Improving Young English Learners' Language and Literacy Skills Through Teacher Professional Development: A Randomized Controlled Trial

Leslie M. Babinski
Duke University
Steven J. Amendum
University of Delaware
Steven E. Knotek
University of North Carolina
Marta Sánchez
University of North Carolina, Wilmington
Patrick Malone
Duke University

Using a randomized controlled trial, we tested a new teacher professional development program for increasing the language and literacy skills of

Leslie M. Babinski is an assistant research professor in the Center for Child and Family Policy in the Sanford School of Public Policy at Duke University, Durham, NC 27708, USA; e-mail: *leslie.babinski@duke.edu*. Her areas of expertise are in teacher consultation and collaboration, teacher professional development, and school-based interventions for children and adolescents.

Steven J. Amendum is the DCTE Faculty Scholar in Literacy and an associate professor in the School of Education at the University of Delaware. His areas of expertise are in literacy development and instruction for English learners, early reading intervention, and professional development for classroom teachers.

Steven E. Knotek is an associate professor in the School of Education at the University of North Carolina at Chapel Hill where he coordinates the school psychology doctoral program. His research focuses on utilizing consultation and coaching as competency drivers to enhance educational and psychological professionals' implementation of innovations.

Marta Sánchez is an assistant professor at the Donald R. Watson College of Education at the University of North Carolina Wilmington. Her research focuses on the schooling experiences of Latino children and human rights challenges in transnational spaces.

Patrick Malone is a senior research scientist in the Center for Child and Family Policy at Duke University. His specialization is quantitative psychology and developing statistical models of change over time.
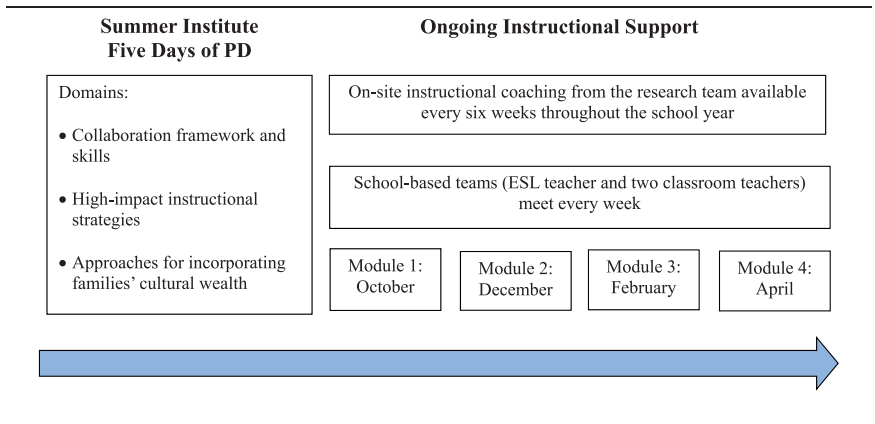
young Latino English learners with 45 teachers and 105 students in 12 elementary schools. School-based teams randomly assigned to the intervention received professional development focused on cultural wealth, high-impact instructional strategies, and a framework for collaboration. We observed each teacher three times during the school year and assessed students individually at the beginning and end of the school year using the Woodcock Muñoz Language Survey (WMLS). Using an intent-to-treat (ITT) analysis, we found effects for the intervention on teachers' implementation of high-impact instructional strategies and students' language and literacy skills.

There are currently over 5 million English learners (ELs) in U.S. schools (National Center for Education Statistics [NCES], 2015), and over 70% speak Spanish as their first language (Migration Policy Institute, 2015). The majority of classroom teachers, however, have not had specialized training in working with ELs. In fact, fewer than 20% of teacher education programs require a course focused on ELs (U.S. Government Accountability Office [GAO], 2009). Latino ELs, on average, experience a persistent achievement gap in math and reading (García, Jensen, & Scribner, 2009) and are at higher risk for dropping out of school (Bohon, Macpherson, & Atiles, 2005). School district administrators have indicated a need for teacher professional development on understanding cultural issues, assessing student progress, and developing instructional strategies for ELs (U.S. GAO, 2009). Clearly, there is an urgent need for teacher professional development (PD) that focuses on best practices for working with English learners.

English learners are often working toward two milestones at once: English language mastery and acquisition of academic content knowledge (Calderón, 2007; Cloud, 2002). To reach these milestones within the present teacher preparation context, the current state of instructional affairs for ELs is untenable. Yet teachers cannot be expected to implement what they have not been taught. Some researchers have suggested that there is an "implementation gap," referring to the lack of congruency between evidence-based practices that work and actual instructional practice in schools (García et al., 2009). Many regular classroom teachers will have at least one EL in their classroom, yet only 29% of teachers with ELs have had any professional development focused on enhancing their instruction for ELs (Ballantyne, Sanderman, & Levy, 2008).

In many schools, English as a second language (ESL) teachers provide direct instruction in the English language to students in a traditional pull-out model while ELs spend the majority of their day in the regular classroom (U.S. GAO, 2009), thus often separating the instruction in language development from content instruction. A recent policy brief by Hakuta and Pecheone (2016) stresses the importance of policies that provide instruction integrating English acquisition

Summer Institute Five Days of PD	Ongoing Instructional Support
Domains: • Collaboration framework and skills • High-impact instructional strategies • Approaches for incorporating families' cultural wealth	On-site instructional coaching from the research team available every six weeks throughout the school year School-based teams (ESL teacher and two classroom teachers) meet every week Module 1: October Module 2: December Module 3: February Module 4: April

Figure 1. **Illustration of the Developing Collaboration and Consultation Skills professional development components.**

and academic content. Although ESL and classroom teachers work together in co-teaching models in some schools (Dove & Honigsfeld, 2010), most teachers have not had preparation in how to work collaboratively with colleagues (Goddard, Goddard, & Tschannen-Moran, 2007; Vangrieken, Dochy, Raes, & Kyndt, 2015). Therefore, in addition to professional development on high-impact instructional strategies to support ELs' language and content learning, teachers also need a framework for effective collaboration to close the "implementation gap" (García et al., 2009).

The purpose of the current study was to conduct an initial investigation of a professional development intervention program called Developing Collaboration and Consultation Skills (DCCS). The professional development program was designed to address the implementation gap (García et al., 2009) and support classroom and ESL teachers' collaboration, use of high-impact instructional strategies for language and literacy, and incorporation of students' cultural wealth (Yosso, 2005) into the classroom. The PD program includes a five-day summer institute and four additional content modules. In addition, on-site instructional coaching was available approximately every six weeks from a member of the research team. Each school-based team (ESL and classroom teachers) collaborated for 30 minutes weekly to align both the content and instructional strategies for their ELs. See Figure 1 for an illustration of these PD components.

Theoretical Framework and Related Research

In considering the multiple theories that inform this study, research and theory cluster around three related areas—professional development,

collaboration and coaching, and literacy teaching and learning. Each of these areas is discussed further in the following.

Professional Development

The intervention is based on the research on characteristics of effective professional development programs. Considerable research has been conducted on the efficacy of various forms of PD (Garet, Porter, Desimone, Birman, & Yoon, 2001). However, an exhaustive review of over 1,300 studies by Yoon (2007) found that only 9 met the requirements of credible evidence as defined by the What Works Clearinghouse. Yoon and colleagues identified six key characteristics of PD programs across the 9 well-designed investigations: (a) workshops, (b) outside experts, (c) ongoing delivery, (d) follow-up support, (e) activities in context, and (f) content. Learning a complex task, unsurprisingly, takes committed, engaged time (Garet et al., 2001), and Yoon and colleagues found the threshold to be a minimum of 14 hours.

Guskey (2002) highlights three aspects of teacher PD programs: (a) Change is gradual, (b) it is a process, and (c) it can be challenging. Guskey also suggests the development process is likely more cyclical than strictly linear and occurs with incremental changes in teachers' efficacy. A program's structure and process must include a mechanism (e.g., coaching and collaboration) to support teachers so they can successfully engage in the challenges presented throughout the change process and consider how the PD may offer a positive alternative to current practice. Professionals must be provided with a supportive experience that will foster their acquisition of the skills necessary to further develop their practice. Finally, teachers must be provided with continued follow-up support and be accountable for implementation. In combination, these three principles all highlight the need for teachers to receive competent, respectful, thoughtful, data-driven support from engaged colleagues (e.g., a coach or collaborators).

Two additional related frameworks informed the design of the professional development: scaffolding (Vygotsky, 1978) and the gradual release of responsibility (Pearson & Gallagher, 1983). Specifically, the PD program was carefully designed to support teachers' learning of the instructional strategies, the collaboration model (Babinski, Sánchez, Knotek, Amendum, & Corra, 2013), and approaches for incorporating families' cultural wealth (Babinski, Sánchez, Amendum, & Knotek, 2016) by building on Yosso's (2005) model that maps the various types of capital that Latino families bring to the classroom, including aspirational, familial, linguistic, navigational, resistant, and social capital.

Much of the PD activity involves teachers' active participation through role playing and/or working with student data based on findings from a review of teacher preparation programs (Risko et al., 2008), which concluded that intensive teacher training programs emphasizing "learning by

doing'' can produce better teacher knowledge, beliefs, and practices in comparison to programs that emphasize only knowledge and beliefs.

Collaboration and Coaching Frameworks

Collaboration is characterized as a group-based activity that is task-focused and utilizes effective communication, reflection, and critical thinking in the service of providing better service to students (Homan, 2004; Meirink, Imants, Meijer, & Verloop, 2010). Two overarching factors facilitate effective teacher collaboration—structural components and process characteristics (Vangrieken et al., 2015). Structural components include common planning time and the explicit description of roles and group norms. Process characteristics include relationship building, mutual respect, a task focus, and mutual leadership. The result of successful collaboration includes teachers' use of more innovative pedagogies and students' improved understanding and school performance (Egodawatte, McDougall, & Stoilescu, 2011).

Literacy Teaching and Learning

The PD program also focuses on key conceptual literacy domains: phonemic awareness, phonics, fluency, vocabulary, text comprehension (NICHHD, 2000), and writing because of the clear benefit for ELs (August & Shanahan, 2006). However, August and Shanahan (2006) emphasize that the five key literacy domains are necessary for ELs but not sufficient, stating that sensitive modulation of instruction and a focus on English language development are vital. In a review of reading instruction for ELs over the past 20 years, researchers (Amendum & Fitzgerald, 2011) discussed implications for practice based on the review of findings, including those related to development and key conceptual literacy domains. They stated, "If teachers thoughtfully adjust effective practices for English-speaking students, such as modifying lesson pacing or overemphasizing certain facets of instruction, the same practices often used with English-only students can be effective for English-language learners' reading achievement" (Amendum & Fitzgerald, 2011, p. 388).

Across the key conceptual literacy domains, the PD program prioritizes particular domains over others. Specifically, prioritization is based on the concept of *constrained* versus *unconstrained* literacy skills made popular by Paris (2005). Constrained skills include those that students can master over a relatively short time, such as phonemic awareness and phonics. Unconstrained skills are those that continue to develop across time, such as vocabulary and comprehension. Given National Assessment of Educational Progress (NAEP) results (NCES, 2014a, 2014b) from 2004, 2008, and 2012 (that show a persistent gap in reading comprehension achievement of 31, 30, and 34 points between ELs and non-ELs, respectively), it is vital that particular instructional attention is paid to teaching and learning unconstrained skills for ELs that focus on comprehension.

<div align="center">

Table 1
Instructional Strategies for Language and Literacy

</div>

Type of Skill	Instructional Strategy	Purpose/Literacy Domain
Constrained		
	Say It, Move It	Develop phonemic awareness, phonics knowledge, and segmenting
	Blend as You Go	Develop phonemic awareness, phonics knowledge, and blending
	Word Card	Integrate strategies for word recognition: meaning, blending, and syntax
Unconstrained		
	Teaching Cognates	Leverage L1 to recognize words and understand meaning in L2
	Vocabulary Text Talk	Understand the meanings of words, especially academic vocabulary
	Frayer Model	Understand the meanings of concepts and words, especially in content areas
	Modified DRA	Promote comprehension, vocabulary, and understanding
	Sentence Frames–Oral	Build oral language to internalize academic vocabulary
	Sentence Frames–Written	Support written language to internalize vocabulary and sentence structure

Consequently, the PD program addresses both constrained and unconstrained skills but provides much greater emphasis on unconstrained skills, such as vocabulary and comprehension. See Table 1 for a description of the instructional strategies aligned to key literacy domains.

Components of the Professional Development Program

The teacher professional development program provides ESL and classroom teachers with a framework for collaboration, skills for implementing high-impact instructional strategies, and approaches for incorporating families' cultural wealth into the classroom. As described earlier, the components of the PD program include the Summer Institute, four follow-up application modules, in-school instructional coaching, and peer collaboration throughout the school year (Babinski, Amendum, Knotek, & Sánchez, 2017). Following Guskey's (2002) model, the Summer Institute lays the groundwork for participants to begin to change their professional practice to support the instructional needs of EL students. The PD program intentionally builds on the notions of scaffolding, the gradual release of responsibility, and learning by doing within the Summer Institute and the four application modules. For example, to scaffold teachers' learning of the instructional

strategies, teachers progress from learning simpler word recognition strategies, to more complex strategies for teaching vocabulary and comprehension, and finally to integrating multiple instructional strategies.

PD Content Related to Instructional Strategies for Language and Literacy

Much of the PD focuses around research-based instructional practices in language and literacy development for ELs embedded in families' cultural wealth and discussed using a structured collaboration framework. Based on key resources (Amendum & Fitzgerald, 2011; August & Shanahan, 2006; Echevarría, Vogt, & Short, 2010), the language and literacy content of the PD focuses on (a) instructional design and planning for delivery and (b) key content knowledge and instructional strategies. Each of these areas is explicated in the following.

Instructional design and planning for delivery. The PD addresses three broad principles of literacy instructional design and planning for delivery for ELs: preparation, building English background, and strategies for learning (derived from Echevarría et al., 2010; Echevarria, Short, & Powers, 2006). Within preparation, teachers engage in setting both content and language objectives, considering key content concepts and potential adaptations and important supplementary materials. For example, in a given lesson, teachers often create two sets of objectives, one for content (what will be learned) and another for language (how the content will be learned). Providing objectives to students implants a framework for the lesson to follow and allows students to acquire skills, strategies, and content. At the same time, key supplementary materials, such as manipulatives, realia, photographs, multimedia, and demonstrations, can be used to a high degree to develop both language and content understanding.

In building English background, teachers engage with linking concepts to students' existing knowledge and background experiences, making explicit links between past learning and new knowledge in English and emphasizing key English vocabulary. In working with key vocabulary, teachers and students must engage in repeated oral and written use of new vocabulary to develop deeper understandings of word meanings as well as a breadth of vocabulary knowledge.

Finally, for strategies for learning, teachers discuss ways to engage students, with many opportunities to engage in academic strategies to promote concept learning. Teachers give students opportunities to use (a) cognitive strategies, related to individual learning tasks; (b) metacognitive strategies, related to thinking about individual learning tasks, particularly in relation to knowing when cognitive strategies break down; and (c) social/affective strategies in which learning is enhanced through working with others.

Key literacy domains and instructional strategies. The PD provides teachers with a framework (see Table 1) for supporting students' comprehension of text and oral language development during instruction using two related strategies: a modified directed reading activity and use of language frames to summarize the text. Based on research that links students' English oral language development with English reading comprehension (e.g., Lesaux, Crosson, Kieffer, & Pierce, 2010), the program uses a modified version of the widely used Directed Reading Activity (Betts, 1946; Spiegel, 1981) designed to support ELs' oral language development and reading comprehension. Teachers support students as they first develop relevant background knowledge and practice oral language structures related to the text. Then, ELs read the text with support for comprehension from the teacher. Following the reading, teachers use language frames (e.g., Donnelly & Roe, 2010) to support students' comprehension through summarizing (or other comprehension-related skills, such as identifying main idea and supporting details), designed to enhance oral language development as well as comprehension.

English vocabulary development is also of primary importance for ELs, and three key vocabulary strategies are included in the PD: direct instruction in word meanings (derived from Beck & McKeown, 2001), use of Spanish/English cognates (Carlo et al., 2004), and representing word meanings with a graphic organizer to support students' representations of a target word's meaning, as well as examples and non-examples (Frayer, Frederick, & Klausmeier, 1969).

Teachers also learn effective instructional strategies for phonemic awareness and phonics knowledge. Specifically, three multisensory instructional strategies are used to develop phonemic awareness, phonics knowledge, and word recognition in context: Say It Move It, Blend as You Go, and Word Card. These strategies assimilate multiple early reading skills: They demonstrate the alphabetic principle, help students learn phoneme-grapheme (sound-symbol) relationships, develop students' segmenting and blending abilities (phonemic awareness tasks) in the context of read words, and help students learn to recognize sight words. Say It Move It and Blend as You Go were adapted from word work strategies that are part of the Targeted Reading Intervention (TRI; Amendum, 2014; Amendum, Vernon-Feagans, & Ginsberg, 2011; Vernon-Feagans, Kainz, Hedrick, Ginsberg, & Amendum, 2013). The Word Card provides students with a visual reminder of a process that integrates word recognition strategies to read unknown words: re-reading, blending sounds, attempting the word, and checking for syntax and other contextual clues.

Collaboration Framework

The collaboration framework is introduced, modeled, and supported during the Summer Institute and is used over the course of the year in the

program. It consists of two critical components: (A) working alliance and (B) time, structure, and accountability (TSA). The working alliance focuses on the process characteristics of effective collaborations and establishes effective communication, positive regard between the participants, and reciprocal leadership. The TSA critical component involves setting up the working relationships within the structural component of the collaboration process. This TSA critical component comprises three subcomponents: time management, structuring the working relationships by outlining group norms and roles, and establishing accountability measures. The collaboration framework includes a focus on both language and content objectives, a plan for how an instructional strategy or strategies will be implemented in both the regular classroom and the ESL classroom, and how the teachers will know if the approach was successful. In the subsequent week's collaboration meetings, the teachers are instructed to review the previous week's plan, how it went, and any modifications they need to make going forward. The model allows for considerable flexibility in the teachers' selection of the instructional strategy to focus on as well as how the strategy will be implemented. This emphasis on the teachers' ownership of the approach is intended to promote the sustained use of the instructional approaches over time, even after the intervention supports from the developers has ended.

Incorporation of Cultural Wealth Into the Classroom

The concept of cultural wealth is a useful and important framework for working with Latino children and their families (Yosso, 2005). Yosso's (2005) model maps the various types of capital that Latino/a and other minorities have that might be overlooked or misread in contexts outside of their communities. Through learning about cultural wealth, teachers can begin to sustain students' cultural wealth in the classroom, and teachers and schools that already work from a strengths-based perspective can engage in a common language about families. Teachers can use this model to understand and build on student strengths to extend the students' funds of knowledge (Valdez & Lugg, 2010).

Ongoing Support

Teachers were provided with two types of ongoing support throughout the school year. First, instructional coaching was available at each school about every six weeks. A member of the research team who is a former ESL teacher and elementary school principal provided instructional coaching during one of the structured collaboration meetings between the ESL teacher and the classroom teachers at each school. Adapted from Knotek, Woods, and Enrico's (2015) Implementation Coaching Framework, each coaching session included a discussion of the instructional strategies the teachers were implementing and a discussion about how they were aligning both

content and instructional approach across the ESL and the regular classroom settings. Second, the full group of teachers in the intervention group met for 1.5 hours four additional times throughout the school year, as shown in Figure 1. Each of the modules included a discussion of selected instructional strategies with an emphasis on incorporating the targeted approach into the teachers' regular routine. Teachers attended 35 hours of professional development during the Summer Institute and an additional 6 hours during the modules.

Teachers also received ongoing support for enhancing their instruction for their ELs from their colleagues. During the weekly collaboration meetings, teachers discussed both content and language objectives and how they were going to align their approaches for working with the students. For example, one ESL teacher planned to teach vocabulary that the students would encounter in an upcoming science lesson in their regular classroom. Both the ESL and classroom teacher planned to use sentence frames to support the ELs' development of oral language using the new vocabulary words.

The Current Study

During the 2014–2015 school year, we conducted a pilot study of the DCCS Professional Development Program using a randomized controlled trial. We examined the following research questions:

> *Research Question 1:* Does participation in the professional development program increase ESL and classroom teachers' use of high-impact instructional strategies as compared to teachers in the control group?
> *Research Question 2:* Do students in the intervention group show a greater increase in language and literacy scores as compared to the students in the control group?
> *Research Question 3:* Do students at different levels of English proficiency benefit more from their teachers' participation in the intervention compared to students in the control condition?

Method

Randomization Procedures

ESL teachers were recruited to participate in the study and invited two of their colleagues who taught kindergarten, first, or second grade. Each team of three submitted an application for the study, which included the principal's signature indicating that they understood that teachers in schools randomly assigned to the intervention group would need to collaborate for 30 minutes each week. We matched schools on the percentage of students eligible for free or reduced-price lunch and then randomly assigned each

school within a pair to either the intervention group or a waitlist/control condition.

Participants

Teachers

Forty-five teachers from 12 elementary schools within three school districts in the Southeast participated in the study. The schools were located in urban and suburban settings. The group included 15 ESL teachers and 30 classroom teachers: 3 men and 42 women. On average, participants had taught for approximately 9 years (range, 1–29 years). One of the 30 classroom teachers held ESL certification in addition to elementary education licensure. All of the ESL teachers were ESL certified. Teacher demographic information is presented in Table 2. The ESL teachers provided ESL services in a pull-out model in which they worked with a small group of students within a separate ESL classroom. A few of the ESL teachers also occasionally provided push-in instruction in which they worked with a small group of students in their regular classroom. Of the 45 participating teachers, 1 teacher moved to a different school midyear and left the study.

Students

Latino ELs in each of the participating classrooms who qualified for ESL services and spoke Spanish as their first language were invited to participate. Students who were bilingual but not eligible for ESL services were not included in the study. Bilingual research team members attended the open houses/back-to-school nights of the 12 participating schools to speak with parents of eligible students about the study. Consent forms were distributed to parents at the open houses and by teachers to parents who did not attend the open house. Of the 154 students who met the eligibility criteria, we obtained parental consent for 118 (76% of eligible students). Of these 118 students, 72 (82% of eligible students) were in intervention classrooms, while 46 (67% of eligible students) were in the control classrooms. Fifty-nine percent of the participating students were male, 41% female. By the end of the school year, 10 students had transferred to other schools, and 1 student refused to participate in study activities, for a 9% attrition rate. Two students had missing end-of-the-year data. The final data set included 105 students with valid pre- and posttest data.

Measures

Teacher Implementation

Two observation tools were used during classroom observations three times during the school year: the Classroom Quality for English Language Learners (CQELL) (Goldenberg, Coleman, Reese, Haertel, & Rodriguez-

Table 2
Classroom and English as a Second Language (ESL) Teacher Demographics

Variables	Control	Intervention	Total
Classroom teacher–level variables	*n* = 16	*n* = 14	*n* = 30
Gender *n* (%)			
Male	2 (13)	0 (0)	2 (7)
Female	14 (88)	14 (100)	28 (93)
Total years of teaching *M* (*SD*)	10.23 (7.79)	7.07 (4.92)	8.71 (6.64)
Highest degree completed *n* (%)			
Bachelor	9 (56)	8 (57)	17 (57)
Master's	7 (44)	6 (43)	13 (43)
Licensure *n* (%)			
PreK/K–6 grades	15 (94)	12 (86)	27 (90)
7–12 grades	1 (6)	2 (14)	3 (10)
ESL certification *n* (%)			
Yes	1 (6)	0 (0)	1 (3)
No	15 (94)	14 (100)	29 (97)
SIOP (Sheltered Instruction Observation Protocol) training *n* (%)			
Yes	11 (73)	6 (43)	17 (59)
No	4 (27)	8 (57)	12 (41)
Language proficiency *n* (%)			
Only English	10 (63)	11 (79)	21 (70)
Beginner Spanish	4 (25)	2 (14)	6 (20)
Fluent Spanish	1 (6)	0 (0)	1 (3)
Other language besides Spanish	1 (6)	1 (7)	2 (7)
ESL teacher–level variables	*n* = 8	*n* = 7	*n* = 15
Gender *n* (%)			
Male	0 (0)	1 (14)	1 (7)
Female	8 (100)	6 (86)	14 (93)
Total years of teaching *M* (SD)	18.50 (7.23)	11.50 (6.10)	15.23 (7.42)
Highest degree completed *n* (%)			
Bachelor	3 (38)	4 (57)	7 (47)
Master's	5 (63)	3 (43)	8 (53)
Licensure *n* (%)			
PreK/K–6 grades	5 (63)	4 (57)	9 (60)
7–12 grades	3 (38)	3 (43)	6 (40)
ESL certification *n* (%)			
Yes	8 (100)	7 (100)	15 (100)
No	0 (0)	0 (0)	0 (0)
SIOP training *n* (%)			
Yes	8 (100)	6 (86)	14 (93)
No	0 (0)	1 (14)	1 (7)
Language proficiency *n* (%)			
Only English	2 (25)	2 (29)	4 (27)
Beginner Spanish	3 (38)	4 (57)	7 (47)
Fluent Spanish	1 (13)	1 (14)	2 (13)
Other language besides Spanish	2 (25)	0 (0)	2 (13)

Mojica, 2012) and a researcher-created DCCS Observation Tool. The CQELL contains 88 items that measure key dimensions of the classroom that are grouped into 14 dimensions that make up two subscales: Generic Lesson Elements and English Learner Supports. Within the English Learner Supports subscale, we also examined the instructional dimension for Adapts Strategies. Members of the research team conducted all classroom observations. Online training (Goldenberg et al., 2012) is available for classroom observers and includes a series of instructional videos for practicing coding each of the instructional elements. In the pilot study, we obtained strong interrater reliability for CQELL for two trained observers, Cohen's kappa of κ = .82 (95% CI [.54, .65]), $p < .001$.

We also observed teachers using the DCCS Observation Tool. The tool includes nine instructional strategies measured with 42 indicators. Videos of teachers implementing each of the strategies were used for training observers in using the tool. Although the DCCS Observation Tool was aligned to the DCCS instructional strategies, instructional indicators were coded for teachers in the control conditions who implemented similar instructional strategies. For each of the nine instructional strategies listed in Table 1, we developed a list of 3 to 7 indicators necessary for accurate implementation of the strategy. The interrater reliability for the Observation Tool was in the moderate range with Cohen's kappa of κ = .79 (95% CI [.77, .87]), $p < .001$. Because the DCCS Observation Tool is aligned to the DCCS PD, we included the CQELL to capture more general components of quality teaching for ELs. We hypothesized that the teachers in the control condition would be providing general support but may not be systematically enhancing their instruction or using specific strategies to support their ELs.

Student Assessments

Students were assessed using the Woodcock Muñoz Language Survey-Revised Normative Update, (WMLS-R; Schrank, McGrew, & Dailey, 2010), which measures students' language and literacy skills in both English and Spanish. The seven subscales include Picture Vocabulary (median reliability .91), Verbal Analogies (median reliability .90), Letter-Word Identification (median reliability .97), Dictation (median reliability .94), Understanding Directions (median reliability .82), Story Recall (median reliability .76), and Passage Comprehension (median reliability .82). We assessed students at the beginning and end of the school year. The English WMLS-R has two forms; we administered Form A at the beginning of the school year and Form B at the end of the school year. The Spanish WMLS was administered at the beginning of the year and is used as a covariate in our analyses to consider and account for potential cross-linguistic transfer. For all subtests, W scores were calculated, which are Rasch ability scores providing equal interval characteristics of measurement.

Table 3
Student Characteristics

Variables	Control	Intervention	Total
n	41	64	105
Student-level variables			
Gender *n* (%)			
Male	30 (73)	34 (53)	64 (61)[a]
Female	11 (27)	30 (47)	41 (39)
Grade *n* (%)			
Kindergarten	13 (32)	24 (37)	37 (35)
First grade	13 (32)	25 (39)	38 (36)
Second grade	15 (37)	15 (23)	30 (29)
Age in years *M* (*SD*)	6.66 (.87)	6.36 (.89)	6.48 (.89)
Pretest Broad English Ability Total *W* score *M* (*SD*)	438.68 (30.90)	436.50 (29.90)	437.35 (30.16)
Pretest Broad Spanish Ability Total *W* score *M* (*SD*)[b]	432.33 (19.25)	435.27 (18.33)	434.14 (18.65)
District-reported variables			
Days absent *M* (*SD*)	8.13 (6.24)	8.33 (5.20)	8.25 (5.59)
Free or reduced lunch *n* (%)			
Yes	31 (76)	56 (88)	87 (83)
No	8 (20)	7 (11)	15 (14)
Missing	2 (5)	1 (2)	3 (3)

[a]$\chi^2(1) = 4.22$, *p* = .04.
[b]*n* = 101; control *n* = 39; intervention *n* = 62.

Demographics of the Teacher and Student Groups

We examined the intervention and the control group teachers to determine if there were any differences between the two groups in their gender, total number of years in teaching, degrees held, areas of teaching licensure, ESL certification, previous SIOP (Sheltered Instruction Observation Protocol; Echevarría et al., 2010) training, and languages spoken. No differences were found between the intervention and the control groups for any of these teacher demographic variables (see Table 2). We also examined the differences between the students in the intervention group and the control group in their gender, grade level, age, number of days absent, eligibility for free or reduced-price lunch, pretest Broad English score on the WMLS, and pretest Broad Spanish score on the WMLS. Significantly more males were in the control group (73%) as compared to the intervention group (53%). The students in the two groups did not differ on any of the other demographic variables (see Table 3).

Data Analysis

All analyses other than descriptive statistics were conducted in M*plus* v7.4 (Muthén & Muthén, 2015) using multilevel path-analytic analogs of ANOVA and ANCOVA to take advantage of more sophisticated analysis options in structural equation modeling software. We estimated effect sizes using Hedge's *g*, which applies a sample size adjustment to Cohen's *d*.

We addressed the first research question about the teachers' implementation of the instructional strategies using observational data measured with the CQELL and the DCCS Observation Tool. Because the observational data tended to have low variability at individual occasions, we aggregated across the three observations to construct the outcome variables. The model used a binary coding of experimental condition as an intent-to-treat (ITT) analysis predicting four instructional strategy measures. We selected the ITT analysis as a conservative approach to determine the impact of the intervention for both teachers and students. In addition, while our measure of implementation fidelity documented the teachers' use of the instructional strategies, it did not measure the quality of implementation. Because of the modest teacher-level sample size, these analyses did not incorporate covariates.

The second research question assessed program outcomes using the *W* scores on the WMLS-R. We selected the *W* scores as they are designed as an interval-level continuous measurement of student competencies that have constant interpretation across ages and grades. As with teacher outcomes, we conducted an ITT analysis of condition predicting posttest scores on the seven subscales, covarying student gender, age, and start-of-year overall Spanish proficiency as well as pre-intervention English proficiency on the seven subtests.

Accommodating Missing, Non-Normal, and Multilevel Data

For all analyses, we used maximum likelihood estimation from raw data with robust "sandwich" estimators of standard errors ("MLR" in M*plus*) to accommodate missing posttest data and non-normality. Multilevel models for teacher outcomes adjusted for clustering of teachers (Level 1) within schools (Level 2). Models for student outcomes adjusted for clustering of students (Level 1) within teachers (Level 2). The models involving only student data did not explicitly include Level 3. Because there were no teacher-level variables in those models, school-level variance components would be subsumed into teacher-level variance components.

Results

Research Question 1: Use of Instructional Strategies

We examined the differences between teachers in the intervention group and the control group on three variables from the CQELL classroom

observation tool—Generic Lesson Elements, EL Support, and Adapted Strategies—as well as observer ratings of DCCS Strategies. Of the 15 ESL teachers in the study, 14 were observed providing instruction in the pull-out ESL classroom. One teacher was observed working with a small group of students in the regular classroom. For all teachers, the most frequently observed instructional strategies were Modified DRA and Vocabulary Text Talk. The least frequently observed strategies were the Frayer Model and the use of Word Cards. Ratings were aggregated across three observations as averages of non-missing values. No differences were found between teachers in the intervention group and the control group on CQELL Generic Lesson Elements or EL Support, indicating that the overall quality of instruction was similar between the two groups. However, the intervention did lead to greater use of Adapted Strategies (M_{diff} = 0.57, 95% CI [.05, 1.10], p =.032, Hedge's g = 0.95) and DCCS Strategies (M_{diff} = 0.38, 95% CI [0.27, 0.50], $p <$ .001, Hedge's g = 2.02) relative to teachers in the control group. Table 4 shows the full results of these analyses.

Research Question 2: Student Outcomes

We examined the PD program's effect on student outcomes using the seven subtests of the WMLS-R. We estimated a path-analysis analogue of a multivariate multiple linear regression model predicting the seven posttest *W* scores from experimental condition, covarying student gender, age, and start-of-year overall Spanish proficiency as well as pre-intervention English proficiency on the seven subtests. As is standard for multiple regression models, the path model was saturated and therefore fit the data perfectly.

We found a significant, beneficial, ITT effect on Story Recall, with an estimated group difference in change in *W* scores of 3.02, 95% CI [0.02, 6.02], p = .048, Hedge's g = 0.29. We also found an effect on Verbal Analogies; although the p value for the difference in change in Verbal Analogies *W* scores was not statistically significant (p = .053), the confidence interval was almost entirely above zero, M_{diff} = 3.13, 95% CI [–0.12, 6.38], Hedge's g = 0.23. Full results are shown in Table 5.

Research Question 3: Exploratory Analysis of Differential Student Outcomes

We also examined differences within groups of students at different levels of proficiency on the English subtests of the WMLS-R. We grouped students according to their pretest English proficiency on a given subtest: no proficiency (subtest score <.1 percentile), minimal proficiency (subtest score at or between .1 and 5th percentile), and some proficiency (>5th percentile). Three of the WMLS subtests—Picture Vocabulary, Understanding Directions, and Story Recall—met the sample size criterion of at least five students in each condition for all three proficiency levels. Models for the remaining subtests included only the minimal proficiency and some

Table 4
Teachers' Use of Instructional Strategies

Variable	Intervention[a]		Control[b]		Effect of the Intervention		
	M (SD)	95% CI	M (SD)	95% CI	Parameter Estimate	95% CI	Hedge's g
Generic Lesson Elements	2.04 (0.54)	[1.76, 2.33]	2.01 (0.80)	[1.62, 2.40]	0.04	[−0.44, 0.52]	0.06
English Learners Support	1.21 (0.57)	[0.91, 1.51]	1.12 (0.47)	[0.89, 1.35]	0.09	[−0.29, 0.47]	0.18
Adapted Strategies	1.93 (0.66)	[1.58, 2.28]	1.35 (0.80)	[0.96, 1.75]	0.57*	[0.05, 1.10]	0.95
Developing Collaboration and Consultation Skills Strategies	0.90 (0.11)	[0.84, 0.96]	0.51 (0.21)	[0.41, 0.62]	0.39**	[0.27, 0.50]	2.02

[a]n = 14.
[b]n = 16.
*p = .032. **p < .001.

133

Table 5
Student Outcomes on the Woodcock Muñoz Language Survey-Revised Normative Update, English Test

	Intervention[a]		Control[b]		Effect of Intervention		
	Adjusted M (SD)	95% CI	Adjusted M (SD)	95% CI	Parameter Estimate	95% CI	Hedge's g
Picture Vocabulary	453 (11.62)	[450, 455]	452 (12.79)	[448, 455]	1.02	[-3.88, 5.93]	0.05
Verbal Analogies	470 (6.59)	[468, 471]	466 (8.84)	[464, 469]	3.13**	[-0.12, 6.39]	0.23
Letter-Word Identification	431 (17.9)	[426, 435]	431 (17.61)	[425, 436]	0.03	[-7.7, 7.76]	0.00
Dictation	447 (16.8)	[443, 451]	446 (8.51)	[444, 449]	0.73	[-4.48, 5.93]	0.04
Understanding Directions	468 (8.89)	[466, 470]	467 (7.14)	[464, 469]	1.71	[-1.3, 4.72]	0.10
Story Recall	490 (5.34)	[489, 491]	487 (8.49)	[484, 489]	3.02*	[0.02, 6.02]	0.29
Passage Comprehension	444 (17.9)	[440, 449]	443 (18.87)	[437, 449]	1.39	[-5.91, 8.69]	0.03

[a]$n = 64$.
[b]$n = 41$.
*$p = .048$. **$p = .053$.

proficiency subgroups. These models were estimated in multiple-group path analyses with the same covariates as the full sample analyses previously. We conducted separate models for each of the seven subtests because the grouping was specific to a given subtest.

We found that students in the intervention group with minimal pretest proficiency on the Story Recall subtest showed significantly greater progress than did students in the control group (adjusted M = 15.9 vs. 9.1; M_{diff} = 7.8, 95% CI [5.0, 10.7], $p < .001$, Hedge's g = 0.24). Similarly, we found significantly greater growth for intervention students in the minimal proficiency group on the Letter-Word Identification (adjusted M = 90.1 vs. 58.7; M_{diff} = 31.4, 95% CI [3.0, 59.8], $p = .030$, Hedge's g = 0.58) and Dictation (adjusted M = 37.6 vs. 17.6; M_{diff} = 20.0, 95% CI [1.5, 38.5], $p = .034$, Hedge's g = 0.34) subtests. On the Understanding Directions subtest, we found that intervention group students with no pretest proficiency made significantly greater gains than did students in the control group (adjusted M = 42.1 vs. 30.6; M_{diff} = 11.5, 95% CI [2.8, 20.3], $p = .014$, Hedge's g = 0.20). We did not find a differential effect of the program for the students in the some proficiency group (standard score above 75) on any of the subtests. Full results for all proficiency groups and subtests appear in Table 6.

Discussion

The purpose of this study was to examine the impact of a teacher professional development program on teaching practices and the language and literacy skills of young ELs. We found a positive impact of the PD program on teachers' use of specific instructional strategies for ELs and students' literacy outcomes. The teachers' use of the instructional strategies suggests that teachers were able to implement the strategies with a high level of fidelity and that these strategies were substantially different from instructional approaches in the control classrooms. The overall quality of the classroom environment, as measured by the CQELL, was the same in both the intervention and the control groups, indicating that the key difference was the use of the DCCS instructional strategies. By using two observation scales, one that measures quality teaching for EL more generally and one that measures the implementation of our specific instructional strategies, we can begin to attribute the differences in student outcomes to the implementation of our approach rather than possible preexisting differences in instructional quality given the relatively small sample size.

Previous research has highlighted the importance of measuring implementation fidelity in studies that ask teachers to change their practices (Dane & Schneider, 1998). The DCCS Observation Tool provided an indication of the extent to which teachers were implementing all steps for a given instructional strategy, a measure of program adherence (Dane & Schneider, 1998). Future development of the DCCS Observation Tool should focus on

Table 6
Student Outcomes Based on Pretest Proficiency

Variables	n	Intervention		Control		Effect of the Intervention		
		Mean Improvement (SD)	95% CI	Mean Improvement (SD)	95% CI	Parameter Estimate	95% CI	Hedge's g
No proficiency								
Picture Vocabulary	24	37.96 (18.1)	[30.72, 45.2]	36.96 (25.52)	[26.75, 47.17]	1.00	[−11.72, 13.71]	0.02
Understanding Directions	23	42.13 (19.62)	[34.1, 50.15]	30.58 (16.89)	[23.68, 37.49]	11.54*	[2.38, 20.71]	0.20
Story Recall	16	15.04 (18.56)	[5.94, 24.13]	17.71 (29.65)	[3.18, 32.24]	−2.68	[−23.1, 17.75]	−0.04
Minimal proficiency								
Picture Vocabulary	40	4.33 (12.52)	[0.45, 8.21]	4.88 (16.24)	[−0.16, 9.91]	−0.54	[−7.4, 6.32]	−0.02
Verbal Analogies	14	26.72 (3.37)	[24.96, 28.49]	25.83 (8.7)	[21.28, 30.39]	0.89	[−3.7, 5.48]	0.04
Letter-Word Identification	16	90.09 (39.44)	[70.76, 109.41]	58.71 (40.4)	[38.92, 78.51]	31.37*	[2.99, 59.76]	0.58
Dictation	10	37.61 (16.6)	[27.32, 47.9]	17.59 (16.1)	[7.61, 27.56]	20.03*	[1.52, 38.54]	0.34
Understanding Directions	33	15.73 (7.58)	[13.14, 18.32]	13.81 (7.66)	[11.2, 16.42]	1.92	[−1.85, 5.69]	0.06
Story Recall	15	15.93 (2.6)	[14.61, 17.24]	9.08 (5.15)	[6.48, 11.69]	7.84**	[4.98, 10.71]	0.24
Passage Comprehension	23	48.19 (50.94)	[27.37, 69.01]	53.25 (43.07)	[35.64, 70.85]	−5.05	[−31.68, 21.57]	−0.14
Some proficiency								
Picture Vocabulary	37	2.74 (13)	[−1.45, 6.93]	2.4 (13.28)	[−1.88, 6.68]	0.34	[−5.47, 6.15]	0.01
Verbal Analogies	76	8.11 (18.05)	[4.05, 12.17]	5.49 (12.51)	[2.68, 8.31]	2.62	[−2.75, 7.98]	0.07
Letter-Word Identification	83	33.92 (25.53)	[28.43, 39.41]	37.84 (28.77)	[31.65, 44.03]	−3.93	[−12.34, 4.49]	−0.11
Dictation	91	21.97 (24.24)	[16.99, 26.95]	25.61 (17.89)	[21.94, 29.29]	−3.64	[−10.23, 2.95]	−0.09
Understanding Directions	45	4.54 (12.73)	[0.82, 8.26]	4.94 (10)	[2.02, 7.86]	−0.40	[−4.83, 4.03]	−0.01
Story Recall	70	1.9 (5.65)	[0.57, 3.22]	1.24 (18.29)	[−3.05, 5.52]	0.66	[−3.91, 5.23]	0.02
Passage Comprehension	70	10.32 (28.97)	[3.53, 17.11]	13.27 (45.89)	[2.51, 24.02]	−2.95	[−15.16, 9.27]	−0.11

$*p < .03. **p < .001.$

providing additional detail about the quality of the implementation to distinguish among different levels of implementation among teachers. Our results suggest that it is important to use a fidelity measure that is closely aligned with the teaching strategies that one would expect to see in classrooms where the teacher has participated in the professional development program to identify the key differences between the new approach and standard teaching practices. Supporting teachers to implement high-impact instructional strategies is the first step toward improving student outcomes.

We also found a positive impact of the PD program on student outcomes. Students' growth on two of the seven subtests of the WMLS indicated that students whose teachers participated in the PD program made greater gains as compared to students in the control classrooms. We found positive effects on the Story Recall subtest (Hedge's g = 0.29), which measures oral language including listening skills, memory, and expressive language, and on the Verbal Analogies subtest (Hedge's g = 0.23), which measures the ability to reason using lexical knowledge. It is important to note that Hill, Bloom, Black, and Lipsey (2008) indicate that an effect size of 0.23 can serve as an empirical benchmark for intervention studies that examine student outcomes on a standardized measure with a narrow focus, such as the one used in this study, the WMLS.

In taking a closer look at these two subtests, we noted that one explanation for these findings is that the PD program prioritized particular domains over others. Specifically, in the PD program, we discuss the concept of constrained versus unconstrained literacy skills (Paris, 2005). Constrained skills include those that can be learned to ceiling over a relatively short time, such as phonemic awareness and phonics. Unconstrained skills are those that continue to develop across time, such as vocabulary and comprehension. One possible reason for the positive effect on Story Recall is the integration of multiple instructional strategies by intervention teachers that focus on unconstrained skills. Intervention teachers specifically employed the Modified DRA strategy along with language frames to support students' retelling and summarizing of texts. In addition, we observed teachers frequently using the Vocabulary Text Talk strategy. Repeated use of these strategies supported the ELs in acquiring the academic language as well as the structures used in summarizing or retelling. The significant difference between intervention and control students on Story Recall may be an indication of students' internalization of the key language structures and organization of an effective oral summary.

Students from intervention classrooms outperformed those from control classrooms on the Verbal Analogies subtest, which measures reasoning using lexical knowledge, an example of another unconstrained skill. Intervention teachers likely spent significant amounts of time working with students on academic language structures through the use of language frames (Donnelly & Roe, 2010). Repeated use of language frames to internalize academic language structures (e.g., academic language related to compare/

contrast; [two things] are *similar* because . . . , [two things] are *different* because . . .) with multiple texts may have contributed to the advantage on Verbal Analogies for students from intervention classrooms.

In an exploratory analysis of how students at different levels of beginning English proficiency benefited from their teachers' participation in the PD program, we found that students at lower levels of English proficiency were especially likely to benefit from their teachers' participation in the PD program. Students whose standard score was between 55 and 75 at pretest (below the 5th percentile and above the .1 percentile) showed significant improvement in three of the seven subtests of the WMLS. Similarly, students in the lowest proficiency group (below the .1 percentile; standard score below 55) were also more likely to benefit from the intervention, with significant improvement in one of the three subtests analyzed. Conversely, the progress of students above the 5th percentile (with a standard score above 75) did not differ significantly from students in the control group. Students in this group were at or near expected English proficiency for children in their age group and may not have benefited as much from their teachers' participation in the PD program. Furthermore, students in this higher proficiency group were less likely to receive direct instruction from the ESL teacher because they would be categorized as qualifying for "transitional" ESL services, which meant that the ESL teacher monitored the students' progress and provided consultative support to the classroom teacher. In addition, classroom teachers may not have modified their instruction for these students but rather focused on students with lower proficiency in English. Future studies should examine the students' levels of proficiency and the teachers' use of strategies that match their instructional levels.

Limitations

One limitation of this study is the relatively small number of schools and the necessity to randomize at the school level. Because many smaller elementary schools have just one ESL teacher for K, first, and second grades, it was not possible to randomly assign teams of teachers to the intervention or control condition within schools. Additionally, a larger number of students in the study would be helpful for conducting subgroup analyses. A larger sample of students would allow for a more thorough examination of the impact of the PD program on students at various levels of proficiency.

A second limitation of the study was the need to aggregate teacher observations across the school year due to limited variability. A more sensitive measure of fidelity that includes quality of implementation rather than simply adherence to the instructional strategies would allow for analyses of teacher improvement over the school year. In addition, a measure of the quality of implementation would allow for analyses of how different levels of implementation predicted student outcomes.

Implications for Policy and Practice

A clear recommendation from this study is that with ongoing, school-based support for implementing innovations in the classroom, teachers can improve their instruction for English learners. Feedback from the teachers highlighted the importance of the ongoing PD modules and instructional coaching sessions at their schools. In addition, providing specific training in high-impact instructional strategies along with a framework for professional collaboration supports teachers in their implementation of new practices. This study also provides support for policy recommendations that integrate learning English with academic content, as proposed by Hakuta and Pecheone (2016). For example, ESL instruction is beneficial for pre-teaching academic vocabulary that the regular classroom teachers can build on to promote comprehension in academic content areas. In addition, school policies that promote collaboration between ESL and classroom teachers have the potential to capitalize on the ESL teachers' expertise as a way to support regular classroom instruction for ELs. ESL and classroom teachers in this study appreciated the opportunity to engage in professional conversations about their specific teaching approaches and built productive collaborative relationships to capitalize on the ESL teachers' expertise in teaching language and the classroom teachers' deep knowledge of the content areas and curriculum for students at their grade level. The next step for the teacher professional development program is a larger randomized controlled efficacy trial with a sufficient number of schools to analyze the data using a nested model to provide evidence of its effectiveness across many different types of school contexts. In addition, a more sensitive measure of implementation fidelity would be useful in determining what level of implementation predicts student growth and which components of the PD model are essential to reap the benefits.

Summary

In summary, teachers in the PD program were more likely to implement high-impact instructional strategies for ELs as compared to teachers in the control group. Importantly, the study also showed significant benefits to students in terms of significant growth in their English language and literacy skills as compared to students in the control classrooms. In particular, students in the intervention group at lower levels of English proficiency made significantly more progress as compared to students in the control group.

Notes

References

Amendum, S. J. (2014). Embedded professional development and classroom-based early reading intervention: Early diagnostic reading intervention through coaching. *Reading & Writing Quarterly, 30*, 348–377. doi:10.1080/10573569.2013.819181

Amendum, S. J., & Fitzgerald, J. (2011). Reading instruction research for English-language learners in kindergarten through sixth grade: The last fifteen years. In R. Allington & A. McGill-Franzen (Eds.), *Handbook of reading disabilities research* (pp. 373–391). Mahwah, NJ: Lawrence Erlbaum.

Amendum, S. J., Vernon-Feagans, L., & Ginsberg, M. C. (2011). The effectiveness of a technologically-facilitated classroom-based early reading intervention: The Targeted Reading Intervention. *Elementary School Journal, 112*, 107–131. doi:10.1086/660684

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

Babinski, L. M., Amendum, S., Knotek, S., & Sánchez, M. (2017, April). *Improving young English learners' language and literacy skills through teacher professional development*. Paper presented at the Society for Research in Child Development Biennial Meeting, Austin, TX.

Babinski, L. M., Sánchez, M., Amendum, S., & Knotek, S. (2016, May). *DCCS: ESL and classroom teachers working together with students and families*. Invited webinar for the grantees of the Striving Readers Comprehensive Literacy Program (SRCL).

Babinski, L. M., Sánchez, M., Knotek, S. E., Amendum, S., & Corra, A. (2013, November). *ESL and classroom teachers' views on collaboration*. Paper presented at the National Association for the Education of Young Children, Washington, DC.

Ballantyne, K. G., Sanderman, A. R., & Levy, J. (2008). *Educating English language learners: Building teacher capacity*. Washington, DC: National Clearinghouse for English Language Acquisition. Retrieved from: http://www.ncela.us/files/uploads/3/EducatingELLsBuildingTeacherCapacityVol1.pdf

Beck, I. L., & McKeown, M. G. (2001). Text talk: Capturing the benefits of read-aloud experiences for young children. *The Reading Teacher, 55*, 10–20. Retrieved from http://literacyprofessionaldevelopment.weebly.com/uploads/1/6/2/4/16241452/text_talk.pdf

Betts, E. A. (1946). *Foundations of reading instruction*. New York, NY: American Book.

Bohon, S. A., Macpherson, H., & Atiles, J. H. (2005). Educational barriers for new Latinos in Georgia. *Journal of Latinos and Education, 4*, 43–58.

Calderón, M. (2007). *Teaching reading to English language learners, grades 6–12: A framework for improving achievement in the content areas*. Thousand Oaks, CA: Corwin Press.

Carlo, M. S., August, D., McLaughlin, B., Snow, C. E., Dressler, C., Lippman, D. N., . . . White, C. E. (2004). Closing the gap: Addressing the vocabulary needs on English-language learners in bilingual and mainstream classrooms. *Reading Research Quarterly, 39*, 188–215. doi:10.1598/RRQ.39.2.3

Cloud, N. (2002). Culturally and linguistically responsive instructional planning. In A. J. Artiles & A. A. Ortiz (Eds.), *English language learners with special education needs: Identification, assessment, and instruction* (pp. 107–132). Washington, DC: Center for Applied Linguistics and Delta Systems.

Dane, A. V., & Schneider, B. H. (1998). Program integrity in primary and early secondary prevention: Are implementation effects out of control? *Clinical Psychology Review*, *18*(1), 23. Retrieved from: https://www.ncbi.nlm.nih.gov/pubmed/9455622

Donnelly, W. B., & Roe, C. J. (2010). Using sentence frames to develop academic vocabulary for English learners. *The Reading Teacher*, *64*, 131–136. doi:10.1598/rt.64.2.5

Dove, M., & Honigsfeld, A. (2010). ESL coteaching and collaboration: Opportunities to develop teacher leadership and enhance student learning. *TESOL Journal*, *1*, 3–22. doi:10.5054/tj.2010.214879

Echevarria, J., Short, D., & Powers, K. (2006). School reform and standards-based education: A model for English-language learners. *Journal of Educational Research*, *99*, 195–210. Retrieved from http://edfs200ell.pbworks.com/w/file/fetch/54561001/EchevarriaShort-SchRefSBEELLs.pdf

Echevarría, J., Vogt, M., & Short, D. J. (2010). *Making content comprehensible for elementary English learners: The SIOP model* (4th ed.). Boston, MA: Allyn & Bacon.

Egodawatte, G., McDougall, D., & Stoilescu, D. (2011). The effects of teacher collaboration in Grade 9 applied mathematics. *Educational Research for Policy and Practice*, *10*(3), 189–209. doi:10.1007/s10671-011-9104-y

Frayer, D. A., Frederick, W. D., & Klausmeier, H. J. (1969). *A schema for testing the level of concept mastery*. (Working Paper No. 16). Madison, WI: Wisconsin Research and Development Center for Cognitive Learning. Retrieved from http://brainimaging.waisman.wisc.edu/~perlman/frayer-frederick-klausmeier.pdf

García, E. E., Jensen, B., & Scribner, K. P. (2009). Supporting English language learners: The demographic imperative. *Educational Leadership*, *66*(7), 8–13. Retrieved from http://www.ascd.org/ASCD/pdf/journals/ed_lead/el200904_garcia.pdf

Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F., & Yoon, K. S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, *38*(4), 915–945. Retrieved from http://www.jstor.org/stable/3202507

Goddard, Y., Goddard, M., & Tschannen-Moran, M. (2007). A theoretical and empirical investigation of teacher collaboration for school improvement and student achievement in public elementary schools. *Teachers College Record Volume*, *109*(4), 877–896. Retrieved from https://eric.ed.gov/?id=EJ820449

Goldenberg, C., Coleman, R., Reese, L., Haertel, E., & Rodriguez-Mojica, C. (2012). *Classroom Quality for English Language Learners (CQELL)*. Retrieved from https://people.stanford.edu/claudeg/sites/default/files/training_presentation_2.pdfhttps://people.stanford.edu/claudeg/sites/default/files/observation_protocols_0.pdf

Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching Theory and Practice*, *8*(3) 381–391.

Hakuta, P., & Pecheone, R. (2016). Supporting English learners and treating bilingualism as an asset. In M. Hansen & J. Valant (Eds.), *Memos to the president on the future of U.S. Education policy*. Washington, DC: Brookings Institution. Retrieved from https://www.brookings.edu/blog/brown-center-chalkboard/2016/12/20/supporting-english-learners-and-treating-bilingualism-as-an-asset/

Hill, C. J., Bloom, H. S., Black, A. R., & Lipsey, M. W. (2008). Empirical benchmarks for interpreting effect sizes in research. *Child Development Perspectives, 2*(3), 172–177. doi:10.1111/j.1750-8606.2008.00061.x

Homan, M. S. (2004). *Promoting community change: Making it happen in the real world* (3rd ed.). Pacific Grove, CA: Brooks/Cole.

Knotek, S. K., Woods, L., & Enrico, M. (2015). *Implementation coaching in school-based settings*. Raleigh, NC: North Carolina Department of Public Instruction.

Lesaux, N. K., Crosson, A. C., Kieffer, M. J., & Pierce, M. (2010). Uneven profiles: Language minority learners' word reading, vocabulary, and reading comprehension skills. *Journal of Applied Developmental Psychology, 31*, 475–483. doi:10.1016/j.appdev.2010.09.004

Meirink, J. A., Imants, J., Meijer, P. C., & Verloop, N. (2010). Teacher learning and collaboration in innovative teams. *Cambridge Journal of Education, 40*, 161–181.

Migration Policy Institute. (2015). *ELL Information Center fact sheet series, no. 4.* Washington, DC: Author. Retrieved from http://www.migrationpolicy.org/programs/ell-information-center

Muthén, L. K., & Muthén, B. O. (2015). *Mplus user's guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.

National Center for Education Statistics. (2014a). *National Assessment of Education Progress (NAEP): NAEP data explorer.* Retrieved from http://nces.ed.gov/nationsreportcard/tdw/database/data_tool.asp

National Center for Education Statistics. (2014b). *The nation's report card: Reading 2013* (NCES 2014-467). Washington, DC: Institute of Education Sciences, U.S. Department of Education.

National Center for Education Statistics. (2015). *Nation's report card: 2015 mathematics & reading assessments, scores by student group.* Retrieved from http://www.nationsreportcard.gov/reading_math_2015/ - reading/groups?grade=4

NICHHD. (2000). *Report of the National Reading Panel. Teaching children to read: An evidence-based assessment of the scientific research literature of reading and its implications for reading instruction: Reports of the subgroups.* Washington, DC: Author. Retrieved from https://www.nichd.nih.gov/publications/pubs/nrp/Documents/report.pdf

Paris, S. (2005). Reinterpreting the development of reading skills. *Reading Research Quarterly, 40*, 184–202. doi:10.1598/RRQ.40.2.3

Pearson, P. D., & Gallagher, M. C. (1983). The instruction of reading comprehension. *Contemporary Educational Psychology, 8*, 317–344.

Risko, V. J., Roller, C. M., Cummins, C., Bean, R. M., Block, C. C., Anders, P. L., & Flood, J. (2008). A critical analysis of research on reading teacher education. *Reading Research Quarterly, 43*, 252–288. doi:10.2307/20068344

Schrank, F. A., McGrew, K. S., & Dailey, D. E. H. (2010). *Woodcock-Muñoz Language Survey–Revised Normative Update.* Rolling Meadows, IL: Riverside Publishing.

Spiegel, D. L. (1981). Six alternatives to the directed reading activity. *The Reading Teacher, 34*, 914–920. doi:10.2307/20195368

U.S. Government Accountability Office. (2009). *Teacher preparation: Multiple federal education offices support teacher preparation for instructing students with disabilities and English language learners, but systematic department-wide coordination could enhance this assistance* (Publication No. GAO-09-573). Retrieved from http://www.gao.gov/products/GAO-09-573

Valdez, T. M., & Lugg, C. (2010). Community cultural wealth and Chicano/Latino students. *Journal of School Public Relations, 31*, 224–237. Retrieved from https://eric.ed.gov/?id=EJ916875

Vangrieken, K., Dochy, F., Raes, E., & Kyndt, E. (2015). Teacher collaboration: A systematic review. *Educational Research Review*, *15*, 17–40.

Vernon-Feagans, L., Kainz, K., Hedrick, A., Ginsberg, M., & Amendum, S. J. (2013). Live webcam coaching to help early elementary classroom teachers provide effective literacy instruction for struggling readers: The Targeted Reading Intervention. *Journal of Educational Psychology*, *105*, 1175–1187. doi:10.1037/a0032143

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner & E. Souberman, Eds. & Trans.). Cambridge, MA: Harvard University Press.

Yoon, B. (2007). Classroom teachers' understanding of the needs of English-language learners and the influence on the students' identities. *The New Educator*, *3*(3), 221–243.

Yosso, T. J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race Ethnicity and Education*, *8*, 69–91. doi: 10.1080/1361332052000341006