Review of Educational Research
Month 202X, Vol. XX, No. X, pp. 1–36
DOI: 10.3102/00346543221087718
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A Synthesis of Professional Development Targeting Literacy Instruction and Intervention for English Learners

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An important way to address the literacy needs of English learners (ELs) is to ensure that ELs receive evidence-based literacy instruction and intervention. To support teachers' implementation of this instruction and intervention, it is necessary to provide effective professional development (PD). In this systematic review, we synthesized 19 studies that investigated PD on literacy instruction and intervention for ELs. Findings revealed that although PD often targets teachers' implementation of literacy instruction, PD is less likely to focus on teachers' implementation of literacy interventions for ELs experiencing reading difficulties. Nonetheless, PD programs typically resulted in positive changes in teachers' knowledge and practices. However, only 12 of the studies reported on student outcomes. We conclude with research and practical implications related to PD for teachers of ELs that is responsive to the needs of ELs.

English learners (ELs) possess unique and plentiful cultural and linguistic resources (i.e., funds of knowledge; González et al., 2006; Moll et al., 1992) that teachers should capitalize on as they use evidence-based practices to deliver literacy instruction and intervention. However, evidence at both the student level (e.g., test scores that reveal continued achievement gaps between ELs and native English speakers; U.S. Department of Education [USDOE], Institute of Education Sciences [IES], National Center for Education Statistics [NCES], National Assessment of Educational Progress [NAEP], 2019) and the teacher level (e.g., teachers' self-reported preparedness for delivering evidence-based literacy

practices to ELs; Wijekumar et al., 2019) suggests that teachers are not prepared to deliver this type of instruction and intervention to ELs, and thus, students are not receiving it. Professional development (PD) targeting the literacy and linguistic needs of ELs can promote teachers' implementation of evidence-based literacy instructional and intervention practices.

As we demonstrate in the current article, researchers are heeding the call for this PD and are designing and implementing school-based PD programs for teachers of ELs. They are publishing reports of programs' effects on teacher outcomes and, at times, student literacy outcomes. Understanding whether these PD programs improve teachers' ability to deliver effective literacy instruction and intervention to ELs and how the programs do this work (e.g., identifying the characteristics of PD programs found to be effective) can advance the field's knowledge of how to prepare teachers for meeting the literacy needs of ELs. Yet there has not been an in-depth synthesis of PD focused on literacy instruction and intervention for ELs. Therefore, in this review, we examine the extent to which teacher PD on literacy for ELs (a) aligns with recommendations for instruction and intervention of ELs (Baker et al., 2014), (b) aligns with Desimone's (2009) features of effective PD, (c) targets competencies Ortiz and Robertson (2018) argue are essential for teachers of ELs, and (d) targets teacher and student outcomes. Conclusions from this systematic review allow us to identify the features of teacher PD that improve literacy instruction and intervention provided to ELs and thus improve ELs' literacy outcomes.

Strengths of ELs and Barriers to Their Success

In fall 2018, current ELs composed 10.2% of the public school population in the United States, which totals approximately 5 million students (Irwin et al., 2021). This proportion has increased significantly since less than a decade ago (Hussar et al., 2020) and is likely to continue growing. ELs bring important linguistic and cultural resources (e.g., linguistic and cultural knowledge and skills) to the classroom. For example, ELs' emerging bilingualism or even multilingualism could result in an increased sense of metalinguistic awareness (e.g., Adesope et al., 2010; Cummins, 1978), which Nagy and Anderson (1995) defined as the "ability to reflect on and manipulate the structural features of language" (p. 2). Metalinguistic awareness is associated with increased morphological awareness and syntactic awareness (Reder et al., 2013) and vocabulary acquisition (Blom & Boerma, 2017), which can impact acquisition and development of literacy and reading comprehension (Nagy, 2007). Metalinguistic awareness is also related to executive function (Bialystok & Barac, 2012). ELs also bring multiculturalism into the classroom in the form of rich cultural backgrounds and funds of knowledge (González et al., 2006; Moll et al., 1992), which teachers can leverage by creating opportunities for ELs to pose problems and work toward their solutions through discussion and in collaborative groups. Additionally, research suggests that teacher behaviors related to developing both EL and non-EL Latinx students' new knowledge by accessing their cultural knowledge positively influences students' self-competence in reading (López, 2017). Thus, instruction can build on the rich linguistic and cultural resources accompanying ELs.

Despite the unique strengths ELs bring to the classroom, persistent differences in academic achievement between ELs and native English speakers exist. On the 2019 National Assessment of Educational Progress, the average score in reading for fourth-grade current ELs was 33 points lower than the average score of their non-EL peers, and this difference increased to 45 points among eighth graders (USDOE, IES, NCES, NAEP, 2019). Yet reading comprehension is crucial for ELs' academic progress in other content domains, such as science (Reed et al., 2016), social studies (Klingner et al., 1998), and mathematics (Grimm, 2008; Vilenius-Tuohimaa et al., 2008). Additionally, only 63% of high school ELs graduate in 4 years, compared to the national average of 82% of all students (McFarland et al., 2018).

It is important to acknowledge that there are systemic barriers contributing to limited academic outcomes among ELs. For example, the 2019 American Community Survey (U.S. Census Bureau, 2019) revealed that 15% of individuals who speak a language other than English at home live below the poverty level (compared to 11% among individuals who only speak English), which can have a negative impact on student achievement (Brooks-Gunn & Duncan, 1997). Additionally, ELs are more likely to attend high-poverty schools (Quintero & Hansen, 2021), which the USDOE defines as schools in which more than 75.0% of students are eligible for free or reduced-price lunch (Irwin et al., 2021). These schools often have fewer resources and fewer qualified or effective teachers to support ELs and other marginalized students (Goldhaber et al., 2007; Heuer & Stullich, 2011; Sass et al., 2012).

Another barrier is that instructional contexts may include restrictive language policies, monolingual paradigms, and assessment routines that position ELs as failing (Cervantes-Soon et al., 2017; Diamond & Lewis, 2015; Menken & Solorza, 2014). For example, Arizona's Structured English Immersion model, which segregated ELs from non-ELs for the majority—if not all—of the instructional day, did not foster positive EL outcomes (Gándara & Orfield, 2012). Instead, the program (a) resulted in linguistic isolation, which did not promote English language development (Gándara & Orfield, 2012); (b) may have negatively affected ELs' self-esteem and learning (Rios-Aguilar et al., 2012b); and (c) may have inadequately prepared students for mainstream classrooms without additional support (Rios-Aguilar et al., 2012a). Additionally, ELs may not receive the linguistic support they need to acquire content knowledge and literacy skills to achieve grade-level expectations (Umansky & Reardon, 2014), perhaps due to teachers' limited preparation teaching ELs (Lucas, 2011). Furthermore, teachers may have low expectations for ELs (Bartlett & Garcia, 2011), which can lead to their placement in less rigorous classes (Callahan, 2005) and limit their postsecondary opportunities (Olsen, 2014).

The literacy and general academic difficulties ELs face in combination with teachers' limited knowledge about ELs and lowered expectations for ELs likely lead to the overrepresentation of ELs in special education. In fact, researchers have reported the overidentification of ELs with learning disabilities (e.g., Artiles et al., 2005). Other research suggests that when controlling for several factors such as academic achievement, ELs are not more likely than other children to be identified with a disability and, in fact, may be underrepresented in special education (Morgan

et al., 2015). There is a clear need for schools to understand and adopt systems that aim to provide ELs with and without disabilities evidence-based literacy instruction and intervention, thus promoting academic achievement.

Literacy Instruction and Intervention for English Learners

Given the unique academic experiences of ELs, the literacy instruction and intervention ELs receive should be evidence-based. A 2014 Institute of Education Sciences (IES) practice guide made several recommendations for tailoring reading and content-area instruction for ELs (Baker et al., 2014). This guide recommended that teachers of ELs (a) provide intensive instruction of academic vocabulary words across several days using various instructional methods, (b) incorporate both oral and written English language instruction into content-area classes, (c) provide opportunities for ELs to cultivate their written language skills, and (d) provide small-group intervention to ELs experiencing literacy and language difficulties. These interventions can be feasibly implemented if teachers are prepared with the skills needed to provide core academic instruction and make data-based decisions to inform interventions for ELs with additional literacy needs. The findings of Baker et al. (2014) are generally consistent with Goldenberg's (2020) claim that

> what is known about effective literacy instruction for non-ELs is the foundation of effective literacy instruction for ELs. However, attention must be paid to students' English oral proficiency as it relates to what students are expected to read and how they are to engage during classroom activities. (p. 139)

Richards-Tutor et al. (2016) conducted a synthesis to extend the findings of the IES practice guide and determine the effects of 12 studies targeting the reading or prereading needs of ELs with or at risk for learning disabilities in Grades K through 12. All the interventions in the synthesis incorporated features of effective instruction, as described by Archer and Hughes (2011), including explicit instruction with modeling, guided practice with scaffolding, and corrective feedback. Three studies also included features that specifically targeted the needs of ELs, such as instruction on differences between English and ELs' native languages. Their findings revealed that interventions targeting foundational literacy skills (e.g., phonemic awareness) among early elementary students were more effective than those targeting other outcomes, such as comprehension. Ludwig et al.'s (2019) meta-analysis found similar findings—reading interventions for ELs had a larger effect on reading accuracy and fluency than on reading comprehension. Additionally, the only study to demonstrate significant effects among older students (i.e., at or above fourth grade) provided ELs individualized intervention.

The Importance and Effects of Professional Development on Teacher and Student Outcomes

To provide evidence-based literacy instruction and intervention for ELs, teachers must be able to target ELs' literacy needs effectively. Ortiz and Robertson (2018) identified several competencies that teachers who deliver language and

literacy instruction to ELs should master. These competencies include understanding language acquisition, bilingualism, and biliteracy (i.e., language and linguistics); creating classroom environments that value ELs' linguistic and cultural resources (i.e., cultural variability); understanding the factors (e.g., laws, policies, and standards) that influence the education of ELs (i.e., educational contexts); and delivering the essential elements of literacy instruction for ELs (i.e., literacy foundations). However, teachers may be unprepared to do this work.

Teacher Knowledge and Skills Needed

Research suggests that teachers are insufficiently prepared to provide evidence-based instruction. A survey study of 110 preservice teachers revealed that there is little focus on training in instructional practices and programs during preservice teacher preparation (Begeny & Martens, 2006). Additionally, many inservice teachers are unprepared to provide literacy instruction, in particular. For example, Wijekumar et al.'s (2019) study of upper elementary teachers revealed that although teachers reported feeling confident providing reading instruction, most of the reading comprehension instructional strategies they reported providing did not align with the recommendations of the National Reading Panel (2000). Although teachers in the study were observed discussing students' reading performance and identifying students in need of additional support (e.g., intervention), they did not discuss the need for support that is evidence-based.

Teachers' ability to deliver instruction that meets the needs of ELs, in particular, is likely hampered by lack of access to instructional materials and PD targeting the specific instructional needs of ELs (Gándara et al., 2005). Therefore, *effective* PD that focuses on the successful implementation of instructional and intervention practices that target the instructional needs of ELs is necessary.

Essential Elements of Effective Professional Development

Influential research suggests that to increase teachers' knowledge and skills and improve their instructional practice, PD should meet several criteria. According to Desimone (2009), PD should have a content focus (e.g., a focus on a particular subject); include active learning opportunities (e.g., observation and performance feedback); be coherent by aligning with teachers' goals and school, district, and state policies; span a semester and include at least 20 hours of contact time; and involve collective participation among teachers from the same setting, such as the same school.

Jiménez et al. (2015) presented a framework aligned with research on teachers of ELs that can provide guidance on PD for ELs. Their framework focuses on teachers' (a) dispositions toward ELs, (b) pedagogical knowledge related to ELs, and (c) ability to apply that knowledge. Dispositions refer to teachers' beliefs, attitudes, perceptions, and expectations of students. Regarding teachers' dispositions of ELs specifically, Jiménez and colleagues argued that teachers, especially White teachers, can hold dispositions that lead to lowered expectations for ELs. However, research indicates that teacher education can improve preservice teachers' beliefs about ELs, expectations of ELs, and their confidence teaching ELs (Jiménez et al., 2015; Worthy & Patterson, 2001), which suggests that PD for inservice teachers of ELs could have the same effect. Regarding pedagogical

knowledge, Jiménez et al. explained that recognizing and drawing "on students' linguistic knowledge and cultural backgrounds" (p. 407) are effective practices for ELs. Finally, regarding the application of this pedagogical knowledge, Jiménez et al. discussed the need for teachers to be able to build on their understanding of students' knowledge and backgrounds during instruction. Thus, teachers of ELs benefit from PD that equips them to provide ELs with an education that builds on ELs' cultural and linguistic funds of knowledge. But are current PD programs—as reported in published, peer-reviewed research—doing this work? The present synthesis endeavors to find out. Specifically, we examined the extent to which PD for teachers of ELs (a) aligned with the features of effective PD, (b) addressed the IES recommendations for providing literacy instruction and intervention to ELs (Baker et al., 2014), (c) targeted several competencies teachers need to provide effective literacy instruction to ELs (Ortiz & Robertson, 2018), and (d) teacher outcomes, and when available, student outcomes.

Method

Search Procedures

To identify studies for our corpus, we conducted searches of the following databases: ERIC, Academic Search Complete, and PsycINFO. We searched for peer-reviewed articles published between January 2000 and December 2020 that included the following terms: (a) *professional development*, *teacher training*, or *coach**; (b) *teach**; (c) *English language learner**, *English learner**, *English as a second language*, *English as a second or other language*, *dual language learner**, *multilingual learner**, or *emergent bilingual**; and (d) *evaluation*, *effect*, *impact**, *random**, *experiment**, or *trial*. We included terms used in other high-quality systematic reviews related to similar topics (e.g., Kraft et al., 2018). Our search yielded 1,483 unique results.

Because previous literature suggests that PD and coaching can improve teacher outcomes, which improves student outcomes (Kennedy, 2016; Kraft et al., 2018), the first and second authors screened the title and abstract of each article to identify studies that investigated teacher outcomes as a result of PD (e.g., teachers' knowledge, perceptions, beliefs, or implementation). Specifically, studies were required to:

1. be written in English;
2. describe PD specifically designed to support ELs, teachers of ELs, or both;
3. describe literacy instruction or intervention, including content-area literacy instruction or intervention, for ELs;
4. include in-service teachers;
5. be conducted in K–12 settings;
6. measure at least one teacher outcome related to teachers' knowledge, perceptions, beliefs, or implementation of general or content-specific instructional practices.

Studies that investigated English as a foreign language (EFL; e.g., teaching English outside of an English-speaking country) and studies that investigated

bilingual education or language immersion for non-EL students only were excluded. For example, we excluded Marzuki et al. (2016), which presented an intervention targeting EFL learners in Indonesia, and Hua et al.'s (2019) study of native English speakers learning Japanese. Additionally, we excluded studies that only targeted the academic language of ELs (e.g., Jackson et al., 2019).

To establish interrater agreement of screening, the first and second authors screened the first 150 articles (approximately 10%) independently. The first author then calculated intercoder agreement by dividing the number of agreements by the total number of articles. Interobserver agreement equaled 95%, which meets the gold standard of agreement—90% (Gwet, 2001). The first and second authors discussed and addressed disagreements before dividing the remaining search results between each other to complete screening the articles identified via the database searches. This initial screening produced 29 qualifying articles for full-text screening.

For full-text screening, the first and second authors reviewed the 29 articles in their entirety to determine whether the studies provided information regarding PD, the literacy instruction or intervention targeted during PD, and teacher outcomes. Specifically, studies were expected to include (a) clear descriptions of PD sessions, such as elements of PD (e.g., group training, one-on-one coaching) and PD dosage (i.e., number of PD sessions); (b) explanations of the literacy instructional and intervention activities introduced during PD; and (c) qualitative or quantitative results that captured teachers' changed instructional knowledge, perceptions, beliefs, or practices. Inclusion of both qualitative and quantitative studies was necessary because teachers' perceptions and beliefs, in particular, lend themselves to qualitative investigation (e.g., Scruggs et al., 2007). After completion of full-text screening, we discussed and resolved any disagreements. Nineteen articles qualified for inclusion in the present review. Because we did not require student outcomes for inclusion in our corpus, nor were they reported in all studies, we did not review them at this phase.

Finally, we conducted ancestral searches of related syntheses (i.e., Kraft et al., 2018; Kretlow & Bartholomew, 2010; Ludwig et al., 2019; McMaster et al., 2021; Richards-Tutor et al., 2016) to identify any eligible articles that were not yet included in our corpus. These searches did not yield additional articles eligible for our synthesis. Thus, the full screening process yielded 19 articles for inclusion in our corpus. One of the articles reported on two studies (Burstein et al., 2014). However, we counted it as a single study because the features of the PD programs and the interventions were the same in both studies. However, we report the study with two different entries in Tables 1 through 3 due to different features of the method (e.g., different sample sizes). See Figure 1 for a PRISMA diagram detailing the complete literature search.

Coding Procedures

We used Qualtrics software to code the following information in each study: student, teacher, and PD provider characteristics; theoretical framework, when stated; research methodology; characteristics of the target instruction and intervention; PD characteristics; and teacher and student outcomes. We established 100% agreement on all codes through double coding and discrepancy discussions

TABLE 1

Study Characteristics

Study	Treatment Teacher *N*	Student *N*	Method	Grade Level/ Classroom	Teacher Position/ Certification	Teacher Experience	Teacher Race/ Ethnicity	Student Race/ Ethnicity	Student Language	Student FARMS	Teacher Outcome	Student Outcome
Aguirre-Muñoz et al. (2009)	21	NR	Mixed method	6–8/general education classrooms	General education teachers/NR	Average 10 years (1-27)	NR	NR	NR	NR	Teacher practice, teacher knowledge, teacher satisfaction	NR
Amendum et al. (2018)	24	51	Quant	K–2/general education classrooms	General education teachers/NR	8–9 years	80% White	NR	93% Spanish	NR	Fidelity	Woodcock-Johnson III
Babinski et al. (2018)	14	72	Quant	K–2/general education and ESL "pull-out" classrooms	General education, ESOL teachers/ all ESOL teachers held ESL certification	1–29 years	NR	NR	NR	83%	Fidelity, teacher practice	Woodcock Muñoz Language Survey
Burstein et al. (2014) study 1	112	NR	Quant	6–8/online master's coursework	General education teachers/NR	1–37 years	NR	NR	NR	NR	Teacher knowledge	NR
Burstein et al. (2014) study 2	8	Ranged across schools from 42 to 145	Mixed method	6–8/general education classrooms	General education, ESOL teachers/NR	NR	NR	NR	Ranged across schools from 25% to 100% EL	NR	Teacher satisfaction, teacher practice	NR
Echevarria et al. (2011)	8	649	Mixed method	6–8/general education classrooms	General education teachers/NR	NR	NR	NR	NR	NR	Fidelity	Curriculum-based science assessment
Ehri & Flugman (2018)	69	1,336	Quant	K–3/general education classrooms	General education, ESOL, and special education teachers/ NR	8.5–13.1 years	NR	NR	255 ELs	NR	Fidelity, teacher practice, teacher knowledge	Spelling, Gates reading test
Green et al. (2013)	26	NR	Qual	6–8/two-way immersion schools	Two-way immersion teachers/NR	NR	NR	NR	All Spanish speakers	NR	Teacher satisfaction, teacher knowledge	NR
Hadjioannou et al. (2016)	34	NR	Mixed method	K–12/online coursework	General education teachers/NR	NR (5 preservice teachers)	NR	NR	NR	NR	Teacher practice, teacher knowledge	NR
Hart & Lee (2003)	53	1,500	Mixed method	3–4/general education classrooms	General education teachers/37 ESOL certification	Average 12.3 (1–34) years	25 Hispanic/ Latinx, 11 White, 11 Black, 1 Asian	Ranged across schools from 11% to 92% Hispanic/ Latinx	Ranged across schools from 1% to 47% EL	Ranged across schools from 16% to 99%	Teacher practice, teacher knowledge, teacher satisfaction	NR

(continued)

TABLE 1 (continued)

Study	Treatment Teacher *N*	Student *N*	Method	Grade Level/ Classroom	Teacher Position/ Certification	Teacher Experience	Teacher Race/ Ethnicity	Student Race/ Ethnicity	Student Language	Student FARMS	Teacher Outcome	Student Outcome
Kim et al. (2011)	103	Students from 50 treatment classes	Quant	6–12/general education classrooms	General education teachers/NR	Average 14.34 years	NR	95% Latinx	88% Spanish	79%	Teacher practice	Writing sample
Lara-Alecio et al. (2012)	6	166	Quant	5/general education classrooms	General education teachers/NR	Average 8.6 years	NR	NR	District included 45% native Spanish speakers	85%	Fidelity	Benchmark science tests, TAKS, DIBELS
Matsumura et al. (2010)	73	1,269	Quant	4–5/general education classrooms	General education teachers/NR	Average 6 years	NR	81% Hispanic/ Latinx, 17% African American, 3% Asian	40% EL	91%	Teacher satisfaction, teacher practice	TAKS, DRP
Matsumura et al. (2013)	101	2,983	Quant	4–5/general education classrooms	General education teachers/NR	Average 8 years	NR	NR	40% EL	NR	Teacher practice	State standardized accountability test (reading)
McGriff (2015)	1	16	Qual	6–8/general education classrooms	ESOL co-teacher/NR	7 years	White	NR	16 ELs	NR	Teacher practice	NR
O'Hara et al. (2013)	16 classrooms	16	Mixed method	4–5/general education classroom	General education teachers/NR	NR	NR	NR	NR	NR	Teacher practice, teacher knowledge	Benchmark reading assessment, hypermedia projects
Olson et al. (2017)	49	966 Year 1, 634 Year 2	Quant	7–12/general education English language arts classroom	General education teachers/NR	Average 14.82 years	NR	98% Hispanic/ Latinx	18% EL	71%	Fidelity	Analytic writing assignment, CA Standards Assessment
Olson et al. (2020)	113	447	Quant	7–12/general education English language arts classroom	General education teachers/NR	Average 12.21 years	NR	66% Hispanic/ Latinx	13% EL	NR	Fidelity, teacher practice	Analytic writing assignment, CA Standards Assessment
Tang et al. (2020)	39 Treatment 1, 38 Treatment 2	NR	Mixed method	1/first-grade bilingual classrooms	NR/bilingual certification	NR	NR	NR	NR	NR	Fidelity, teacher satisfaction	NR
Tong et al. (2010)	76	84	Quant	K–3/ESL block within sheltered English immersion classrooms	NR/ESOL certification	Average 9.5 years	NR	100% Hispanic/ Latinx	196 ELs	88%	Fidelity, teacher practice	Phonological awareness, oral language skills, reading related skills

Note. NR = not reported; FARMS = free and reduced-priced meals; EL = English learner; ESL = English as a second language; ESOL = English to Speakers of Other Languages; TAKS = Texas Assessment of Knowledge and Skills; DIBELS = Dynamic Indicators of Basic Early Literacy Skills; DRP = Degrees of Reading Power; CA = California.

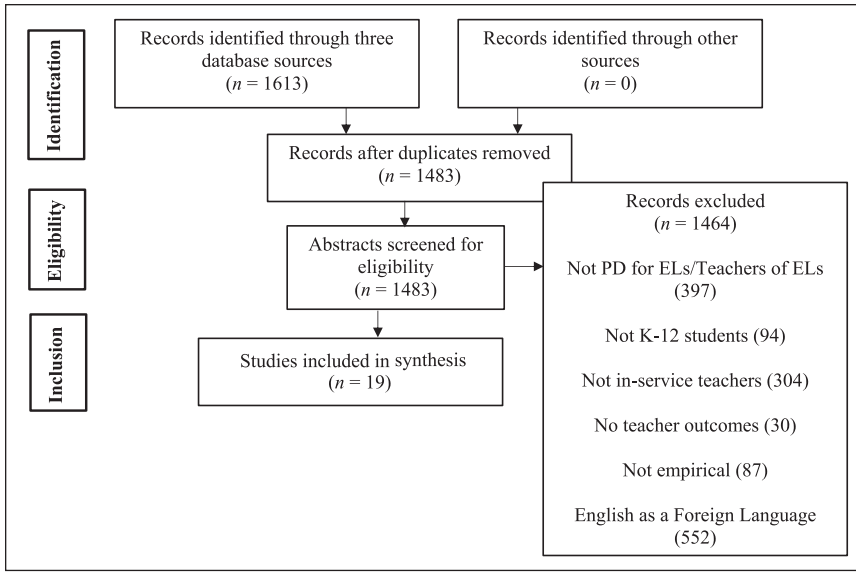

FIGURE 1. *PRISMA flow diagram.*

(e.g., Reed et al., 2014). Following this initial round of coding, we isolated sections of each article describing intervention characteristics for additional coding. We deductively coded the intervention sections using Baker et al.'s (2014) suggestions for carrying out each recommendation for effective academic and literacy instruction for ELs. For example, within the vocabulary recommendation, we coded for studies' adherence to the following suggestions: (a) use brief, informational texts; (b) teach a small set of vocabulary words; (c) provide instruction in multiple modalities; and (d) teach word-learning strategies.

During this second round of coding, we also isolated sections describing each study's PD to code for the characteristics of effective PD proposed by Desimone (2009). We used the code "present" when authors clearly reported the characteristic, and we used the code "absent" for instances in which the characteristic was clearly missing. When the authors' description of the characteristic was neither clearly present nor absent, we coded these instances as "unclear."

We also coded these isolated sections for their alignment with four competencies for teachers of ELs (Ortiz & Robertson, 2018). Specifically, we sought to identify whether PD targeted teachers' understanding of language, language acquisition, bilingualism, and biliteracy (i.e., language and linguistics); ability to create learning environments that value ELs' linguistic resources and cultural funds of knowledge (i.e., cultural variability); understanding of laws, policies, and standards that shape and often restrict the education of ELs (i.e., educational contexts); and knowledge and skills related to essential elements of literacy

instruction for ELs (i.e., literacy foundations). Again, we double coded during this round of coding. Therefore, there was 100% agreement on all codes.

Results

The studies in the present corpus varied in method, intervention, and PD. We first describe synthesized characteristics of the studies (see Table 1). Next, we describe synthesized features of the selected literacy instruction and intervention and the PD that targeted teachers' implementation of that instruction and intervention. We conclude by describing both teacher and student outcomes.

Study Characteristics

The studies used a range of methods. Two studies used qualitative case-study methods (Green et al., 2013; McGriff, 2015); six studies reported using mixed methods. Eleven studies reported using a variety of quantitative methods, including hierarchical linear models (e.g., Matsumura et al., 2010, 2013), gain score regression (e.g., Olson et al., 2017), and analysis of covariance (e.g., Lara-Alecio et al., 2012), to determine the significance of students' growth in literacy skills.

Study Settings

The majority of studies ($n = 17$) were conducted within the schools delivering the PD programs. Only two studies (Burstein et al., 2014; Hadjioannou et al., 2016) were conducted outside of schools. Both PD programs in these studies were offered as part of for-credit online courses. Burstein and colleagues (2014) conducted their PD training as part of master's coursework, whereas Hadjioannou et al. (2016) stated their PD was delivered as part of a "credit-based PD program" (p. 4). It is noted that neither of these studies included coaching after this initial group training.

For the studies conducted within schools, 14 were set within the context of general education classrooms (e.g., Lara-Alecio et al., 2012), two took place in bilingual classrooms (Green et al., 2013; Tang et al., 2020), and one was conducted within sheltered English immersion classrooms in which teachers provide ELs—typically beginners in English—with content-area instruction and English language instruction (Tong et al., 2010). Within the group of 14 studies set in general education classrooms, several researchers reported using district-level criteria for selecting classrooms. Lara-Alecio and colleagues (2012), for example, targeted a district where 45% of students were native Spanish speakers, but the participating schools were part of an exemplary district known for its "positive reputation based on student achievement and national awards such as the Broad Foundation Prize [and] lengthy experience working with ELs" (p. 994). Meanwhile, Olson et al. (2017) selected a district that reported 98% of families as being Hispanic/Latinx.

Study Participants

Teachers. The number of implementers who received PD within the studies ranged from one (McGriff, 2015) to just over 100 (Olson et al., 2020, $n = 113$). Studies only employing quantitative methods had the largest average implementer sample size (average $n = 52.86$; range = 6–113). One of the two qualitative

studies was case studies of individuals taken from a larger study conducted with more participants (McGriff, 2015). Per inclusion criteria, all the studies included teacher participants, although some studies included additional implementers (e.g., paraprofessionals; Tong et al., 2010).

Five studies used PD programs to train early elementary teachers (i.e., Grades K–2; Amendum et al., 2018; Babinski et al., 2018; Ehri & Flugman, 2018; Tang et al., 2020; Tong et al., 2010); five trained upper elementary teachers (i.e., Grades 3–5; Hart & Lee, 2003; Lara-Alecio et al., 2012; Matsumura et al., 2010, 2013; O'Hara et al., 2013). Five studies included secondary teachers teaching middle school exclusively (i.e., Grades 6–8; Aguirre-Muñoz et al., 2009; Burstein et al., 2014; Echevarria et al., 2011; Green et al., 2013; McGriff, 2015), whereas Kim and colleagues (2011) and Olson et al. (2017, 2020) trained teachers in Grades 6 through 12. No study included high school (i.e., Grades 9–12) teachers exclusively. Additionally, Hadjioannou et al. (2016) was the only study that did not focus on a particular grade range and was conducted with implementers across K–12 settings.

The majority of the studies ($n = 11$) only trained general education classroom teachers as implementers. Two studies trained teachers working in bilingual classrooms (Green et al., 2013; Tang et al., 2020), two studies reported outcomes for EL teachers (McGriff, 2015; Tong et al., 2010), and four studies included both general education teachers and EL teachers (Babinski et al., 2018; Burstein et al., 2014; Ehri & Flugman, 2018; Hart & Lee, 2003). Teacher experience was reported in 14 studies. The reported averages ranged from 6 to 14.8 years. Additional characteristics of teachers were not consistently reported. Seven studies described the highest degrees earned by teachers. All three studies of bilingual or English immersion classrooms (Green et al., 2013; Tang et al., 2020; Tong et al., 2010) reported that teachers were certified in English for Speakers of Other Languages (ESOL).

Teacher race and/or ethnicity was reported in only three studies (Amendum et al., 2018; Hart & Lee, 2003; McGriff, 2015), and one of these three was qualitative case studies of a single implementer (McGriff, 2015). Only Tang and colleagues (2020) and Hart and Lee (2003) reported implementers' native languages. When language and ethnicity were reported, they were frequently used to demonstrate a distinction from the predominant White, English-speaking teacher profile. For example, Tang et al. (2020) stated 80% of their implementers were native Spanish speakers, whereas Hart and Lee (2003) reported 25 implementers were Hispanic, 11 were Black, 11 were White, and one was Asian American.

Students. Because our inclusion criteria did not require that studies reported student outcomes, a subset of 14 studies reported the number of student participants. Even within these 14 studies, reporting was inconsistent. For instance, only six studies reported student race or ethnicity. Additionally, 11 of the studies that reported student outcomes also reported student language status. In several cases, the district-level demographics were reported. As an example, Kim et al. (2011) purposefully conducted their study in a district where the majority of students were Latinx ELs "mainstreamed into regular English language arts classrooms"

(p. 283), whereas Lara-Alecio et al. (2012) selected a district where 45% of students were native Spanish speakers. Additionally, studies varied in the percentage of students designated as ELs. Olson et al. (2017) reported 18% of treatment students received EL support, whereas Tong et al. (2010) reported 100% of students in their study's English immersion classrooms were ELs. Finally, all seven studies that reported the percentage of students receiving free and reduced-price meals indicated a majority of student participants had low socioeconomic status backgrounds. For example, Babinski et al. (2018) stated that 83% of their student sample received free and reduced-priced meals, and Tong et al. (2010) reported 88% of their students qualified.

Study Measures

The measures used in the studies varied widely. In mixed-method studies, qualitative data sources tended to represent teachers' perceptions of and satisfaction with PD programs (Aguirre-Muñoz et al., 2009; Hart & Lee, 2003; Tang et al., 2020). The quantitative data sources in these studies described the effects of the PD program on teachers' practice and knowledge (Aguirre-Muñoz et al., 2009; Hadjioannou et al., 2016; Hart & Lee, 2003; O'Hara et al., 2013) or their fidelity when implementing the intervention package (Echevarria et al., 2011; Tang et al., 2020). The majority of student outcomes ($n = 7$) in quantitative studies were standardized assessments, whereas three studies used a researcher-created writing measure to monitor student writing progress (Kim et al., 2011; Olson et al., 2017, 2020). Finally, no study that only utilized qualitative methods reported student outcomes.

Literacy Instruction and Intervention

The instruction and interventions that PD targeted in the 19 studies varied significantly. Only three studies provided instruction in phonemic awareness, three studies targeted word reading, three studies addressed reading fluency, nine studies taught vocabulary, 12 studies sought to improve student comprehension, and 10 studies addressed writing. Most studies ($n = 17$) included PD programs that aimed to improve teachers' specific instructional or intervention practices. For example, in Matsumura et al. (2013), coaches provided teachers with training on how to implement Questioning the Author, an approach to promote students' reading comprehension via text-based discussions. Two PD programs were evaluated in more than one study. Specifically, Pathway Project (Kim et al., 2011; Olson et al., 2017, 2020), Questioning the Author (Matsumura et al., 2010, 2013), and Story Retelling and Higher Order Thinking for English Language and Literacy Acquisition and Academic Oral and Written Language (Tang et al., 2020; Tong et al., 2010) were all tested in multiple studies.

Table 2 details the extent to which the instruction and interventions aligned with Baker et al.'s (2014) recommendations and accompanying suggestions for carrying out the recommendations. Twelve studies included instruction on academic vocabulary words (Recommendation 1) by incorporating at least one suggestion for carrying out the recommendation. Studies were most likely to provide in-depth instruction on a set of academic vocabulary words ($n = 10$). Only one

TABLE 2

Intervention Characteristics

	Recommendation 1: Teach a Set of Academic Vocabulary Words Intensively Across Several Days Using a Variety of Instructional Activities				Recommendation 2: Integrate Oral and Written English Language Instruction Into Content-Area Teaching				Recommendation 3: Provide Regular, Structured Opportunities to Develop Written Language Skills				Recommendation 4: Provide Small-Group Instructional Intervention to Students Struggling in Areas of Literacy and English Language Development				
Study	Brief Informational Text	Small Set of Vocabulary Words	Multiple Modalities	Word-Learning Strategies	Instructional Tools	Content-Specific Academic Vocabulary	Daily Small-Group Talk	Extend Learning With Writing	Content-Area Writing	Language-Based Supports	Small-Group/Pair Writing	Assess Writing and Give Feedback	Use Assessment Data in Decisions	Targeted Small-Group Instruction	Additional Small-Group Instruction	Foundational Reading Skills	Scaffolded Instruction
Aguirre-Muñoz et al. (2009)	N	N	N	N	N	N	N	Y	Y	Y	N	Y	N	N	N	N	N
Amendum et al. (2018)	N	Y	Y	Y	Y	N	N	N	N	N	N	N	Y	N	N	Y	Y
Babinski et al. (2018)	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N
Burstein et al. (2014) study 1	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Burstein et al. (2014) study 2	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Echevarria et al. (2011)	N	Y	N	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	Y
Ehri & Flugman (2018)	Y	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	Y
Green et al. (2013)	Y	Y	Y	Y	N	Y	N	Y	Y	N	N	N	N	N	N	N	N
Hadjioannou et al. (2016)	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N
Hart & Lee (2003)	N	Y	Y	N	Y	Y	N	Y	N	Y	N	N	N	N	N	N	N
Kim et al. (2011)	N	N	N	N	Y	N	N	Y	Y	Y	N	Y	N	N	N	N	Y
Lara-Alecio et al. (2012)	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	Y
McGriff (2015)	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N
Matsumura et al. (2010)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Matsumura et al. (2013)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
O'Hara et al. (2013)	N	N	N	N	Y	Y	N	Y	Y	N	N	N	N	N	N	N	N
Olson et al. (2017)	N	N	N	N	Y	N	N	Y	Y	Y	Y	Y	N	N	N	N	Y
Olson et al. (2020)	N	N	N	N	Y	N	N	Y	Y	Y	Y	Y	N	N	N	N	Y
Tang et al. (2020)	Y	Y	N	N	Y	N	Y	N	N	N	N	N	N	N	N	N	N
Tong et al. (2010)	Y	Y	N	N	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	Y	Y

study addressed all four suggestions for carrying out this recommendation (Green et al., 2013).

Instruction and interventions were most likely to incorporate oral and written language instruction in English (Recommendation 2). Thirteen of the 19 studies adhered to at least one suggestion for carrying out this recommendation. Many studies targeted opportunities to extend student learning with writing ($n = 11$) and included various instructional tools to help students understand class content (n = 11). Four studies incorporated all four suggestions for carrying out this recommendation (Babinski et al., 2018; Echevarria et al., 2011; Lara-Alecio et al., 2012; Tong et al., 2010).

Nine studies indicated that students regularly received structured opportunities to develop their written language skills (Recommendation 3). Studies infrequently used writing assignments to support students' content understanding and academic language development ($n = 7$), provided students language-based support of their writing ($n = 7$), provided students with opportunities to discuss and work together on aspects of writing ($n = 3$), or assessed students' writing to make data-based instructional decisions ($n = 5$). Olson et al. (2017, 2020) and Lara-Alecio et al. (2012) were the only studies to include all four suggestions for carrying out the recommendation to provide students with structured opportunities to develop their writing skills.

Eight studies provided small-group intervention to students demonstrating difficulties in literacy and the English language (Recommendation 4). Thus, this recommendation was least likely to be implemented. Regarding the suggestions for carrying out this recommendation, only two studies explained that assessment data were used to identify students demonstrating persistent difficulties in language and literacy. Additionally, only Tong et al. (2010) and Amendum et al. (2018) explicitly stated that students struggling with basic reading skills received support developing those skills in addition to other skills, such as vocabulary and listening comprehension. Tong et al.'s study, which tested Latinx ELs' responses to an English instructional intervention, was the only study in our corpus to address all the elements of the recommendation. It is noted that Amendum et al. (2018) was a one-on-one intervention specifically geared toward struggling first-grade readers.

Features of Professional Development

Table 3 provides information on characteristics of the PD programs reviewed in the present synthesis. Sixteen PD programs were delivered in group workshops or training sessions. Four of these PD programs followed group workshops with small-group meetings. Six of these programs followed group workshops with individualized observations and feedback. Amendum et al. (2018) exemplified this approach to ongoing PD when they followed group workshops with coaches conducting observations and providing feedback on their observed instruction. The remaining six PD programs only utilized group workshops or training that was extended over time. For example, Hart and Lee (2003) conducted four full-day workshops over the course of a school year. Matsumura et al. (2010, 2013) provided PD only in the form of small-group meetings (i.e., professional learning communities) and individualized meetings. As previously explained, Burstein

TABLE 3
Professional Development Characteristics

				Ortiz & Robertson (2018) Competencies				Desimone's (2009) Essential Characteristics				
Study	PD Delivery	PD Duration	PD providers	Language and Linguistics	Cultural Variability	Educational Contexts	Literacy Foundations	Content Focus	Active Learning	Coherence	Duration	Collective Participation
Aguirre-Muñoz et al. (2009)	Group workshops/ trainings	1 week	Researchers	Yes	No	No	Yes	✓	✓	?	?	✓
Amendum et al. (2018)	Group workshops/ trainings, individualized meetings, observations and performance feedback	3-day training, biweekly webcam coaching for 2 years	Researchers, others (coaches)	No	No	No	Yes	✓	✓	?	✓	✓
Babinski et al. (2018)	Group workshops/ trainings, small-group meetings	5-day summer institute, 4 PD modules, coaching every 6 weeks	Researchers, other (coaches)	Yes	Yes	No	Yes	✓	✓	✓	✓	✓
Burstein et al. (2014) Study 1	Other (online master's coursework)	4 weeks	Course instructors (not clear whether researchers provided instruction)	Yes	No	No	Yes	?	✓	?	?	?
Burstein et al. (2014) Study 2	Other (online master's coursework)	4 weeks (same as Study 1 but completed lesson plan assignment)	Course instructors (not clear whether researchers provided instruction)	Yes	No	No	Yes	?	✓	?	?	?
Echevarria et al. (2011)	Group workshops/ trainings, individualized meetings, observations, and performance feedback	2.5-day training plus 5 observations/ coaching after	Researchers	Yes	No	No	Yes	✓	✓	✓	✓	?

(continued

TABLE 3 (continued)

				Ortiz & Robertson (2018) Competencies				Desimone's (2009) Essential Characteristics				
Study	PD Delivery	PD Duration	PD providers	Language and Linguistics	Cultural Variability	Educational Contexts	Literacy Foundations	Content Focus	Active Learning	Coherence	Duration	Collective Participation
Ehri & Flugman (2018)	Group workshops/ trainings, individualized meetings	45-hour course; 2×/ week for 30 weeks	Researchers, other (classroom mentors)	No	No	No	Yes	✓	✓	✓	✓	✓
Green et al. (2013)	Group workshops/ trainings, individualized meetings, observations, and performance feedback	12 hours of PD, ongoing coaching (at least biweekly) for 8 weeks	Researchers, other (coaches)	No	No	No	Yes	✓	✓	✓	?	?
Hadjioannou et al. (2016)	Group workshops/ trainings	1 year	Researchers	Yes	Yes	No	Yes	✓	?	✓	?	?
Hart & Lee (2003)	Group workshops/ trainings	4 full-day workshops over the year	Researchers	No	Yes	No	Yes	✓	✓	?	✓	✓
Kim et al. (2011)	Group workshops/ trainings, small-group meetings	46 hours	Researchers, district staff (coaches)	No	No	No	Yes	✓	✓	✓	✓	✓
Lara-Alecio et al. (2012)	Group workshops/ trainings	Biweekly 3-hour sessions for teachers, monthly for paraprofessionals	Not stated	No	No	No	Yes	✓	✓	✓	✓	✓
McGriff (2015)	Group workshops/ trainings, observations, and performance feedback	8 PD sessions over 13 weeks in fall 2009	Researchers	Yes	Yes	No	Yes	✓	✓	–	✓	✓
Matsumura et al. (2010)	Small-group meetings, individualized meetings	1 year	CFC coaches trained by IFL fellows (researchers)	No	No	No	No	✓	✓	?	✓	?

(continued)

TABLE 3 (continued)

				Ortiz & Robertson (2018) Competencies				Desimone's (2009) Essential Characteristics				
Study	PD Delivery	PD Duration	PD providers	Language and Linguistics	Cultural Variability	Educational Contexts	Literacy Foundations	Content Focus	Active Learning	Coherence	Duration	Collective Participation
Matsumura et al. (2013)	Small-group meetings, individualized meetings	Weekly grade-level team meetings	CFC coaches trained by IFL fellows (researchers)	No	No	No	No	✓	✓	✓	✓	✓
O'Hara et al. (2013)	Group workshops/ trainings, small-group meetings	56 hours	Researchers, 2 "technology experts" (district staff)	Yes	No	No	Yes	✓	✓	✓	✓	✓
Olson et al. (2017)	Group workshops/ trainings, small-group meetings, individualized meetings, observations, and performance feedback	46 hours, 6 6-hour days, 5 2-hour days	Researchers, veteran teachers as coaches	No	No	No	Yes	✓	✓	✓	✓	✓
Olson et al. (2020)	Group workshops/ trainings	46 hours, 6 6-hour days, 5 2-hour days	Researchers, district staff (National Writing Project site directors), veteran teachers as coaches	No	No	No	Yes	✓	✓	✓	✓	✓
Tang et al. (2020)	Group workshops/ trainings, individualized meetings, observations, and performance feedback	14 biweekly PD sessions + 3 mentoring sessions across a year	Researchers	Yes	No	No	Yes	✓	✓	✓	✓	✓
Tong et al. (2010)	Group workshops/ trainings	3-hour sessions for multiple years	Researchers	Yes	No	No	Yes	✓	✓	✓	✓	✓

Note. PD = professional development; CFC = content-focused coaching; IFL = Institute for Learning; ✓= present; ? = unclear; – = absent.

et al. (2014) and Hadjioannou et al. (2016) had a unique context for PD—master's coursework—and did not include follow-up coaching.

Most PD programs ($n = 17$) were delivered by researchers. Eight studies also utilized coaches who delivered individualized coaching to implementers as they worked with students (i.e., during target instruction or intervention). Olson et al. (2017, 2020) had teachers who were previously trained to implement the intervention deliver coaching to new implementers, whereas Matsumura et al. (2010, 2013) trained coaches in the intervention before they worked directly with teachers. Finally, three studies incorporated district staff into their PD (Kim et al., 2011; O'Hara et al., 2013; Olson et al., 2020).

Alignment With Desimone's (2009) Critical Characteristics

Ten studies included PD that fully aligned with Desimone's characteristics (see Table 3). Active learning and content focus were the most frequently reported characteristics ($n = 18$), followed by duration of at least 20 hours ($n = 15$), collective participation of implementers ($n = 14$), and coherence ($n = 13$). In many cases, authors clearly described characteristics with sufficient detail to code them as present. In fact, only once was a characteristic coded as absent (coherence; McGriff, 2015). When a characteristic was not clearly described, we felt authors supplied insufficient detail to warrant a judgment of absent or present and thus coded these characteristics as unclear. For example, Burstein et al. (2014) described PD as lasting 4 weeks out of a 9-week master's program, and Aguirre-Muñoz et al. (2009) conducted group workshops or trainings for a single week. The duration of those studies was unclear and was coded accordingly.

Coherence was the most common characteristic coded as unclear. In many cases, the studies in the present corpus did not report on coherence. In other words, these studies did not clearly indicate that the PD programs aligned with teachers' goals, state standards, school and/or district curriculum, or reforms or policies. However, 13 studies did actively report coherence. In fact, coherence was present in all studies that reported district-level demographics as selection criteria during study design (Kim et al., 2011; Lara-Alecio et al., 2012; Olson et al., 2017, 2020) and studies that were situated in bilingual or sheltered English immersion classrooms (Green et al., 2013; Tang et al., 2020; Tong et al., 2010). Only four studies that lacked small-group meetings or individualized coaching were evaluated as coherent (Hadjioannou et al., 2016; Lara-Alecio et al., 2012; Olson et al., 2020; Tong et al., 2010). Thus, small-group meetings or individualized coaching after initial PD sessions may support coherence.

Alignment With Ortiz and Robertson's (2018) Competencies for Teachers of English Learners

Table 3 shows whether the PD targeting teachers' instruction and intervention also targeted the competencies Ortiz and Robertson (2018) identified as important for teachers providing language and literacy instruction to ELs. All but two of the studies used PD to address teachers' knowledge and skills regarding literacy instruction for ELs in particular (i.e., literacy foundations). For example, Olson et al.'s (2017) PD focused on integrating "cognitive strategy instruction into process writing" (p. 2) because previous research suggests that "integrating strategy

instruction within a text-based approach to analytical writing can enhance Latinos' and ELs' writing ability" (p. 2). Nine of the PD programs focused on teachers' understanding of language and linguistics as they pertain to ELs (i.e., language and linguistics). For example, O'Hara et al. (2013) explained that their PD included activities to help teachers learn "how ELs acquire language, the important role of academic language for EL learning of content, and formative assessment techniques for ELs' academic language development" (p. 279). Only four studies described PD to support teachers' inclusion and acknowledgment of their students' cultural backgrounds (i.e., cultural variability). For example, Hart and Lee (2003) reported that teachers received training on how to implement an intervention that was developed with consideration of the linguistic and cultural experiences of ELs. Additionally, Babinski et al. (2018) trained teachers to incorporate "families' cultural wealth" (p. 122) into instruction. Finally, no PD programs reflected an explicit focus on laws, policies, and standards specifically related to ELs (i.e., educational contexts).

Study Outcomes

In this section, we describe the results of the studies in our corpus. Following the lead of Parkhouse et al. (2019), we present study outcomes and identify any patterns across studies in Tables 4 and 5, which display teacher and student outcomes, respectively.

Teacher Outcomes

Studies reported a variety of teacher outcome measures, including those related to social validity (e.g., implementer satisfaction), changes in teacher knowledge or practices, and fidelity of implementation. The most common measure assessed teacher practices, with 13 studies reporting this type of outcome. Seven studies reported changes in teacher knowledge, nine reported fidelity, and four reported teacher satisfaction with the PD program (see Table 1). Only one study did not consider the effect of the PD program on either teacher practices or fidelity (Green et al., 2013). This study was a qualitative study of 26 teachers from a single middle school and reported changes in teacher knowledge and their satisfaction with the PD program. All other studies ($n = 18$) considered changes in at least teacher practices or fidelity.

Studies that reported fidelity and changes in teacher practices used classroom observations exclusively to measure these outcomes. All observation measures appeared to use researcher-created observation protocols, although Babinski et al. (2018) used both a researcher-created protocol and the Classroom Quality for English Language Learners observation tool (Goldenberg et al., 2012). For example, Aguirre-Muñoz et al. (2009) recorded observations using Echevarria et al.'s (2000) Sheltered Instruction Observation Protocol (SIOP). All of the studies in which observations were conducted utilized quantitative analysis to evaluate the effects of the PD programs on teacher practice. Changes in teacher knowledge, however, were more frequently analyzed qualitatively. One qualitative case study (Green et al., 2013) and four mixed-methods studies (Aguirre-Muñoz et al., 2009; Hadjioannou et al., 2016; Hart & Lee, 2003; O'Hara et al., 2013) reported on teacher knowledge as a result of PD. Teacher satisfaction was also more

TABLE 4

Effects of Professional Development on Teacher Outcomes

Effects of Literacy Professional Development for Teachers of English Learners	Citations
Changes in teacher knowledge/beliefs	
• Perception of target strategies as effective (i.e., social validity)	Olson et al. (2017); Tang et al. (2020)
• Knowledge of language barriers	Burstein et al. (2014)
• Belief in teaching phonics	Ehri & Flugman (2018)
• Knowledge of second language acquisition	Hadjioannou et al. (2016)
• Belief that literacy should be integrated into content areas	Hart & Lee (2003)
Changes in teacher practice	
• Increased affective and cognitive feedback	Aguirre-Muñoz et al (2009); Lara-Alecio et al. (2012); Matsumura et al. (2010, 2013); Tong et al. (2010)
• Instruction on linguistic structures and phonics	Babinski et al. (2018); Burstein et al. (2014)
• Instruction on text language	Babinski et al. (2018); Ehri & Flugman (2018)
• Instruction on phonics rules and decoding	Babinski et al. (2018); Hadjioannou et al. (2015); Lara-Alecio et al. (2012)
• Increased student oral language through:	
○ Opportunities to practice using academic language	Echevarria et al. (2011)
○ Vocabulary instruction	Echevarria et al. (2011)
○ Morphology and cognate instruction	Aguirre-Muñoz et al. (2009); Babinski et al. (2018); Green et al. (2013)
• Technology use that supports academic language	O'Hara et al. (2013)
• Partner work and student-student talk (i.e., less teacher talk)	Babinski et al. (2018); Echevarria et al. (2011); Matsumura et al. (2010, 2013); Tang et al. (2020); Tong et al. (2010)
• Language scaffolding (comprehensible input)	Hart & Lee (2003)
• Increased instructional time dedicated to writing instruction	Kim et al. (2011)
High fidelity of implementation	Amendum et al. (2018); Echevarria et al. (2011); Olson et al. (2017, 2020); Tang et al. (2020); Tong et al. (2010)
No change in teacher practice	McGriff (2015)

TABLE 5

Effects of Professional Development on Student Achievement

Effects of Literacy Professional Development for English Learners on Student Achievement	Citations
Improved phonics	Amendum et al. (2018); Babinski et al. (2018); Ehri & Flugman (2018); Lara-Alecio et al. (2012)
Improved comprehension	Babinski et al. (2018); Ehri & Flugman (2018); Matsumura et al. (2010, 2013)
Improved writing	Kim et al. (2011); Olson et al. (2017, 2020)
Improved oral language skills (i.e., listening comprehension, oral language proficiency)	Echevarria et al. (2011); O'Hara et al. (2013)
Higher rates of passage on high-stakes tests	Kim et al. (2011); Lara-Alecio et al. (2012); Matsumura et al. (2010); O'Hara et al. (2013); Olson et al. (2017)
Closed gap between EL and non-EL peers	Ehri & Flugman (2018); O'Hara et al. (2013); Olson et al. (2017; 2020)

Note. EL = English learner.

frequently evaluated qualitatively; only one study used quantitative analysis to report teacher satisfaction (Matsumura et al., 2010).

Six studies paired assessment of changes in teacher knowledge with changes in their practices. This pairing allowed the investigation of whether teacher knowledge was related to their instructional practices. In four of these six studies (Aguirre-Muñoz et al., 2009; Ehri & Flugman, 2018; Hart & Lee, 2003; O'Hara et al., 2013), knowledge appeared to be associated with instructional practice, whereas the remaining two studies (Burstein et al., 2014; Hadjioannou et al., 2016) reported changes in teacher knowledge without changes in practice.

Most studies in our corpus reported positive changes in teacher knowledge and practice and high fidelity of implementation. Teachers trained through these PD programs appeared to be able to integrate language and literacy instruction into their content-area classrooms. For example, Lara-Alecio and colleagues (2012) observed teachers using more linguistic and visual scaffolding, manipulatives, cooperative group work, and graphic organizers into their science instruction. Additionally, Hart and Lee (2003) found that teachers incorporated more literacy into science. Teachers also increased their use of oral and written language practice opportunities within instruction. In Matsumura et al.'s (2010, 2013) studies, teachers self-reported that their students connected ideas with each other and communicated more after PD, whereas Kim et al. (2011) and Olson et al. (2017,

2020) found their teachers devoted more time to writing and taught the stages of writing more frequently after PD.

Teachers also demonstrated increased knowledge of the importance of teaching academic vocabulary and language and connections between English and Spanish. Green and colleagues (2013), for example, found teachers self-reported expanded knowledge of the effectiveness of making linguistic connections for ELs (e.g., using cognates to connect new English vocabulary to known Spanish words). Despite not having a coaching component or following group PD with individualized meetings, two studies reported teachers gained knowledge of the stages of second language acquisition and the importance of connecting cultural backgrounds to instruction (Burstein et al., 2014; Hadjioannou et al., 2016). However, both studies noted teachers were not able to enact this knowledge in instruction.

Only one study did not report any positive teacher outcomes (McGriff, 2015). The single teacher participant "did not engage in critical reflection about the instructional approaches" (p. 92) and instead "focused on her students' academic challenges" (p. 92). McGriff (2015) attributed Nancy's lack of change to the fact that her reportedly upper-middle-class, suburban school had a very small EL population. Thus, Nancy's role and her instruction of ELs may not have been valued by the school, which led to Nancy's marginalization as an EL teacher.

Student Outcomes

Twelve of the studies in our corpus reported student outcomes in addition to teacher outcomes (Amendum et al., 2018; Babinski et al., 2018; Echevarria et al., 2011; Ehri & Flugman, 2018; Kim et al., 2011; Lara-Alecio et al., 2012; Matsumura et al., 2010, 2013; O'Hara et al., 2013; Olson et al., 2017, 2020; Tong et al., 2010). All but one clearly described outcomes for ELs specifically. The remaining 11 studies either included only EL participant data or disaggregated or described student outcome data by EL status.

Eleven studies yielded positive student outcomes on reading-related measures. For example, Olson et al. (2017) reported that ELs demonstrated the most growth on the Academic Writing Assessment among all language groups, including native English speakers. Olson et al. (2020) also found that ELs who received intervention performed similarly to non-ELs in the control condition. Studies with disaggregated data revealed that PD programs helped reduce the gap between ELs and native English speakers. For example, in O'Hara et al.'s (2013) study of the Teaching Using Technology Studio, the gap between ELs and native English speakers on the California Language Arts Standardized Test decreased from 48 points at pretest to 35 points at posttest. In Matsumura et al. (2010), ELs whose teachers participated in the content-focused coaching (CFC) program scored higher than ELs with comparison teachers on the Texas Assessment of Knowledge and Skills in reading. In Matsumura et al. (2013), the CFC program had a larger positive effect on ELs than non-ELs. Ehri and Flugman (2018) reported that ELs made, at minimum, the same amount of growth in spelling and reading than non-ELs. Finally, Echevarria et al. (2011) reported a positive relationship between teachers' fidelity of implementation on the SIOP and ELs' science achievement.

Discussion

PD has the potential to support teachers in implementing evidence-based literacy instruction and intervention to address the literacy needs of ELs. Therefore, we examined the extent to which PD programs for teachers of ELs target such instruction and intervention. We also investigated the extent to which the literacy instruction and intervention targeted in the PD programs as part of our corpus met Baker et al.'s (2014) recommendations for providing ELs with literacy and content-area instruction. Furthermore, we investigated the extent to which the PD programs aligned with Desimone's (2009) critical characteristics of PD and addressed four competencies Ortiz and Robertson (2018) identified as essential for teachers who deliver language and literacy instruction to ELs. Finally, we examined the teacher outcomes as a result of these PD programs and, when applicable, student outcomes.

In line with Baker et al. (2014), most studies addressed students' oral and written language skills in English, which is to be expected because our focus was on supporting ELs, whose native language, by definition, is not English. Most of the PD programs targeted whole-class instruction, such as instruction in classes inclusive of ELs and native English speakers, using practices teachers could incorporate into core academic instruction. However, our synthesis revealed that PD does not typically attempt to address teachers' implementation of interventions specific to the needs of ELs facing literacy difficulties. For example, only two studies taught teachers how to provide intervention support to ELs across a range of literacy skills (Amendum et al., 2018; Tong et al., 2010). Furthermore, only one study reported providing teachers with PD on individualized intervention (Amendum et al., 2018). This gap in knowledge may exist because none of the studies were clearly conducted within the context of a multitiered system of support (MTSS), a system that schools often use to provide students with both literacy instruction and intervention. MTSS may be especially helpful for reducing the misidentification of ELs in special education, given that MTSS for ELs can focus on prevention of language- and literacy-based difficulties and early intervention for students who are not reaching grade-level expectations (Ortiz & Robertson, 2018). Thus, more ELs might be able to receive literacy intervention if more teachers receive PD on literacy instruction and intervention for ELs within MTSS frameworks. This possibility is important to consider given that ELs need oral language instruction and support that meet their individual needs (Baker et al., 2014; Goldenberg, 2020).

Because of our inclusion criteria, most of the PD programs addressed teachers' knowledge and skills related to literacy instruction for ELs, thus addressing one competency Ortiz and Robertson (2018) identified (i.e., literacy foundations). However, our synthesis also revealed that many PD programs do not explicitly address some of the other competencies Ortiz and Robertson identified. Only about half of the programs addressed teachers' understanding of language and linguistics for ELs, and few studies addressed teachers' inclusion and acknowledgment of ELs' cultural and linguistic backgrounds. Given the positive relationships between (a) teachers' understanding of bilingual development and ELs' reading achievement (Oh & Mancilla-Martinez, 2021) and between (b) asset-based teaching

behaviors and students' self-competence in reading (López, 2017), it is unlikely that teachers will capitalize on ELs' linguistic strengths and cultural funds of knowledge in their reading instruction without these additional competencies. Additionally, none of the studies addressed teachers' understanding of laws, policies, and standards regarding ELs. Therefore, teachers may also have limited opportunities to understand the systemic factors that shape ELs' academic experiences.

PD Outcomes and Their Relation to PD Characteristics

All but one study reported improved teacher outcomes, including greater knowledge of second language acquisition and how to provide literacy instruction for ELs. Thus, the PD programs do appear to prepare general education teachers to provide evidence-based instruction for ELs. Much of the evidence indicates that PD has the potential to improve whole-class literacy instruction. Many of the PD programs in our corpus adhered to Desimone's (2009) essential characteristics of PD, which may have contributed to the positive effects of these programs. However, it is important to note that the teacher outcomes of some studies were only determined via self-report, which may lead to biased results (Bauhoff, 2014). Thus, there is a need for future PD studies to use direct measures of changes in teachers' knowledge and skill. Nonetheless, the overall positive findings add further support to the argument of others that effective PD programs extend over time, provide active learning opportunities, are content-focused and coherent, and include collective participation (e.g., McMaster et al., 2021).

Seven of the studies in our corpus did not report student outcomes. Several reasons may explain this finding. For example, PD programs can have a significant, direct effect on teacher practices without the associated changes in student performance. Previous research suggests affecting student outcomes via PD programs can be especially difficult (Garet et al., 2001). Nonetheless, the studies that did report student outcomes revealed positive effects of PD programs on EL literacy. Especially encouraging is the fact that some studies reported reducing the gap between ELs and non-ELs. Thus, when reported, all PD programs were effective in improving student outcomes.

In one sense, these findings are unsurprising because they are fitting with the publication bias that leads publishers to reject studies that report insignificant findings (Marks-Anglin & Chen, 2020). However, it is still important to consider the factors that led to the effectiveness of these PD programs. Even as most studies showed some level of effectiveness, some appear to have been more effective than others. For example, investigation of the six studies that considered the connection between teacher knowledge and practice revealed two of the studies were able to impact knowledge but not practice (Burstein et al., 2014; Hadjioannou et al., 2016). These studies also did not follow group workshops and trainings with small-group or individual coaching, thereby suggesting that programs lacking follow-up support are less effective.

We found coherence to be the most difficult characteristic to evaluate. However, our findings suggest researchers used two methods to achieve coherence when this characteristic was present. First, many coherent PD programs had small-group or individual coaching following group workshops or trainings. Coaching facilitates

coherence because coaches can help teachers "translate knowledge and skills" (Kraft et al., 2018, p. 549) from group workshops into their classroom contexts to meet the needs of their students. Second, many coherent PD programs purposefully targeted districts with high levels of native Spanish speakers or families with Hispanic/Latinx ethnicity. In doing so, the programs were consistent with the district's focus on ELs, thus achieving coherence. This method is logical but shortsighted. Because the native language of most ELs in the United States is Spanish (USDOE, IES, NCES, 2019), it makes sense that districts with large proportions of Spanish-speaking students and Hispanic/Latinx families would be interested in effective PD for teachers of ELs. However, ELs are not isolated to specific districts, and with the increasing number of ELs (Hussar et al., 2020), all teachers should be prepared with foundational knowledge of language and linguistics for ELs and how to provide effective instruction to ELs (Ortiz & Robertson, 2018).

We have argued throughout this article that PD for teachers of ELs should ensure students receive evidence-based literacy instruction and intervention. Yet our synthesis suggests that PD programs for ELs are not yet preparing teachers to make data-based instructional decisions that incorporate knowledge of ELs' language and literacy development. This is problematic because many teachers are not knowledgeable about making data-based decisions in general (Al Otaiba et al., 2019). Thus, making instructional decisions for native English speakers is difficult, but making those decisions for ELs is likely harder. As evidenced by our synthesis, PD is not yet addressing this need.

Limitations

There are limitations of the current synthesis that are important to acknowledge. First, because included studies reported different information, results that we report are not consistent across studies. For example, studies reported varying amounts of information on teachers' school position (e.g., ESOL teacher; $n = 14$ did not report) and students' language status ($n = 7$ did not report). Second, because many studies only presented a limited amount of detail, our coding of features of effective PD was restricted to present, absent, or unclear, potentially conflating important variations in quality. Furthermore, even within this restricted coding, frequent application of the unclear code, especially when referring to coherence, limits the strength of conclusions. For example, the fact that one-third of studies in the present corpus did not clearly report coherence necessitates future research investigating the proposed connection between the presence of small-group meetings or coaching and coherence. Third, the varying levels of alignment with Desimone's (2009) critical characteristics of PD make it difficult to draw generalizable conclusions about the relationship between characteristics of PD programs and teacher and student outcomes.

Furthermore, we acknowledge that the application of Desimone's (2009) conceptual framework also has its limitations. Although influential among PD research (e.g., Kennedy, 2016), the framework was published more than a decade ago. Additionally, Desimone did not conduct a systematic review of all PD literature. As such, some potentially critical features of effective PD may not be included in Desimone's conceptual framework. For example, although Desimone recognizes that collective participation can facilitate interaction and discussion

among teachers, Desimone does not explicitly identify teacher collaboration as a critical feature of effective PD.

Teacher collaboration, particularly in the form of collaborative meetings led by peer facilitators and guided by inquiry protocols that structure conversations (Gallimore et al., 2009; Saunders et al., 2009; Segal et al., 2018), has the potential to facilitate teachers making substantial changes to their teaching practice, which may be necessary to support ELs (Jensen et al., 2021). However, the studies in our corpus either had a minimal focus on teacher collaboration (Kim et al., 2011; Matsumura et al., 2013; O'Hara et al., 2013) or no focus at all. Instead, most PD programs in our corpus utilized a top-down approach where teachers receive information on a particular skill from experts (e.g., researchers) and are asked to implement it in their classrooms (Lieberman & Miller, 2014). Therefore, future PD studies should investigate the extent to which teacher collaboration, including peer-facilitated collaborative meetings using inquiry protocols, improves literacy instruction and intervention for ELs.

Finally, it is important to acknowledge criticisms of academic language, which was an implicit focus in both Baker et al.'s (2014) recommendations and Ortiz and Robertson's (2018) competencies. A focus on academic language prioritizes standardized English as the only acceptable language of instruction in the United States. This prioritization can disadvantage or even exclude ELs and other minoritized students within schools (García & Solorza, 2021; Valdés, 2004). Because none of the studies we reviewed promoted ELs' use of native languages, researchers should explore the effects of PD focused on "leveraging [ELs'] translanguaging, their lives, their experiences, their knowledge systems" (García & Solorza, 2021, p. 517). By leveraging ELs' native languages, teachers affirm students' voices, and students benefit academically (Uccelli et al., 2020). Additionally, teachers can align their instruction to principles that foster equity in teaching academic language—(a) understanding that language incorporates more than vocabulary and (b) that there is complex academic language in ELs' everyday language and (c) developing students' awareness of how and why different language practices are used and (d) how standardized language practices are assigned value while minoritized language practices are minimized (i.e., critical language awareness; Jensen & Thompson, 2020).

Implications for Research and Practice

Future research should address the aforementioned limitations and continue to advance our knowledge and ability to support the literacy needs of ELs. One basic improvement is that studies should provide sufficient detail about their teacher and student participants for consumers to make appropriate inferences regarding for whom PD studies were or were not effective. Researchers should investigate PD programs that have greater alignment to Desimone's (2009) essential characteristics of PD to make stronger claims about the impact of such PD programs.

Given what the studies in our corpus *did* report, there are several opportunities for future research. For instance, researchers should consider investigating the impact of PD supporting teachers' literacy intervention for ELs. That is, future studies should not solely focus on whole-class literacy instruction or even sheltered instruction for ELs. They should also focus on improving teachers' implementation

of interventions, adhering to Baker et al.'s (2014) recommendation to provide small-group intervention to ELs with difficulties in literacy. Furthermore, studies should also investigate the impact of PD on intensive intervention, including data-based individualization, for ELs with significant reading needs.

The ultimate goal of PD programs is to improve student outcomes (Yoon et al., 2007); thus, determining the extent to which programs have effects on student outcomes is important. Future studies should measure and report the effects of PD programs that target teachers' literacy instruction and intervention for ELs on student outcomes. Given the fact that research suggests that reading interventions for ELs have a larger effect on word reading and fluency than reading comprehension (Ludwig et al., 2019; Richards-Tutor et al., 2016; Roberts et al., 2022), these future studies should consider whether PD outcomes vary by the reading skill targeted. Furthermore, in studies with ELs and non-ELs, these findings should be disaggregated by EL status to determine differences between the effects for both groups.

Practically, PD providers should consider delivering PD that aims to improve teachers' literacy instruction and intervention that is considerate of the needs of ELs. To maximize effectiveness, PD programs should address EL teacher competencies (Ortiz & Robertson, 2018), target teachers' implementation of evidence-based literacy instruction and intervention for ELs (Baker et al., 2014), and be coherent (Desimone, 2009). That is, PD programs should be tailored to meet teachers' specific needs to improve their knowledge of ELs' language and literacy, their beliefs of ELs, and the literacy instruction and intervention they provide ELs. One way to facilitate coherence is to provide follow-up support within PD programs. In fact, several studies have revealed that follow-up support in the form of individualized coaching has improved student outcomes (Kraft et al., 2018). Thus, if PD is to meet the recommendation of Jiménez et al. (2015) by providing opportunities for teachers of ELs to enact their knowledge, which ultimately promotes student achievement, PD providers may need to follow group PD with individualized coaching.

Conclusion

The present systematic review reveals common features and effects of PD programs that target teachers' literacy instruction and intervention for ELs. These programs frequently addressed whole-class instruction teachers provided ELs and did not typically address intervention for ELs. PD programs also varied in the extent to which they include essential characteristics of PD. Thus, there is a need for future research that investigates the effects of *high-quality* PD on teachers' implementation of literacy interventions for ELs in need of additional literacy support. In turn, teachers will be equipped with improved knowledge, beliefs, and skills to support the literacy needs of ELs. Ultimately, training teachers to make evidence-based decisions that incorporate knowledge of ELs' language and literacy development can lead to more students getting the instruction and intervention they require.

Authors' Note

The third and fourth authors made equal contributions to the article and were, therefore, listed alphabetically.

Acknowledgments

This project was supported in part by Grant R324A200012 from the U.S. Department of Education, Institute of Education Sciences to the University of Maryland and Grant R324B200012 from the U.S. Department of Education, Institute of Education Sciences to The University of Texas at Austin. Opinions expressed in the article are those of the authors and do not necessarily represent the position of the U.S. Department of Education, and no official endorsement by it should be inferred.

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