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Reaching teachers of early multilingual learners through professional development: a systematic literature review

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ABSTRACT

This systematic literature review synthesises 49 studies exploring teacher professional development (PD) focused on the education of multilingual learners (MLs). Specifically, we examined PD design for in-service mainstream classroom teachers serving MLs in early elementary grades. We followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines for transparent reporting in systematic reviews, including the four phases of identification, screening, eligibility, and inclusion. Findings show that although the content of PD has covered foundational literacy areas, such as vocabulary and comprehension, more attention is needed on integration of culture and MLs' linguistic repertoires. Results also show that PD with positive outcomes is ongoing, collaborative, and includes multiple stakeholders. However, there is room for the inclusion of family and teacher voice. We conclude by arguing that future research on PD within the context of ML education should explore long-term impact of interventions on teachers and students and focus on leadership roles to expand instructional capacity for MLs.

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Multilingual learners; Early literacy; Professional development; Mainstream teachers; Literature review

Trends towards multilingualism resulting from digital technologies, migration patterns, and globalisation have made language diversity the norm and a requirement for twenty-first century competencies in classrooms (García, Kleyn, and 2016). Given this context, growing emphasis is placed on equipping all teachers with expertise in educating students who are learning multiple languages (Duarte et al. 2023; IIEP and Villegas-Reimers 2003). The school population of the United States is not the exception; it has grown culturally and linguistically diverse. Twenty percent of the students speak a language other than English out of school. Around 10% of those students are referred to as English language learners, or more recently, as emergent bilinguals or multilingual learners (MLs) to signify they are gaining English as an additional linguistic repertoire and are receiving language services. Some states have recently experienced a sharp increase of up to 600% of MLs (Kena et al. 2015). Schools have grappled with this demographic change as their resources are insufficient to meet the needs of MLs. Research has shown that many schools nationwide are not yet equipped with adequate programmes, resources, and infrastructure to provide apt educational opportunities for MLs, especially in settings not traditionally serving this population (Gándara and Escamilla 2016; Khong and Saito 2014). As a result, MLs are academically outperformed by English dominant-speaking students (Good, Masewicz, and Vogel 2010), under or overrepresented in special education (Counts, Katsiyannis, and Whitford 2018), and underrepresented in gifted education programmes (Castellano and Frazier 2021).

Teacher expertise regarding effective instructional practices for MLs is essential to generating more equitable and evidence-based educational opportunities. However, one persistent challenge has been teachers' lack of specialised preparation to teach MLs (Harklau and Ford 2022; Zhang and Peltari 2014). Studies have demonstrated teachers feel ill-equipped and anxious to serve MLs. Additionally, teachers who acquire tools to serve MLs improve confidence in their teaching and performance (Tran 2014). Thus, professional development (PD) plays a critical role in improving MLs' academic experiences. With teachers acquiring more robust knowledge of ML instruction, they can provide rigorous and accessible language and content area learning. Particularly in early learning, this PD is beneficial as student interventions tend to be delayed because of low proficiency in English in the primary grades (Dussling 2018; Gunn et al. 2005). Specifically, literacy education greatly impacts MLs' learning, as suggested in evidence-based practices, such as the recommendations of What Works Clearinghouse (Baker et al. 2014).

To continue designing relevant PD for teachers of students from this underserved population in early learning, it is crucial to examine the design elements used and identify any areas that need to be addressed to provide responsive PD alternatives. Previous literature reviews have focused on PD regarding literacy instruction (Shelton et al. 2023) and language development in content areas (Kalinowski, Gronostaj, and Vock 2019) across all grades. Nonetheless, little is known about PD with teachers in the early grades (PK-3). Seeking to understand PD for mainstream teachers serving early MLs, we conducted a systematic literature review synthesising 49 studies exploring interventions or programmes helping teachers improve the education of MLs in early elementary.

Specifically, we examined the components of PD interventions and their outcomes for in-service mainstream classroom teachers in schools that do not have bilingual or immersion programmes. Our interest in this group of teachers stems from the increasing demand for differentiated instruction to accommodate the needs of diverse learners in settings where linguistic resources are scarce (Coady, Harper, and de Jong 2016). In many cases, these teachers teach in school districts with a sudden rise in the ML population and therefore are insufficiently equipped to respond to the needs of MLs. Our goal was to identify strengths and existing gaps in teachers' PD models to inform future initiatives. The research questions addressed in this review are: (1) *What PD has been conducted for mainstream in-service teachers of early multilingual learners in the United States?* (2) *What are the impacts of these PD interventions or models?*

Relevant perspectives

Our analysis of how the themes that emerged within the literature review connected to perspectives on PD was informed by research on effective teacher PD overall as well as that which specialises on MLs' instruction.

Effective teacher professional development

Research shows consensus that effective PD is linked to improvement of teachers instructional practices and student outcomes (Avalos 2011; Darling-Hammond, Hyler, and Gardner 2017; Desimone 2009). This scholarship has identified key features of effective professional learning for teachers. For instance, Desimone (2009) synthesised these components from literature into these characteristics: content focus (attention to subject matter), active learning (opportunities for discussion, feedback, observations), coherence (consistency with teachers' beliefs), duration (sufficient time), and collective participation (including teachers from a similar grade or school). More recent studies expand these fundamental aspects by arguing that PD should focus on problems of practice, be context-specific, and have a collaborative orientation (Bergmark 2023; Von Esch 2021). PD that incorporates all or most of these features positively impacts teachers' practices.

Specialised teacher expertise for mainstream teachers of multilingual learners

Mainstream teachers in the US and worldwide face increasing demands to differentiate instruction for linguistically diverse students as they teach language and academic content in a high-stakes environment. Recognising this need, scholars have delineated areas of teacher expertise and knowledge specific to address the needs of MLs. Multiple frameworks have been developed (e.g. Coady, Harper, and de Jong 2016; Echevarría, Vogt, and Short 2012; Lucas and Villegas 2011). The underlying principle of such proposals is educational responsiveness, which argues that equitable policies and practices should involve students' cultural and linguistic resources (Cadiero-Kaplan and Rodriguez 2008). Collectively, these frameworks underscore the importance for teachers to facilitate both MLs' language development and content learning. Also, they concur that generic approaches and *just good teaching* do not constitute an effective pedagogy for MLs because they bring diverse cultural and linguistic practices, different from monolingual English students (de Jong and Harper 2005; Fillmore and Snow 2000). Therefore, curricula and instructional approaches that fail to acknowledge and incorporate these elements fail to provide equitable learning environments where MLs can thrive.

Aligned with this argument, de Jong, Harper, and Coady (2013) conceptualised knowledge and skills needed for elementary mainstream teachers working with MLs as *ELL teacher enhanced expertise*. This perspective comprises three dimensions. The first one is understanding ELLs from a bilingual and bicultural perspective, which involves knowledge of the student's linguistic histories, for instance, the languages they speak at home, their proficiency and literacy levels and their funds of knowledge. The second dimension involves understanding how language and culture shape school experiences and inform pedagogy for bilingual learners. That is, knowing differences and similarities between oral and written literacy in students' home and second languages. Regarding instructional practices, teachers need to know how to set up peer interaction, scaffold activities and participation for academic learning, and organise their classrooms in ways that students' cultural assets and barriers are recognised. Finally, teachers should be able to mediate a range of contextual factors in the schools and classrooms where they teach. This dimension requires teachers to take a critical stance towards interventions and policies and be prepared to adapt or modify proposed practices that are not apt for MLs. In sum, this enhanced expertise prepares teachers to make a difference for MLs.

A multilingual and multicultural stance

Professional development of mainstream teachers has focused on beliefs and attitudes toward students' cultures and multilingualism (e.g. Colombo 2007; Heineke et al. 2019). Scholarship has established bilingualism and students' cultures as resources that must be sustained (García, Kleyn, and 2016; Paris, Alim, and 2017). An example of this is the call for teacher preparation to develop teachers' skills to treat culturally and linguistically diverse experiences of MLs as assets and essential components of their pedagogy, what de Jong (2019) calls a *multilingual stance*. This perspective implies that teachers make multilingual approaches, such as translanguaging (i.e. using students' full linguistic repertoires) the norm rather than supplemental practice (de Jong 2019). Particularly, teachers should become aware of and challenge the monolingual bias that permeates standards, curricula, and policy and demonstrate this awareness in their practice (de Jong and Gao 2023).

Family engagement is also important when considering a multicultural stance. Part of embracing students' funds of knowledge is involving families as partners in the educational experiences of MLs (Moll et al. 1992). Acknowledging the benefits of partnership with families, the Every Student Succeeds Act (ESSA 2015) stipulates that activities for family engagement in local education agencies should implement strategies to effectively involve parents, reaching populations with marginalised ethnicities or limited English proficiency. To the extent possible, authentic reciprocity between teachers and ML families should be critical in parent engagement (Coady 2019). The implication for

ML teacher preparation is to create opportunities for teachers to understand multilingual family literacies and explore strategies to build on them.

Literacy instruction for multilingual learners

To guide mainstream teachers to provide evidence-based literacy instruction, the Institute of Education Science (Baker et al. 2014) published a list of recommendations to teach academic content to MLs: (1) Teach a set of academic vocabulary words intensively across several days using a variety of instructional activities, (2) integrate oral and written English language instruction into content-area teaching, (3) provide regular, structured opportunities to develop written language skills, and (4) provide small-group instructional intervention to students struggling in areas of literacy and English language development. Overall, these recommendations underscore the importance of explicit and integrated literacy instruction for MLs.

A clear message from this review of theoretical perspectives is that generic PD approaches are insufficient for mainstream teachers who serve growing numbers of diverse MLs. While such frameworks for enhanced teacher expertise contribute to understanding how complex PD for ML instruction is, little is known about teachers in early elementary grades. Thus, this study aims to analyse existing literature on PD interventions looking to develop the much-needed specialised ML teacher skills and knowledge.

Methodology

This systematic literature review (Suri and Clarke 2009) surveyed peer-reviewed empirical studies in English without publication date restrictions. We followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines for transparent reporting in systematic reviews (Liberati et al. 2009). Figure 1 presents the flow diagram showing the four phases of identification, screening, eligibility, and inclusion according to PRISMA. Articles were retrieved from the databases EBSCOhost and ERIC, and a search of specific journals was conducted in ScienceDirect,

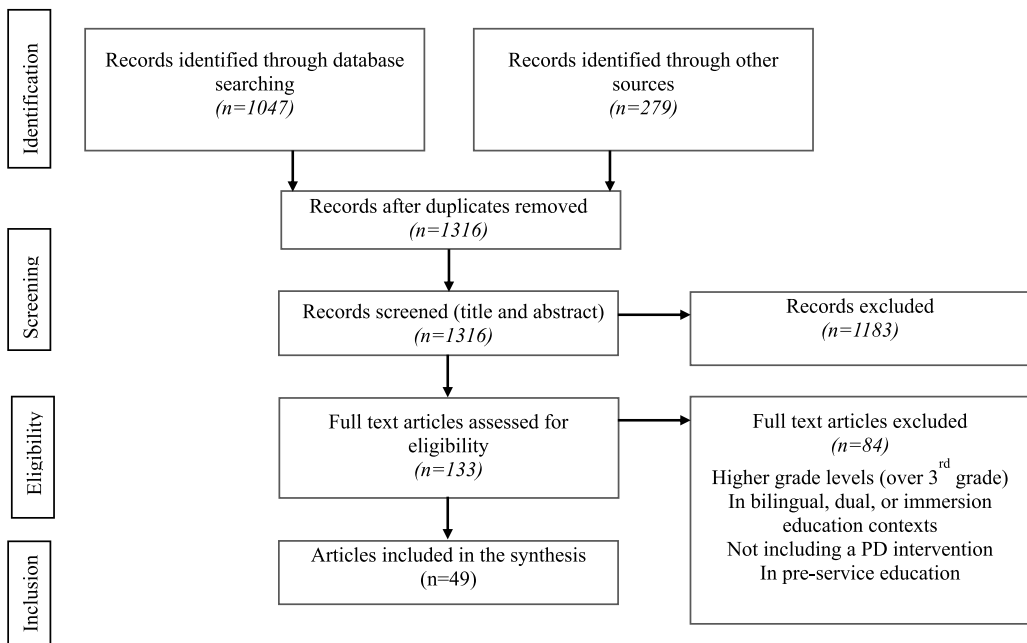


Figure 1. Phases followed for the systematic review process.

Springer Link, and Taylor & Francis. Keywords used include *professional development*, *teacher training*, *teacher preparation*, *in-service teachers*, *ESOL or English as a second language*, *English language learners*, *emergent bilinguals*, or *multilingual learners*.

Selection criteria

Prior to the search query, we established the following criteria based on our research questions: (1) included in-service mainstream teachers in early childhood settings (until 3rd grade), (2) identified a PD intervention or programme, (3) were situated in the United States, (4) were published in peer-reviewed journals, (5) were not in bilingual, dual or immersion settings. With these criteria, we ensured that the publications selected reported empirical data based on actual implementation of PD, whether that was a summer institute, a graduate programme, workshops, or on-site models in online or in-person formats. This consideration allowed the analysis of the content, structure, and impact of interventions. The contextual boundaries set enabled the examination of specific aspects that have been less reported in reviews.

Selection procedure

To select articles resulting from the search, we screened the title and abstract of each entry. In this initial evaluation, we applied search filters, such as location (United States) and kind of publication (peer-reviewed articles) but did not include date restrictions. We discarded publications that explicitly did not meet one or more of the inclusion criteria. For example, some articles included higher school grades (e.g. middle school) or pre-service teachers exclusively in their titles and abstracts, so they were excluded. If it was unclear if the publication met all the criteria, it was placed in a conditional category, which was later reviewed.

This process yielded 133 articles, which went through a second screening round, consisting of accessing the full text and reading specific sections to verify specific selection criteria. If information was not easily identifiable, we used the document search function to confirm characteristics of the study that would lead to exclusion. For instance, if the grade level was not evident, we looked for a general designation of high school or middle school. This information was found in some cases, and the article was eliminated from the pool. Two selection criteria required a more careful screening: the grade level and the setting (not bilingual, dual, or immersion). Some publications did not specify the grade levels of the teachers included in the study; they included a general characteristic, such as elementary school. In these cases, we decided to include the articles as we did not have evidence that early grades were not included. Other studies mixed different grades from early to late elementary. Therefore, we selected studies including teachers from different levels if early grades were identified. For the setting, a thorough reading of the description of the context or general information about the district in the introduction was conducted. This screening resulted in 62 articles.

The supplemental material table includes information about the articles selected. This selection task required skimming or reading the methods and findings sections. We examined the articles more carefully if we identified components that potentially violated the selection criteria. In this stage, we also skimmed articles conditionally selected. Thirteen articles were excluded, leaving a total of 49 included in the review. To complete this table with accuracy, we included the descriptions about methods and interventions explicitly stated in the articles.

Data analysis consisted of open initial coding followed by focused and theoretical coding (Charmaz 2014). This process was conducted by two researchers who compared coding and reconciled differences until a 100% agreement was reached. To create a list of initial codes, we coded five articles separately. Then, we agreed on a set of codes to apply to the rest of the studies. We continued coding the articles separately, and together, we discussed differences to reach agreement. Table 1 shows the list of 45 initial codes, eight focus codes and four theoretical codes, including the number of articles where the codes appear.

Table 1. Codes derived from the qualitative data analysis in NVivo.

Initial code with article count	8 focused codes	4 theoretical codes
Comprehension, 12	Foundations of literacy	Content of PD
Fluency, 1		
Phonemic awareness and phonics, 3	Language and academic development	
Reading, 11		
Vocabulary, 14		
Written language development, 9		
Academic content learning, 24		
Incorporating art, 1		
Language development, 25		
Oral language development, 16		
Role of linguistic repertoires, 24		
Content of PD, 40		
Context of PD, 38		
Length of PD, 32	PD partnerships	
Online learning, 12		
Purpose of PD, 49		
Roles of PD providers, 17		
Structure of PD, 42		
Participants' perceptions of PD, 18		
Collaboration, 35		
Communication or relationship with caregivers, 8		
Inclusion of caregivers, 15		
Inclusion of teachers' voice, 3		
Partnership between IHEs and LEA, 6		
Social and emotional learning, 7	Impact on teachers and instruction	
Student outcomes, 18		
Cultural wealth and funds of knowledge, 27	Research design	Research needs
Emerging teacher leadership and advocacy, 9		
Grouping practices, 10		
Impact of PD on teachers, 40		
Instructional design and practice, 35		
Obstacles to teacher implementation, 9		
Participant motivation for PD, 2		
Participants' mindset change, 22		
Teacher reflection, 12		
Method, 44		
Participants, 42		
Research context, 10		
Study limitations, 17		
Theoretical frameworks, 43		
Context of MLs in the US, 38		
Gaps in research, 23		
Need for further PD, 42		
Need for public policy, 4		
Implications for PD, 26		

Note: The number next to each code refers to the number of articles where the code appeared.

Findings

We answered our research questions previously stated following the description of the eight focused codes: (1) foundations of literacy, (2) language and academic development, (3) professional development design, (4) professional development partnerships, (5) impact on MLs, (6) impact on teachers and instruction, (7) research design, and (8) future needs.

Foundations of literacy

PD on foundations of literacy focused on the importance of explicit teaching of vocabulary and strategies for comprehension. Eleven studies reported findings related to vocabulary development.

The PD interventions focused on increasing teachers' awareness of the importance of vocabulary for MLs and providing explicit instructional strategies. This emphasis capitalised on oral and guided practice with multiple opportunities for repetition. For example, Peercy et al. (2015) trained teachers on a strategy where they chose four focal words for each text they taught. Teachers created mini lessons to teach the words and then provided guided practice. Similarly, Babinski et al. (2018) utilised a strategy called Vocabulary Text Talks, in which students used words from texts they read in oral summaries or retellings to acquire academic vocabulary.

A theme in the PD interventions reported in the research was the urge to make vocabulary teaching explicit and planned (e.g. Coady, Harper, and de Jong 2016; Heineke et al. 2022), with instruction that relies on multiple modes of communication, such as graphic, textual, gestural, and visual to introduce and practice new vocabulary. However, most of the interventions focused on the semantic aspect of vocabulary, leaving aside form, which may allow teachers to examine collocations or parts of speech that may facilitate students' expansion of vocabulary and use in different contexts.

Regarding comprehension, reading, and written language development, PD centred around strategies for teachers. Comprehensible input in classroom discourse was a recurrent component of teacher guides, workshops, or graduate programmes (e.g. Lee and Maerten-Rivera 2012; McIntyre et al. 2010). Interventions focused on providing teachers with diverse ways to adjust language (i.e. slower rate of speech, clear enunciation) to facilitate MLs' English language comprehension. For instance, Lee and Maerten-Rivera (2012) and Lee et al. (2008) reported that teachers increased the use of linguistic scaffolding in science learning, leading to deeper understanding of academic content.

For reading comprehension, most of the instructional strategies included forms of background knowledge building through prediction or previewing texts (Coady, Harper, and de Jong 2016), and others focused on identification of main ideas or summarisation (McIntyre et al. 2010; Peercy et al. 2015). A couple of studies mentioned students' languages other than English as aids in reading by providing materials in multiple languages or grouping students who speak the same language (Kibler and Roman 2013; McIntyre et al. 2010). For written language development, students' linguistic repertoires have also been examined through text analysis (Gebhard, Demers, and Castillo-Rosenthal 2008) for teachers to look at unique features of students' emergent multilingual literacy practices and implement responsive teaching. Also, teachers received guidance to incorporate writing in academic content areas (Lee et al. 2008; Santau et al. 2007). Nonetheless, teachers expressed a desire for a more engaging and rigorous writing curriculum for MLs (Giboney Wall and Musetti 2008). To a lesser extent, fluency (one study) and phonemic awareness (three studies) were included in the content of PD. For example, Uribe (2019) highlighted the usefulness of reader's theatre for fluency, and Babinski et al. (2018) incorporated multisensory instructional strategies to develop phonemic awareness and phonics in teacher workshops. In sum, PD on literacy foundations provided strategies for teaching vocabulary, comprehension, and writing although fluency and phonemic awareness were less frequent topics.

Language and academic development

In this theme, PD prepared teachers to support MLs' language development and academic content learning, gain awareness of the importance of learners' linguistic repertoires, and develop oral skills. Eleven of the studies targeted integrating academic and language development in their content area. In the interventions, teachers learned how to support language development in their content area, science being a frequent subject (e.g. Lee et al. 2008; Santau et al. 2007). For instance, they explored ways to talk about language, such as deconstructing a text and highlighting language features to show how language works (de Oliveira 2016). This practice was relevant as most of the teachers were English monolinguals, and they benefited from learning about language aspects innate to them. Other studies trained teachers on the sheltered instruction observation protocol (SIOP)

(Lara-Alecio et al. 2021; Lys, Ringer, and O'Neal 2009), which focuses on how English and other languages could be integrated in content areas.

In this theme, eleven articles addressed the role of students' linguistic repertoires in the content of the PD. A common focus was reflection on the importance and awareness of MLs' and their families' linguistic and literacy practices (e.g. Colombo 2007; Higgins and Ponte 2017). The PD interventions facilitated teachers' examination of attitudes, beliefs, and perceptions of language issues involving MLs through readings or discussions (Kibler and Roman 2013; Mellom et al. 2018). Fewer studies provided teachers with pedagogical tools such as translanguaging and using labels and materials from different cultures and languages (Heineke et al. 2022; Higgins and Ponte 2017). Overall, the primary purpose of including students' linguistic repertoires in PD was to increase awareness, and a secondary goal was to provide instructional practices to incorporate MLs' whole linguistic resources in academic content.

Specifically addressing MLs' language development, PD interventions centred around preparing teachers to explicitly focus on English language and support language development in lesson planning and teaching (e.g. Heineke et al. 2019; 2022; McIntyre et al. 2010). Teachers received guidance on how to use language objectives (Heineke et al. 2022; Peter, Markham, and Frey 2012), language progressions (Heineke et al. 2020), scaffolding (Hutchinson and Hadjioannou 2011; Pawan 2008; Penner-Williams, Díaz, and Gonzales Worthen 2017), and promoting MLs' participation (Naiditch 2021). For oral language development, the majority of the studies promoted small group interaction and collaboration among students (e.g. Choi and Morrison 2014; Daniel, Pray, and Pacheco 2020; Von Esch 2021). Overall, the content of PD in these areas included oral skills, ways to support language development and academic learning, and awareness of the role of student's linguistic repertoires.

Professional development design

The surveyed articles varied in the PD design elements in terms of context, length, and structure. The studies were situated either in areas designated as needing intervention because of rapid demographic changes or in regions that traditionally have had a high ML population. Several studies identified their context as the southeast, and other articles named the state, which included Florida, California, Texas, Kansas, Arkansas, Georgia, Utah, Illinois, Indiana, North Carolina, and New Jersey and US territories such as Hawaii, Guam, and American Samoa. Most studies described socio-political aspects affecting MLs, such as English-only language policies and difficulties to foster equitable academic outcomes for this population. The length of interventions ranged from a few weeks to consecutive years. Some studies offered workshops or summer institutes with follow-up sessions (e.g. Colombo 2007; Vargas et al. 2023). Others consisted of 15 or 16- week courses (Cadiero-Kaplan and Billings 2008) or two or three years of ongoing PD (Giboney Wall and Musetti 2008; Pritchard 2012).

Relevant elements of the PD structure included coaching, coursework, and components to enhance teacher change. Studies described coaching models, such as frameworks for collaboration with teachers (Ankeny, Marichal, and Coady 2019; Babinski et al. 2018), co-teaching (Brouillette, Grove, and Hinga 2015; Naiditch 2021), and workshops or PD sessions with follow-up coaching (Babinski et al. 2018; Mellom et al. 2018; Vargas et al. 2023). Twenty-three studies included coursework from graduate or certification programmes. Fifteen studies provided fully online or hybrid PD¹, offering teachers opportunities to meet with colleagues in geographic proximity (Choi and Morrison 2014), attend follow-up site-based sessions (Choi and Morrison 2014), participate in conferences (Heineke et al. 2019; Shea, Sandholtz, and Shanahan 2018), and engage in online discussions and reflection (Pawan 2008; Smith 2014). Frequent elements in PD included self-reflection on practices and assumptions (Grant et al. 2017; Hutchinson and Hadjioannou 2011), modelling, lesson demonstrations, and implementation of instructional strategies (Mellom et al. 2018; Uribe 2019). Overall, the PD for teachers in early elementary

included design elements aiming to encourage teachers' participation through different formats, coaching models, and reflection.

Professional development partnerships

All PD models reviewed incorporated a form of collaboration between teachers, stakeholders, or researchers. For teachers, studies reported benefits of coaching and mentoring, such as a tool to provide a common language and continued support to foster collegiality, self-reflection, and confidence to implement new instructional practices (Batt 2010). For instance, Naiditch (2021) used a co-teaching model that engaged ESL and mainstream teachers in joint planning and teaching as they implemented instructional practices to support MLs. Such collaboration promoted accessible models for implementation and teachers' sense of ownership of all aspects of teaching.

Inclusion of caregivers or ML families was reported in only four studies. Their participation varied from receiving resources to contributing to creating PD. Giboney Wall and Musetti (2008) provided ESL classes and workshops to empower parents to support MLs, but they also collected parent feedback to inform ways to serve MLs. Colombo (2007) and Hardin et al. (2010) involved parents and other stakeholders to collaborate to create PD or family literacy programmes responsive to the needs and strengths of MLs. These studies sought to promote an understanding of the role of parents, guide parent-child literacy activities, and enhance parent-teacher collaboration.

Another kind of collaboration occurred between institutions of higher education and local educational agencies (LEAs). Multiple studies implemented a multistakeholder and multilayered approach for PD in which partnerships formed between schools, districts, and universities. For instance, Lys, Ringer, and O'Neal (2009) described the evolution of a collaborative relationship between university faculty, district coordinators, teachers, and principals that started as a funded project and resulted in the formation of professional learning communities, which then changed to occasional faculty visits and newsletters. Only three studies reported the incorporation of teachers' voice in the form of feedback on PD (Colombo 2007; Hardin et al. 2010; Lys, Ringer, and O'Neal 2009). Thus, while these studies are involving stakeholders in different roles beyond teaching, inclusion of caregivers and teacher voice is still limited.

Impact on multilingual students

Although the studies surveyed focused the outcomes of PD on teachers, a limited number measured the impact on MLs. Only 14 studies reported student outcomes, most focusing on student engagement and participation (e.g. Batt 2010; Mellom et al. 2018; Naiditch 2021). For example, Mellom et al.'s (2018) two-year mixed-methods study identified increased active participation in small group discussions and students' independence, and Naiditch' (2021) practitioner action research reported that students' participation resulted in more opportunities for negotiation of meaning. Other studies reported student outcomes through statements of positive student learning. For instance, in Choi and Morrison's (2014) five-year qualitative research, a kindergarten teacher explained how as a result from a change in instruction to lower a student's affective filter, she observed increased the frequency and quality of speaking. Overall, these studies were not very descriptive about the development of student engagement and participation studied, and how it benefited the students academically short and long term. Nonetheless, they were multi-year projects that allowed ample time for teachers to observe more robust student participation and engagement in academic content.

Other studies reported higher grades in assessments and standardised testing (e.g. August, Artzi, and Barr 2016; Babinski et al. 2018; Shea, Sandholtz, and Shanahan 2018). Specifically, Shea et al.'s (2018) two-year experimental study provided workshops and lesson demonstrations in treatment schools for teachers to learn how to use sentence structures and vocabulary to support early MLs' oral participation. This study noted an increase of 14% in ELA standardised state test scores

among second grade MLs in treatment schools versus 6% in comparison schools (no intervention). In math test scores, MLs improved 19% and those in schools without an intervention for teachers showed an increase of only 4%. Similarly, in a randomised control trial during a year, Babinski et al. (2018) found statistically significant differences ($p = .048$) between control and treatment groups in verbal analogies and story recall as part of the Woodcock Muñoz Language Survey to measure language and literacy in English and Spanish.

Two studies reported mixed or no gains in student achievement despite intervention efforts. Giboney Wall and Musetti (2008) studied a focal Title I school in a socioeconomically disadvantaged district. Although efforts brought about change, results did not reflect on academic outcomes at the time of the study. On the other hand, using a paired sample *t*-test, McIntyre et al. (2010) found that students with teachers who had received an 18-month PD on the SIOP model showed achievement gains of 5.28 in the post test. In contrast, students from teachers who did not receive PD had a loss of 0.80. Although the authors did not find statistically significant differences between treatment and control groups, their research demonstrates that academic improvement was possible for those exposed to the SIOP model. Overall, although reported student outcomes were positive, few studies provided specific data about the extent of effects of teachers' PD on ML education.

Impact on teachers and instruction

PD conducted to support MLs reports the most impact on teachers' instruction and design, cultural awareness, and mindset change; however, a gap remains in pedagogy specific to MLs. In terms of instruction, PD provided instructional frameworks such as SIOP or specific strategies (e.g. Babinski et al. 2018; Lara-Alecio et al. 2021; McIntyre et al. 2010). Some of these strategies included questioning, academic language scaffolding, graphic organisers, collaborative or flexible grouping (Vargas et al. 2023), modelling, meaningful language practice, use of paraphrasing, repetition, expansion (Uribe 2019), activation of prior knowledge, multiple modes of representation, and connecting language functions to content areas (Santau et al. 2007). Studies showed that teachers increased their familiarity with the strategies and the fidelity of implementation in the classroom. For instance, Vargas et al. (2023) provided virtual PD to teachers in the treatment and control groups. While additional coaching in the treatment group did not result in statistical significance, this study reported increased use of ESL strategies as measured from pre- to post-observations in teachers in both groups. In this experimental study, teachers employed more student-centred strategies and communication modes for MLs' oral development after at least 60 hours of virtual PD. Interventions were more effective for teachers with higher baseline scores (McIntyre et al. 2010) and implementing new strategies (Lara-Alecio et al. 2021). Studies agreed that teachers reasonably improved their ability to differentiate instruction for MLs and incorporate techniques to enhance and expand MLs' linguistic repertoires (Hoover, Sarris, and Hill 2018; Penner-Williams, Díaz, and Gonzales Worthen 2017; Peter, Markham, and Frey 2012). However, some studies identified obstacles to teachers' successful strategy implementation, such as insufficient time to plan lessons and prepare for them, lack of administrative support, and unrealistic expectations.

PD impacted teachers' awareness of MLs' and their families' cultural assets and the importance of sustaining equitable and culturally responsive classrooms (Lynch et al. 2021; Peter, Markham, and Frey 2012). Notably, teachers became more knowledgeable of the students' cultures and ways to integrate them into instruction, cultural biases in curricula, and collaboration with families (Hardin et al. 2010; Higgins and Ponte 2017). In this area, teachers also demonstrated a mindset change as they became aware of the impact of policies on the ML population and their struggles to navigate the US education system (Ankeny, Marichal, and Coady 2019; Hardin et al. 2010). Studies reported that teachers gained an asset-based mindset when they understood MLs' capabilities, backgrounds, and linguistic resources (Grant et al. 2017; Heineke et al. 2022). Moreover, through readings, discussions, or reflective writing, most teachers changed their attitudes and

beliefs about English-only environments and unpacked myths about second language acquisition (Holdway and Hitchcock 2018; Hutchinson and Hadjioannou 2011). Overall, these results showed positive changes in teachers' instructional practices and attitudes as a result of PD to enhance their ML expertise.

Research design

We examined a diverse set of research, including quantitative, qualitative, and mixed methods studies focused on the US (see supplemental material table). Of the 49 articles, 12 were qualitative, including 3 case studies and 9 which characterised their design as qualitative without providing further specification. Nine were quantitative, including 5 experimental, 1 quasi-experimental, 1 within-subjects, and 2 quantitative without further specification. 12 were mixed methods, including 2 sequential explanatory studies, 8 described as mixed, and 2 detailing qualitative and quantitative data. Four were action research, and 12 did not identify a particular method and just included qualitative or quantitative data collection or analysis procedures.² The studies were conducted across the US, including the territories of Hawaii and American Samoa, in regions with increasing demand for language services or a high percentage of linguistically diverse populations.

Much of the research on PD was facilitated through partnerships with universities. Nine of the studies were done in urban settings, four in rural communities, and two in mixed contexts. Another research setting was in graduate programmes, with twenty-three studies collecting data in one or more ESL-related courses, six of these studies included other forms of PD in combination with academic coursework. Twenty-six studies offered professional development sessions, like workshops in onsite, virtual, or hybrid modalities (see supplemental material for detailed information). In terms of participants, the studies recruited mostly mainstream teachers, with samples ranging from two instructors to over 300. Nine studies included multiple stakeholders such as administrative staff, principals, parents, specialists, and teacher leaders. Two studies included the school ML population as part of their research participants in addition to teachers and other stakeholders. Limitations frequently cited included methodological shortcomings such as sample size or diversity, limited data collection, lack of control groups, and issues with the PD format, for instance, technological problems with online components. The theoretical frameworks used to ground the studies can be grouped into three categories: (a) characteristics of effective professional development, (b) literacy theory for MLs, including sheltered instruction and literacy domains (i.e. phonics, vocabulary); and (c) sociocultural theories, such as situated learning, teacher identity, and funds of knowledge.

Future needs

Our analysis revealed future needs in three areas: implications for PD, need for further PD, and gaps in research. Among the implications of PD interventions, studies agree that PD should be contextualised and centred on the teachers' needs and strengths. For example, Von Esch (2021) argued that effective PD must guide teachers to understand the connection between their learning and a situated problem of practice specific to the MLs. By exploring the challenging aspects of this problem, they will increase their awareness of possible dissonance between their knowledge, beliefs, and practice. Moreover, the studies conclude that effective PD is ongoing and collaborative, and offers continued support (Batt 2010; Peercy et al. 2015).

Although the research concurred that there is generalised unpreparedness among mainstream teachers, they identified three priority PD areas. The first area is culture; specifically, teachers need more experience with diverse students, families, and communities, which may help them to become more knowledgeable of MLs' needs and assets (Hardin et al. 2010; Kolano et al. 2014). The second area involves PD targeted to create and sustain leadership roles to expand capacity to improve MLs' teaching and learning (Von Esch 2021). The third area calls for a shift from over-emphasising instructional approaches or teaching structures solely, and instead, make the

connection between students' cultural and linguistic resources and instructional practices the foundation of teachers' learning (Daniel, Pray, and Pacheco 2020). Lastly, existing gaps in research include reporting the impact of PD on student academic achievement (Heineke et al. 2019; Penner-Williams, Díaz, and Gonzales Worthen 2017), a focus on the long-term impact of PD (Kibler and Roman 2013; Santau et al. 2007), and further exploration of PD models, particularly online and hybrid, with attention to the challenges in implementation (Guler 2020; Hutchinson and Hadjioannou 2011).

Discussion

Given that professional preparation is critical for equitable academic outcomes for the ML population, we examined PD for mainstream teachers in early grades to identify any areas of need to inform future PD. In this section, our research questions are addressed through the discussion of the four theoretical codes that emerged from our focused codes. The codes *content of PD* and *design elements of PD models* answer our first research question: *What PD has been conducted for mainstream in-service teachers of multilingual learners in the United States?* And the codes *impact of PD for MLs' education* and *research needs* answer our second question: *What are the impacts of these PD interventions or models?*

ML specific PD for mainstream in-service teachers

The PD content has centred around foundational literacy aspects and language development in subject areas. Vocabulary and comprehension, both in listening and reading, have been frequent topics, providing primarily instructional strategies for practice, linguistic scaffolding, and explicit attention to language. Aspects such as phonemic awareness and phonics were less reported in the studies reviewed. Limited attention to these areas means that PD with teachers in early grades has focused more consistently on meaning, which may be beneficial at this stage. However, teacher preparation on how to address phonics and phonemic awareness with the ML population is also important as student interventions are delayed in early literacy due to low proficiency in English. Teachers' expertise in all aspects of literacy for MLs can potentially enable them to provide more timely and effective instruction or have an informed perspective to make school services referrals. However, as argued by de Jong, Harper, and Coady (2013), this teacher preparation requires learning to support phonics and phonemic awareness in bilingual processes, considering commonalities or difference across languages and also students' knowledge in languages other than English.

Content on the role of MLs' linguistic repertoires in PD developed teachers' awareness, appreciation, and understanding of MLs' linguistic resources. Although most teachers in the studies reported having changed beliefs or misconceptions about students' languages, a few teachers continued to hold an ideology privileging English monolingualism (e.g. Holdway and Hitchcock 2018). This tendency may be because of English-only policies and because languages other than English serve a peripheral role in interventions, for example, in student-student interaction or in the inclusion of multilingual materials (e.g. Heineke et al. 2022). This dynamic is common in mainstream classrooms, where English is the dominant language and thus has a legitimate place in the curriculum. Our synthesis revealed that while teachers learned about welcoming students' languages, there is a need for further development of pedagogical tools building on students' linguistic resources and creating legitimate spaces for them in the classroom. That is, teachers need to be prepared to make multilingual approaches the *norm*, not just supplemental (de Jong and Gao 2019). This transformation may be influential in early literacy as students can cultivate positive perceptions of their language practices in their first school experiences.

PD design has included effective components such as collaboration, continuous support, and different formats that adapt to teachers' needs and offer more access. Most of the PD has been

provided through coursework in graduate studies and/or add-on or certification opportunities facilitated by research partnerships between universities and schools or districts. While these partnerships have been fundamental, our synthesis shows that there has been little participation from families and teachers in PD or research design. Only four studies reported the involvement of families, and three involved teachers' perspectives as input for the PD development. Studies involving multiple stakeholders show positive results and urge researchers to take a similar approach (Heineke et al. 2020; Lys, Ringer, and O'Neal 2009). This participatory perspective has been beneficial for teachers to interact and learn with the families of MLs and thus gain cultural awareness and competence. On the other hand, families have contributed with their knowledge of the culture and community to make programmes suitable for the local needs.

Impacts of PD

Our findings demonstrate that the impact of PD has primarily been reported on teachers' instruction. Research shows improvement in teachers' implementation of scaffolding and differentiation strategies and supporting language development in content areas (Babinski et al. 2018; Santau et al. 2007). Measurement of these instructional changes in the long-term and with student outcomes is still needed. Although student results have indicated positive outcomes in engagement and grades, it is critical to also examine other areas of their academic development. Student outcomes focus on increased participation and overall learning. However, few studies report either qualitative description of academic improvement or statistically significant differences with control groups or pre-intervention measurements. Understandably, the surveyed research tends to report teacher learning gains. There may be barriers to accomplish this task such as concerns associated with obtaining parental consent when including minors, but it is an important piece to further understand the PD needed for teaching MLs with enhanced expertise.

In terms of research needs, PD should focus on teachers' pressing needs and the demands of their context, with collaboration and ongoing support. Urgent areas include preparation on more nuanced aspects of culture enhancing in-depth knowledge of MLs, families, and communities to draw from this understanding to create more culturally and linguistically responsive spaces. This connection to culture and community is valuable in early learning because it breaks the home-school dichotomy (Flores 2020) and can set the stage for forming solid relationships. In acknowledging the limitations in building capacity for ML instruction, PD can aid in increasing leadership roles that can guide or coach other teachers in schools and districts. In sum, there is a need to extend the existing resources and the areas that PD programmes have developed and connect teachers, students, families, and communities.

Conclusion

This systematic review reveals the common features of content, design, and impact of PD for in-service mainstream classroom teachers serving MLs in early elementary grades. PD addressed foundational literacy components focused on meaning and paid less attention to phonemic awareness and phonics. The PD design elements of collaboration and continuous support allowed interventions to be relevant and sustainable. Further advances in PD should address the integration of MLs' culture and linguistic repertoires, including nuanced understandings of their practices and communities. While PD has been impactful on instructional practices, more research that reports on long-term outcomes for teachers and MLs is needed. Future interventions should also consider the participation of multiple stakeholders, especially families. Such advancements in PD will enable teachers in early learning settings to provide culturally sustaining instruction in a crucial learning stage. In turn, ML families and students can be empowered to support the academic experience of a population that has traditionally been underserved in the US.

Notes

1. This count is based on studies that explicitly identified their interventions as virtual, online, or hybrid.
2. For the articles that did not explicitly identify a research design in their methods section, we did not categorize them under any design. The supplemental material table includes data sources or analyses for the articles that made this information available.

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