instead of general technology integration strategies. Thus, planning and thinking in relation to technology instruction must extend far beyond instructing teachers to use technology to write lesson plans or curriculum guides.

The hope that future teachers will possess the skills to design meaningful technology-mediated learning experiences is reinforced by Rakes, Fields, and Cox (2006) and DeGennaro (2010), who

claim that the connection between learning and technology must be modeled in teacher preparation programs. In this way, teachers are not only technologically-savvy, but understand the myriad meaningful ways that learning can happen when technology is used in instructional practices and introduced into the curriculum. Wikis, storyboards, a questionnaire, and digital stories are discussed as examples of how technology creates meaning when utilized creatively and appropriately (DeGennaro, 2010). Fletcher (2010), in studying teacher candidates' knowledge of technology in the classroom, found that preservice teachers thought that the best way to learn about such technology was through student teaching and the modeling of technology applications by their professors. Similarly, Hansen, Donovan, and Fitts (2009) and Rakes, Fields, and Cox (2006) reported on teachers' perceptions of their technology self-efficacy, primarily influenced by their college professors' input, and cooperative modeling in the use and integration of technology in college preparation programs. Furthermore, Bai and Ertmer's (2008) study on teacher candidates' beliefs and technology attitudes found that taking an introductory educational technology course was helpful in improving preservice teachers' technology attitudes related to educational benefits.

Preservice teachers' technology competencies determine how technology is provided and used in the classroom. Their self-efficacy and competence in computer technology, technology skills, technology modeling, and type of computer programs, in turn, are reflected in teachers modeling technology themselves during learning activities (Brown et al., 2001; Fleming, Motamedi & May, 2007; Hansen et al., 2009). Thus, much work still needs to be done to foster the infusion of technology into the K-12 curriculum, including examining new ways to provide teacher candidates with the tools to be technology leaders—sharing their knowledge with seasoned colleagues and providing students with up-to-date, technology-related experiences (Krueger et al., 2000). This is especially important given the fact that experienced teachers can be resistant to learning new technologies (Whetstone & Carr-Chellman, 2001).

Meaningful, technology-related experiences that prepare students for the demands of the 21st century are not occurring in the classroom (Norris, 2001). For example, Duhaney (2001) reported that most of the technology-related instruction observed was related to *teaching* technology instead of *using* technology as a component to be integrated across the curriculum. As such, teachers are being taught how to operate a computer or a digital projector, but not how to integrate these tools into their instruction. As a result, teachers may know how to connect the right plugs into the correct places, but they are not manipulating technology to enhance the learning process. Furthermore, Bauer and Kenton (2005) noted that technology was not integrated in daily learning and teaching practices. Although their 30 "tech-savvy" in-service teachers were skilled in technology, they reported not using technology for instructional delivery during academic programs. It is essential that students who will be required to use technology daily in the real-world be taught technology competency on a daily basis, employing and practicing necessary skills as often as possible. Only by modeling and facilitating technology usage and technology-related experiences can teachers hope to transmit their technology skills to students**.** Across several different studies, researchers found various reasons why teachers did not integrate nor use technology on a more regular basis in their classrooms; these reasons include: 1) students may have limited experiences, skills, and time on computers; 2) teachers lack time for planning and lesson preparation that uses technology; and 3) schools provide insufficient software and technical support (Bauer & Kenton, 2005; Fuller, 2010; Tripp, 2011).

The nuance of defining what technology education means is pivotal to the role that teacher candidates play in the technology-related instruction of their students. Whether at the college-level or in the K-12 classroom, what it means to *use* technology must be clearly articulated. Moreover, while issues of lack of time, limited access, and insufficient software are obvious obstacles, the alternative, allowing technology-based instruction to fall by the wayside, can no longer be an option, especially in low-income and minority communities. Few studies have focused on the concerns related to Latina/o teacher preparation programs and the inequality of technology quality access and availability for Latinas/os (Reyes & Rios, 2003b). Attention must be paid to the potential social impacts of technology access and knowledge, particularly when it impacts students and communities of color.

Our study extends research that focuses on the challenges of Latina/o and minority communities (Macias et al., 2002; Reyes & Rios, 2003b), particularly research related to teacher candidate programs, in-service teachers, and how teachers candidates integrate technology for academic development in the classroom (Hansen et al., 2009; Rakes et al., 2006). First, there is an underrepresentation of Latina/o faculty to work with teacher candidates across the US. For example, in Texas in 2003, Hispanic student enrollment was 28%, and in 2005 the faculty at community colleges was only 12% Hispanic (Harris, Joyner, & Slate, 2010). Secondly, Latina/o teachers themselves are part of a minority community. Minority groups represent a population with less access to technology (Brown et al., 2001; Reyes & Rios, 2003b). Romney (2000) reported that 42% of Latino households own a computer compared to 60% of non-Hispanics, and that only 23% of Hispanics have Internet access compared to 46 % of non-Hispanic whites.

Our research is centered on Latina/o candidate teachers' considering their college and pre-college experiences with technology, not only as future teachers, but also as minorities who will likely work with minority students. We consider that once these teacher candidates graduate and join the community of in-service teachers, they become responsible for creating new technology access and competency development for future generations of learners, particularly Latina/o and minority students. These minority students represent 32% of the nation's children (Rakes et al., 2006), and, in many cases, are considered at risk for school failure (Brown et al., 2001).

By connecting the teacher candidates' experiences with the technology needs and experiences of bilingual learners currently attending public school programs, our study explored another dimension of teacher candidate technology access and use. We focused, then, on preparing teacher candidates for a culture of mentoring, providing adequate guidance and support for learners (Brown, 2009), and becoming a source for new technologies in schools (Brown et al., 2001; Fleming et al., 2007; Hansen et al., 2009).

Background on the After-School Technology Program

The findings from this study come from an after-school technology program called *La Clase Mágica* at UTSA (LCM@UTSA), which is a partnership effort among the Academy for Teacher Excellence at UTSA, Los Arboles Elementary[2], the surrounding community, and Los Arboles' families. The Academy for Teacher Excellence's mission includes supporting Latina/o students to overcome barriers that hinder their academic achievement. LCM@UTSA is designed to

[2] Los Arboles Elementary is a pseudonym.

promote the academic achievement of bilingual Latina/o elementary-age students, particularly in the areas of bilingualism, biliteracy, and technology (for a detailed description of *La Clase Mágica* [LCM], see Vásquez, 2003). The objectives of LCM@UTSA include (1) the use of technology for learning and teaching and for developing cultural awareness, (2) activities that allow children and families to practice their heritage language and literacy, and (3) the use of manipulatives and technology to enhance scientific and mathematical knowledge. Still, many technology-related areas are in need of attention to insure that technology is available to bilingual learners, particularly considering technology preparation and opportunities that contribute to Latina/o candidate teachers' and teachers in-service technology self-efficacy (Hansen et al., 2009). The present study represents an effort in the endeavor to support Latina/o and other minority preservice/candidate teachers with opportunities to access and increase their technology competencies, which in turn may be reflected in their future endeavor to support technology access, use, and competency development by Latina/o bilingual learners in schools.

Now in its third year, cohorts of bilingual teacher candidates (20-25 each semester) take a class at the university campus that directly ties into the after-school technology program at Los Arboles. Each semester, these bilingual teacher candidates are required to attend LCM@UTSA once a week for 2 hours in the elementary school's computer room. With the Academy for Teacher Excellence's support, UTSA students are provided with hardware to use with Los Arboles Elementary school students; during the fall of 2011, undergraduates were issued iPads for one full semester. (During previous semesters, students received an iPhone, or netbook, or iPod touch that they were allowed to keep well after the full semester). Each bilingual teacher candidate is paired with one child with whom to engage in various online activities, write digital stories, use mobile device apps, and explore other educational software. Children then write letters (either via e-mail or by hand) to a magical being called *El Maga* (The Wizard), telling *Maga* about their adventures. They also travel through an online maze or *El Laberinto Mágico,* completing task cards that require different levels of technology competence and literacy abilities. The faculty member who teaches the university course is also part of the fourteen-member project team working with LCM@UTSA's implementation, maintenance, and improvement. One professor and two doctoral students from this team are the authors of the present article.

Methods

To help readers gain a better sense of our qualitative, descriptive study, we share the broader urban landscape as well as details about our participants, data collection, and analysis.

The Study's Context: A City in South Texas. Our study was located in South Texas in a city that is predominantly Latino. San Antonio has a population of 1.3 million that is comprised of 63% Latina/o residents (U.S. Census Bureau, 2010). Of the 1.3 million residents, 14% are foreign-born (U.S. Census Bureau, 2006-2010). In addition, the 2000 Census identified 44% of the population in San Antonio as Spanish speakers (Romo, 2008). In this region of the state, it is not uncommon to hear residents speaking "a mixture of Spanish and English in their homes and communities" (Romo, 2008). This majority Latino population fosters a way of life, a culture, and a language that is not unlike that found along the US-Mexico border.

Participants. In this study, the 22 Latina/o preservice bilingual teachers—both traditional and non-traditional college students—were overwhelmingly female and seeking certification in grade

levels Pre-K to 6th grade. While they all spoke English and Spanish, there were varying levels of oral and written bilingualism among the group. In addition, participants came from different immigrant backgrounds: long-term *Tejanas*; bordertown, second-generation Mexican-Americans; *Fronterizas* who grew up on both sides of the Texas-Mexico border; Mexican nationals; a *Cubana*; a *Costa Ricense*; and self-identified *Chicanas*. Of the 22 participants in this study, two were Latino males. All participant names have been changed to pseudonyms.

The bilingual elementary school students with whom the teacher candidates worked in LCM@UTSA consisted of 23 students, nine boys and 14 girls.[3] All attended Los Arboles Elementary and were enrolled in the school's dual-language program. In terms of their grade levels, this is their distribution: three of the students were in kindergarten; one was in first grade; four were in second grade; three were in third grade; 10 were in fourth grade; and two were in fifth grade. Thus, the greater portion of the 23 children were in upper-level elementary grades. LCM@UTSA allows participants to continue their participation each semester; there is rarely a large number of new elementary-school participants. (Instead, the new participants are the different cohorts of undergraduate bilingual teacher candidates who rotate through LCM@UTSA). During the fall 2011 semester, thirteen of the elementary school students had been involved in LCM@UTSA at Los Arboles for two years, three students had been involved for one year, and seven were new to the program.

Data Collection. The present qualitative data comes from one semester of data collection, which includes a questionnaire administered to a convenience sample of 22 bilingual teacher candidates participating in LCM@UTSA. Analysis in this article focuses on the questionnaires administered to the Latina/o bilingual teacher candidates. However, we also used other data, collected as part of a larger evaluation of the after-school technology program; this included weekly field notes written by the teacher candidates (in either English or Spanish) when they went to Los Arboles Elementary as well as reflective memos kept by the university instructors during the semester in which iPads were incorporated into LCM@UTSA.

The researcher team created the technology questionnaire across three meetings in which the researchers discussed the primary areas of interest: access to technology, both current and in the past, and in personal and professional spheres; reflection on technology-related competency over the semester as determined by the teacher candidates in reference to their elementary buddies; and familiarity and interaction with the iPad and its applications. The genesis of the questionnaire was to capture the multidimensional world of the bilingual teacher candidate who has her training infused with technology, and yet, may not live this reality at her field placement site nor in her immediate past. A pre-existing survey on preservice teachers and technology was used as a preliminary model (Whetstone & Carr-Chellman, 2001).

Concerning validity, we found that that our sampling procedure (i.e, the questionnaire and convenience sampling) matches our given research questions, and made a conscious effort to promote communicative validity, dialoguing among those considered limited knowers on our topic (i.e. the researchers, participants, and related literature) and allowing for refutation and in-depth discussion of our findings (Hesse-Biber & Leavy, 2011).

[3] The reader will note that there were more elementary school students (23) than bilingual teacher candidates (22). One undergraduate was, therefore, assigned two *compañeros* with whom to work.

The questionnaire itself consisted of two parts (see Appendix A): the first part contained questions aimed at identifying the Latina/o preservice bilingual teachers' prior experiences with technology. This consisted of questions about access to technology both as college students and while growing up, as well as their familiarity with the iPad and its applications prior to participation in LCM@UTSA. The participants were also asked to address iPad issues they felt needed to be more thoroughly explained via training in the future. Responses to access to technology questions and future training were contingent on predetermined categories (i.e. personal desktop computer, internet service, cell phone, general usage, troubleshooting). Two questions on the questionnaire dealt specifically with technology access at their respective field placement sites and the ways that their cooperating teachers used technology in the classroom. We asked these two questions because the undergraduates were not only participating in LCM@UTSA that semester but also logged 60 or more hours at other local elementary schools serving bilingual students.

Part two of the questionnaire asked participants to rate their LCM@UTSA *compañeros'* proficiency on iPad-related software and applications, both at the beginning and the end of the semester. Participants were also asked to rate their assigned buddies' access to technology in their homes, local community, and at Los Arboles Elementary. Responses to these questions were based on a rating scale of beginner, intermediate, and advanced. These ratings are consistent with the weekly LCM task card activities completed by the elementary students. Each task card consists of one activity at each level of competency (beginner or *principiante*, intermediate or *intermedio*, advanced or *experto*) (see Appendix B). Each week, the preservice teachers assesses the elementary student's technology competency, staying on one level if further instruction is required or moving on to the next when competency has been achieved. As such, the teacher candidates are able to assess their elementary students' competencies over the period of an entire semester, resulting in a fair gauge of technology competence on the questionnaire.

The questionnaire was administered in English at the end of the fall 2011 semester. The 22 bilingual teacher candidates were given as much time as needed to complete the questionnaire, and were given the opportunity to ask questions to clarify any item on the questionnaire; they were free to respond in English or Spanish (though all responded in English). Upon collection, the questionnaire results were tallied by hand; the results are reported in totals and percentages in the following section.

Findings

In this section, we discuss the range of the preservice teachers' experiences with technology (both personally and professionally) and the technology experiences and proficiencies of the elementary students with whom they worked in LCM@UTSA—primarily using data from our questionnaire. We highlight the main findings with direct quotes from the open-ended questions on the questionnaire, the student field notes, and the university instructors' reflective memos.

The Latina/o bilingual teacher candidates (n = 22) were asked to describe the current technologies they had access to in their home or dormitory. Fifty-nine percent of participants had access to a personal desktop computer; 77% had access to a personal laptop computer; 18% had access to a personal, non-school-issued iPad; 82% had access to a smart phone (i.e. iPhone); and 91% had access to Internet service. This is not unlike what one of the professors stated in a

reflective memo she wrote about the college students' generally high level of technology proficiency:

> I am impressed by how this group [of students] has latched onto the use of the iPad; they show ease and confidence in adopting it, whereas in the past, I have had cohorts a bit more resistant to technology. Out of all the students [in my class], only [one male student] seems to be a bit lost and less experienced in using technology like the iPad. I am guessing that a lot of these pre-service teachers have iPhones or smart phones. I did way less tech trainings [this semester] because I did not have to. Or maybe the iPad is also a more user-friendly tool.[4]

In the past, LCM@UTSA has used iPod Touches, iPhones, and netbooks for both instruction in the university teacher education courses and in the afterschool technology program (see Ek, Machado-Casas, Sánchez, & Alanis (2010) for more details). This particular professor recalls the difficulty in implementing these technology tools with past teacher candidates and that it required more technology training sessions to get the teacher candidates proficient in their new technologies.

According to our questionnaire results, prior to participation in LCM@UTSA, 82% of the Latina/o bilingual teacher candidates had never used an iPad, 9% had used an iPad at least once, and only 9% had used an iPad on a daily basis. This is what several of them stated, regarding the use of the iPad this semester:

- *The iPad was the first time I ever used a touch screen.*
- *Having technology literally at my fingertip! Great that I could carry it anywhere I went!*
- *Learning to use the iPad with my [LCM] student was fun. We learned a lot of interesting thing about apps.*

These brief responses to open-ended questions on our questionnaire demonstrate the enthusiasm for this new technology and the range of their familiarity with iPads.

At the end of the preservice teachers' first semester participating in LCM@UTSA, when the questionnaire was administered, 55% of the Latina/o bilingual teacher candidates rated their familiarity with apps on the iPad as advanced; 23% rated their familiarity with iPad applications as intermediate; and 23% rated their familiarity with iPad apps as beginner. As such, nearly half of the teacher candidates reported proficiencies at intermediate and below. These findings indicate that while the teacher candidates came in with strong exposure to technology, further training is necessary to reach an advanced understanding of how to find, download, and successfully utilize iPad applications. The beauty of mobile technology like the iPad is fully taking advantage of its associated apps, especially as these relate to educational settings.

[4] All grammatical and spelling errors from professors' reflective memos, open-response questions on the questionnaire, and students' field notes were left unchanged.

For a different professor, who also taught the bilingual teacher candidates during the semester that the iPads were introduced, the "beauty" of the iPad was the seamless transition during university classroom instruction:

> I remember when I was the lead professor for LCM and the students received netbooks that semester. Now that I look back, those things [netbooks] were clunky! The students had to have them attached to a power source, it would take them forever to start up, and even having to "open" them was bothersome because the netbook's unfolded top was a barrier between me seeing my students and they seeing me. But the iPads are like an extension of the students' bodies, and of themselves, essentially. It is effortless how they pair up or form groups and take their iPads with them, surf the 'net, or complete an in-class activity that I give them. It's great to have these [iPads] in class.

The seamlessness that the above professor describes is similar to what many teacher candidates expressed in their field notes: they noted how their *compañeros* picked up the iPad and used it at any possible moment—whether they were in the cafeteria eating their snack, in the computer lab working on the maze, or in the hallways making short videos. One teacher candidate wrote: "[While the kids ate their snacks in the cafeteria], Araceli showed her older sister what games she liked and how to play them; she knows how to use the iPad better than I do and she is in kinder."

In terms of technology-related use in LCM@UTSA, 73% of the participants noted that they used technology to complete assignments in LCM@UTSA more than compared to other education courses they were enrolled in that same semester. This indicates that the teacher candidates increased their use of technology when they were provided with a mobile device such as the iPad and were involved in two tech-infused spaces: their teacher preparation course aligned with LCM@UTSA and the afterschool program at Los Arboles Elementary, itself. Additionally, ninety-five percent of the bilingual teacher candidates reported using PowerPoint, 82% reported using Word, 27% reported using Photoshop, and 32% reported using MovieMaker to complete technology-related tasks for their courses or for LCM@UTSA.

In other technology-related areas, the preservice teachers rated their end-of-semester knowledge of digital camera use, photo-sharing, Dropbox[5], FaceTime[6], and video creation software (Table 1). The proficiency levels in Table 1 are indicative of the types of assignments that the teacher candidates were required to complete throughout the semester in LCM@UTSA and in other teacher preparation courses. The advanced proficiencies in using digital cameras (68%), photo-sharing programs (68%), iPad apps and downloads (55%), and video software such as MovieMaker (55%) exemplify the types of technology that students are utilizing in completing their course work. For example, the preservice teachers were required to use the iPad camera to film their elementary students on-task, both in video and photo form, and then to share those videos and photos via photo-sharing programs and video software.

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[5] Dropbox is an online backup service where users can store files, photos, and videos for free. It was founded in 2008.

[6] FaceTime is a video calling app developed by Apple, Inc., and launched in 2010.

Table 1. Bilingual Teacher Candidates' Self-Assessed Knowledge of Technology Applications

Application	Beginner	Intermediate	Advanced
Digital Camera		**32%**	**68%**
Photo-Sharing		**32%**	**68%**
Dropbox	**59%**	**27%**	**14%**
iPad Applications/Downloads	**32%**	**23%**	**55%**
FaceTime	**59%**	**23%**	**18%**
Video Software (i.e. MovieMaker)	**5%**	**41%**	**55%**

On a weekly basis, the teacher candidates shared and supervised the use of educational iPad applications that had been downloaded for use by their elementary school *compañeras/os* (their assigned elementary school student in LCM@UTSA). The high beginner proficiencies reported for Dropbox (59%) and FaceTime (59%) are an example of new trends in technology that teacher candidates are not familiar with due to lack of a requirement to use these programs to complete assignments. Moreover, when asked how often they were required to use technology to complete assignments and homework in their other teacher preparation courses in the semester that they participated in LCM@UTSA, 73% of the teacher candidates reported that they were required to use technology more in LCM@UTSA than in their other courses. These responses demonstrate both the areas where technology is being utilized and practiced, and areas where further technology training is needed.

In addition to assessing themselves, the teacher candidates were asked to rate the technology proficiency of their *compañeras/os.* They used the following categories: beginner, intermediate, or advanced, both at the beginning and the end of the semester (Table 2). The pre-service teachers were familiar with the expectations of each category (beginner, intermediate, advanced) because the task cards utilized in the maze with the elementary-school children (see Appendix B) have levels with the same categories.[7] Student proficiency in relation to the iPad increased 22% in the advanced category, from 23% to 55%. Forty-one percent of students were rated advanced in navigating the Internet at the beginning of the semester, while that number rose to 59% at the end of the semester, an 18% increase. In all categories, beginner and intermediate ratings dropped by at least 5%, with the highest drops reported in relation to the categories of general use of the iPad (an 18% decrease), iPad Apps (a 22% decrease), and PC keyboard use (an 18% decrease). An advanced rating in email use doubled, from 18% to 36%. In the iPad Apps category, there was a visible shift across the ratings from beginner to intermediate to advanced. Fifty percent of students were rated advanced in ability to use and navigate the iPhone.

The teacher candidates observed these findings in the weekly procedures of LCM@UTSA. In the span of the ten-week program, the teacher candidates observed the elementary school students' progress in the aforementioned categories. For example, the elementary school students were required to access the Internet to complete educational lessons on task cards (see Appendix B) as well as to write conversational emails to *El Maga*, explaining their progress, sharing school-

[7] However, as researchers we know that this rating of children's technology abilities is a limitation to this study because of the discrepancies that exist among each teacher candidate's perception of ability.

related activities or any other events/happenings from their daily lives. For example, here is a short letter from Henry, a kindergartner, sent to *El Maga* via email during Week 4: *"¿como estas?. ¿cuando vas a comer a* chicken fillet? i love to go there. bye, henr"

Henry's *compañera,* Griselda, shared this short *El Maga* letter in her field note to illustrate how Henry had advanced with his keyboard skills. During this particular week, Henry insisted that he alone type his entire letter to *El Maga.* Many of the younger children used the PC desktops in the computer lab to better write their correspondence to *El Maga* each week. However, the older students were able to use the iPad for this activity. In the next example, Sonya, a teacher candidate, describes how her 4th-grade *compañera,* Marisol, becomes excited when she learns that she can indeed write letters to *El Maga* with the iPad instead of the desktop:

> *...vi a [otra pareja] que se sentó al lado usando el iPad para hacer lo de el Maga y me dio la idea de hacer eso, ya que no lo había experimentado con Marisol. Primero le pregunte que si quería leer y hacerle la carta del Maga por el iPad, y me dijo, "¿Se puede?" con asombro. Y le dije que claro! Ella de volada me dijo que si y me dijo "Donde le pico?" Ya le señalé el ícono del app de Moodle y ella lo hizo. Me conecté a Moodle y empezamos a escribirle al Maga.*
>
> …I saw that [another pair] next to me was using the iPad to write to *El Maga* and I got the idea to do the same; I had not yet done this activity with Marisol [on the iPad]. First, I asked Marisol if she wanted to read and write the letter to *El Maga* via the iPad, and she said surprised, "You can do that?" And I said of course! She quickly told me yes and asked, "Where do I start?" I showed her the Moodle app icon and she did it. I logged into Moodle and we started writing to *El Maga*.

This same example features Vygotsky's (1986) sociocultural dimension of learning we mentioned earlier, where a more experienced community member serves as a guide or scaffolds the learning for others. In the above example, Sonya learns from the pair of buddies sitting next to her, and in turn, teaches her own *compañera.* As noted in the methods section, 16 of the elementary students had participated in LCM@UTSA for over a year, and, thus, were exposed to the iPhone before the iPads were added to the program in Year 3. Many of the features of the iPad are the same features as those on the iPhone, with the exception of the phone call feature. It is our assertion that repeated use of the iPad and the computer for sending emails and browsing the Internet under the supervision of the preservice teachers allowed for consistent measurable progress across the categories. Reinforcing their technology skills through weekly access and technology-related opportunities provided the bilingual children the opportunity to strengthen their capabilities throughout the semester.

Ultimately, the bilingual students in LCM@UTSA were rated as 9% beginner, 32% intermediate, 45% advanced, and 14% advanced high at the end of the semester in overall technology competence (Graph 1). This is noteworthy and a testament to consistent practice with not only technologies that are readily available but with ever-advancing devices and applications.

Graph 1. Technology Competence of LCM@UTSA Participants (Bilingual Elementary Students)

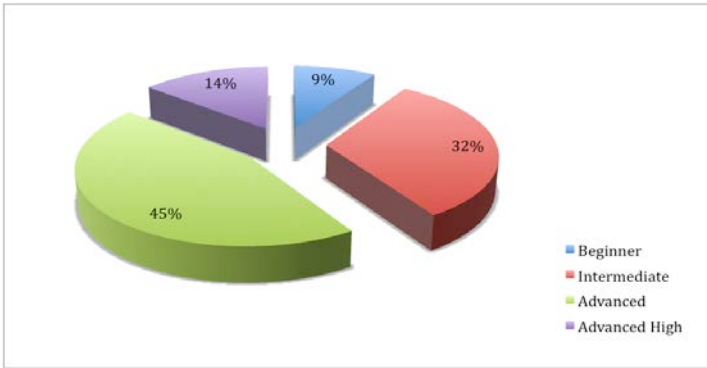

Table 2. Technology Proficiency of Bilingual Elementary Students across One Semester in LCM@UTSA

Application	**Rated as Beginner**		**Rated as Intermediate**		**Rated as Advanced**	
	Start Sem.	End Sem.	Start Sem.	End Sem.	Start Sem.	End Sem.
Desktop	23%	**9%**	(41%)	**36%**	36%	**55%**
Mouse	18%	**5%**	18%	**18%**	64%	**77%**
iPad (General)	32%	**14%**	45%	**32%**	23%	**55%**
Email	41%	**27%**	41%	**36%**	18%	**36%**
iPad Apps	36%	**14%**	32%	**45%**	32%	**41%**
PC Keyboard	36%	**18%**	27%	**32%**	36%	**50%**
Photos	27%	**18%**	23%	**23%**	50%	**59%**
iPhone	32%	**27%**	27%	**23%**	41%	**50%**
Internet	18%	**18%**	41%	**23%**	41%	**59%**

To obtain a broader picture of the children's technology experiences, the preservice teachers were asked, "As you learned more about your elementary student this semester, which of the following technologies do you believe s/he has access to in her/his household?" The teacher candidates reported the following: Fifty percent of students had access to a personal desktop computer; 5% had access to a personal laptop computer; 9% had access to a non-school-related iPad; 23% had access to a smart phone; 45% had access to Internet service; and 59% had access to a cell phone. For the elementary students, access to a personal computer at home is slightly higher than the average for Latino households (42%), and access to Internet service is almost double the national average for Hispanics (23%) (Romney, 2000). It is possible that the advent of more affordable Internet service and the release of more affordable desktop and laptop computers have led to this circumstance in the particular community in which LCM@UTSA is housed. However, the higher-than-expected level of Internet service can also be accounted by the fact that there are several sets of siblings among the children; thus, some teacher candidates' questionnaire results are unintentionally double-counting household Internet service. Cell phone access, the highest reported, is supported by the claim that overall, 85% of the US population 18 and older own a cell phone, and that 90% of all adults live in a household with at least one working cell phone (Zickuhr, 2011). Cell phones are typically more affordable than desktop or laptop computers, iPads, and most smart phones (i.e. iPhone).

In an effort to gauge the bilingual teacher candidates' access to technology when they themselves were children, and to, in turn, compare that access to the type of experiences that the Los Arboles Elementary students were receiving with LCM@UTSA, participants were asked to describe the most important or memorable technology-learning moment that they have had in their lives, prior to UTSA. Their responses included having home internet access for the first time; learning how to send pictures and files through email; learning to create a movie through Movie Maker; using basic Microsoft programs (such as PowerPoint, Word, Excel, and Publisher); playing educational games on-line; typing; and learning to use an iPod. Here are some of their direct quotes:

- *When I was in seventh grade, it was the first time I set foot in a computer lab. I was so afraid to even touch the desktop computer.*
- *Having a computer (desktop) and a cell phone for the first time ever! I felt like the coolest kid in town. Oh, and can't forget about the web-cams!*
- *Learning how to type and use the computer at the age of 14 [was my most memorable technology experience]*.

One male student, who is older and a non-traditional college attendee, had a unique memory regarding technology: "I learned how to use e-mail when I was deployed overseas. Trying to get access to a phone was next to impossible. Every command post had computers, so it was easy to send a quick message home." His military work experience provided the context for his exposure to technology.

However, in general, for the teacher candidates in this study, the most memorable experiences occurred during their middle school or high school years; in comparison, for the Los Arboles Elementary students, the same technology experiences and related abilities are occurring before they reach the 6th grade. This indicates that technology plays a vital role in the lives of today's

students, much sooner than it did for previous generations, and that students need to be prepared for the technology they will be asked to navigate in the future. Also, these findings speak directly to issues of accessibility. As issues of poverty, limited access, or educational inadequacies persist in certain communities of color, it is essential that programs such as LCM@UTSA provide technology-related opportunities in these areas. The Los Arboles Elementary students are prime examples of what elementary-age students can accomplish at such an early age.

Another area of inquiry addressed by our questionnaire was the access and the amount of technology used by the campuses where our bilingual teacher candidates were placed for their internships or practicums during the same semester that they participated in LCM@UTSA. These schools were located in four school districts throughout the city, including the district in which LCM@UTSA is housed. We asked our 22 students to document the technology use at their campuses to gain a better understanding of what their future work sites might look like. Table 3 provides a quick summary of the available technology at the eight schools.

Table 3. Technology Available at Teacher Candidates' Field Placement Sites, by Campus

	District 1		District 2			District 3	District 4	
	Campus 1	Campus 2	Campus 3	Campus 4	Campus 5	Campus 6	Campus 7	Campus 8
Desktop Computers (Classroom)	•	•	•	•	•	•	•	•
Desktop Computers (Lab)	•	•		•	•	•	•	•
Personal Laptop (Teacher)				•		•	•	•
Personal Printer (Classroom)	•	•		•	•	•		•
iPads (Campus)				•				
Internet Service (Campus)	•	•	•	•	•	•	•	•

All eight of the campuses where our teacher candidates completed their field work had Internet service and desktop computers in the classroom; often there were 3-4 PC's in each classroom. Seven campuses had at least one computer lab, and six campuses had printers available in the teacher candidates' classrooms. Four campuses provided their teachers a laptop or netbook, and only one had a set of iPads that could be checked out in the library for classroom use. In addition, two teacher candidates reported that their campuses had a SmartBoard available for teachers.

While these results sound somewhat promising, we also learned from our preservice teachers that while the campuses may have had these technologies *available,* many times they were *not utilized* by their cooperating teachers; or if they wanted to access them, there were connectivity or functionality problems. The open-question responses from our participants were revealing and akin to the following summaries:

- *Technology is lacking in the school. There is no use of the Internet for interactive sites for resources.*
- *The students never play individually with the computers in the classroom.*
- *The teacher only uses the desktop for students to work on a math program, and she used her desktop very few times to teach her lessons.*
- *Nothing was engaging. Computers were only used for a reading test. They should allow more interactive games to be played by students.*

The following three direct quotations offer more detailed and reflective information about the low use of technology at the eight campuses:

- *My CT [cooperating teacher] utilized technology occasionally…but not on a daily basis. I feel perhaps she doesn't feel very comfortable with the technology and this is why it wasn't used daily.*
- *It was rare seeing the teachers incorporating technology in the classroom. My CT [cooperating teacher] doesn't even check her email. The four computers that are in the classroom are only used for 'GT' [gifted/talented] students when they finish work. She also has an ELMO [document camera] and that's never used.*
- *In this kindergarten bilingual classroom, students are not allowed yet to be exposed to technology. I was able to give my students the opportunity to experience using the iPad and learning in a fun and interactive way.*

These particular teacher candidates had higher expectations for their mentor or cooperating teachers (CT), and thus, made observations that include personal beliefs about technology in the elementary classroom. For example, in the first of the three scenarios, the bilingual teacher candidate expects technology to be used daily but her CT did not. In the second scenario, the preservice teacher expresses some disdain toward her CT's practice of only allowing "smart" or "GT" students to use computers. And finally, the last scenario demonstrates how a teacher candidate countered his CT's beliefs that kindergartners are too young to be exposed to technology by bringing in his LCM iPad to share with the children. These descriptions illuminate how bilingual teacher candidates who are exposed to LCM@UTSA may come to view the use of technology in public school classrooms: It should be used daily with all students—regardless of age and ability.

Some teacher candidates reported slightly more positive observations in their open-response questions, emphasizing the type of technology experiences that students did receive in the classroom. Here are some of those activities summarized:

- *The students are able to go online and watch videos or play games that relate to the subject being taught.*
- *The teacher uses the document camera to show pictures, examples, graphic organizers, and templates. We occasionally use the in-class computers and the Smart Board.*
- *There is a lot of good use of PowerPoints…. "Never seen PowerPoint slides used so well for kinder students; wish I did when I was younger.*

- *One time during the semester we used the Smart Board in the library for the mensaje del día [message of the day], and the kids seemed very engaged and willing to learn. They were eager to circle the letter of the week [with the Smart Board pen].*

These observations speak to some of the better utilization of technology across the eight campuses where our bilingual teacher candidates conducted their fieldwork. But even so, the examples of using PowerPoint and a document camera are not particularly innovative nor did they require the use of an advanced technological tool. And when a more advanced tool like the Smart Board was utilized in one particular classroom, it was done so only once during the 60-85 hours of field work completed by the teacher candidate; this is disappointing, to say the least.

The final area of inquiry of our questionnaire involves improving technology implementation and training in teacher education programs. In preparation for future semesters of LCM@UTSA, and to promote on-going program development and reflective assessment, the teacher candidates were asked which, if any, iPad-related issues needed to be addressed more thoroughly in the future. Twenty-three percent cited more training in general usage, including iPad settings; 32% cited more instruction on accessing and downloading apps from the iTunes Store; and more than half, 55%, cited more training on troubleshooting, including camera problems and start-up issues.

These concerns reiterate the need for ongoing, meaningful instruction, as well as the need to consistently allow for reflection and reassessment. As preservice teachers raised technology-related issues, they were addressed and corrected; as more and more issues were validated, the preservice teachers confronted technology issues and overcame them. Thus, teacher candidates are in a unique situation to influence the type of instruction they receive, and, in turn, provide to their students in the future. As LCM@UTSA continues in subsequent semesters, the concerns raised in this study can inform the types of training provided to future cohorts of teacher candidates, strengthening the influence of LCM@UTSA at Los Arboles and UTSA, and modeling strategic examples for the ways that technology is presented, reinforced, and sustained.

Discussion

At the onset of this study, we developed three research questions. The first captured Latina/o bilingual teacher candidates' perceptions of their access, knowledge, and use of technology in their teacher preparation program. Our findings indicate that the after-school technology program, LCM@UTSA, provided accessibility to a new tool (the iPad) which many preservice teachers had not utilized. Our 22 participants expressed enthusiasm and engagement for this mobile device; the integration of the iPad in their teacher preparation program gave bilingual teacher candidates the opportunity to learn how to download apps, use Dropbox to share files, create and execute mini-lessons, email and comment on emails, and, literally, have technology at their fingertips 24 hours a day. In addition, they used more technology (and a variety of it) in the university course that was attached to LCM@UTSA than in their other teacher preparation courses.

During the semester that this study took place, our participants also completed field work hours at eight different campuses, where they were exposed to differing levels of technology access and use. The theme that emerged from the teacher candidates' responses to inquiries about their

field placement sites was the general lack of technology use. Many campuses severely lacked technology in the classroom: there was no use of the Internet; computers needed servicing; elementary-school children could only use computers for testing; teachers would use computers sparingly; and there were ingrained beliefs about the use of technology with children that ran counter-intuitive to LCM@UTSA's philosophies (e.g., in one kindergarten bilingual classroom, students were not allowed yet to be exposed to technology; in another case, the four computers that were in the classroom were only used for GT students when they finished their work).

On the other hand, some teacher candidates described experiences in which technology was used in more interesting ways. Some teachers used laptops to play games with students about science, math, and other subjects. Other teachers allowed students to come up to the board and fill-out a graphic organizer as it was being projected from a document camera. In one classroom, students were given access to the state language arts textbook as an online e-book.

When comparing the university setting (which was paired with LCM@UTSA) and the eight campuses where the 22 participants completed their field experience, we see a rather large discrepancy, both in terms of technology use and beliefs about technology implementation. During their training, the bilingual teacher candidates in our study are pushed to learn and implement new technologies with young bilingual children, and they are given the technical, moral, and educational support to do this in the hopes that they will one day do the same in their own classrooms. However, the reality is that there are still many school campuses that house bilingual Latina/o children where technology use, implementation, and support is weak. A divide like this further reinforces the necessity of an after-school program like LCM@UTSA, which not only introduces preservice bilingual teachers to recent technologies but also exposes them to young bilingual students who are eager and capable of utilizing such tools.

Our second research question addressed the proficiency and access to technology of the elementary bilingual students that the teacher candidates mentored during their semester with LCM@UTSA. Across the 10 after-school meetings, the little *compañeros* showed improvement in their use of the Internet, the iPad, email, and keyboard—as perceived by the preservice teachers. This is not surprising as more than half of the bilingual children have been in LCM@UTSA consistently for over three semesters, and the college student and elementary-school buddy often form a close bond that produces a comfortable learning environment.

Another observation noted by our teacher candidates and their interactions with their buddies was that the majority of the elementary bilingual students do not have access to the Internet outside of school or a computer at home. While there were some students who were fortunate enough to have Internet access at home, as well as the opportunity to use a home desktop, many teacher candidates cite the elementary students' interest and enthusiasm for LCM@UTSA as a result of this general lack of technology access. This lends credence to the idea that students crave technology, and that, sadly, they are not being provided with enough opportunities to learn and practice technology in their homes or communities.

Our third research question briefly captured the previous technology experiences of our Latina/o bilingual teacher candidates. We wanted to know what kind of access to technology the 22 of them had while growing up and which was the most memorable. Overall, the most memorable

experiences occurred during their middle school or high school years, and included obtaining Internet for the first time in their homes or getting to use a computer in a school computer lab. Part of these findings indicate to us that bilingual teacher candidates may have faced similar technology challenges as their own future bilingual students will (or as their LCM buddy currently does). In other words, they, too, had more access to technology through their public schooling, and obtaining Internet at home was not a given but a momentous occasion. Having similar experiences such as these can make a good foundation when working in underserved communities.

Conclusion

The ways in which prospective teachers are being prepared to integrate technology to create significant teaching and learning activities in the classroom are areas of increasing concern. The efforts of some teacher training institutions (here, LCM@UTSA and the Academy for Teacher Excellence), in the preparation of teachers who are confident using an assortment of technologies effectively and efficiently, cannot go unnoticed. As teacher educator programs continue to implement various strategies to help teacher candidates become experts in classroom technology and identify its optimal and varying uses, it is necessary that programs like LCM@UTSA, in which technology, bilingualism, and learning combine in necessary and novel opportunities, be presented, shared, and replicated.

Another point of interest is the availability of apps and programs that scaffold the main tenets of bilingual education. LCM@UTSA has had to ensure that the majority of its material is offered in Spanish to foster an environment of bilingualism. For example, hiring site coordinators who can respond to the children's *El Maga* letters in Spanish; creating additional task cards for *El Laberinto Mágico* in Spanish; adding unique features to the maze, such as *El Chupacabra*, that are both bilingual and culturally-based. Programs like LCM@UTSA are a tremendous asset in attempting to overcome barriers of access, communication, and design.

Elementary-aged students possess the capacity and skill to learn programs, applications, and software that many of the bilingual teacher candidates had access to only as teenagers or young adults. Creating PowerPoint presentations, sending emails, and using the Internet to do research are experiences that are thriving in some of today's elementary classrooms. Elementary students are not afraid to try their hand at something new, especially when it is technology-related and offers unique, meaningful learning experiences. The iPad and its applications are just one example of the type of technology-related learning that students should be exposed to.

Finally, in order to create the best experience possible, teacher candidates must be provided with on-going training and troubleshooting know-how. Obviously, these types of obstacles can oftentimes be easily resolved, but when technology fails, or rather, when teachers are not trained to deal with technology-related mishaps, the process of sharing and facilitating technological opportunities is thrown into jeopardy. Only when preservice teachers are allowed to make mistakes, learn to correct them, and model that behavior for their students, can true, lifelong technology-based learning occur.

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Journal of Bilingual Education Research & Instruction

Research Briefs: Norman Podhoretz's Attacks on Bilingual Education

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For 35 years, from 1960 to 1995, Norman Podhoretz was the Editor-in-Chief of Commentary. Though currently officially retired from the job, he continues to publish articles on a variety of topics in the magazine, as well as in National Review and The Wall Street Journal, mostly related to domestic affairs, American policies toward the Middle East, or his own personal relationships with various American intellectuals.

Podhoretz is also member of the advisory board of U.S. English, an organization supporting the declaration of English as the official language of the United States, and a fervent critic of bilingual education, which he describes as "the demented and discredited theory that the best way to teach English to children from homes in which Spanish or Chinese or some other language is spoken is to conduct their classes in those other languages" (Podhoretz, 2000, p. 58).

For Podhoretz, bilingual education has two nefarious effects on immigrants. First, it delays their acquisition of English. Secondly, it prevents them from assimilating into the American mainstream (Podhoretz, 2000). His profound distrust of bilingual education also reaches the outcomes of research in the field, which he considers biased, contradicted by some undetermined "official statistics," and contrary to "common sense" (Podhoretz, 2000, p. 58). However, an examination of both the rationale of bilingual education programs and the outcomes of some research studies on the issue show neither of the previous contentions to be true.

Bilingual education: Goals and evidence. Bilingual education rests on the premise that using ELLs' primary languages in class helps these students achieve a better grasp of the content they would otherwise not understand were it to be explained to them exclusively in English. The knowledge gained in their primary language makes the input received in English more comprehensible, and this prevents them from falling behind in academics as a result of their limited English mastery. Additionally, developing literacy and knowledge in their primary language helps ELLs have a faster and easier transition into English due to the existing transfer of skills between languages (Crawford & Krashen, 2007). In other words, ELLs do not need to relearn in English the concepts they already possess in their primary language. Hence, bilingual education is merely an educational program. Nowhere in this rationale is there mention of intended or attempted disregard for ELLs' integration into the mainstream.

As for Podhoretz's questioning of bilingual education's effectiveness in teaching English, the results of both program evaluations (Ramirez, 1992) and meta-analyses (Greene, 1997; Krashen & McField, 2005; Rolstad, Mahoney, & Glass, 2005; Willig, 1985) have consistently shown the positive impact of native language instruction in this regard. Interestingly, even Jay Greene, senior fellow at the Manhattan Institute for Policy Research, concluded in the results of his meta analysis of Rossell and Baker's 1996 literature review of bilingual education that, "it is

reasonable to conclude from this meta-analysis that the use of at least some native language in instruction for LEP students is more likely to help the average student´s achievement, as measured by standardized tests in English, than the use of only English in the instruction of those LEP students" (Greene, 1997, p. 114). Moreover, teachers (Karathanos, 2009; Ramos, 2005, 2009; Rueda & Garcia, 1996; Shin & Krashen, 1996), parents (Shin & Gribbons, 1996; Shin & Lee, 1996) and administrators (Shin, Anton, & Krashen, 1999), the stakeholders most closely related to ELLs, have also acknowledged the positive effect of native language instruction when surveyed on the issue.

Success without bilingual education? Podhoretz's criticisms of bilingual education run parallel to those of other well-known adversaries of bilingual education, such as Richard Rodríguez, Fernando de la Peña, and Arnold Schwarzenegger, all of whom claimed to not have needed help in their primary languages while learning English. However, Ramos and Krashen's closer examination of the respective English acquisition processes of these individuals revealed the various advantages they enjoyed along the way which, in some cases, ironically included the underlying tenets of the very method they so fervently criticized.

Thus, Rodriguez spoke his primary language at home for several years while growing up in an English-speaking neighborhood, and later developed a love for reading in English, encouraged by a nun who read to him from her favorite books (Ramos & Krashen, 2011). As for de la Peña, his 3rd grade placement in an East Los Angeles school after having been a 5th grader in Mexico naturally made both the language he heard and the content he learned in class much more understandable (Ramos & Krashen, 2011). Finally, Schwarzenegger had studied English as a Foreign Language during his years of mandatory schooling and had taken business classes in Austria prior to his arrival in the United States. Once in California, he received help in English from bodybuilding colleagues and his girlfriend of six years (herself an English teacher), attended ESL and English classes, and later enrolled in business courses at the college level (Ramos & Krashen, in press). In the present case, a closer look at Podhoretz's upbringing also reveals some unacknowledged advantages contributing to his later accomplishments.

Podhoretz's advantages. According to his own recollection, Podhoretz was born into a working class family in Brooklyn and, as a child, spoke more Yiddish than English (Podhoretz, 2000). As he himself acknowledged, "Because my grandmothers (like my grandfathers) never learned much English… just about all the talking done at home throughout my childhood (including me, a nonstop talker even then) had to be conducted in Yiddish" (Podhoretz, 2000, p. 18).

For Podhoretz, his frequent use of Yiddish had a very negative impact on his English, which was heavily accented by the time he entered school. In fact, his Yiddish-accented English caused him to be frequently mistaken for a newly arrived immigrant (Jeffers, 2010, p. 3). Because of this, one of his teachers referred him to the school principal who, in turn, placed Podhoretz in a remedial-speech class whose focus was to improve students' pronunciation of the English sounds: "We were all put repeatedly through the same exercises, which were designed to condition us into placing the tongue and shaping the mouth so as to make all the consonants and vowels come out sounding right" (Podhoretz, 2000, p. 29). Podhoretz thanked the class for the elimination of his accent which in turn, suppressed his apprehensions about future life limitations caused by existing biases about individuals' accented speech: "I cannot help feeling that my own

life would have been very different if I had never been forced to speak like a classier and more cultivated person that I actually was" (Podhoretz, 2000, p. 32).

However, it is necessary to note that Podhoretz's accent would have disappeared without any special help, since it has been repeatedly confirmed that young children exposed to a second dialect or language typically acquire native-like accents given sufficient exposure (Krashen & Seliger, 1975; Lippi-Green, 1997; Oyama, 1976; Seliger, Krashen, & Ladefoged, 1975; Tahta, Wood, & Rosenthal, 1981).

Also as a result of the remedial class, and similarly to Richard Rodriguez's case, Podhoretz became a dedicated reader in English, he was stimulated by watching his grandfather, "a true intellectual" (Jeffers, 2010, p. 4), reading the Yiddish newspaper Der Tog, and his father reading "two newspapers a day, one in Yiddish and one in English" (Podhoretz, 2000, p. 82).

Taking advantage of the public library, he engaged in extensive reading around favorites such as Andrew Lang's and the Grimms' brothers' fairy tales, Rafael Sabatini, Norse myths, and Mark Twain. While in junior high school, he got interested in poetry, and later in high school, he discovered Shakespeare and Walt Whitman. It was at this time that his English teacher, Mrs. Haft, took a special interest in him, and "from the age of thirteen to the age of sixteen, I was her special pet" (Podhoretz, 1967, p. 8). Mrs. Haft introduced Podhoretz to, among others, T.S. Eliot and Robinson Jeffers. On his fifteenth birthday she gave him "a cardboard-bound but exquisitely produced little volume of selections from the poems of John Keats,… and a naughty companion from the same series-a volume of Charles Baudelaire's Flowers of Evil in French… with English translations on facing pages" (Podhoretz, 2000, p. 43). Moreover, she took him to museums and the theatre and tried to convince him to enroll at one of the most prestigious schools in the country for his senior year. Later on, while at Columbia University for his B.A., he read Rabelais, Dostoevsky, Chaucer, The Partisan Review and The Kenyon Review, and essays by Cleanth Brooks, R.P. Blackmur, and Allen Tate. In Podhoretz's words, during this time he "read voraciously: Disraeli himself and everything ever written about him, nineteenth-century history, Victorian novels and memoirs" (Podhoretz, 1967, p. 104).

As can be seen, Podhoretz enjoyed various lifelong advantages contributing to make him the successful individual he finally became. Firstly, despite the presence of Yiddish in his home and his frequent use of this language, Podhoretz entered school as a fluent English speaker. In other words, he did not have to learn the language of instruction of the school system. Secondly, he received extensive individual help by a teacher who devoted a great deal of time and energy to exposing him to enriching literary and cultural experiences.
Thirdly, his love of reading, maintained and fostered throughout his life, exposed him to a plethora of authors, genres, topics, and writing styles that likely enhanced his career as both a writer and editor at Commentary. In so doing, Podhoretz joined other well-known cases of individuals for whom reading became the key to their respective successes, i.e, Richard Rodriguez (Ramos & Krashen, 2011), Desmond Tutu (Krashen, 2004), or Liz Murray and Geoffrey Canada (Krashen, 2011). Their testimonies confirm, once again, the beneficial effects of reading, a powerful means of acquiring the academic language needed to excel in school and in life.

However, in contrast to Podhoretz's case, a large majority of ELLs arriving in or born in the U.S. are neither proficient in English nor have access to books. For Podhoretz, being placed in bilingual education constitutes an obstacle for these immigrants "to share in their inheritance as Americans" (Podhoretz, 2000, p. 58), and he felt "blessed" (Podhoretz, 2000, p. 58) for having had a very different experience from them. Yet, in saying so, he probably does not understand that he did not need bilingual education. On the contrary, for most ELLs, bilingual education is of great help.

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Book Review

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Anne Burnes & Jack C. Richards, (Eds.). *The Cambridge Guide to Pedagogy and Practice in Second Language Teaching.* New York, NY: Cambridge University Press, 2012. 300 pp., $103, hardcover.

The Cambridge Guide to Pedagogy and Practice in Second Language Teaching is an edited book by Anne Burns and Jack C. Richards. The book provides an overview of current issues on second-language teaching, learning, diversity, curriculum, and the role of media and materials in language instruction. *The Cambridge Guide to Pedagogy and Practice in Second Language Teaching* consists of five sections and 30 chapters. Each topic draws from current theory, research and practice, and contributes toward the understanding of pedagogy and practices in second-language teaching and learning.

Sandra Lee McKay starts chapter one with a controversial discussion of the key issues of English as an international language, and covers such topics as the importance of not only learning English, but also not exaggerating the benefits of learning English; as well as, providing equality of access to learning English regardless of students' economic background. McKay argues for the need to recognize and promote an awareness of variation in English use and the hybridity and fluidity of modern-day English; however, the author focuses more on raising these concerns rather than providing instructions on how English as an international language should be actually taught.

Further, Kathleen M. Bailey in chapter two considers Seichner and Liston's (1996) model of five dimensions of reflective teaching and provides practical examples of each concept: rapid reflection, repair, review, research, and retheorizing and reformulating, but the author falls short in discussing how to motivate and train teachers to work towards reflective teaching. However, Ema Ushioda in chapter eight discusses motivation, an essential topic in teaching and learning a second language. Ushioda engages a variety of fundamental tenets, teaching approaches and experiences, and provides various practical implications for classroom and pedagogical practices, such as how promoting participation, social interaction, personal goal-setting, decision making, responsibility, and autonomy applies to subject areas. While Ushioda fails to acknowledge the central role of emotions in fostering students' motivation and second language acquisition, Tony Wright in chapter six discusses the importance and the influence of the classroom climate; as well as, the short-term and long-term emotional responses to learning experiences.

Next, Fauzia Shamim in chapter ten presents the different instructional techniques that have been successful in teaching large classes and emphasizes the importance of using students as resources and considering the conditions under which learning takes place. Donna M. Brinton and other contributors in section three insightfully present new directions in methodologies and a multitude of principles and instructional practices of language teaching, emerging from recent theory and empirical research. For instance, Jean Brick in chapter 18 provides future direction in teaching English for academic purposes. However, second-language teachers focus more on teaching basic skills, such as speaking, listening, reading, writing, vocabulary, pronunciations, and grammar, rather than academic literacy and Brick again falls short in identifying the need to train and motivate teachers or the use of technology in teaching large classes.

Finally, the authors in section four guide the reader on what is needed to teach effectively with the use of various techniques and exercises, such as the need to understand the sociolinguistic conventions of the second-language culture and the ability to manage cross-cultural encounters. However, Scott Thornbury in chapter 21 and Donna M. Brinton in chapter 26 are reluctant in examining the issues related to students' insecurities and their negative perceptions to second-language acquisition as a result of the traditional pronunciation and speaking techniques. Dana R. Ferris in chapter 24 discusses second-language writing and focuses on political issues in teaching second-language writers, and providing feedback to student writing and assessment. The role of technology for assisting and improving writing and reading instruction has not been addressed in this chapter; however, Brian Tomlinsion, Mike Levy, and Hayo Reinders in section five acknowledge the power of media for second-language teaching and learning. For instance, a wide range of technologies are available both in and outside the classroom. Technology plays a central role in developing language skills, through the ability to communicate online, electronic materials, online assessment and immediate feedback, but the authors fall short on discussing how technology can be used to teach academic literacy and biliteracy.

In sum, *The Cambridge Guide to Pedagogy and Practice in Second Language Teaching* provides a comprehensive overview of teaching second language, current and future research in the classroom, and raises questions for research and practice, such as how we can engage in better reading comprehension strategy instruction in the classroom. However, as in any other scholarly work, the book has several unavoidable shortcomings: A number of issues and questions that are central to the field are raised, but still remain unanswered, such as how the various old facets of the classroom familiar to the teacher can be brought together with newly emerging trends in teenage culture. Should materials development be driven by principles or by language repertoires? Another shortcoming is that the authors focus more on theoretical approaches rather than the practical classroom and curriculum implications. However, by presenting the increasing complexities of teaching a second language, new educational approaches and practices, new technologies and paradigm shifts, Burns and Richards provide a viable resource for educators and administrators involved in aspects of second-language teaching. While this guide falls short in pursuing all the questions raised about second- language learning and teaching, educators and administrators can incorporate the given approaches and practices in language instruction and further explore the questions raised in this book.

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