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Development of Blended Learning Activities Using Phonics Instruction to Enhance English Pronunciation and Spelling Ability for Grade 3 Students in Phetchaburi Municipality Schools

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Abstract

Background and Aims: English pronunciation and spelling are critical components of early literacy, yet many Thai primary students struggle due to limited phonemic awareness and sound-symbol correspondence. To address this issue, this study employed a Research and Development (R&D) design to develop and evaluate phonics-based blended learning activities for Grade 3 students in Phetchaburi Municipality Schools. This study aimed to 1) develop blended learning activities using phonics instruction to enhance English pronunciation and spelling ability for Grade 3 students in Phetchaburi Municipality Schools, 2) examine the efficiency of the developed activities, and 3) investigate students' opinions toward the blended learning activities using phonics instruction.

Methodology: The sample consisted of 18 Grade 3 students from Tessaban 4 Wat Chaiyasoontorn School, Phetchaburi Province, selected by cluster sampling and purposive sampling techniques, focusing on students with pronunciation and spelling difficulties. Research instruments included: 1) a questionnaire on teachers' needs, 2) the blended learning activities using phonics instruction, 3) pre-test and post-test to measure students' pronunciation and spelling ability, and 4) a questionnaire on students' opinions toward the developed activities.

Results: The results revealed that 1) the blended learning activities using phonics instruction had an efficiency of 86.40/79.81. 2) after the learning process, students' pronunciation and spelling ability were significantly higher than before at the .01 level, and 3) students' opinions toward the blended learning activities using phonics instruction were at a high level (Mean = 4.49, SD = 0.93).

Conclusion: The phonics-based blended learning activities were effective in improving Grade 3 students' English pronunciation and spelling skills and were positively received by the students.

Keywords: Blended Learning; Phonics Instruction; English Pronunciation; Spelling Aability; Elementary Education

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Introduction

In the context of globalization, English proficiency has become increasingly vital for academic and professional success. The ability to pronounce and spell English words accurately is a foundational skill that supports reading fluency, vocabulary development, and overall language comprehension (Ehri, 2005; National Reading Panel, 2000). In recognition of this, the Basic Education Core Curriculum B.E. 2551 (2008) issued by the Ministry of Education of Thailand emphasizes the development of students' ability to use English confidently for lifelong learning.

However, despite curricular emphasis, many students in Thai primary schools continue to face significant difficulties in English pronunciation and spelling. Research has shown that these difficulties stem from limited phonemic awareness, letter-sound correspondence, and a lack of exposure to structured phonics instruction (Lloyd, 1998; Treiman & Kessler, 2005). Moreover, students often rely on rote memorization rather than phonetic decoding skills, leading to inaccurate reading and limited comprehension.

The local context further highlights the urgency of the issue. According to an informal needs assessment conducted among teachers in municipal schools in Phetchaburi Province, many Grade 3 students were found unable to connect letter sounds with written forms, resulting in frequent reading errors and misidentification of words without visual aids. Teachers reported difficulties in providing individualized phonics support due to time constraints and heavy teaching loads.

In response to this local educational gap, the current study aims to develop and evaluate a blended phonics-based instructional model specifically tailored for Grade 3 students in municipal schools. By integrating Synthetic Phonics and Embedded Phonics with blended learning strategies, the study seeks to enhance students' pronunciation and spelling skills through structured, engaging, and context-responsive instruction.

The significance of this research lies not only in addressing a long-standing pedagogical issue but also in offering a sustainable model that aligns with 21st-century education frameworks. The blended approach allows for personalized, flexible learning pathways while equipping teachers with practical tools to support literacy development in early English education.

Objectives

1. To develop blended learning activities using phonics instruction for Grade 3 students.
2. To evaluate the effectiveness of the developed activities in enhancing pronunciation and spelling.
3. To assess student opinions on the phonics-based blended learning activities.

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Literature Review

This chapter presents the concepts, theories, and related studies that support the development of blended learning activities using phonics instruction to enhance English pronunciation and spelling ability among Grade 3 students. The review covers seven main areas.

1. The Basic Education Core Curriculum B.E. 2551 (2008)

Thailand's Basic Education Core Curriculum (Ministry of Education, 2008) emphasizes learner-centered approaches and the development of essential competencies for the 21st century. It aims to develop learners with morality, knowledge, and the ability to live happily and productively in a global society. Key principles include national unity, equal opportunity, decentralization, flexibility, and lifelong learning.

The curriculum underscores the importance of communication, including foreign language skills. Students completing Grade 3 are expected to be able to follow simple instructions, pronounce basic English words correctly, and demonstrate elementary phonological awareness and vocabulary in real-life contexts.

However, according to informal classroom observations and teacher feedback from Phetchaburi Municipality Schools, many Grade 3 students still struggle with basic English pronunciation and spelling. Despite being taught under the curriculum framework, students often cannot correctly decode or articulate English sounds, nor spell simple vocabulary accurately.

This highlights a gap between the curriculum expectations and actual student performance in this local context. The issue is further exacerbated by a lack of individualized phonics instruction and insufficient integration of technology to enhance learning engagement. Therefore, the present study seeks to respond directly to the challenges faced by these schools, aligning with the goals set forth in the national curriculum while also addressing specific local needs.

2. Phonics Instruction

Also, Harris & Hodges classified 11 Types of Phonics Instruction (Harris & Hodges, 1995) as follows. They are Letter Phonics, Whole-Word Phonics, Cluster Phonics, Analytic Phonics, Synthetic Phonics, Inductive Phonics, Deductive Phonics, Implicit Phonics, Explicit Phonics, Intrinsic Phonics, and Extrinsic.

Besides, Sue Lloyd's Jolly Phonics (1998) further suggests teaching 42 basic phonemes in seven groups, integrating multisensory learning (sight, sound, movement) to support early literacy. Techniques include.

1) Learning letter sounds is the way that teachers introduce 42 phonemes across 7 groups from simple Learning letter sounds: Teaching sounds across 7 groups, from simple consonants (e.g., /s/, /t/) to digraphs and r-controlled vowels (e.g., /sh/, /ar/). (Lloyd, 1998: 18).

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2) Blending is the process of training learners to combine sounds into complete words, such as /c/ + /a/ + /t/ = **"cat".** Initial blending exercises typically begin with simple three-letter words (CVC format), such as /b/ + /a/ + /t/ = **"bat".** Once learners are comfortable with basic words, the level of difficulty can be increased by introducing consonant blends or digraphs, such as /s/ + /h/ + /o/ + /p/ = **"shop."**

3) Segmenting is the process of training learners to listen to breaking down words into individual phonemes (e.g., "dog" = /d/ /o/ /g/), which reinforces spelling. (Lloyd, 1998: 27)

4) Recognizing tricky words (e.g., "the," "was," "said"). Each activity is designed to help students build strong foundational reading and spelling skills through hands-on and engaging methods. (Lloyd, 1998: 33).

These procedures are highly relevant to the current study, as they form the foundation of the phonics-based activities developed for Grade 3 learners.

Fitzgerald and Fitzgerald (1967) proposed ten principles to guide phonics instruction, highlighting the importance of aligning teaching with learners' developmental levels. Effective phonics begins with high-frequency vocabulary and emphasizes early listening skills to distinguish similar sounds. Instruction should follow a left-to-right phoneme sequence and use contextual cues to support decoding. Key strategies include teaching word families, practicing sound-symbol matching, using substitution exercises, and recognizing phonograms and consonant blends. These practices foster decoding ability and learner motivation through independent word recognition (Fitzgerald & Fitzgerald, 1967).

Hughes (1972) proposed a systematic sequence for teaching English phonemes, beginning with simpler and more accessible sounds before moving on to complex structures.

1) Single consonants (Group 1): t, b, n, r, m, d, s, c, p, g
2) Vowel sounds: Front vowels as a (apple), e (egg), i (ink), o (orange), u (umbrella); Central vowels are a (bat), e (pet), i (tin), o (hot), u (jug), and the Y sound as in baby, fly.
3) Single consonants (Group 2): t, l, y, h, w, j, k, z
4) Double consonants: bb, dd, ff, gg, including ck
5) Consonant digraphs: ch, sh, th, wh, gu
6) Consonant blends: st, sp, sc, sk, sm, sn, sw, br, cr, dr, tr, gr, fr, bl, pl, fl, gl
7) Vowel combinations/diphthongs: ai, ay, oi, oy, oo, oq, ow, ou, ee, ue, ei, ie

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Lewis and Ellis (2006) proposed a five-step procedure for phonics instruction that emphasizes engagement, progression, and multisensory learning: the preparation stage, review stage, presentation stage, blending stage, and writing Stage.

Clarified integration of five-step phonics instruction in the blended learning model. In summary, the literature reveals that phonics instruction is most effective when it is explicit, systematic, and developmentally appropriate. This study applies these principles in a blended learning environment tailored to the needs of Grade 3 students in Phetchaburi, aiming to close the literacy gap evident in the local context.

3. Phonetics-Based Pronunciation

Phonetics-based pronunciation instruction helps language learners understand how to accurately produce English speech sounds (phonemes) through systematic training grounded in phonetics. This method enhances learners' clarity and correctness in speaking, making it an essential foundation for language acquisition (Roach, 2009: 5). By studying the physical properties of sounds and phonemic distinctions, learners improve their awareness of sound production mechanisms (Crystal, 2008: 350).

Important contributions in phonetics include Daniel Jones, who developed the International Phonetic Alphabet (IPA) to accurately describe English pronunciation (Jones, 1950: 10), and Peter Ladefoged, who provided detailed insights into the articulation of consonants and vowels using tools like the vowel chart and articulatory diagrams (Ladefoged & Johnson, 2014: 40–42).

3.1 Articulatory Positions

The production of English sounds involves the coordination of various speech organs, such as the lips, tongue, teeth, palate, vocal cords, and nasal cavity. These articulators work together to differentiate between consonants and vowels (Roach, 2009; Ladefoged & Johnson, 2014). English phonology includes over 40 phonemes, each requiring precise articulation.

For example, the lips help form bilabial sounds like /p/ and /b/ and are also used for rounding vowels like /uː/. The teeth, in combination with the lips, assist in creating fricatives like /f/ and /v/. The tongue is highly versatile, with different parts producing various sounds—its tip for /t/ and /d/, blade for /ʃ/, and back for /k/ and /g/ (Jones, 1950). The hard palate contributes to palatal sounds such as /j/, while the soft palate controls airflow for nasal sounds like /m/, /n/, and /ŋ/. The vocal

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cords vibrate for voiced sounds (e.g., /z/, /v/) and remain still for voiceless ones (e.g., /s/, /f/). Finally, the nasal cavity plays a role in directing airflow during nasal phoneme production (Roach, 2009).

3.2 Classification of English Sounds

English phonemes are classified into two main categories, consonants and vowels (Roach, 2009: 15). English speech sounds can be categorized into consonants and vowels based on how they are produced. Consonants involve some obstruction of airflow and are classified by place and manner of articulation, as well as voicing. For example, bilabial sounds like /p/ and /b/ use both lips, while velar sounds like /k/ and /g/ involve the back of the tongue. Plosives (e.g., /t/, /d/), fricatives (e.g., /f/, /v/), and nasals (e.g., /m/, /n/) represent different manners of articulation. Voiced sounds, such as /z/, involve vocal cord vibration, while voiceless sounds like /s/ do not (Ladefoged & Johnson, 2014).

Vowels, in contrast, are produced with an open vocal tract. They are classified by tongue height (e.g., high /iː/, mid /e/, low /æ/), tongue position (front /e/, back /uː/), and lip shape (rounded /uː/, unrounded /iː/) (Crystal, 2008).

3.3 International Phonetic Alphabet (IPA)

The IPA is a standardized system of phonetic symbols that transcends conventional English spelling. It allows teachers and learners to describe and produce sounds accurately (Roach, 2009: 29). For example, “cat” = /kæt/ vs. “city” = /ˈsɪti/ (same letter “c,” different sounds), “read” = /riːd/ (present tense) or /rɛd/ (past tense) depending on context (Roach, 2009: 31; Ladefoged & Johnson, 2014: 50)

3.4 Rhythm and Stress

English is a stress-timed language, meaning stressed syllables occur at regular intervals and affect meaning and clarity (Roach, 2009: 73).

3.4.1 Word Stress, stress within words differentiates meaning and grammatical function, such as “Record” ⟶ ˈrek.ɔːd (noun), rɪˈkɔːd (verb), “Present” ⟶ ˈprez.ənt (gift), prɪˈzent (to give) (Crystal, 2008: 215)

3.4.2 Sentence Stress, in sentences, content words (nouns, verbs, adjectives) are typically stressed, while function words (articles, prepositions) are not such as “I want to buy a new car”. The sentence is stressed on “want”, “buy”, “new” and “car”. (Ladefoged & Johnson, 2014: 112)

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3.4.3 Rhythm in English: English maintains even timing between stressed syllables. Example: “The cat is on the mat” ⟶ Stressed: cat, on, mat

3.4.4 Auditory Perception and Imitation, listening and mimicking are essential for pronunciation development. The teacher should do the following.

1) Listening to Native Sources: Reliable inputs from native speakers or audio tools improve discrimination (Roach, 2009: 86).

2) Practicing Minimal Pairs: Distinguishing between close sounds like “ten” vs. “den”, or “think” /θ/ vs. “this” /ð/ (Ladefoged & Johnson, 2014: 61).

3) Imitating in Context: Learners repeat sounds in real phrases, such as “This is the thing” to practice /ð/ and /θ/ (Roach, 2009: 87).

In summary, the phonetics-based pronunciation instruction reviewed in this section provides essential theoretical and practical foundations for improving students’ English speech accuracy. The integration of segmental features (like articulation and phoneme classification) and suprasegmental features (such as rhythm and stress) supports learners’ intelligibility and fluency. This study incorporates these principles into the blended learning design to address the common pronunciation difficulties faced by Grade 3 students in Phetchaburi Municipality Schools. These insights directly inform the construction of pronunciation activities that are developmentally appropriate, engaging, and grounded in evidence-based phonetic theory.

4. Blended Learning

4.1 Definition of Blended Learning

Blended learning is the integration of face-to-face classroom instruction with online learning environments that emphasize learner-centeredness through the use of ICT tools. According to Thienthong (2006), blended learning promotes a learning community through the fusion of traditional and digital methods. Wannapirun (2008) also noted that this approach supports theoretical content delivery online and practical learning through in-class activities based on Problem-Based Learning strategies.

Sukritchobon (2011) emphasized that blended learning allows learners to study independently via online platforms while engaging in classroom-based practical interactions. Thorne (2003) defined it as a method that combines the flexibility of online learning with the interpersonal dynamics of face-to-face education to create a rich learning experience.

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Graham (2006) and Allen & Seaman (2010) further clarified that blended learning combines 30–79% of content delivery via online platforms with classroom sessions, maximizing both flexibility and engagement.

4.2 Key Components of Blended Learning

Thienthong (2006) divided blended learning into 2 groups: the offline and online groups. The offline is divided into five categories: workplace learning (e.g., case studies, projects), face-to-face tutoring (e.g., coaching, mentoring), classroom Learning (e.g., lectures, seminars), print Media (e.g., books, journals), and broadcast Media (e.g., TV, radio, CDs). The online learning is divided into six categories: online Learning (e.g., e-learning platforms), E-Tutoring (e.g., online coaching), collaborative Learning (e.g., video conferencing), online knowledge management (e.g., LMS, CMS), data management (e.g., data mining), and blended Models (combining online and offline formats).

Carman (2005) divided blended learning into five Elements: live events, online content, collaboration, assessment, and reference materials. (Carman, 2005)

4.3 Models of Blended Learning

Many scholars have discussed the various models of blended learning from diverse perspectives. For instance, Staker and Horn (2012) categorized blended instruction into four primary types. Thienthong (2006) emphasized curriculum integration to promote holistic learning, highlighting the significance of applying blended learning models within educational contexts. Additionally, Graham (2006) focused on combining the strengths of classroom-based and online instruction to create more flexible and effective learning experiences.

4.3.1 Thienthong's Four Models (2006)

Thienthong (2006: 45–47) categorized blended learning into four integrated curriculum models.

1) Integrated Model: This model merges various subjects into a unified theme without dividing them into discrete disciplines. The integration fosters a holistic understanding and helps learners perceive the interconnection among fields.

2) Parallel Model: In this model, multiple teachers plan and deliver content simultaneously across subjects. Although each teacher handles a specific component, the curriculum is harmonized to provide a cohesive learning experience.

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3) Interdisciplinary Model: Similar to the parallel model, this model emphasizes collaborative planning among instructors. However, it specifically focuses on joint projects that blend concepts across disciplines, encouraging students to apply their knowledge to solve real-world problems creatively.

4) Transdisciplinary Model: This model involves team-teaching with a unified curriculum centered on learners. It emphasizes comprehensive integration across all subjects, aiming for deep learning through cross-disciplinary connections.

4.3.2 Staker and Horn's Four Models (2012)

Staker and Horn (2012: 5–10) proposed four core blended learning models.

1) Rotation Model: Learners alternate between face-to-face classroom activities and online learning stations based on a fixed schedule. Variants include Station Rotation. (Students move between computer-based stations, hands-on activities, and teacher-led instruction), Lab Rotation (Students rotate between traditional classrooms and computer labs.) and Flipped Classroom (Students access new content online before class and use in-person sessions for application and discussion.)

2) Flex Model: Online learning is the main mode, with teachers providing targeted support only when necessary. It is ideal for personalized and self-paced learning, especially for problem-solving and project-based tasks.

3) A La Carte Model: Students take some courses online alongside their regular curriculum. This model allows for skill-specific learning, such as programming or language courses, chosen by the student.

4) Enriched Virtual Model: Learners primarily engage through online platforms but occasionally meet with instructors for essential sessions. It reduces the need for frequent in-person attendance while maintaining face-to-face interaction when necessary.

4.3.3 Graham's Strategic Models (2006)

Graham (2006: 3–21) introduced a conceptual framework for blended learning focused on combining the strengths of classroom and online modalities. His framework includes three strategic models.

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1) Enabling Blended Learning: This model uses technology to expand access to education, particularly for learners in remote or nontraditional contexts. It helps eliminate barriers of time and location.

2) Enhancing Blended Learning: This approach supplements classroom instruction with digital tools, such as multimedia resources or online exercises, to deepen understanding while maintaining traditional classroom interactions.

3) Transforming Blended Learning: This model reimagines the entire learning process around technology. Learning Management Systems (LMS) are used to deliver, manage, and assess learning, reducing reliance on face-to-face instruction.

4.4 Online Content Design

Effective online content design should consider clarity, appropriate multimedia usage, learner engagement, flexibility, content credibility, and evaluation for continuous learning improvement. Clark and Mayer (2011) proposed key principles for online content design, while Kaur (2013) emphasized the relevance of online content within blended learning environments.

Clark and Mayer (2011) outlined three core principles. Firstly, it is a multimedia principle, combining text with visuals or audio, which enhances understanding. Overuse of media should be avoided to reduce cognitive overload (Clark & Mayer, 2011: 79). Secondly, the contiguity principle, text and visuals should be placed close together to help learners see relationships more clearly. Sequential content flow also aids comprehension (Clark & Mayer, 2011: 85). Lastly, it is a modality principle. Using audio narration instead of on-screen text helps reduce cognitive load and improves focus (Clark & Mayer, 2011: 93).

Kaur (2013) outlined five essential elements for effective online content in blended learning: (1) alignment with face-to-face instruction, (2) support for diverse learning styles, (3) clear links to learning objectives, (4) engaging multimedia elements, and (5) embedded assessments to monitor progress. These principles help create coherent, inclusive, and motivating learning experiences. (Kaur, 2013: 614-618).

4.5 Steps in Blended Learning Instructional Design

Effective blended learning design enhances instructional outcomes. Scholars like Alvarez (2005), Rossett et al. (2003), Carman (2005), Bersin (2004), and Graham (2006) proposed systematic approaches.

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Alvarez (2005) defines 6 steps of designing blended learning as identifying prerequisite knowledge, setting final learning goals, structuring content and activities, applying instructional strategies, and planning evaluation methods.

Rossett et al. (2003) summarized blended learning steps as preparing learners and resources, conducting activities that involve active participation, summarizing, and assessing learning outcomes.

4.6 Measuring Efficiency and Effectiveness in Blended Learning

4.6.1 Efficiency Measurement: E1/E2 Model

The efficiency of instructional activities is commonly evaluated using the E1/E2 index, a concept developed by Chaiyong Promwong (1977). This index consists of two components: the efficiency of the learning process (E1) and the efficiency of the learning outcomes (E2). The standard benchmark is typically set at 75/75, which indicates that learners should achieve no less than 75% during the instructional process and no less than 75% on the post-instruction achievement test (Chaiyong Promwong, 1977).

E1 is the learning progress during instruction (measured by formative assessments), and E2 is the learning outcomes after instruction (measured by post-tests).

The E1/E2 criterion considers a standard of 75/75, meaning students must achieve at least 75% in both formative and summative assessments (Clark & Mayer, 2016; Tennyson & Rasch, 1988).

4.6.2 Effectiveness Measurement: Effectiveness Index (E.I.)

$$E.I. = \frac{\text{(Post-test score sum – Pre-test score sum)}}{\text{(Full score x No. of students) – Pre-test score sum)}}$$

A higher E.I. (closer to 1.00) indicates greater learning improvement (Bloom, 1984; Kirkpatrick, 1998).

In summary, although multiple blended learning models have been proposed in the literature, such as Thienthong's curriculum models, Staker and Horn's structural models, and Graham's strategic framework, this study adopts the Rotation Model as the core instructional structure. The reason for this selection lies in the practical context of Phetchaburi Municipality Schools, where students benefit from a balance of structured classroom interaction and

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technology-supported learning. The Rotation Model provides a consistent yet flexible schedule that alternates between teacher-led phonics instruction and interactive digital activities, such as pronunciation games and spelling quizzes. Additionally, the model aligns with the developmental needs of Grade 3 students, who require scaffolding and multimodal input. It also supports gradual independence, which is crucial in phonics-based learning. This ensures that foundational skills in pronunciation and spelling are reinforced through repetitive, multisensory, and differentiated practice.

5. Phonics in the Context of Blended Learning

Horn and Staker (2015) proposed integrating traditional phonics instruction with digital tools to enhance flexibility and engagement (Horn & Staker, 2015: 25). The key components of phonics instruction in a blended learning environment are as follows. 1) Face-to-Face Instruction: Teaching letter-sound relationships through oral reading and real-time feedback (Horn & Staker, 2015: 35) 2) Digital Media: Tools like phonics games, flashcards, and e-books for extended learning (Horn & Staker, 2015: 45) 3)Self-Paced Learning: Students learn at their own pace using digital resources (Horn & Staker, 2015: 55)

Zainuddin et al. (2019) emphasized the importance of fostering student engagement through the integration of technology in blended learning environments. They identified three key components. First, face-to-face instruction provides opportunities for direct interaction between teachers and students, helping to establish foundational understanding (Zainuddin et al., 2019: 10). Second, independent learning allows students to practice phonics skills through applications and software such as educational games or personalized online exercises tailored to individual abilities (Zainuddin et al., 2019: 12). Third, assessment plays a crucial role, as technology can record learning data—such as the number of times a student practices word spelling or answers questions—which teachers can then use to adjust and enhance instructional planning (Zainuddin et al., 2019: 14).

Schwartz (2020) discussed the use of digital media to support phonics instruction, emphasizing its potential to enhance phonics skills through engaging and enjoyable learning experiences. Three key components were identified. First, interactive phonics games allow students to match sounds with letters—for example, through drag-and-drop activities that reinforce letter-sound correspondence (Schwartz, 2020: 18). Second, digital flashcards, which

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incorporate images, letters, and audio, help learners easily memorize vocabulary and corresponding sounds (Schwartz, 2020: 20). Third, e-books and audiobooks equipped with features such as word highlighting and audio pronunciation enable students to practice phonics continuously and independently (Schwartz, 2020: 22).

In summary, integrating phonics instruction into a blended learning context offers a flexible, engaging, and differentiated approach that directly addresses the needs of Grade 3 students in Phetchaburi Municipality Schools. The reviewed literature supports the effectiveness of digital tools in promoting interactive learning, independent practice, and ongoing assessment. This study applies these insights by combining structured in-class phonics instruction with interactive digital components and formative assessments, ensuring alignment with both curriculum standards and learners' developmental needs. The blended model adopted in this research thus reflects a pedagogically sound and contextually responsive solution to the persistent issues of English pronunciation and spelling among young EFL learners.

6. Theories Related to Learner Satisfaction

Understanding individual needs is essential to designing activities that promote satisfaction. Human needs serve as a motivational force that encourages individuals to participate in learning activities. Various scholars have proposed theories to explain these motivations.

Maslow (1960, as cited in Thongchai Santiwong, 1994) proposed that human needs are continuous and hierarchical. Once a need is satisfied, it no longer motivates behavior, and individuals move on to higher-level needs. These five hierarchical levels are physiological needs, safety and security needs, social needs, esteem needs, and self-actualization needs. (Maslow, 1960, as cited in Santiwong, 1994: 122–144).

Thorndike's Connectionism Theory (as cited in Khaemmani, 2011: 69) posits that learning occurs through stimulus-response associations. His key laws include: the law of readiness—learning occurs when individuals are physically and mentally prepared; the law of exercise—repeated and meaningful practice enhances learning retention; the law of use and disuse—frequent use of responses strengthens learning, while lack of use leads to forgetting; and the law of effect—positive outcomes reinforce the likelihood of continued learning.

In addition, satisfaction can be broken down into cognitive, affective, and behavioral components. The cognitive aspect involves knowledge or understanding of a subject matter. The

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affective component includes emotional responses such as like or dislike. The behavioral aspect reflects readiness to act in a supportive or obstructive way (Itsarapreda, 2004: 177).

Photisri (2006) outlined a seven-step process to construct a learner satisfaction scale. The process involves: (1) defining satisfaction through document analysis and interviews; (2) identifying satisfaction indicators and selecting measurement methods, such as the 5-point Likert scale; (3) drafting the satisfaction tool; (4) conducting a pilot test with 3–5 participants for face validity; (5) having 3–5 experts assess the tool for content validity; (6) conducting a field test and analyzing item discrimination (Rxx) and reliability (Rtt) using Cronbach's alpha; and (7) implementing the tool in real settings. Score interpretations on the 5-point scale are: 1.00–1.50 = very low satisfaction, 1.51–2.25 = low satisfaction, 2.26–2.50 = fairly satisfied, 2.51–3.50 = moderate satisfaction, 3.51–3.75 = high satisfaction, 3.76–4.50 = very high satisfaction, and 4.51–5.00 = highest satisfaction.

In summary, the theories discussed above are not only academically significant but also practically applicable to this study. They inform both the development of instructional materials that meet learners' psychological and cognitive needs and the design of satisfaction measurement tools that reflect learners' experiences. These insights ensure that the phonics-based blended learning activities designed for Grade 3 students in Phetchaburi Municipality Schools are both motivational and pedagogically sound.

7. Related Research

7.1 Research related to English Pronunciation and Spelling

Kokor and Chawandi (2018) conducted a study on developing English pronunciation skills through an online phonics training set for Grade 12 students at Taongoi Phattanasuksa School. The online phonics program, hosted on a custom website, included four learning modules covering 120 vocabulary words, divided into letter sounds, regular words, alternative words, and tricky words. The study found that the program achieved an efficiency of 84.68/84.19, exceeding the 80/80 benchmark, and students showed significantly improved learning outcomes ($p < .01$) and high satisfaction ($M = 4.61$).

Yai-dee (2022) studied the use of a phonics-based pronunciation training package to improve English vocabulary reading in Grade 4 students in Kamphaeng Phet. The study employed 10 instructional plans over 10 hours and found that the materials achieved an efficiency of 80.30/82.00. Posttest scores were significantly higher than pretest scores ($p < .05$).

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Polphithak and Amatbandit (2022) researched the development of English reading-aloud skills through phonics instruction in Grade 1 students in Roi Et. Using a six-lesson plan over 18 hours, they found an efficiency score of 80.06/82.60, with an average student performance of 80.06%, classified as excellent.

Wattananukul (2017) implemented a phonics-based pronunciation training set with Grade 4 students in Pattani. The study used 24 instructional plans and six practice sets. Results showed an efficiency of 80.63/81.25, and students' posttest scores were significantly higher than pretest scores ($p < .01$). Satisfaction levels were also extremely high ($M = 4.98$).

Suriyamontol et al. (2018) applied synthetic phonics (Jolly Phonics) with Grade 1 students in Mae Hong Son. Seven lesson plans were used to teach letter sounds, blending, and special sounds. Students showed excellent pronunciation and vocabulary knowledge, with more than 60% meeting the expected performance level.

Thammaprateep (2019) focused on Grade 3 students' decoding skills using phonics-based spelling techniques. After 8 hours of instruction, students showed significantly improved posttest scores ($p < .05$), with high satisfaction levels ($M = 4.9$, $SD = 0.29$).

Saengcharee (2018) investigated phonics instruction to develop reading and writing skills in Grade 6 students. Using six phonics lesson plans, students achieved an average score of 75%, surpassing the target of 60%, indicating improved English literacy skills.

Jaitrong (2023) studied Grade 2 students' spelling through phonics flashcards. Results showed statistically significant gains in writing scores ($p < .01$) and high satisfaction ($M = 4.12$), supporting the use of flashcards as an effective instructional tool.

Maileang (2019) found that using phonics improved Grade 5 students' pronunciation and vocabulary memory. The posttest scores were significantly higher than the pretest scores ($p < .05$), and students' satisfaction with phonics instruction was rated high.

Phuangchuen (2018) created phonics-based instructional activities for Grade 1 students. Results showed high instructional efficiency (E.I. = 0.6771) and significant improvements in pronunciation and spelling scores ($p < .05$), with very high student satisfaction ($M = 4.53$).

Farokhbakht & Nejadansari (2015) conducted a quasi-experimental study on the effectiveness of synthetic phonics instruction on literacy development among young EFL learners aged 10–12 in Iran. A total of 100 students from Sokhansara Language Institute were divided into

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an experimental group, taught using the Jolly Phonics method, and a control group, taught using traditional methods. Utilizing a one-shot post-test only design, the researchers administered reading and spelling tests after one month of instruction (30 lessons, 90 minutes each). Results revealed that the experimental group outperformed the control group in reading and spelling, with mean reading scores of 18.44 (experimental) versus 11.20 (control), and spelling scores of 35.52 (experimental) versus 23.56 (control). The study concluded that synthetic phonics significantly enhanced students' literacy skills and motivation.

Sidi et al. (2020) explored the use of Augmented Reality (AR) technology to enhance English phonics learning among kindergarten children. The study focused on CVC (consonant-vowel-consonant) word forms such as "cat" and "van," using interactive AR courseware. When children used picture cards with the AR application, virtual images appeared to reinforce phoneme-grapheme correspondence and vocabulary recognition. Findings indicated that AR positively influenced phonics skill development, increased student engagement, improved word recognition, and strengthened the ability to match sounds with letters. AR also helped boost children's motivation, making the learning process more engaging and sustainable.

Loong & Aziz (2019) investigated the effectiveness of synthetic phonics instruction on reading fluency development in a group of six Grade 2 students over ten weeks (30 lessons). Using pre- and post-tests, observations, and interviews, the study found significant improvement in students' reading accuracy and fluency. Average scores increased from 55.23 (pre-test) to 87.13 (post-test), with a t-test result of $t = 6.827$, $p < 0.05$. Observations indicated enhanced decoding ability, reduced errors, and improved reading expression (e.g., appropriate pausing, intonation, and fluency). Moreover, students developed positive attitudes toward phonics-based instruction, feeling more confident and motivated.

7.1.2 Research Related to Blended Learning Models

Wongdaeng and Thubthimon (2020) conducted a study on blended learning to promote English-speaking communication skills among primary school teachers. The sample included 30 English teachers selected through multi-stage random sampling. Instruments included surveys, pre- and post-tests, Moodle-based learning guides, and satisfaction questionnaires. Results showed significant improvements in understanding blended learning (from 64.10% to 81.20%) and speaking skills (from

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52.10% to 86.05%) ($p < .05$). The participants rated their satisfaction at a high level ($M = 4.60$, $SD = 0.32$), indicating that blended learning effectively enhanced English-speaking skills.

Phimpiban (2016) examined the use of the station rotation model in blended learning to improve English-speaking skills in Grade 5 students. The sample comprised 41 students selected by multi-stage random sampling. The instructional model included teacher-led, online, and collaborative learning stations over 12 weeks. Posttest scores showed statistically significant improvements in speaking skills ($p < .05$), and students exhibited positive attitudes toward this model due to its engaging and diverse activities.

Suksombat (2022) developed a learning module based on social constructivism and blended learning theories. The sample consisted of 50 secondary students. The module emphasized Vygotsky's Zone of Proximal Development and collaborative learning. The study found that students significantly improved their reading abilities and engagement levels.

Phaowanich, Pradabwet, and Sirawong (2021) developed a blended online lesson with Synectic learning activities to promote creative English writing for Grade 10 students. The study used a quasi-experimental design and found that the lesson achieved E1/E2 = 81.06/82.93, with posttest scores significantly higher than pretest scores ($p < .05$). Students expressed high satisfaction, particularly with the convenience and engaging content.

Khwan-sakul (2018) developed an interactive e-book with motion graphics on the development and systems of printing. The study involved 17 third-year educational technology students. The e-book achieved an effectiveness index of 80.85/83.24, and students' posttest scores were significantly higher than pretest scores ($p < .05$). Satisfaction was rated high ($M = 4.37$, $SD = 0.54$).

Macaruso et al. (2020) found that using the Lexia Core5 blended learning program significantly improved reading scores among elementary students compared to traditional instruction. Importantly, the program was effective across student populations of diverse backgrounds, including those from low-income families, suggesting that blended learning may help reduce educational disparities.

In summary, previous research on phonics instruction across various educational levels and contexts—both in Thailand and internationally—has consistently demonstrated the effectiveness of phonics-based strategies in enhancing learners' English pronunciation, spelling, and reading fluency. The majority of these studies report high instructional efficiency (often

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exceeding the 80/80 benchmark), statistically significant improvements in learning outcomes, and strong learner satisfaction. Most interventions employed structured phonics programs such as Jolly Phonics, flashcards, blended instruction, or digital enhancements such as AR tools.

However, while these findings are promising, there is a limited body of research focusing specifically on Grade 3 students in the context of Thai municipal schools, particularly in Phetchaburi Province. In these settings, English language instruction often suffers from low student motivation, a lack of phonics-based curriculum integration, and limited access to engaging digital tools. Observational evidence from local schools indicates that students struggle with decoding skills and often lack confidence in both pronunciation and spelling.

This research aims to address that gap by developing blended learning activities tailored to the needs of Grade 3 learners in Phetchaburi Municipality Schools. It builds upon successful strategies from prior studies but innovates by integrating digital phonics instruction into a localized, context-aware framework. The outcomes from this study will provide practical insights into designing effective phonics-based blended instruction that is not only pedagogically sound but also responsive to learner satisfaction, particularly in under-resourced or low-engagement educational environments.

Conceptual Framework

This research focuses on developing blended learning activities using phonics instruction to enhance English pronunciation and spelling ability for grade 3 Students in Phetchaburi Municipality Schools. The analysis phase (curriculum, needs, theories) informs the design of blended phonics activities. Activities are reviewed for validity and delivered through in-class multimedia and self-paced video learning. The outcomes measured include English pronunciation, spelling ability, and student satisfaction.

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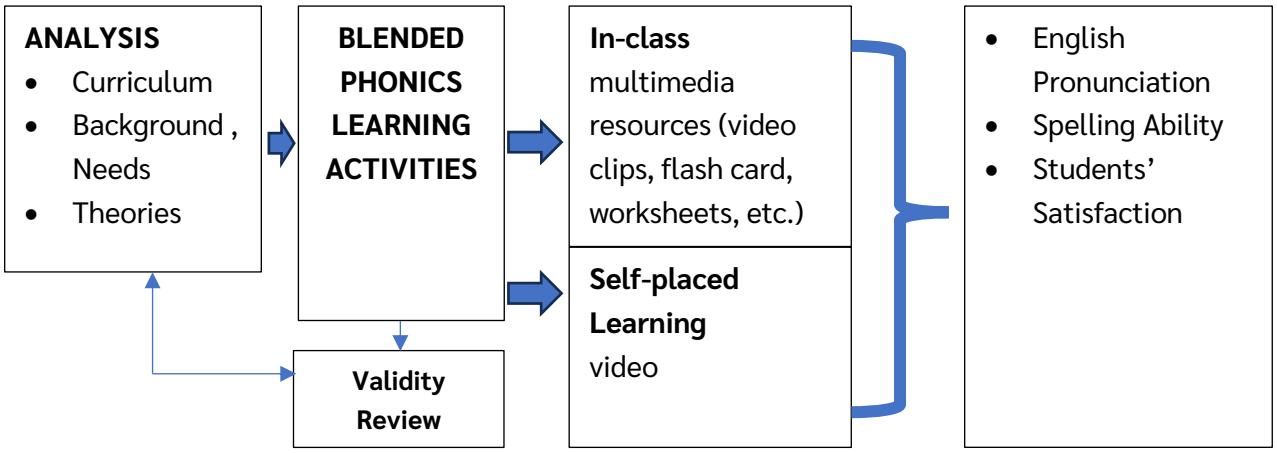

Figure 1 Conceptual Framework

Methodology

1. Research Design

This study employed Research and Development (R&D) methodology to develop and evaluate the effectiveness of blended learning activities using phonics instruction to improve English pronunciation and spelling skills among Grade 3 students. The research design focused on three phases: (1) development of instructional activities, (2) experimental implementation, and (3) evaluation of outcomes in terms of effectiveness and student opinions.

2. Population and Sample

The population of this study comprised Grade 3 students enrolled in four schools under the jurisdiction of the Phetchaburi Municipality, totaling 225 students.

The sample was composed of 18 Grade 3 students from Tessaban 4 Wat Chaiyasoontorn School. Participants were selected using a two-stage sampling process. First, cluster sampling was employed to select the school. Then, purposive sampling was used to identify students who demonstrated specific learning needs, particularly those experiencing difficulties in English pronunciation and spelling. This sampling method ensured that the selected participants were appropriate for evaluating the effectiveness of the phonics-based intervention.

3. Research Instruments

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3.1 Interview form designed to gather detailed insights from Grade 3 English teachers regarding their instructional needs, challenges faced in teaching phonics and spelling, and suggestions for enhancing blended learning strategies.

3.2 A comprehensive set of blended phonics-based learning activities, carefully developed by the researcher, incorporating both synthetic and embedded phonics approaches. These activities integrated classroom instruction with multimedia resources, including video clips and printable worksheets, tailored to the students' developmental level.

3.3 Pre-test and post-test instruments specifically constructed to measure changes in students' English pronunciation and spelling performance. It consists of 20 vocabulary items. These are new words that students have not previously encountered in past lessons. The development of the test followed these steps:" The tests focused on assessing letter-sound correspondence, blending, segmenting, and spelling of short vowel words.

3.4 A student opinion questionnaire was designed to evaluate learners' attitudes toward the Blended phonics instruction. The researcher designed a 10-item, 5-point Likert scale questionnaire to measure student satisfaction. The development process began with reviewing relevant documents and research. The initial draft was validated by experts for content accuracy and clarity. The Item-Objective Congruence (IOC) index was calculated, with each item scoring 1.00, indicating perfect alignment with the objectives. Revisions were made based on expert feedback before the final version was administered to the research sample.

All instruments used in the study were thoroughly reviewed and validated by a panel of educational experts with experience in phonics instruction and blended learning methodologies. In addition to their expert judgment, the instruments underwent a formal content validity review using the Index of Item-Objective Congruence (IOC). The resulting IOC values for all items ranged between 0.80 and 1.00, indicating high content validity and strong alignment with the study's objectives and intended learning outcomes.

4. Data Collection

4.1 Teacher interviews were conducted to identify specific challenges that learners faced in English pronunciation and spelling, as well as to gather detailed insights into teachers' instructional needs and expectations for blended learning implementation.

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4.2 Students participated in a total of 13 phonics-based lessons, which were delivered through a blended format combining traditional face-to-face instruction with digital learning tools such as video tutorials and interactive worksheets. These lessons were designed to reinforce phoneme-grapheme correspondence and promote active engagement in both classroom and self-paced learning environments.

4.3 Pre-test and post-test assessments were administered to evaluate students' learning progress. The assessments focused on letter-sound correspondence, phoneme blending, and accurate spelling of target vocabulary words, enabling the researcher to measure the impact of the instructional activities.

4.4 Student feedback was collected through a post-instruction questionnaire that assessed learners' perceptions of the blended learning experience. This feedback provided valuable information on student motivation, engagement, perceived improvements, and satisfaction with the learning materials and delivery methods.

5. Data Analysis

5.1 Effectiveness was analyzed using the E1/E2 formula, where E1 represents the average percentage score of students during the learning activities, and E2 reflects the post-test average score. The benchmark of 75/75 was used as a standard for acceptable instructional effectiveness. In this study, the activities exceeded the benchmark, suggesting strong instructional impact and learning gains.

5.2 A paired t-test was employed to statistically compare students' pronunciation and spelling performance before and after the phonics-based intervention. This method provided a reliable measure of whether the improvement in scores was statistically significant, confirming the effect of the blended learning model.

5.3 Descriptive statistics, specifically the mean and standard deviation, were used to analyze student feedback collected through questionnaires. These metrics helped summarize learners' attitudes, engagement levels, and overall satisfaction with the phonics-blended learning experience.

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Results

This study aimed to develop and evaluate the effectiveness of blended phonics-based learning activities to enhance the English pronunciation and spelling abilities of Grade 3 students. The findings are presented in three parts:

1. The development of blended learning activities using phonics instruction for Grade 3 Students.

The blended learning activities were designed based on content analysis of the national core curriculum, phonics instruction theories, and needs assessment interviews with seven English teachers. The instructional model combined Synthetic Phonics and Embedded Phonics, delivered through both face-to-face and digital learning formats.

1.1 Content Structure: Divided into two major parts.

1.1 Part 1: Alphabet (A–Z), this section of the instructional content was divided into three sequential learning units designed to introduce and reinforce the basic English alphabet letters and their associated sounds. The focus was on helping students recognize, pronounce, and recall individual alphabet letters from A to Z, laying the foundational phonemic awareness needed for later blending and decoding activities. The units were structured as follows. Unit 1 covered letters a–i. Each letter was introduced with a corresponding sound and sample word, accompanied by visual aids and gesture-based cues. Unit 2 focused on letters j–r, incorporating multimedia videos and printed flashcards to support memory and repetition. Unit 3 included letters s–z and concluded with integrative review activities, in which students practiced sequencing the alphabet, matching sounds to letters, and writing letters correctly.

1.2 Part 2: Sound Blending consisted of 8 systematically organized instructional units, each focused on developing students' recognition, decoding, and pronunciation of short vowel sounds. These units were crafted to gradually build up learners' skills from basic to more complex patterns of phoneme blending. Each unit emphasized a distinct vowel sound, featuring specific word families that aligned with the targeted sound. Unit 1 focused on the short 'a' with simple words like "am" and "an". Unit 2 expanded the short 'a' pattern with words like "ad," "ag," "ap," and "at". Unit 3 introduced the short 'e' using common phoneme clusters such as "et," "en," and "ed". Unit 4 presented short 'i' through word endings like "ip," "ib," and "id". Unit 5 extended short 'i' learning with patterns like "in," "ig," "it," and "ix".Unit 6 shifted to short 'o' with words including "ot" and "op". Unit 7 covered short 'u' patterns such as "ug," "ud," and "up". Unit 8 concluded with the short 'u' in the forms "ub," "um," and "un"

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Activities were reviewed by three experts and met high content validity standards (IOC = 1.00 for most items), with overall agreement on appropriateness, clear objectives, alignment with learners' needs, and suitability for improving pronunciation and spelling.

2. The Evaluation of the effectiveness of the developed activities in enhancing pronunciation and spelling.

The instructional efficiency was assessed using the E1/E2 formula, E1/E2 = 86.40/79.81. These results exceeded the standard criterion of 75/75, indicating high instructional efficiency.

Type	Full Score	Total Score	Mean Score	Percentage	Criterion	E_1 / E_2
During instruction (E1)	275	4,277	237.61	86.40	75	86.40
Post-Instruction (E2)	30	431	23.94	79.81	75	79.81

The pre-test/post-test comparison for 18 students showed significant improvement; the average pre-test score is 10.33/30. The average post-test score is 23.94/30. The average gain score is 13.61. T-value is 21.89, $p < .01$.

Type	Number of students	$\overline{X}$	S.D.	t	Sig
Pre-test (out of 30)	18	10.33	3.58	21.89	.01**
Post-test (out of 30)	18	23.94	4.94		

Note: $p < .01$ indicates a statistically significant difference.

This result confirms that the activities significantly enhanced students' pronunciation and spelling abilities.

3. The assessment of student opinions on the phonics-based blended learning activities

Survey Item	Mean (M)	Standard Deviation (SD)	Satisfaction Level
I enjoyed the activities in the lesson	4.77	0.71	Highest
I feel more confident using English in the classroom	4.72	0.44	Highest
I liked the teacher's methods (e.g., flashcards, videos, games)	4.66	0.74	Highest

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Survey Item	Mean (M)	Standard Deviation (SD)	Satisfaction Level
I can read and spell the words I learned	4.22	0.97	High
I can pronounce and speak sample sentences	4.16	1.01	High

A satisfaction survey (10 items, 5-point Likert scale) revealed highly positive responses. Overall mean score is 4.49 (SD = 0.93). Top-rated items are "I enjoyed the activities in the lesson" (M = 4.77), "I feel more confident using English in the classroom" (M = 4.72), and "I liked the teacher's methods (e.g., flashcards, videos, games)" (M = 4.66). Lower-rated (but still positive) items are "I can read and spell the words I learned" (M = 4.22) and "I can pronounce and speak sample sentences" (M = 4.16).

The satisfaction questionnaire consisted of 10 items grouped into three categories: Engagement, Perceived Learning, and Teacher Effectiveness. The highest satisfaction was found in the Engagement category ($\bar{x}$ = 4.74), indicating that students enjoyed the learning activities and felt motivated. Teacher Effectiveness also received a high rating ($\bar{x}$ = 4.55), reflecting positive responses toward instructional methods such as games and multimedia. Perceived Learning was rated slightly lower ($\bar{x}$ = 4.19) but still indicated a high level of satisfaction. The overall satisfaction score was 4.49, showing that the blended phonics learning activities were well-received by students.

Discussion

The findings from this study indicate that the integration of phonics-based instruction within a blended learning model can substantially enhance foundational English literacy skills in primary learners. The statistically significant difference in pretest and posttest scores (mean gain = 13.61, $t = 21.89$, $p < .01$) reflects improved decoding and pronunciation abilities. Additionally, the instructional efficiency score (E1/E2 = 86.40/79.81) suggests that the learning activities were appropriately designed, paced, and scaffolded for young learners. These results imply that blending classroom interaction with self-paced phonics videos helps bridge the gap between theory and practice, especially for students with varied learning preferences.

In terms of learner satisfaction, the overall mean of 4.49 (SD = 0.93) indicates a positive reception across three major categories: engagement, teacher support, and perceived learning. The highest-rated items (e.g., enjoyment of activities, increased confidence, preference for visual materials) suggest that the use of multimedia tools, such as flashcards, games, and videos, created

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a fun and emotionally supportive environment that motivated learners. Lower-rated items still reflected favorable responses, indicating a generally high level of instructional acceptance. These results align with learner-centered design principles that stress the importance of emotional and cognitive engagement for sustained academic progress.

These findings are consistent with previous research. For instance, Farokhbakht and Nejadansari (2015) reported improved literacy scores among EFL learners using synthetic phonics methods, which corresponds with the decoding gains observed in this study. Similarly, Macaruso et al. (2020) found that digital phonics programs like Lexia Core5 significantly supported reading fluency among early-grade learners, reinforcing the effectiveness of combining technology with explicit instruction. In the present study, the incorporation of both synthetic and embedded phonics approaches enabled students to blend individual sounds and recognize word patterns while applying them in real-world reading and writing contexts.

However, one notable distinction in this study is the dual focus on both pronunciation and spelling, which not all earlier studies addressed simultaneously. For example, Yai-dee (2022) focused mainly on vocabulary reading, whereas this study integrated production (pronunciation) and reproduction (spelling), providing a more comprehensive literacy framework. Additionally, while most prior studies used traditional in-class phonics instruction, this study emphasized blended learning delivery, which contributed to the learners' independence, confidence, and higher satisfaction.

In summary, the study extends existing literature by confirming that phonics instruction, when delivered through a well-designed blended learning model, offers both academic and affective benefits. The integration of online and in-class activities not only supports decoding and phonemic awareness but also fosters learner autonomy, engagement, and motivation. These outcomes underscore the potential of phonics-based blended learning to improve literacy in both traditional and modern learning environments, especially for young EFL learners in municipal schools, where access to diverse educational resources is still limited.

Recommendation

1. Policy Recommendations

1.1 Pilot Implementation in Primary Schools: Initiate pilot programs in selected primary schools to evaluate the feasibility and scalability of the blended phonics-based learning model. These pilot efforts should include contextual adaptation based on students' needs and school resources.

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1 . 2 Curricular Integration for Pronunciation and Spelling: Integrate the blended instructional activities into the English curriculum, particularly in areas focused on phonemic awareness, pronunciation, and spelling development, to systematically support literacy skills.

1 . 3 Curriculum Development Aligned with CEFR: Design and revise early-grade English curricula to emphasize phonemic awareness and ensure alignment with CEFR (Common European Framework of Reference for Languages) standards for pronunciation and foundational literacy skills.

2. Recommendations for Future Research

2 . 1 Instructional Expansion to Advanced Phonics: Future studies should explore the development of instructional activities focusing on more advanced phonics patterns, such as long vowel sounds and consonant blends, to further strengthen English reading and spelling skills among primary learners.

2 . 2 Longitudinal Study on Learning Retention: Since the current research focused on short-term outcomes, further investigations should assess the long-term impact of blended phonics instruction (over 3–6 months) to determine whether students retain and continue to apply their pronunciation and spelling skills.

2 . 3 Exploration of Media Effectiveness: Conduct comparative studies on different instructional media (e.g., phonics games, flashcards, online word cards, and AI-based speech recognition) to identify which formats most effectively enhance learning outcomes in phonics instruction.

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