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Supporting Phonological and Phonemic Awareness in Preschool: A Systematic Review of Classroom-Based Emergent Literacy Practices

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Katilyn M. Ashley Treem, M.S.
Graduate Research Assistant, Department of Psychology

Caitlin J. Criss, Ph.D.
Associate Professor, Elementary and Secondary Education
Associate Director, Georgia Southern University Literacy Center

Alexis O. Mulvihill
Graduate Research Assistant, Department of Psychology

Adam C. Carreon, Ph.D.
Associate Professor, Elementary and Special Education

Georgia Southern University | Statesboro, Georgia

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Kentucky Department of EDUCATION

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Abstract

Emergent literacy skills provide the foundation for children to enhance their reading development and academic success. However, many children enter kindergarten with literacy deficits which may contribute to reading difficulties as they progress through school. Thus, the purpose of this systematic review was to synthesize evidence-based instructional practices and literacy domains by examining preschool classroom-based interventions. We identified 18 peer-reviewed studies representing 5,137 children between the ages of three and five. Our findings indicate that explicit, systematic, and scaffolded instruction were the most consistently used and effective practices for supporting phonological and phonemic awareness. Overall, the findings suggest that effective preschool literacy instruction should address emergent literacy as an integrated, multidimensional developmental process. Overall, the findings suggest that brief, frequent interventions that address multiple literacy domains simultaneously yield meaningful gains across diverse populations, reinforcing the idea that effective preschool instruction should treat emergent literacy as an integrated, multidimensional developmental process that lays the foundation for long-term reading success.

Keywords: emergent literacy, preschool, instructional practices, phonological awareness, phonemic awareness, literacy domains

Introduction

Emergent literacy includes the early skills and understandings that prepare children to become successful readers and writers (Regional Educational Laboratory Northwest, 2024). These skills begin developing during infancy and continue to grow throughout the preschool years (Regional Educational Laboratory Northwest, 2024; Roth et al., 2006). Literacy development does not suddenly begin when children enter school. Instead, children gradually build literacy-related skills through their everyday interactions with spoken language, books, print materials, and the world around them (Roth et al., 2006; Septiani & Syaodih, 2021). Emergent literacy encompasses several interconnected areas of development, including oral language, vocabulary, phonological awareness, alphabet knowledge, print concepts, background knowledge, and early writing behaviors (Regional Educational Laboratory Northwest, 2024). Together, these foundational skills help prepare children to understand and use written language as they transition into formal schooling.

Emergent literacy is important because it supports the development of conventional reading and writing. Research has shown that children's early literacy skills are connected to their later reading achievement and overall academic success (Lonigan et al., 2013). Different emergent literacy skills contribute to different aspects of reading development. Code-related skills, such as phonological awareness and alphabet knowledge, support children's ability to recognize sound patterns and decode written words. Meaning-related skills, including vocabulary and oral language, are especially important for reading comprehension (Lonigan et al., 2013). Additionally, emergent literacy supports communication and self-expression by helping children share their thoughts, ideas, and experiences through language and early writing (Roth et al., 2006). Developing these skills during early childhood can help children enter school with a stronger foundation for future learning.

Despite the importance of emergent literacy, many children begin school without the foundational skills needed for reading success. Children who enter school with weaker early literacy skills are more likely to experience ongoing reading difficulties as they progress through school (Lonigan et al., 2013; Roth et al., 2006). Some children may face additional barriers, including children from low socioeconomic backgrounds and children with developmental, speech, or language-related difficulties (Lonigan et al., 2013; Roth et al., 2006). Instruction should be responsive to children's individual language backgrounds and literacy needs (Regional Educational Laboratory Northwest, 2024). When early literacy difficulties are not addressed, they can contribute to long-term differences in academic achievement (Lonigan et al., 2013; Roth et al., 2006). For this reason, identifying effective instructional practices that support emergent literacy development during the preschool years remains an important priority for researchers and educators (Burchinal et al., 2022).

During preschool years, the development of emergent literacy skills is a vital period that provide further support in children’s success in school. Before kindergarten, children begin building skills related to knowledge, language, and early literacy that will in turn help them to read, write, and engage in their academic development. Therefore, identifying instructional practices that effectively support early literacy development is a crucial area of research. Current

recommendations from the What Works Clearinghouse (WWC) suggest that effective preschool literacy instruction involves creating a plethora of opportunities for children to develop language, explore print, and engage in meaningful conversations, not just teaching isolated skills (Burchinal et al., 2022).

Explicit instruction is a highly effective and structured approach to teaching that emphasizes clear, direct instruction so students do not have to assume or guess what they are expected to learn (Archer & Hughes, 2011). This instructional method involves educators modeling exactly how to complete a task while thoroughly explaining the information and concepts being presented. A common framework frequently used in explicit instruction is the “I Do, We Do, You Do” model. This model provides students with step-by-step guidance as they are presented with new material. Additionally, this framework incorporates chunking (i.e., separating new information into smaller parts), to help prevent and minimize cognitive overload. Explicit instruction gives students the opportunity to build a strong academic foundation and reduces vocabulary gaps, ensuring students develop the knowledge of specific sounds and letters needed for reading and writing (Otaiba et al., 2009; Burchinal et al., 2022).

In addition to incorporating explicit instruction, WWC provides several recommendations to help prepare children for school. In particular, vocabulary development has proven to be beneficial as it contributes to children’s understanding of new words which allows them to make sense of new information and acquire additional language. However, vocabulary development tends to be a challenging skill for young learners (Lenhart, 2019). As the process of vocabulary development can be described as cumulative, the IES recommendations place an emphasis on prioritizing the intentional selection of a small number of target words and the provision of repeated opportunities for children to discuss, hear, and use words across a variety of contexts (Moran, 2018; Lenhart, 2019). Importantly, vocabulary learning seems to be strengthened when children encounter words through multiple modalities (i.e., direct explanations, gestures, visual supports, play-based experiences) (Burchinal et al., 2022). In turn, this allows children to move beyond simple recognition of words toward meaningful and flexible use of language.

Moreover, phonological awareness serves as an important foundational component for later reading and writing because it helps children recognize that spoken words are made up of individual sounds (Milankov, 2021; Burchinal et al., 2022). Specific recommendations from WWC suggest that instruction should first focus on helping children hear and identify sounds through certain activities (e.g., rhyme, alliteration, sound recognition) before introducing formal letter-sound relationships. Once children begin making connections between sounds and print, explicit instruction linking letter names, sounds, and meaningful experiences can further strengthen early literacy development.

Furthermore, shared book reading represents another critical component of effective emergent literacy instruction due to it providing a context in which language, vocabulary, knowledge building, and print awareness can develop simultaneously (Yang, 2026; Burchinal et al., 2022). Rather than viewing book reading as a passive activity, recommendations emphasize the importance of active engagement between teachers and children. Through carefully planned questions and discussions, teachers can guide children toward deeper understanding of stories

and informational texts while encouraging them to use increasingly sophisticated language. Repeated readings are particularly valuable because they allow children to revisit vocabulary, strengthen comprehension, and engage in higher-order thinking as their familiarity with the text increases. Additionally, selecting books that reflect children's cultural backgrounds and experiences may help foster engagement and meaningful connections to literacy activities.

Another effective strategy for supporting emergent literacy is technology-assisted learning (i.e., audiobooks, computer-based training programs, interactive e-books, multisensory engagement, etc.). The use of technology provides multimodal support (e.g., auditory, interactive, visual) that helps develop foundational reading and writing skills (Belo et al., 2016). In order to be the most effective, research suggests that technology-assisted learning should be integrated into curricula rather than in isolation. Specifically, Belo et al. (2016) emphasize that technology-assisted learning is most beneficial when used in tandem with explicit instruction. Using both digital tools and explicit instruction allows students to connect literacy concepts to real-life experiences. In addition to highlighting the importance of integration, research suggests that repetition plays a critical role for improving emergent reading and phonological awareness, with studies indicating at least three to four sessions are typically needed before improvements can be observed (López-Escribano et al., 2021; Belo et al., 2016).

Phonemic awareness is a specific component of phonological awareness that involves recognizing and working with the individual sounds, or phonemes, in spoken words. For example, a child demonstrating phonemic awareness can recognize that the word cat is made up of three separate sounds: /k/, /a/, and /t/ (Yeh & Connell, 2008). Key phonemic awareness skills include segmenting words into individual sounds, blending sounds together to form words, deleting sounds, and substituting one sound for another. The WWC practice guide emphasizes that preschool literacy instruction should include intentional activities that help children develop knowledge of letters and sounds in ways that are engaging and age-appropriate (Burchinal et al., 2022). This is important because children’s ability to connect sounds with print supports early decoding, word recognition, and later reading development. Research has found that instruction focused on phoneme segmentation, blending, and letter-sound relationships was more effective in improving phonemic awareness than instruction focused only on rhyming or vocabulary (Yeh & Connell, 2008). Therefore, intentional instruction in sound awareness can help strengthen children’s early literacy development and better prepare them for later reading and writing.

Oral language also represents an important foundational component of emergent literacy because it supports children’s vocabulary, listening comprehension, speaking skills, and ability to engage in meaningful conversations. The WWC practice guide emphasizes that preschool teachers should create frequent opportunities for children to hear new words, talk about ideas, and use language during activities such as shared book reading, teacher-child conversations, play-based experiences, and vocabulary instruction (Burchinal et al., 2022). Through these activities, teachers can model appropriate language, ask open-ended questions, expand children’s responses, and encourage back-and-forth conversations. Shared book reading is especially valuable because it allows children to revisit vocabulary, build background knowledge, and discuss stories or informational texts in meaningful ways. Weadman et al.

(2023) describe oral language as including vocabulary, discourse, and morphological and syntactic competencies, all of which are closely connected to later literacy learning. Therefore, supporting oral language during the preschool years can help children develop the vocabulary, comprehension, and expressive language skills needed for future academic success.

Method

Search and Screening Procedures

A systematic literature search was conducted across 15 electronic databases spanning the EBSCO, ProQuest, and Web of Science platforms to ensure comprehensive coverage of education, psychology, and interdisciplinary research. The databases searched included ERIC as the primary database, in addition to Academic Search Complete, APA PsycInfo, Education Full Text, Psychology and Behavioral Sciences Collection, Social Sciences Abstracts, Sociological Collection, Teacher Reference Center, APA PsycArticles, Education Research Index, Linguistics and Language Behavior Abstracts, ProQuest Dissertations & Theses Global, Publicly Available Content Database, Sociological Abstracts, and Web of Science Core Collection. Searches were limited to peer-reviewed articles published in English and conducted within relevant educational or clinical contexts. Search strings included combinations of keywords related to phonological and phonemic awareness, preschool literacy instruction, classroom-based instructional practices, and evidence-based educational research. Due to the length and complexity of the search strings, the full search syntax is available from the first author upon request.

Two graduate research assistants trained in educational and psychological research methods and systematic review procedures independently screened articles at both the title/abstract and full-text stages. Studies were included if they (a) employed an experimental, quasi-experimental, or single-case research design, (b) included preschool-aged students in early childhood educational settings, (c) examined instructional practices or interventions targeting phonological or phonemic awareness, (d) reported at least one relevant literacy-related outcome, and (e) were conducted in English-speaking contexts such as the United States, Canada, Australia, or the United Kingdom. Studies were excluded if they did not meet these criteria or lacked sufficient methodological detail to evaluate outcomes. Discrepancies between reviewers were resolved through discussion until consensus was reached.

Following the application of these screening procedures, the initial search yielded 1,018 articles after the removal of duplicates within database exports. Titles and abstracts were screened with the above inclusion criteria to assess relevance to the research questions and inclusion criteria, resulting in the elimination of approximately 847 articles and leaving 171 articles for further review. After removing an additional 31 duplicate records, 140 articles remained for full-text screening. Full-text screening consisted of reviewing each article in its entirety to determine whether studies met all inclusion criteria related to experimental research design, inclusion of pre-kindergarten participants, phonological or phonemic awareness interventions, relevant

phonological or phonemic awareness outcomes, and publication requirements. Of the 140 articles reviewed, 24 met the initial inclusion criteria. An additional six articles were excluded following a detailed full-text review due to failure to meet one or more inclusion criteria, which resulted in a final sample of 18 studies included in the review.

Coding Procedures

Coder Training and Reliability

A comprehensive coding protocol was developed to systematically extract study characteristics, intervention features, and outcomes from each included article. All 18 studies included in the review were entered into a coding database and coded by trained graduate research assistants. Articles were divided between coders for primary coding, with collaborative review conducted throughout the coding process. Discrepancies in coding decisions were resolved through discussion until an agreement was reached.

Coder training involved reviewing the coding manual, practicing on selected articles, and discussing coding decisions to ensure consistency in interpretation. The training articles were randomly selected. The study Carson et al. (2019) article was coded initially as a group to develop an understanding of the coding process, followed by the Albritton et al. (2018) and McNeil and Gillon (2025) articles which were coded independently. Initial coding agreement was 85% agreement. Additional clarification and discussions were conducted as needed throughout the coding process.

Interrater Reliability

Interrater reliability was calculated using percentage agreement. Agreement was determined by dividing the number of agreements by the total number of agreements plus disagreements and multiplying by 100. Interrater reliability for the screening phase was 85%. Reliability during full coding was monitored through collaborative review and consensus procedures.

Coding Variables

The coding form included variables across several domains. These included (a) study identification variables (e.g., author, year, title), (b) research design classification (e.g., randomized controlled trial, quasi-experimental, single-case design), and (c) inclusion-related indicators (e.g., presence of preschool-aged students, intervention eligibility, and geographic and language requirements).

Implementation variables were also coded, including whether the intervention was researcher, teacher, or caregiver-implemented, as well as the involvement of special education teachers, general education teachers, paraprofessionals, and caregivers. The use of technology within the intervention was also recorded. When studies did not provide sufficient information for a given variable, the category was coded as left blank.

Participant characteristics were coded to capture sample composition, including total number of participants, age distribution (e.g., number of 3, 4, and 5-year-old children), average age, gender distribution, number of multilingual learners, number of students with disabilities, and number of students identified as at risk. Contextual variables included classroom type, such as general education, inclusion, co-taught, small group intervention, self-contained, resource room, or other settings.

Intervention characteristics included the name and description of the instructional practice or intervention, whether the intervention was curriculum-based, researcher-developed, or school-based, and the unit of delivery (e.g., individual or group instruction). Duration and intensity of the intervention were coded, along with fidelity of implementation, including whether fidelity was measured and the reported level of fidelity.

Outcome variables were coded to identify the literacy related skills and assessment outcomes examined across studies. For each outcome variable, coders recorded the name of the measure, reported effects (e.g., effect sizes or visual analysis outcomes), whether the measure was standardized, and a description of the assessment used. Additional indicators, including generalization and maintenance, were also coded when reported.

Results

Characteristics of Reviewed Studies

This review examined the instructional approaches, intervention structures, and emergent literacy domains targeted across preschool literacy interventions published between 2014 and 2015 (see Table 1 for the characteristics of the included studies). The present review includes 18 studies and includes 5,137 participants ranging from three to five years old. Of the included studies, 16 reported the sex of participants, indicating that 43% were female and 50% were male. Although multiple studies lacked complete demographic information, 573 multilingual (ML) participants (11.2%), 337 students with disabilities (SWD; 6.6%), and 75 students at risk (1.5%) were reported. Intervention dosage and duration varied across studies. Session lengths ranged from approximately ten minutes to ninety minutes per day, with most interventions delivered between two to five times per week. Although some were integrated within daily classroom activities. Intervention duration ranged from two weeks to seven months, with most studies lasting between six and twenty-three weeks.

Research Question 1: What specific instructional practices do preschool teachers use to support the development of phonological awareness in their students?

Across the reviewed studies, interventions consistently emphasized explicit, systematic, scaffolded, and developmentally appropriate instruction designed to strengthen children's foundational literacy skills (see Table 2 for an overview of the instructional practices used in

each included study). Explicit instruction was the most consistently identified instructional practice used to support the development of phonological and phonemic awareness across the 18 included studies. Teachers and researchers frequently modeled target skills directly, provided guided practice opportunities, and gradually released responsibility to students through scaffolded instructional routines. Explicit instruction was evident across interventions targeting skills such as phoneme isolation, segmentation, blending, sound discrimination, onset-rime awareness, and letter-sound correspondence (e.g., Walsh et al., 2025; Carson et al., 2019; O'Leary & Ehri, 2020; Lewis et al., 2023).

Systematic and sequential organization of instruction was a consistent finding across almost all studies (n=17, 94.4%). Many interventions followed developmental scopes and sequences, progressing from simpler phonological awareness tasks to more complex phonemic awareness and decoding skills. For example, Carson et al. (2019) implemented a preschool-wide progression of rhyme awareness, sound discrimination, initial and final phoneme identification, blending, and segmentation instruction, while Shifflet et al. (2020) organized instruction around a developmental continuum aligned to the Phonological Awareness Screener for Intervention (PASI) assessment framework. Similarly, the Better Start Literacy Approach (McNeill & Gillon, 2025) embedded sequential instruction in oral language, phoneme awareness, phonics, decoding, and encoding skills within an MTSS framework.

Scaffolded instructional support also emerged as a defining instructional characteristic (n=15, 83.3%). Several interventions used structured cueing hierarchies, prompt fading procedures, corrective feedback, and gradual release models to increase student independence. Walsh et al. (2025), for example, implemented a hierarchical cueing system that progressed from question repetition to onset-rime segmentation and forced-choice discrimination during first sound identification tasks. Similarly, Novelli et al. (2024) used systematic prompt delays, constant-time-delay procedures, and cumulative rehearsal during phoneme instruction. Multiple studies incorporated gradual release frameworks consisting of teacher modeling, guided practice, and independent application (e.g., Shifflet et al., 2020; Lewis et al., 2023; Becker & Sylvan, 2021).

Interactive shared reading and literacy-rich instructional contexts were also common across interventions (n=8, 44,4%). Storybook reading was frequently used to embed phonological awareness instruction within meaningful oral language and literacy experiences. Walsh et al. (2025) integrated first sound fluency modeling within shared book reading, while Carson et al. (2019) used large-group storybook instruction paired with literacy games such as songs, Bingo, and drawing activities. Zucker et al. (2021) implemented interactive shared reading routines that incorporated vocabulary instruction, inferential questioning, print referencing, oral retellings, and phonological awareness transition activities. Murdoch et al. (2022) similarly integrated dialogic reading, oral storytelling, puppetry, and retelling routines to strengthen oral language and listening comprehension while embedding phonological awareness instruction.

Multisensory instruction was another major instructional theme in the majority of the included studies (n=13, 72.2%). Interventions frequently incorporated visual, auditory, kinesthetic, and tactile supports to strengthen children's understanding of sounds and print. Examples included

Elkonin boxes, mirrors, mouth articulation visuals, manipulatives, movement-based games, sound boxes, letter tiles, and digital interactive tools. O'Leary and Ehri (2020) used Elkonin boxes and token manipulation to teach phoneme segmentation, while Becker and Sylvan (2021) incorporated mirrors, articulation pictures, and tactile sound boxes to support phoneme-letter correspondence and segmentation instruction. Similarly, Lewis et al. (2023) described multisensory lessons that incorporated visual, auditory, kinesthetic, and tactile literacy activities within the Nemours BrightStart! Curriculum.

Repeated practice and cumulative review were evident across nearly all interventions. Instructional routines consistently provided children with multiple opportunities to practice targeted skills across sessions and contexts. Repeated exposure was often paired with cumulative rehearsal of previously taught sounds, letters, or literacy concepts. Walsh et al. (2025) repeatedly modeled target phonemes within shared reading sessions, while Novelli et al. (2024) used strategic incremental rehearsal to repeatedly cycle through previously learned phonemes alongside newly introduced sounds. Carson (2020) described adaptive cueing in the Reading Doctor applications, in which instructional support gradually decreased as children demonstrated mastery of phoneme-grapheme correspondences.

Technology-assisted instruction emerged as an instructional modality (n=3, 16.7%). Studies incorporated iPad applications, computer-assisted instruction, digital literacy games, and interactive software to support the development of phonological awareness and alphabet knowledge. Technology-based interventions frequently included adaptive cueing, individualized pacing, immediate feedback, and increased opportunities for independent practice (Shanley et al., 2020). For example, Carson (2020) used Reading Doctor iPad applications to teach letter-sound correspondence, phoneme blending, and encoding through systematic synthetic phonics instruction. Rogowsky et al. (2018) implemented computer-assisted playful learning activities targeting sentence segmentation, onset-rime awareness, initial sounds, and alphabet knowledge through game-like, multisensory literacy experiences. Shifflet et al. (2020) similarly integrated tablet applications within small-group phonological awareness instruction to increase individualized practice opportunities.

Differentiated instruction and progress monitoring were also recurring features across interventions. Many studies described tailoring instruction based on children's performance data, developmental levels, or responsiveness to intervention. Carson et al. (2019) incorporated assessment-based adaptation charts and coaching support to help teachers modify instruction for varying levels of phonological awareness and linguistic complexity. McNeill and Gillon (2025) embedded ongoing assessment and progress monitoring within the Better Start Literacy Approach, while Zucker et al. (2021) implemented tiered instructional supports and scaffolded small-group interventions for children requiring additional support.

Overall, the reviewed studies suggest that preschool phonological awareness instruction is characterized by explicit, systematic, scaffolded, and interactive instructional practices delivered in literacy-rich, developmentally appropriate learning environments. Effective instruction frequently integrates oral language, phonological awareness, alphabet knowledge, and

emergent literacy experiences while providing repeated opportunities for guided and independent practice.

Research Question 2: What features of the instructional practices (e.g., duration, age, dosage) are associated with improved phonemic awareness outcomes in emergent literacy?

The instructional features associated with improved phonemic awareness outcomes demonstrate several consistent patterns related to participant age, instructional dosage, and intervention duration. Most interventions targeted children aged 4-5, suggesting that this developmental period represents a particularly important window for phonemic awareness instruction. Session lengths ranged from 10 to 45 minutes, and intervention frequency ranged from 2 sessions per week to daily instruction. The most consistently positive outcomes were observed in studies that implemented brief, explicit lessons of approximately 10–20 minutes, delivered four to five times per week. These interventions resulted in significant improvements in phoneme awareness, grapheme-phoneme correspondences, alphabet knowledge, and early decoding skills (e.g., Novelli et al., 2024; O'Leary & Ehri, 2020; Roberts et al., 2019; Rogowsky et al., 2018; Soto, 2019). Similarly, interventions consisting of 20–40-minute sessions delivered two to three times per week over 6–10 weeks demonstrated meaningful gains, particularly for preschool children with developmental language disorder (DLD), speech-language impairments, or other indicators of literacy concerns.

Intervention duration ranged from 2 weeks to a full academic year, and the majority of studies implemented instruction for 6 to 23 weeks. While short-term interventions produced measurable improvements when instruction explicitly integrated phoneme segmentation with letter knowledge, longer interventions generally yielded broader gains across multiple emergent literacy domains. Extended implementations embedded within comprehensive literacy instruction or multi-tiered systems of support were associated with improvements in phonological awareness, alphabet knowledge, listening comprehension, and early reading skills (Murdoch et al., 2022; Wilcox et al., 2020; Zucker et al., 2021). Positive effects were reported across diverse populations, including children enrolled in Head Start programs, multilingual learners, children from low-income communities, and preschoolers receiving Tier 2 literacy intervention. These findings suggest that instructional effectiveness in phonemic and phonological awareness in emergent literacy is associated more with repeated exposure to explicit, systematic instruction that includes frequent opportunities for guided practice and is sustained over multiple weeks than with a single dosage of instruction.

Research Question 3: What domains of emergent literacy are being investigated?

Across the reviewed studies, researchers investigated multiple interconnected domains of emergent literacy, with phonological and phonemic awareness serving as the most prominent instructional targets. However, interventions rarely focused on isolated skills. Instead, most studies implemented integrated literacy approaches that addressed several foundational literacy domains simultaneously (Burchinal et al., 2022). See Table 3 for the breakdown of the literacy domains used in the included studies.

Phonological awareness was the most commonly found domain across the included studies (n=16, 88.9%). Specific phonological awareness skills included rhyme awareness, sentence segmentation, onset-rime identification, compound word blending and segmentation, syllable awareness, alliteration, sound discrimination, and initial/final sound identification. Many interventions organized instruction developmentally, progressing from larger-sound units to phoneme-level manipulation tasks. For example, Carson et al. (2019) targeted rhyme awareness, sound discrimination, initial and final phoneme identification, blending, and segmentation, while Rogowsky et al. (2018) incorporated sentence segmentation, onset-rime identification, and compound word manipulation within computer-assisted instruction.

Phonemic awareness represented a second major domain examined across studies (n=15, 83.3 %). Common phonemic awareness skills included phoneme isolation, phoneme segmentation, phoneme blending, phoneme discrimination, phoneme manipulation, and auditory analysis. Walsh et al. (2025) specifically targeted first sound identification and phoneme isolation through shared reading interventions, while O'Leary and Ehri (2020) focused extensively on phoneme segmentation using Elkonin boxes and sound manipulation activities. Becker and Sylvan (2021) integrated segmentation, articulation awareness, and phoneme-letter correspondence instruction within a multisensory intervention framework.

Alphabet knowledge and phonics-related skills were also highly represented (n= 15, 83.3%). Many interventions intentionally connected phonological awareness instruction to letter-sound correspondence and early decoding development. Common skills included letter recognition, grapheme-phoneme correspondence, sound-symbol mapping, decoding, encoding, and nonword reading. McNeill and Gillon (2025), Carson (2020), Becker and Sylvan (2021), and Lewis et al. (2023) all integrated explicit phonics and alphabet knowledge instruction within broader emergent literacy interventions.

Oral language and vocabulary development emerged as another major instructional domain which was included in nine studies (50%). Multiple studies emphasized vocabulary instruction, listening comprehension, oral narrative development, conversational language, inferential language, and expressive/receptive language skills. Interventions frequently embedded oral language supports within shared reading and classroom literacy routines. These studies frequently used a set curriculum such as TELL (Wilcox et al., 2020) and Project Ready (Murdoch et al., 2022). Each of these studies emphasized oral language-rich instructional environments that integrated vocabulary and comprehension instruction alongside phonological awareness teaching.

Print awareness and emergent literacy concepts were also investigated across several studies (n=5, 27.8%). Teachers incorporated print referencing, concepts of print, shared writing, environmental print exposure, and print meaning instruction within literacy activities. Zucker et al. (2021) intentionally targeted print meaning, letters, words, and book organization during shared reading instruction, while Lewis et al. (2023) incorporated print knowledge and emergent writing routines within the Nemours BrightStart! Intervention.

Several studies additionally investigated emergent writing and encoding skills. These interventions incorporated letter formation, spelling, word writing, encoding, and dictation activities to strengthen children's understanding of sound-symbol relationships. Carson (2020) integrated spelling and encoding tasks through interactive iPad applications, while Zucker et al. (2021) and Lewis et al. (2023) incorporated shared writing and emergent writing activities into broader literacy instruction.

Finally, many studies examined broader developmental and instructional domains associated with emergent literacy acquisition, including family engagement, self-directed learning, play-based instruction, technology integration, and teacher professional learning. Several interventions emphasized culturally responsive instruction, bilingual literacy supports, parent coaching, and home-school literacy partnerships as mechanisms for strengthening early literacy development.

Overall, the reviewed studies demonstrate that preschool phonological awareness instruction is most commonly embedded within comprehensive emergent literacy approaches that simultaneously target phonological awareness, phonemic awareness, alphabet knowledge, oral language, vocabulary, print awareness, emergent writing, and early decoding skills. These findings suggest that preschool literacy instruction is increasingly conceptualized as an integrated and multidimensional process rather than instruction focused on isolated literacy subskills.

Discussion

The purpose of this review was to identify evidence-based instructional practices that support the development of emergent literacy in preschool-aged children. We identified 18 studies that met the inclusion criteria. The findings of this review reinforce current recommendations for early literacy instruction established by previous literature reviews and technical reports (Belo et al., 2016; López-Escribano et al., 2021; Al Otaiba et al., 2009; Burchinal et al., 2022). Across the reviewed studies, positive outcomes were most frequently reported when integrated approaches (e.g., interactive shared book reading, multisensory learning, oral storytelling) were utilized rather than isolated skills.

Specifically, phonological awareness and phonemic awareness instruction demonstrated positive outcomes when combined with additional instruction contexts (e.g., shared reading, explicit instruction). The consistency of the findings underscores the importance of embedding targeted skill instruction within authentic, planned, and meaningful opportunities. Overall, the findings suggest successful preschool literacy interventions share common instructional principles despite potential differences (i.e., curriculum).

The first research question examined the specific instructional practices educators use to support the development of phonological awareness in young children. Across the reviewed studies, interventions commonly incorporated explicit modeling, systematic sequencing,

scaffolded support, and repeated opportunities for guided and independent practice (Carson et al., 2019; Lewis et al., 2023; O'Leary & Ehri, 2020; Walsh et al., 2025). These findings suggest that how instruction is organized and delivered may be especially important for supporting phonological awareness development. For example, many interventions used gradual-release routines, with teachers first modeling a skill, then providing guided practice before students practiced more independently (Becker & Sylvan, 2021; Lewis et al., 2023; Shifflet et al., 2020). Developmental scopes and sequences were also common, with instruction often progressing from broader sound-awareness skills, such as rhyme and sound discrimination, to more complex skills, including phoneme identification, blending, and segmentation (Carson et al., 2019; McNeill & Gillon, 2025; Shifflet et al., 2020). Together, these findings suggest that phonological awareness instruction benefits from being taught in a clear sequence with support gradually reduced as children build their skills

Furthermore, phonological awareness was rarely taught in isolation. Instead, many interventions combined it with shared book reading, oral-language activities, alphabet knowledge, multisensory experiences, and repeated review (Carson et al., 2019; Lewis et al., 2023; Murdoch et al., 2022; Zucker et al., 2021). These findings suggest that phonological awareness may be strengthened when taught alongside other early literacy skills rather than as a separate skill. This is consistent with recommendations from the WWC, which emphasize explicit, developmentally appropriate instruction and meaningful opportunities for children to build language, print knowledge, and foundational literacy skills across contexts (Burchinal et al., 2022). Therefore, emergent literacy educators should provide intentional, sequential phonological awareness instruction while embedding these skills within meaningful literacy activities. Ultimately, this systematic and integrated approach may help strengthen the foundational literacy skills children need for later reading development and academic success (Lonigan et al., 2013; Burchinal et al., 2022).

Time and consistency with instructional practices are critical factors for improving phonemic awareness outcomes. The evidence-based repository, the WWC, identifies literacy development as a cumulative process that requires repeated exposure and frequent opportunities to use skills across various contexts over time. Similarly, this review's findings indicate that brief, explicit lessons of approximately 10-20 minutes, delivered four to five times per week, produced the most notable improvements in phonemic awareness, alphabet knowledge, and early decoding. Given that teachers do not have enough time during the school day to address all instructional areas, this review's findings suggest that short, consistent phonemic awareness instruction can yield measurable gains in emergent literacy skills (Lemire & Paul, 2026). These findings underscore the need to prioritize structured, evidence-based phonemic awareness instruction within daily literacy routines to lead to long-term reading development. Therefore, when choosing interventions, duration and opportunities to practice need to be at the forefront of decision-making for school districts and teachers.

In addition to time and consistency, instructional quality is a necessary component to gaining emergent literacy skills. Instructional quality is defined as the utilization of explicit, systematic, and scaffolded practices that emphasize clear frameworks (i.e., I Do, We Do, You Do) and provide corrective feedback to help reduce cognitive overload. WWC recommended educators

of young children move beyond teaching isolated subskills by providing repeated exposure and opportunities for learners to use literacy concepts across a variety of contexts (e.g., play, meaningful conversations). The results highlight that the most successful interventions rarely taught phonological awareness in isolation. Instead, they integrated oral language, shared book reading, and multisensory activities to strengthen learners' understanding of sounds and print simultaneously. This suggests that emergent literacy is most effective when implemented as an integrated developmental process. Specifically, the quality of meaningful teacher-learner interactions and the use of evidence-based instructional practices are more influential than a specific curriculum alone. Thus, prioritizing high-quality, embedded instructional practices ensures that all learners retain foundational skills.

The included studies reveal that phonological awareness is rarely taught as an isolated construct in effective interventions. Rather, the studies consistently utilized integrated literacy approaches that address multiple foundational domains. A common theme across interventions was the integration of combined phonemic awareness, alphabet knowledge, oral language, print awareness, emergent writing, and vocabulary development. Using integrated frameworks allow learners to engage in multisensory skills (e.g. letter formation, sound manipulation), which helps bridge the gap between spoken and written language. These findings further reinforce the view of emergent literacy as an integrated developmental process rather than a collection of independent, isolated skills. This approach aligns with current recommendations from the WWC that suggest preschool instruction is most effective when it provides intentional and multifaceted opportunities for learners to explore language and print rather than focusing on rote drills of single, isolated skills. Overall, an integrated literacy approach ensures that learners develop the skills needed for a strong foundation in reading and writing.

Limitations

While this review identifies meaningful evidence-based instructional practices that support the development of emergent literacy in pre-school-aged children, there are limitations present. First, the review identified peer-reviewed manuscripts that focused on phonological and phonemic awareness within classroom-based contexts. The focus was on identifying articles within a narrow research field, which may have limited the ability to find other literacy domains relevant to emergent literacy as a whole. Additionally, this review indicated that many of the included articles lacked demographic information on study participants. While the intent of this review was to gain a broad understanding of the current status of emergent literacy instruction, this may limit the generalizability of the study's findings and the further replication of some included interventions. Finally, dosage, or time and consistency, were highly variable for the intervention design throughout the included articles. It ranged from days to 7 months. Common evidence-based practices were identified, however, making decisions regarding dosage makes interpreting the findings more difficult. As a result, a need to better understand the components necessary for successful emergent literacy.

Implications for Practice and Research

The findings from this review present critical implications for both preschool educators and emergent literacy researchers. For educators, dedicated time and consistency of implementation are important considerations for enhancing emergent literacy. This includes frequent opportunities for students to engage with targeted literacy skills across a variety of instructional contexts, which could improve student learning and support skill retention in the long term. Therefore, preschool educators should prioritize the use of explicit instruction, systematic sequencing, and repeated practice, aligned with time and consistency, to build the foundation of learners' early literacy skills. Rather than teaching phonological awareness as an independent skill, it is recommended to embed it within authentic literacy experiences, such as shared reading and oral storytelling. Likewise, shared reading and storytelling should not only be used for engagement but should also be designed as intentional opportunities for students to identify sounds, rhythm, and language patterns.

Time, consistency, repeated practice, and explicit instruction will promote literacy development for students. Additionally, teachers may benefit more from professional learning focused on evidence-based instructional practices (e.g., direct modeling, scaffolding) than from adopting a commercial curriculum. Despite differences in specific approaches, the overarching finding of this review is that effective preschool phonological awareness interventions share common instructional characteristics. High quality, intentionality, and targeted delivery outweigh the specific program chosen when considering student success.

For researchers, this review indicates several areas for further investigation. This review found that emergent literacy is most effective when implemented as an integrated developmental process. There is a definite need to understand the most effective strategies for emergent literacy and the combination that works best. All included studies used a variety of interventions and reported improved outcomes in emergent literacy skills. While some studies used a combination of skills and others isolated skills, it is important to understand the best practices. With reading being a prime focus in preschool years, it remains important to fully understand the practices and how to implement them with fidelity. Second, many studies cited the need for professional development in emergent literacy, yet few described how to deliver it effectively. It is imperative for success and consistency in professional development to be efficient and effective in enacting change in pre-school teacher practice. Therefore, research needs to identify the features of professional development and pair them with the needs of current and future pre-school educators.

Furthermore, this review did not investigate the impact of individual studies; its focus was on the state of the field of emergent literacy. Future studies need to investigate the effectiveness of interventions and follow up with longitudinal studies. This will allow researchers to make better determinations about the effect and long-term viability. Research that explores additional factors beyond content, such as teacher-student relationships, planning time, instructional delivery, and assessment of mastery, is all-important for instructional decision-making.

Conclusion

Overall, this review synthesizes how explicit practices, instructional features, and integrated literacy domains work collectively to improve outcomes in preschool-aged learners. Findings highlight the importance of embedding integrated components rather than focusing on specific intervention programs. In addition, the findings suggest brief, frequent interventions result in meaningful gains across diverse populations. By addressing multiple literacy domains simultaneously, educators reinforce the understanding that emergent literacy is an integrated developmental process rather than a set of isolated skills. This approach helps to establish the foundation necessary for learner's academic achievement and long-term reading success.

Table 1

Characteristics of included studies

Author	Dosage	Duration	Average Age*	Student Demographics	Measures	Outcomes
Albritton et al. (2018)	10 min, 3x/week	School year	3-5 years	-Head Start preschoolers with phonological awareness difficulties -Male: 45.8% -Female: 54.2%	-Early Childhood Research Institute on Measuring Growth and Development (IGDI) -Intervention Rating Profile (IRP-15)	Phonological awareness intervention had some effect on student performance.
Becker and Sylvan (2021)	45 min, 2x/week	7 Weeks	60.64 months	Private PreK students without diagnosed speech/language disorders -Male: 35.3% -Female: 64.7%	-Phoneme Segmentation Test -Reading of Phonemically Spelled Words	Meaningful improvements in early literacy and associated outcomes, suggesting the positive of instruction quality
Biancone (2018)	30 min, 2–3x/week	6 weeks	4.4 years	Head Start preschoolers from low-SES backgrounds -Male: 57.8% -Female: 42.2%	-Phonological Awareness Literacy Screening (PALS) -Test of Gross Motor Development-2 (TGMD-2) -Teacher Background and Beliefs Survey	Modest gains in emergent literacy skills with some variability across the measures.
Byington and Kim (2020)	Four 2.5-hr trainings and biweekly 30 min coaching	7 months	3-4 years	Preschoolers from low-income communities -Male: 55.6% -Female: 44.4%	-Early Language and Literacy Classroom Observation Tool (ELLCO) -Preschool Early Literacy Indicators (PELI)	Significant effects on early literacy development, particularly in foundational skills.

Carson (2020)	20–25 min/session, 2x/week	8 weeks	4 years 9 months	Preschool children with DLD and low emergent literacy skills -Male: 54.2% -Female: 45.8%	-South Australian Phonological Awareness Database (SAPAD) -Reading Freedom Diagnostic Test	Significant improvements for students with SLD in experimental group from pre to post test. Significant improvement in phoneme- grapheme conversions.
Carson et al. (2019)	40 min, 2x/week	10 weeks	4 years 6 months	Preschool children with typical development and SLD -Male: 45.6% -Female:54.4%	-Clinical Evaluations of Language Fundamentals (CLEF-P2) -Diagnostic Evaluation of Articulation and Phonology (DEAP) -South Australian Phonological Awareness Database (SAPAD) -Reading Freedom Diagnostic Reading Test	Pre-school wide intervention produced overall improvements in literacy outcomes. Significant improvement for students with SLD in the experimental group from pre to post test.
Lewis et al. (2023)	20-30 min/ session	20 lessons	4.15 years	Preschoolers at risk for literacy difficulties -Male: 48.6% -Female: 51.4%	-Test of Preschool Early Literacy (TOPEL) -Early Childhood Research Institute on Measuring Growth and Development (IGDI)	Small group behavioral engagement and teacher behavior management not significant predictors of letter writing skills, but were significant predictors of expressive vocabulary gains.
McNeill and Gillon (2025)	30 min, 3-4x/week	10 weeks (40 lessons)	5 years	First-year students identified for Tier 2 literacy support within	-Nonword Reading -Nonword Spelling	Students who received the Tier 2 intervention scored

				MTSS -Male: 53.6% -Female: 46.4%		significantly higher in measures.
Murdoch et al. (2022)	90 min/day with 10-15 min small groups	16 weeks	4.35 years	Preschool children from high-poverty, linguistically diverse classrooms, including ELL	-Preschool Early Literacy Indicators (PELI) -Teacher Acceptability Survey	Students who received the intervention scored higher than the control group on the PELI.
Novelli et al. (2024)	10 min/day, 5x/week	36 days	4 years, 5 months	Preschoolers without developmental disabilities or special education services -Male: 40% -Female: 60%	-Verbal grapheme-phoneme correspondences	Significant improvement in grapheme- phoneme correspondences.
O'Leary and Ehri (2020)	15 min/ day	2 weeks	4 years 10.53 months	PreK and kindergarten prereaders with letter knowledge and limited word reading ability	-Inventive spellings posttest of CVC words with 15 target letters -Proper name learning test	Phonemic segmentation (PS) training with letters improved the ability to segment and spell CVC words, while those without letters did not.
Roberts et al. (2019)	10–12 min/day, 4 days/week	10 weeks	4.08 years	Preschool children in public preschool classrooms with low-income eligibility thresholds; included DLL and native English speakers	Alphabet Knowledge (Proximal Outcomes) -Phonemic Awareness (Distal Outcomes) -Peabody Picture Vocabulary Test (PPVT-IIIA) -Oral Language Proficiency Test (Pre-IPT)	Significant gains in alphabet learning and phoneme awareness. The decontextualized treatment group had higher gains than those not.
Rogowsky et al. (2018)	10 min/day, 5x/week	11 weeks	4.4 years	Preschoolers enrolled in a private suburban	-Bracken School Readiness	Students improved their literacy and

				childcare center -Male: 44.7% -Female: 55.3%	Assessment -Test of Preschool Early Literacy (TOPEL) -Woodcock-Johnson Test of Achievement-III (WJ-III)	numeracy skills through small doses of individualized, structured, and focused skill practice delivered via computer-assisted instruction.
Shifflet et al. (2020)	12-15 min, 1-2x/week	4 months	4-5 years	27 PreK children from diverse socioeconomic and ethnic backgrounds attending a half-day university laboratory school program -Male: 51.9% -Female: 48.1%	-Phonological Awareness Screener Intervention (PASI)	Both tablet and group conditions showed significant development of phonological awareness skills. The tablet group shows a growth across a wider range of literacy skills.
Soto (2019)	10 min, 4–5x/week	12-17 weeks	5 years 1 month	Latino DLL PreK students with low emergent literacy skills in Spanish and English -Male: 0% -Female: 100%	-Phonological Awareness CBM -Alphabet Knowledge CBM -Dynamic Indicators of Basic Early Literacy Skills (DIBELS) -Spanish-Early Childhood Research Institute on Measuring Growth and Development (IGDI)	Significant improvement on Spanish phonemic awareness skills. Varied results of other measures across students.
Walsh et al. (2025)	30 min, 2-3x/week	6 weeks	4 years	Typically developing preschool children in final preschool year -Male: 33.3% -Female: 66.7%	-First Sound Fluency (FSF) with no pictures	Moderate effect for student improvement in First sound fluency.

Wilcox et al. (2020)	Embedded daily instruction across preschool activities	34 weeks	53.09 months	Preschoolers with developmental speech and/or language impairment receiving special education services -Male: 69.9% -Female: 30.1%	-Clinical Evaluation of Language Fundamentals Pre-school 2 (CELF-P2) -Test of Preschool Early Literacy (TOPEL) -Phonological Awareness Literacy Screening (PALS-Prek) -Teaching Early Literacy and Language Academy Vocabulary (TELL) -Letter Recognition CBM -Letter Sounds CBM -Print Concepts CBM -Listening Comprehension CBM -Beginning Sounds CBM	Students in the Significant improvement of TELL group for letter recognition, letter sounds, beginning sounds awareness, and listening comprehension.
Zucker et al. (2021)	Tier 1: 20 min, 4x/week; Tier 2: 10 min, 4x/week	23 weeks	4 years 5 months	Head Start preschoolers at risk for later reading difficulties from linguistically diverse and low-income background	-Teaching Together Taught Vocabulary Test -Rapid Letter Naming Subtest -Clinical Evaluation of Language Fundamentals Pre-school 2 (CELF-P2) -Test of Preschool Early Literacy (TOPEL)	Significant improvement for the group receiving tier 2 teaching together taught compared to the business-as-usual group.

Note. SES = Socioeconomic status; DLD = developmental language disorder; SLD = specific learning disability; MTSS = multi-tiered system of supports; ELL = English Language Learner; CVC = consonant vowel consonant; DLL = dual-language learner; CBM = curriculum-based measure

Table 2

Emergent literacy instructional practices

Study	Explicit Instruction	Modeling	Guided Practice	Gradual Release	Scaffolding Instruction	Multi-sensory	Shared Reading	Use of Technology
Albritton et al. (2018)	✓	✓	✓			✓	✓	
Becker and Sylvan (2021)	✓	✓	✓	✓	✓	✓		
Biancone (2018)	✓	✓	✓			✓		
Byington and Kim (2020)	✓							
Carson (2020)	✓				✓	✓		✓
Carson et al. (2019)	✓	✓	✓		✓		✓	
Lewis et al. (2023)	✓	✓	✓	✓	✓	✓		
McNeill and Gillon (2025)	✓	✓	✓	✓	✓	✓	✓	
Murdoch et al. (2022)	✓	✓	✓		✓	✓	✓	
Novelli et al. (2024)	✓	✓	✓		✓			
O'Leary and Ehri (2020)	✓	✓	✓		✓	✓	✓	
Roberts et al.	✓	✓	✓		✓	✓		

(2019)								
Rogowsky et al. (2018)				✓	✓	✓		✓
Shifflet et al. (2020)	✓	✓	✓	✓	✓	✓		✓
Soto (2019)	✓	✓	✓	✓	✓	✓		
Walsh et al. (2025)	✓	✓	✓		✓		✓	
Wilcox et al. (2020)	✓	✓	✓		✓		✓	
Zucker et al. (2021)	✓	✓	✓	✓	✓	✓	✓	
Total	17/18 = 94.4%	15/18 = 83.3%	15/18 = 83.3%	7/18 = 38.9%	15/18 = 83.3%	13/18 = 72.2%	8/18 = 44.4%	3/18 = 16.7%

Table 3

Literacy domains instructional practices

Study	Phonological Awareness	Phonemic Awareness	Alphabetic Knowledge	Oral Language	Vocabulary	Print Awareness	Emergent Writing	Decoding and encoding
Albritton et al. (2018)	✓			✓	✓			
Becker and Sylvan (2021)	✓	✓	✓					✓
Biancone (2018)	✓	✓	✓					
Byington and Kim (2020)	✓	✓	✓	✓	✓		✓	
Carson (2020)	✓	✓	✓				✓	✓
Carson et al. (2019)	✓	✓	✓					
Lewis et al. (2023)	✓	✓	✓	✓		✓	✓	
McNeill and Gillon (2025)	✓	✓	✓	✓	✓	✓	✓	✓
Murdoch et al. (2022)	✓	✓	✓	✓	✓	✓	✓	
Novelli et al. (2024)		✓	✓					
O'Leary and Ehri (2020)		✓	✓					

Roberts et al. (2019)	✓	✓	✓			✓		
Rogowsky et al. (2018)	✓		✓	✓	✓			
Shifflet et al. (2020)	✓	✓						
Soto (2019)	✓		✓	✓	✓			
Walsh et al. (2025)	✓	✓						
Wilcox et al. (2020)	✓	✓	✓	✓	✓			
Zucker et al. (2021)	✓	✓	✓	✓	✓	✓	✓	
Total	16/18 = 88.9%	15/18 = 83.3%	15/18 = 83.3%	9/18 = 50%	8/18 = 44.4%	5/18 = 27.8%	6/18 = 33.3%	3/18 = 16.7%

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