

Empowering Preservice Teachers: Using Phonics Bridge Kits to Enhance Sight Word Acquisition Through Orthographic Mapping

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Abstract: This action research study examines the experiences of 77 preservice teachers (PSTs) in an early literacy course with integrated fieldwork. Through Phonics Bridge Kits, PSTs engaged in evidence-based instruction focused on grapheme-phoneme relationships, phoneme segmentation, and decoding—foundational skills for orthographic mapping and sight word acquisition. The study highlights how hands-on materials, structured mini-lessons, and real-world teaching opportunities strengthened PSTs' confidence and instructional readiness. Findings support the need for teacher preparation programs to integrate explicit phonics instruction with field-based application to enhance candidates' ability to implement the science of reading in authentic classroom settings.

Keywords: teacher preparation practices and outcomes, teacher knowledge, orthographic mapping, sight word acquisition, phonemic awareness, phonics, decoding

Introduction

Despite growing consensus around the importance of evidence-based reading instruction, many preservice teachers (PSTs) enter field experiences with limited knowledge and confidence in teaching foundational reading skills, particularly phonemic awareness and phonics. Research consistently shows that a strong grasp of grapheme-phoneme correspondences, phoneme segmentation, and decoding is essential for supporting orthographic mapping—the mental process through which students form connections between sounds and written words to acquire sight vocabulary (Ehri, 1998, 2005, 2014, 2022; Kilpatrick, 2016). Yet, teacher candidates often report feeling underprepared to teach these skills effectively (Moats, 2009).

In response to this challenge, this study investigates the implementation of Phonics Bridge Kits as an instructional tool in an early literacy foundations course. Designed to enhance PSTs' understanding and instructional readiness, the kits provide structured opportunities for modeling, peer teaching, and guided application of essential skills before engaging with elementary students in field settings. Grounded in experiential and

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constructivist learning theories (Kolb, 1984; Vygotsky, 1981), the use of Phonics Bridge Kits aims to bridge the gap between theoretical coursework and classroom practice.

This article presents findings from a study involving 77 preservice teachers and examines changes in their knowledge and confidence in teaching foundational reading skills related to orthographic mapping. Using pre- and post-self-report surveys and written exit tickets, the study examines the extent to which structured, scaffolded practice with these kits can support the development of instructional competence in evidence-based early literacy instruction.

The following research questions guided the investigation:

1. How do PSTs' self-confidence ratings in teaching foundational reading skills change following implementation of Phonics Bridge Kits?
2. What effect do the Phonics Bridge Kits have on PSTs' knowledge of teaching foundational reading skills?

Literature Review

Effective reading instruction in early grades depends on teachers' deep understanding of foundational skills, including phonemic awareness, phonics, and decoding. The National Reading Panel (2000) and subsequent research affirm that systematic and explicit instruction in these components is essential for early reading success. Similarly, the International Literacy Association (2019) emphasizes that teacher preparation programs should equip candidates with the knowledge and skills to teach these five pillars of reading—phonemic awareness, phonics, fluency, vocabulary, and comprehension—alongside oral language development and assessment practices.

Despite this consensus, research consistently finds that many preservice teachers (PSTs) enter the classroom without adequate preparation in foundational reading instruction (Moats, 2009; Spencer et al., 2008). Studies have documented widespread gaps in PSTs' understanding of phonological concepts, grapheme-phoneme correspondences, and explicit phonics instruction, particularly in the areas of consonant blends, digraphs, and syllable patterns (Moats & Foorman, 2003). As a result, PSTs often feel uncertain about how to teach early literacy skills effectively, especially to students who struggle with word recognition.

Foundational reading skills are critical for supporting orthographic mapping—the mental process that allows readers to connect speech sounds with letters and store words for automatic retrieval (Ehri, 2014; Kilpatrick, 2016). Instructional practices that promote orthographic mapping emphasize analysis of grapheme-phoneme relationships, phonemic segmentation, and decoding. Yet many PSTs report observing whole-word instructional approaches in their field experiences, such as flashcard drills and memorization strategies, which do not facilitate this cognitive process (Burkins & Yates, 2021; Rawlins & Invernizzi, 2018).

To prepare teachers for the demands of evidence-based literacy instruction, teacher preparation programs must go beyond theoretical coursework and provide opportunities for hands-on application, practice, and reflection. Several studies support the need for interactive, scaffolded experiences that allow PSTs to practice teaching early reading skills in safe and supportive settings before working with children (Chard & Dickson, 1999; Gillon, 2002; Lane, 2007). Without such experiences, PSTs may leave preparation programs with theoretical knowledge but lack the instructional confidence and competence to apply it effectively.

The current study addresses this gap by examining the use of Phonics Bridge Kits as a structured method for supporting preservice teachers' development of foundational reading knowledge and skills. Grounded in the science of reading and the theory of orthographic mapping, these kits offer guided opportunities for PSTs to practice essential instructional strategies before applying them in their field placements.

Theoretical Framework

Phonics Bridge Kits provide opportunities for PSTs to actively engage in authentic experiences that simulate real classroom scenarios, demonstrating instructional approaches that facilitate spontaneous orthographic mapping of words. This hands-on strategy links coursework with practical application in field experience settings and is rooted in experiential learning theory, which advocates for PSTs' learning through experience, action, and reflection (Kolb, 1984). Furthermore, this social learning strategy is based on the social constructivist theory, which posits that PSTs develop new understanding through interactions with materials and engagement in classroom environments alongside their peers and students (Vygotsky, 1981).

Phonics Bridge Kits are based on Ehri's Orthographic Mapping Theory, which explains how skilled readers acquire tens of thousands of instantly recognized words (Ehri, 2014). Associating speech sounds with written letters—phoneme-grapheme associations—is the first foundational skill for building orthographic mapping. Next, new readers utilize their sound-symbol associations to sound out words by retrieving the sound of each letter and blending the sounds together. Therefore, phonemic awareness, including blending and segmenting phonemes, is the next foundational skill required for the final step of decoding words and developing orthographic memory for both regularly and irregularly spelled words (Miles & Ehri, 2019). Learning experiences are enhanced through hands-on practice and teaching opportunities that model explicit and systematic instruction in the three areas mentioned.

Methods

This study was conducted in an education course at a public university in Southwest Florida. The participants included 77 preservice teachers (PSTs), all juniors enrolled in an undergraduate spring course on early literacy. The 77 undergraduate students submitted a total of 231 exit slips. PSTs participated in a full-day, once-a-week field experience within a K-3 classroom setting, where they engaged in small group literacy sessions with one to five students, guided by a classroom mentor teacher. PSTs attended the Early Literacy Learning course twice a week for one hour and fifteen minutes each session.

Phonics Bridge Kit Overview

Phonics Bridge Kits were used across coursework and field experiences to provide structured simulations of effective early literacy instruction. Table 1 outlines the five core lessons, instructional materials, and strategies used in the kits to build PSTs' confidence in teaching phoneme-grapheme correspondence, phonemic segmentation, and decoding.

Table 1*Phonics Bridge Kit Lessons, Materials, and Instructional Practices/Moves*

Foundational Reading Skill Lesson	Materials	Instructional Practice/Moves
<u>Lesson One:</u> Card Pack Grapheme-Phoneme Correspondence and Identification	Letter-Sound Cards Sound Wall	Card pack approach Mouth position for articulation of each sound
<u>Lesson Two:</u> Elkonin (1963) Boxes With Chips- Phoneme Segmentation & Blending	Elkonin (1963) Boxes Chips	Segmenting with chips Blending with arrow
<u>Lesson Three:</u> Elkonin (1963) Boxes With Letters	Whiteboard & dry erase marker Letters for building words	Segmenting with letter tiles Segmenting & writing words
<u>Lesson Four:</u> Orthographic Mapping of Regular High-Frequency Words	109 Power Words List (Burkins & Yates, 2021). Elkonin (1963) boxes Whiteboard & dry erase marker	Lesson plan script
<u>Lesson Five:</u> Orthographic Mapping of Irregular High-Frequency Words	Same as Lesson Four	Lesson plan script

Data Collection, Analysis, and Results

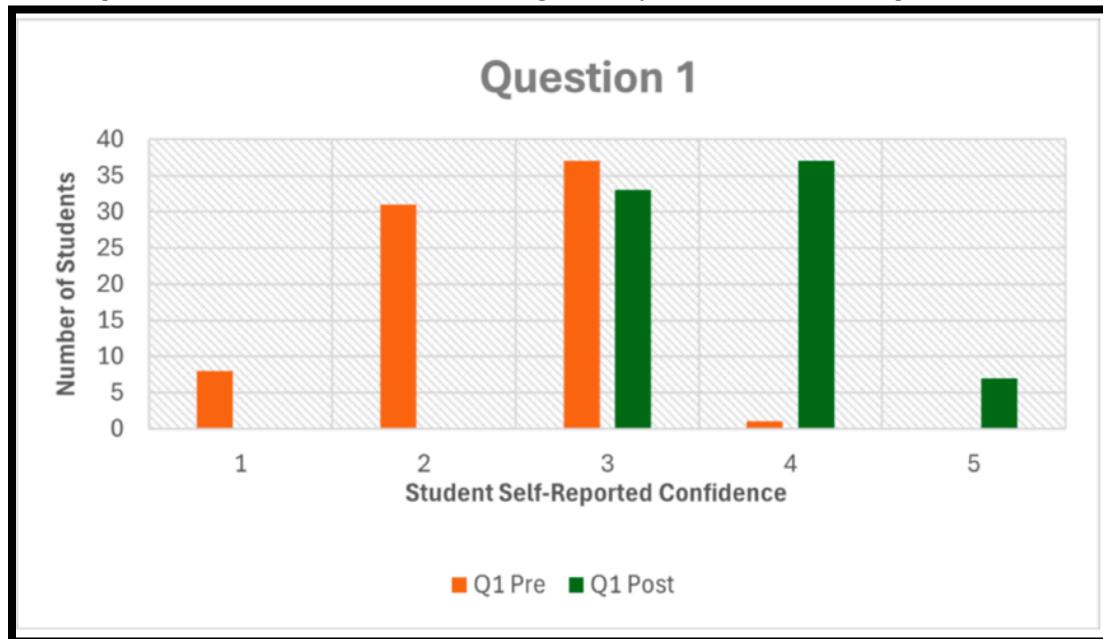
Research Question 1: How do the PSTs' self-confidence ratings in teaching foundational reading skills change after implementing Phonics Bridge Kits?

To address this research question, PSTs rated themselves before any coursework began and again at the end of the course, alongside their related field experience, using a modified version of the phonics pretest assessment from Fox (2014). PSTs answered three Likert-scale questions regarding their confidence in teaching beginning readers: (1) letter-sound relationships, (2) phonemic awareness—blending and segmenting words, and (3) phonics—decoding words. The Likert scale included the following options: (1) Not at all prepared, (2) Not so prepared, (3) Somewhat prepared, (4) Very prepared, and (5) Extremely prepared.

The results indicated a statistically significant increase in self-reported confidence across all three questions after completing the coursework and implementing the Phonics Bridge Kits. PSTs who initially felt “Not at all Prepared” and “Not so Prepared” on the pre-survey reported feeling “Somewhat Prepared” to “Very Prepared” following the implementation of the Phonics Bridge Kits. Refer to Figures 1–3 for the positive changes in PSTs’ confidence after using the Phonics Bridge Kits for each survey question.

Figure 1

Q1: How Prepared Do You Feel About Teaching Letter/Sound Relationships?

**Figure 2**

Q2: How Prepared Do You Feel About Teaching Phonemic Awareness to Beginning Readers?

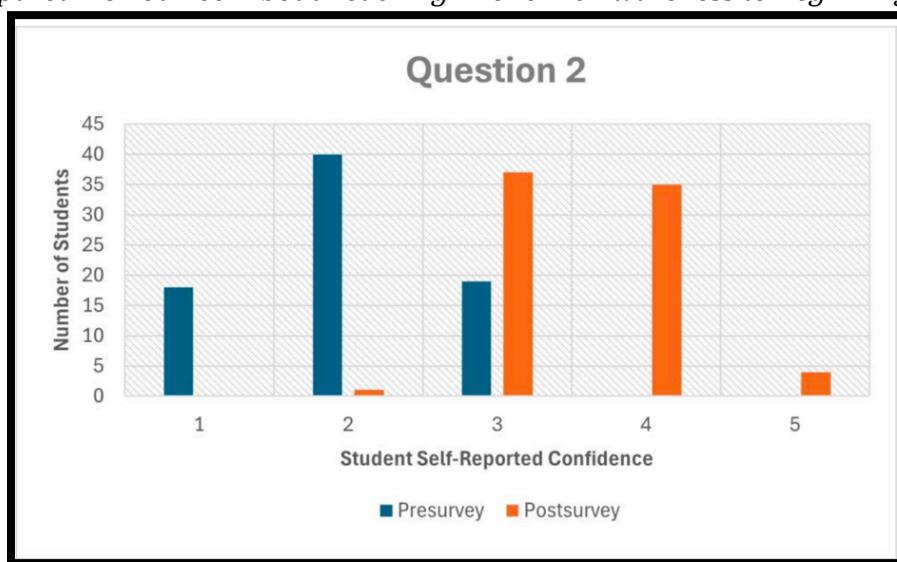
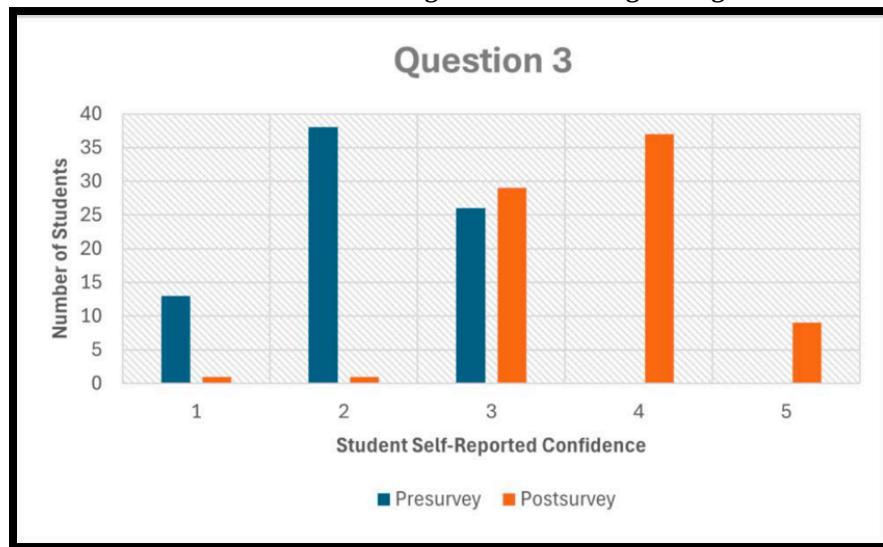


Figure 3*Q3: How Prepared Do You Feel About Teaching Phonics to Beginning Readers?*

Research Question 2: What are the effects of the Phonics Bridge Kits on PSTs' knowledge teaching foundational reading skills?

Exit slips were developed to measure the changes in PSTs' knowledge in the following areas: (1) grapheme-phoneme relations, (2) phoneme segmentation, and (3) decoding. Entrance slip data (Fisher & Frey, 2004), based on relational pedagogy (Reyes & Torres, 2007), was utilized due to the study's emphasis on incorporating the PSTs' perspective by connecting coursework learning with phonics modules in their field experiences. The purpose of the entrance slips was to identify themes and outcomes of PSTs' learning that provided evidence of knowledge transfer into their field experiences, thereby creating a continuous reflection cycle based on relational pedagogy (Reyes & Torres, 2007) for gathering qualitative measures. Overall, three themes emerged concerning PSTs' literacy learning for implementing the Phonics Bridge Kits: (1) Bridge to practice: Connecting coursework with field experiences, (2) Strategic connections: Integrating instructional tools with course concepts, and (3) Exploring effective instruction through inquiry and reflection.

Bridge to Practice: Connecting Coursework within Field Experiences

This theme illustrates how PSTs bridged the gap between the theoretical knowledge gained in their coursework and the instructional experiences encountered in the field. For example, several PSTs noted that understanding relationships with content increased their confidence in teaching the material and helping students. One PST remarked, "I officially now know the sounds of the alphabet," while another observed, "I am noticing phonemic awareness levels by watching students' writing skills." Additionally, another PST stated, "Now I am teaching phonics correctly, and kids are learning from me because of this class." These insights highlight each PST's transformative journey as they actively integrate knowledge from their academic studies with practical experiences in educational settings.

Strategic Connections: Integrating Instructional Tools with Course Concepts

This theme highlighted the process through which PSTs articulated their understanding of effectively using the newly acquired instructional techniques and the Phonics Bridge Kit materials discussed in class. For instance, one PST conveyed their newfound insight into teaching phonemic awareness by noting that they now possess the “ability to manipulate sounds without the written word.” Multiple PSTs consistently mentioned utilizing the card pack to instruct students on grapheme-phoneme relationships during their field experience. Additionally, PSTs frequently reported their application of Elkonin (1963) boxes as a successful method for teaching students how to segment and blend words. For example, several PSTs explained their use of various multi-sensory strategies for blending and segmenting words in connection with Elkonin (1963) boxes: (1) tapping sounds with fingers, (2) chopping sounds with hands, (3) stretching words, and (4) employing visuals—such as sound walls and card packs—to aid in articulating phonemes to graphemes. These results underscore the urgency for PSTs to build new understanding through interactions with materials and engagement in actual classroom settings with their peers and students (Vygotsky, 1981). Additionally, they emphasize the necessity for PSTs to cultivate pedagogical readiness to teach students how to read and write (Moats, 2009) and the significance of developing knowledge of phonological concepts and orthography (Moats & Foorman, 2003) through hands-on practice and modeling before field experience.

Exploration of Effective Instruction Through Inquiry and Reflection

This theme illustrates how PSTs engaged in critical inquiry about their phonics instructional practices by asking deeper questions and reflecting on their teaching strategies after implementing Bridge Phonics Kits. For instance, one PST asked, “How can I support students who confuse the graphemes *b* and *d* when reading and writing?” Another inquired, “How can I help a student break the habit of adding the schwa sound when pronouncing certain letter sounds?” A different PST asked, “How do phonemes vary across different languages?” and “How can I use my knowledge of this to assist EL students?” Finally, a PST asked, “Could accents impact pronunciation?” These questions indicate that PSTs engage in a critical examination of their phonics instructional practices, prompting deeper inquiries and reflections on their teaching strategies and the effectiveness of the phonics kits they are using.

Discussion

The results of this action research study show that the Phonics Bridge Kits helped preservice teachers (PSTs) feel more confident and better prepared to teach foundational reading skills. PSTs showed growth in their understanding of how to teach letter-sound relationships, phoneme segmentation, and decoding—skills essential for orthographic mapping and sight word acquisition.

Their written reflections showed they were making real connections between what they learned in class and what they did in the field. Many used the materials and strategies during small group instruction and began to ask thoughtful questions about their teaching.

This suggests that providing PSTs with clear, hands-on tools and time to practice helped bridge the gap between coursework and teaching.

These findings support earlier research saying teacher candidates need guided practice before working with children. While this study focused on self-reported data, the results point to the importance of building structured opportunities for PSTs to try out phonics instruction before entering the classroom.

Conclusion

Preservice teachers need more than just theory—they need time to practice using research-based strategies before they work with children. This study shows that Phonics Bridge Kits helped PSTs build the skills and confidence to teach key components of reading instruction. Programs that combine coursework with field experience, supported by hands-on tools, can better prepare future teachers to teach reading effectively. This approach ensures that PSTs have the knowledge and experience they need to support early readers using the science of reading.

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