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The Influence of Synthetic Phonics Instruction in Enhancing Word Recognition of Thai Primary School Students

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ABSTRACT

The present study aimed to investigate the effects of synthetic phonics instruction on word recognition skills and students' attitudes toward vocabulary learning. Vocabulary is a fundamental element of English learning and affects all language skills. Traditional methods emphasize memorization and grammar-translation, while learning in Thailand has restricted students to a small vocabulary. Forty primary school students participated in a quasi-experiment with two groups receiving either traditional, book-based or synthetic-based phonics instruction during eight treatment weeks of a ten-week schedule. Quantitative results showed that the experimental group performed better than the control group on receptive and productive word recognition, with statistically significant improvements in phonological awareness, working memory and decoding. Supporting qualitative evidence from focus group interviews revealed that students adopted favorable attitudes toward synthetic phonics instruction by becoming more engaged, confident, and motivated in vocabulary learning. However, a few learners of low proficiency tended to feel anxious about competitive tasks, thus implying the importance of adapting instruction to students and creating a positive classroom environment. The overall findings tend to affirm that synthetic phonics is an active and attractive method to promote word recognition and vocabulary acquisition among young EFL learners. The findings of this study offer practical implications for EFL professionals, indicating the importance of providing a balance of structured instruction and tailored individualized support to promote not only academic but also emotional success in language learning.

Keywords: Synthetic Phonics; Word Recognition; Phonemic Awareness; Spelling; Thai Primary School Learners

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1. Introduction

Vocabulary acquisition is a cornerstone of English language learning, and it is the key prerequisite for learners to develop their listening, speaking, reading, and writing skills [1,3]. The form-meaning association is an essential first step in this process, allowing learners to convey and interpret ideas correctly. Without an adequate lexicon, learners cannot communicate well, and learners face considerable barriers in the use of a language [4]. Learning vocabulary in a new language is one of the most difficult and time-consuming aspects since words have to be frequently encountered in diverse contexts to be retained and confidently used [3,4]. Thus, it is essential to design activities in which learners are exposed to voca-bulary and given chances to use those words in authentic and comprehensible contexts.

Vocabulary includes three interconnected aspects: form, meaning, and use, which consist of receptive (understanding) and productive (application) dimensions [2,5,6]. The former is responsible for spoken and written forms, the latter for the connection between the form of the word and its meaning, and the third for the use of the word with grammatical functions and in collocations [2]. In his most recent work on ensuring effective voca-bulary learning, Nation [2] outlined four strands that need to be incorporated: meaning-focused input, meaning-focused output, language-focused learning, and fluency development. He also highlighted that for the best understanding, L2 readers must know at least 98% of the vocabulary they have in reading [2,7,8]. Long-term retention of vocabulary and use of words in the long run, however, involves ongoing exposure and engagement with mean-ingful use of language [9,10].

Yet, the level of word knowledge among the very young Thai primary students is in critical condition. Scores on the Ordinary National Educational Test (O-NET) indicated that students averaged a score of 37.32% in vocabulary-related items [11]. This means that we have a vast voca-bulary knowledge gap. This issue is attributed to the traditional Thai teaching style, which focuses mainly on the admini-stration of rote memorisation and grammar-translation techniques and allows only little to no room for contextualized and authentic vocabulary practice [12,13]. This means that Thai students frequently struggle to develop a strong knowledge of English vocabulary, resulting in poor language proficiency and communication ability [14].

To cope with these ongoing challenges, there is a call to move towards a more interactive and structured pedagogy. Synthetic phonics is an effective instructional approach as it teaches grapheme-phoneme relationships in a learner's vocabulary through systematic, cumulative and continuous instruction [15]. Since explicit instruction encourages learners to decode unknown words through phoneme blending and segmentation, synthetic phonics supports phonological awareness and orthographic skills [16]. In addition, activities that combine phonics instruction with vocabulary activities provide a meaningful context and enhance reading fluency, comprehension, and general language development [17].

Synthetic phonics instruction, originally developed for L1 contexts, has demonstrated strong effects in helping young learners internalize the relationship between sounds and letters. The merits of synthetic phonics for L1 have been extensively documented and have provided readers with a solid base for learning how to read through their first language. However, synthetic phonics and research on synthetic phonics with EFL are relatively rare, especially in Thailand [18]. Investigating the attitudes and beliefs of students towards phonics teaching can offer invaluable information on the use and success of phonics teaching in Thai schools and help guide curriculum and instructional design [19]. These knowledge gaps need to be covered to provide better vocabulary instruction and maximize the benefits of the English language for Thai learners.

In the Thai EFL context, primary school students, typically in Prathom 1 to 3 (ages 6–9), are introduced to English with limited exposure to phonics-based instruction. Their English proficiency generally falls within the A1 level of the Common European Framework of Reference (CEFR), and they often lack foundational decoding strategies. These factors create a compelling case for exploring phonics-based instruction that is both systematic and developmentally appropriate for this age group.

In this context, the present study examines the impact of synthetic phonics instruction on Thai primary school students' word recognition skills. It is hypothesized that consistent synthetic phonics instruction will significantly improve students' ability to say and spell words, thereby contributing to greater vocabulary acquisition, which, in turn, will contribute to increased vocabulary acquisition. In addition, this study aims to investigate students' attitudes

towards the use of synthetic phonics to learn vocabulary and to provide an overview of their motivation and effect on engaging in this method of instruction. Indeed, it is hypothesized that Thai primary school students will express positive attitudes toward synthetic phonics instruction about their word recognition acquisition. To meet these aims, the following research questions have been posed:

1. To what extent does synthetic phonics instruction affect Thai primary school students' word recognition?

2. What are Thai primary school students' attitudes towards synthetic phonics in their word recognition?

2. Literature Review

2.1. Defining Word Knowledge

Vocabulary is not just knowledge of words; it is recogni-zing and using words at many levels. At its most rudimen-tary level, word knowledge is decoding, with passive word knowledge defined as being able to give a definition or synonym to a word [20,21]. On the other hand, active knowledge is defined by deploying a vocabulary in speech and writing. Active achievers not only must remember definitions but also have to apply the vocabulary in context and connect it to field-specific content [22]. For example, to know what "force" means in the context of science, you need to know the concepts of "gravity" and "magnetism" as well. Vygotsky highlighted the growth of learners' conceptual understanding and vocabulary knowledge, which parallels the interplay between cognitive develop-ment and language learning processes [22,23].

Nation constructs the broad model of word knowledge, consisting of three main dimensions: word form, meaning, and use [2]. Each dimension has receptive and productive dimensions [2,24]. Receptive knowledge means knowledge that the learners know the meaning of a word when they read or listen to it, while productive knowledge means knowledge that the learners know how to use the word in speaking or writing. **Table 1** presents Nation's framework, which shows the components of a word that need to be solved for comprehensive knowledge [2].

Table 1. Aspects of Word Knowledge [2].

form	spoken	**R**	What does the word sound like?
		P	How is the word pronounced?
	written	**R**	What does the word look like?
		P	How is the word written and spelled?
	word part	**R**	What parts are recognizable in this word?
		P	What word parts are needed to express the meaning?
meaning	form and meaning	**R**	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
	concepts and referents	**R**	What is included in this concept?
		P	What items can the concept refer to?
	associations	**R**	What other words does this make people think of?
		P	What other words could people use instead of this one?
use	grammatical functions	**R**	In what patterns does the word occur?
		P	In what patterns do most people use this word?
	collocations	**R**	What words or types of words occur with this one?
		P	What words or types of words must people use with this one?
	constraints on use	**R**	Where, when, and how often would people expect to meet this word?
		P	Where, when, and how often can people use this word?

Note: R = receptive knowledge, P = productive knowledge.

In the present study, Nation's framework of word knowledge, particularly the dimensions of form, meaning, and use, serves as the conceptual foundation for evaluating students' receptive and productive vocabulary gains [2].

Regular exposure is the key to a strong vocabulary. Mastering a word requires repeated and meaningful encounters with words over time [25]. Additionally, students reportedly need to know 97–98% of the words in a text to read it independently with good comprehension [8]. This highlights the need to incorporate the phonological, semantic and pragmatic facets of vocabulary knowledge in teaching [26]. In this study, special attention is given to word form knowledge, specifically phonological accuracy, as a precursor of skilled processing of words for recognition and, if appropriate, communication.

2.2. Synthetic Phonics and Word Recognition

Phonics-based methods, particularly the synthetic approach, systematically teach the one-to-one cor-respondence between grapheme (letters or letter com-binations) and phonemes (sounds), facilitating decoding and increased precision in unfamiliar word reading [27]. It is different from analytic phonics, which teaches word recognition by identifying letter patterns in words. It directly connects decoding with the generation of sounds and focuses on direct progression moving from indi-vidual phonemes to whole word construction. By using a bottom-up approach, we enhanced the base of literacy development, which we believe is pivotal in the literacy development of early language learners.

There is ample evidence that learners with a wide va-riety of language backgrounds benefit from the use of sys-tematic synthetic phonics programs to develop reading, spelling and comprehension [28]. Through direct, explicit instruction, students learn to combine letters and sounds to form words and how to break words down into their sounds, critical foundational skills for beginning reading. Synthetic phonics is specifically recognized as advantageous to groups most at risk of experiencing reading difficulty, such as boys and students from low socioeconomic status backgrounds [29]. The organized manner in which the method is taught gives such learners unrivalled, consistent decoding strategies, leading to success with literacy.

Synthetic phonics also helps in the skill of reading fluently and speedily. Among other benefits, encoding and decoding are fostered in a learner. Beginners may also ex-perience difficulty in their initial efforts to decode simple text, but more skilled readers still experience difficulty decoding unfamiliar words. This underlines the ongoing re-levance of phonics in being taught at all skill levels, not just for reading acquisition but also for vocabulary development and deeper comprehension progress as language learners. While synthetic phonics effectively improves decoding, its contribution to overall reading comprehension is still debated, especially when instruction emphasizes speed and accuracy over meaning-making.

2.3. Evidence from Related Studies

In Thailand, several studies have demonstrated that some strategies, including morphological instruction, are effective in promoting vocabulary learning in EFL learners [25,30]. Research concentrating on synthetic phonics, in particular, also shows its efficacy. For example, Futrakul pointed out that using synthetic phonics in songs and games helped promote students' pronunciation skills and confidence in using the English language [18]. Likewise, Koonpornpen and Penruksa found significant gains in word recognition and reading fluency in Thai primary schools following 12 weeks of synthetic phonics instruction [31]. Nensiri and Sukavatee found remarkable improvements in spelling and pronunciation skills among second graders after implementing synthetic phonics [32].

New ideas in teaching have multiplied these advantages. One study found that vocabulary retention and learner engagement were enhanced when synthetic phonics was combined with digital storytelling [33]. Further research throughout Thailand also demonstrated that systematic instruction in synthetic phonics made a substantial difference in reading success and comprehension, especially among children who were most in danger of never reaching listening vocabulary equivalent grade comprehension levels. Vast differences were measured between pretesting and post-testing results.

These findings are also supported by international findings. Chu and Chen realized that integrating the synthetic phonics approach with decodable texts resulted in greater long-term mastery of word recognition for Taiwanese learners of EFL [19]. Similarly, Newhouse highlighted

how national-level policy in England, particularly the Phonics Screening Check, shaped children's perceptions of reading by emphasizing decoding over meaning-making [34]. In a related study, Zsargo argued that the dominance of systematic synthetic phonics (SSP) as mandated by England's Department for Education has created what she terms a "pedagogical singularity", a tightly controlled curriculum model in which phonics is enacted as a separate, performative task, disconnected from reading for understanding [35]. Her analysis revealed that children often perceive phonics lessons as isolated from broader literacy practices, leading to an instrumental view of reading based on decoding accuracy rather than comprehension. This suggests that while SSP may support early word-level decoding, it may simultaneously narrow learners' conceptions of reading and disengage those who struggle with phonics acquisition. Likewise, Attia documented remarkable progress in early Egyptian learners' automatic word recognition and spelling due to a multisensory synthetic phonics-based program [36].

Longitudinal studies provide further evidence of the lasting effects of synthetic phonics teaching. For instance, Mantei, Kervin and Jones demonstrated that students receiving systematic synthetic phonics received an advantage in reading fluency and comprehension above their peers over time [37], indicating the potential of the method in reducing literacy achievement gaps and providing a sustainable path for reading development. Despite extensive research supporting synthetic phonics, there remains a limited number of studies focusing on Thai primary school learners, particularly with an emphasis on phonological accuracy and learner attitudes. This study, therefore, casts some light on the role of synthetic phonics instruction in word recognition in EFL contexts.

3. Materials and Methods

3.1. Research Design and Participants

This quasi-experimental research aimed to explore whether synthetic phonics instruction is beneficial for improving vocabulary knowledge among Thai primary school students. Two conditions were established: One was the control condition, provided through traditional literary pedagogy of grammar-translation and game as a list learning activity, and the other was the experimental condition, provided through synthetic phonics and technology with emphasis on onsets/rimes, grapheme blending and digital resources. The two groups studied the same textbook series (Smile Grades One to Three) and engaged in a 10-week learning program based on pretests and posttests to gauge improvement.

A total of 40 students (13 girls and 27 boys) who were 6–9 years of age and studying in Grade 1 to Grade 3 at a public primary school in Sakon Nakhon, Thailand, were included in this study. All the students were Thai native speakers and had been learning English as a foreign lan-guage for two to five years. Based on their prior classroom experience, these students performed at the A1 level as defined by the Common European Framework of Reference for Languages (CEFR); that is, they could identify and produce single letters with limited skills at building or decoding words. Participants were recruited via convenience sample of two intact classes at the school and were first divided into high-, medium- and low-proficient groups. These groups were then balanced across the two groups to ensure that the groups had equivalent pre-intervention abilities.

Socioeconomic variables were considered since many students lived with grandparents because their parents migrated for work and did not have extra academic sup-port available. To maintain fairness and internal validity, the ethical code was observed and groups were equated in the beginning through the initial performance of the homogenized levels of English.

In general, the purpose of the present work was an at-tempt to compare the effectiveness of the two instruction modes, i.e., the conventional and synthetic phonics in-struction, in promoting vocabulary and foundational lan-guage skills among young EFL learners to extend the pre-vious endeavors of improving the English competency of Thai primary students.

3.2. Instruments

Two research instruments were used to assess word recognition and attitudes toward synthetic phonics: a word form test (receptive and productive) and a focus group interview (**Table 2**).

Table 2. Research Instruments.

Research Questions	Research Instruments	Time of Distribution
To what extent does synthetic phonics instruction affect Thai primary school students' word recognition?	One receptive and one productive word form tests	Before/after using the teaching period.
What are Thai primary school students' attitudes towards synthetic phonics in their word recognition?	Focus group interview	After using the synthetic phonics instruction, control group and experimental group.

3.2.1. Word Spelling Recognition Test (WSRT)

The Word Spelling Recognition Test (WSRT) was designed to measure students' knowledge of the correct spellings of English words. Based on Webb's and Sukying and Nontasee's frameworks, the test was conducted in the tenth week of the study [4,38,39]. Students saw an image and had to choose which of four multiple-choice responses was the correct spelling for that word. There were 20 questions, and students had 50 minutes to complete the test. One mark was given for each correct answer. The WSRT was used as a criterion of the students' receptive spelling and capacity to recognize the correct orthographic image given in the form of visual cues.

3.2.2. Spelling Recall Test (SRT)

The Spelling Recall test (SRT) The SRT measures how well students can spell English words without prompts. The students would receive a picture and a sentence with a blank space where the missing word would be, needing to spell the missing word correctly, and without the help of multiple-choice answers. There were 20 items in the test and it was conducted for 50 minutes. One point was given only for correctly spelled words. The SRT tested students' productive spelling ability by recalling words based on phonological and semantic cues.

3.2.3. Focus Group

Focus group interviews were used to probe the students' views, feelings and understanding of learning vocabulary through synthetic phonics. Students were asked to share their feelings and thoughts about learning voca-bulary through synthetic phonics. To minimize unnecessary noise and secure student behaviors to be answered during interview, the students were all interviewed in Thai, their mother tongue. Open questions (e.g., "What did you like about the activities?", "What made you feel assured or apprehensive?" How did the activities help you with spelling?) prompted students to think critically and write in concrete manners. Two experienced English teachers analyzed the interview data independently to confirm the trustworthiness and credibility of the findings. The group context fostered a relaxed atmosphere, which made students more comfortable sharing their thoughts and led to valuable information about the learning process.

3.2.4. Data Collection Procedure

This study took place over the course of two months. A Word Spelling Recognition Test (SWRT) and a Word Spelling-Recall Test (SRT) were administered to parti-cipants. Given this, we presented the SRT prior to the SWRT to avoid cuing recognition when presenting items on the SRT after items from the SWRT. Each of the test sessions was 50 minutes long, with a 15-minute interval between sessions in order to avoid fatigue and to ensure the validity of the measurements. Prior to each testing session, instructions and examples were explained in the participants' first language (Thai) to ensure compre-hension and consistency across participants. After the eight weeks of instruction, the participants took the same tests to measure learning achievement. Furthermore, focus group interviews were administered after post-tests to collect qualitative data on students' perceptions of syn-thetic phonics instruction and its impact on their form-focused vocabulary learning. The in-depth key informant interviews helped to cover more details on the impact of the intervention on students' perceptions these were cor-roborated from the questionnaire responses, thereby en-riching the quantitative index.

3.2.5. Instructional Procedure

The teaching intervention spanned 10 weeks, in which the experimental and control conditions were each given two 50-minute English lessons weekly. Although using the same textbook series (Smile Grades 1–3) to provide consistent coverage of course content, the groups were characterized by quite different pedagogical design and instructional delivery approaches. The experimental group was taught with structured synthetic phonics instruction, focusing on the explicit and systematic instruction of grapheme-phoneme correspondence (GPC), phonemic blending and segmenting, and the development of words by using onset rhyme. Teaching materials comprised multimodal learning tools, including grapheme-phoneme flashcards, computerized audio for reading sound modelling, carefully controlled lists of decodable reading text, PowerPoint visual support presentations and online spelling activities. The resources were developed based on the UK Department for Education's Letters and Sounds framework and modified to fit Thai EFL learners' linguistic and educational environment. Lessons were presented in a 5-phase routine: (1) phoneme introduction, (2) blending and decoding practice, (3) word/sentence application, (4) controlled spelling, and (5) review and reflection. Fidelity was monitored through scripted lesson plans used by the teacher, who was trained in a 2-day workshop on synthetic phonics pedagogy and provided a completed weekly fidelity checklist. Compliance was monitored through three formal lesson observations by an external observer with a validated schedule based on phonics instructional principles.

In contrast, the control group consisted of students attending a typical Thai EFL teaching model, and their voca-bulary learning was implemented with a classic vocabulary acquisition approach in a Thai EFL context, which was filtered through vocabulary lists, memory drills, repetitious copying, and sentence-level gram-mar translation. While some in-class games were imple-mented, these served mainly as enhancements to encourage vocabulary memorization through some fostered means (though not phoneme-grapheme matching and decoding strategies, per se). No activities were organi-zed focusing on phonological awareness or word-building systems. The teacher-centered instruction and textbook exercises were predominant in the control group, with few possibilities for interactive and/or multimodal learn-ing. It is worth noting that the instructional conditions associated with both observations were completed by the same teacher to eliminate the effects of the instructor and to secure the classroom environment for all groups. The design enhances the internal validity of the study. It strongly compares synthetic phonics and traditional teaching effects on young word reading attainment for Thai primary school students.

3.2.6. Data Analysis

The findings of two vocabulary tests were computed based on descriptive statistics such as the mean ($\bar{X}$), the standard deviation (S.D.), the percentile rank and effect size (*d*) with the use of the Statistical Package for the Social Sciences (SPSS). Comparisons between the groups in terms of test scores were carried out using inferential statistics (paired-sample and independent-sample t-tests) to establish whether the variations were statistically significant. The thematic content analysis conducted to examine the qualitative data was based on the focus group interviews. The interviews were tape-recorded and transcribed in a systematic way. For trustworthiness, data were independently coded by the first author, as well as a Grade 9 English tea-cher, and initial codes were later compared and refined using constant comparison. The two coders wrote an ini-tial transcript from shorthand notes, and the transcripts were read through, checked and finalized before analysis using themes. This methodology made it possible to trace, count, and interpret concepts, words, and topics from the students' responses that appeared to occur time after time. Data-driven decision regarding themes facilitated closely representing participants' reality in the findings. Results were subsequently integrated through narrative synthe-sis to generate a cohesive story, and a rich description of the attitudes and engagement of students with synthetic phonics was achieved.

4. Results

4.1. The Effects of Synthetic Phonics Instruction on Word Recognition

This study examined the effects of synthetic phonics instruction on word recognition among Thai primary school students. The raw total scores from the measures of receptive and productive word knowledge were trans-

formed into percentages to standardize the data for ana-lysis. Quantitative data analysis indicated that the scores of the experimental and control groups improved. Both groups performed better than the control group on the receptive knowledge test as well as on the two productive knowledge measures for all of the tests. The experimental group, for example, had a mean pretest score of 23.25 on the word spelling recognition test (S.D. = 2.01) and a mean posttest score of 44.25 (S.D. = 3.41). In contrast, control participants averaged 20% (S.D. = 2.55) on the pretest and, 24.75% (S.D. = 2.58) on the post-test.

The scores in the productive knowledge task showed that before training the experimental group on average attained 4.15% (S.D.=1.32) in the spelling recall test (**Table 3**). In comparison, subjects improved with a mean performance of 34.25% (S.D.= 3.54). The control group, however, scored mean 4.00% (S.D. = 1.14) prior to intervention on spelling recall test; whereas the after intervention mean for the same spelling recall test for the control was 7.65% (S.D. = 1.43). Collectively, these results suggest that synthetic phonics teaching has a positive impact on new word learning in Thai young learners.

Table 3. Thai Primary School Students' Vocabulary Knowledge Test Performance.

Groups	Tests	Pretest Scores			Posttest Scores		
		Mean	(%)	S.D.	Mean	(%)	S.D.
Experimental group (n=20)	WSRT	4.65	23.25	2.01	8.85	44.25	3.41
	SRT	0.83	4.15	1.07	6.85	34.25	3.54
Control group (n=20)	WSRT	4.00	20	2.55	4.95	24.75	2.58
	SRT	0.80	4.00	1.14	1.53	7.65	1.43

To assess the efficacy of the synthetic phonics programme, paired-samples t-tests were carried out in each group to compare mean pre-and post-test scores, and inde-pendent-sample *t-tests* were used to examine the mean score differences between groups post-test. The Shapiro–Wilk test was conducted to verify the normality of data and the homogeneity of variance, respectively [40]; the test did not show any significant results (p >0.05). Standardized effect sizes, as measured by Cohen's d [41], were large for the experimental group (d = 1.50 for receptive vocabulary; d = 2.30 for productive vocabulary). These effect sizes fall within Cohen's (1988) classification of a strong instruc-tional effect, providing evidence of a significant phonics advantage for Thai primary school children in both word recognition and written language skills.

As shown in **Table 4**, based on the scores of the experiment-group participants, the two times (pretest and posttest) of the reception test of the word recognition test were significantly different, indicating a large effect size (t = 4.95, p < 0.001, d = 1.50), and the two times (pretest and posttest) of the production test were also statistically different, revealing a large effect size (t = 9.10, p < 0.001, d = 2.30). In contrast, the results of the controlled group showed no significant difference between the pretest and posttest in the reception test with a medium effect size (t = 1.59, p = 0.064, d = 0.37). The production tests were also statistically different, revealing a medium effect size (t = 2.81, p = 0.006, d = 0.56). These findings highlight a substantial improvement in form recognition among students in the experimental group over time.

Table 4. Comparisons Between Pretest and Posttest.

Group	Pretest		Posttest	*t*-Value	Effect Size (*d*)
Experimental group (n=20)	WSRT	*VS*	WSRT	4.95***	1.50
	SRT	*VS*	SRT	9.10***	2.30
Control group (n=20)	WSRT	*VS*	WSRT	1.59	0.37
	SRT	*VS*	SRT	2.81**	0.56

Notes: *** p<0.001, ** p<0.01.

An independent-sample t-test analysis was used to examine any significant difference between the two groups of participants (experiment and control) in the posttest time point (see **Table 5**). The effect size was also calculated and presented.

Table 5. Comparisons Between the Two Experimental Groups and the Control Group in the Posttest.

Groups	Tests	Posttest	
		t	*d*
Experimental group	WSRT	3.84***	1.29
Control group	WSRT		
Experimental group	SRT	5.38***	1.70
Control group	SRT		

As illustrated in **Figure 1**, the analysis of the results showed that there were statistically significant differences and large effect sizes on the reception test (Word Spelling Recognition Test) between experimental and controlled groups in the posttest ($t = 3.84$, $p < 0.001$, $d = 1.29$) and also on the production test (Word Spelling Recall Test) in the posttest ($t = 5.38$, $p < 0.001$, $d = 1.70$).

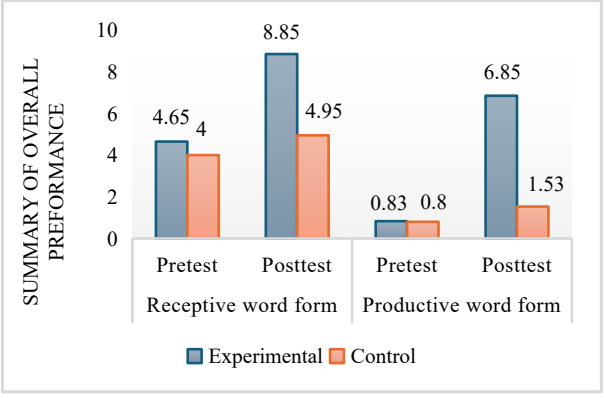

Figure 1. Participants' Performance on Receptive and Productive Vocabulary Knowledge.

Overall, this study demonstrates that the use of syn-thetic phonics enhanced vocabulary knowledge among Thai primary school students. The findings also showed the developmental continuum of vocabulary learning after synthetic phonics intervention. The experimental group showed significant improvements in both skills. In contrast, the control group exhibited only slight modifi-cations. These results suggest that the intervention applied to the experimental group effectively enhanced language skills, particularly in receptive and productive word usage, highlighting the importance of effective teaching strategies.

4.2. Students' Attitudes towards Synthetic Phonics Instruction

This research investigated the attitudes of Thai primary school students towards synthetic phonics learning in terms of three levels of vocabulary proficiency: high (scores 40–27), medium (26–14), and low (13–0). Classifying students in terms of their vocabulary ability enabled the investigation to develop an in-depth understanding of synthetic phonics as a vocabulary approach.

A series of focus groups with six students with varying vocabulary profiles was utilized. This qualitative approach was chosen to stimulate rich descriptive accounts of the students' experiences and their emotional responses. The data were first coded independently (to establish the credibility of coding) by the first author and a grade 9 level English teacher, and these codes were then analyzed thematically through constant comparative discussion. The analyses revealed that they conveyed students' enga-gement via two main dimensions: behavioral engagement and affective engagement. Under the dimension of beha-vioral engagement there, the two sub-dimensions were collaboration and competition, and under the dimension

of affective engagement, their pressures were positive and negative emotions.

4.2.1. Behavioral Engagement

Behavioral engagement reflected how students were actively involved with synthetic phonics instruction, in-cluding working together and competing with others in the class.

Collaboration was a significant theme as participants were engaged in sharing information and helping one another with phonics tasks. Such peer interaction resulted in a collaborative learning atmosphere that was not only focused on academic support but also conducive to developing social skills and teamwork. They said it was fun and not scary to have to learn together, which helped make learning the letters easier and reinforced the classroom community. **Table 6** shows the students' responses on working together – collaborative activities:

Table 6. Student Feedback on Collaborative Activities in Synthetic Phonics Instruction.

Cases	Statements
S1	I like doing activities that we can check with our partner or with the teacher because we can still help each other when we spelt words.
S2	We shared tips together on how to blend sounds, and it helped me understand better.
S3	I felt confident when we shared our answers and corrected each other during the games.
S4	Practicing spelling together helped me remember the sounds and feel more comfortable using them. It helped me remember the sounds doing spelling together and feel comfortable to use them.
S5	Working together in teams to spell words made the lessons exciting and enjoyable.
S6	Learning together with my friends made spelling fun and less stressful.

On the other hand, the competition brought a dynamic and motivational factor inside the classroom. Students had a great competition among one another to be the best at phonics activities. This game-like aspect of the challenge motivated them to explore the learning resources further and to improve their decoding and spelling skills as they did so. **Table 7** indicates students' responses to competitive activities and achieving their personal best in a challenging yet stimulating setting.

Table 7. Student Reactions to Competitive Elements in Synthetic Phonics Instruction.

Cases	Statements
S1	**I always wanted to be the first to correctly sound out the words in class. It felt good when I got it right before my friends.**
S2	**I liked practicing spelling new words because it was easy to spell new words with synthetic phonics instruction.**
S3	**When the teacher asked us to spell new words aloud, I practiced a lot because I wanted to be the best reader in the class.**
S4	**I always wanted to get more correct answers than my classmates.**
S5	I did not want to go back to my classroom. I loved to do the activity here. I always laughed when we played games.
S6	**I tried hard to spell the words faster than everyone else when we played spelling games. I liked winning those.**

4.2.2. Affective Engagement

Affective engagement demonstrated students' emotions during synthetic phonics instruction, which were categorized as positive and negative emotional reactions.

There were a lot of positive emotions when students sang, read and did their phonics activities. The interactive and supportive nature of the teaching was crucial

in maintaining students' motivation, increasing their willingness to participate and improving learning experiences. **Table 8** displays students' reflections on what they did well:

Table 8. Student Feedback on Positive Experiences with Synthetic Phonics Instruction.

Cases	Statements
S1	I felt very engaged during the lesson because the activities were fun and interactive.
S2	Practicing blending sounds helped me build confidence in spelling new words.
S3	I was excited every time we started a new phonics game because I wanted to learn more words.
S4	I was fully focused on the activities because they were so interesting and fun.
S5	I was so excited when I could spell a difficult word correctly after practicing the sounds.
S6	Learning through synthetic phonics made me feel engaged and confident, and I looked forward to the lessons every day.

However, there were also some negative feelings. Some students were nervous and lacked confidence, parti-cularly in more difficult or competitive situations. These results underscore the need for providing more emotional and instructional support to make all students feel safe and competent in the context of learning. **Table 8** Summary of students' reflections on negative experience **Table 9** presents students' reflections on negative experience.

Table 9. Student Responses to Negative Experiences in Synthetic Phonics Instruction.

Cases	Statements
S1	Sometimes, I felt unconfident when I couldn't remember the sounds during the game.
S2	I was nervous at first because I didn't know if I could spell the words correctly.
S3	When I saw a difficult word, I felt unconfident, but practicing with my friends helped me do better.
S4	I was nervous during the competition, but I still tried my best to spell the words correctly.
S5	I felt nervous when the teacher asked me to spell aloud the word in front of the class.
S6	Even though I felt unconfident at times, the activities helped me become better at spelling.

In summary, the qualitative results suggest that syn-thetic phonics instruction was able to promote both beha-vioral and emotional engagement among Thai primary school students in a Thai teaching context. A combination of collaboration, competition, and positive emotional experiences acted as facilitators to student engagement, ongoing interest, and motivation. However, given that many students struggled emotionally, the use of extra supports, such as varied tasks, regular encouragement and scaffolding, will be important in ensuring that all students, particularly those with additional learning needs, can benefit from the synthetic phonics approach. Synthetic phonics instruction has the potential to support vocabulary acquisition, literacy development and classroom invol-vement in EFL contexts by providing an inclusive and emotionally supportive learning environment.

5. Discussion

5.1. Influences of Synthetic Phonics Instruction on Word Recognition of Thai Primary School Students

This research examined how synthetic phonics ins-truction impacted the word recognition skills of Thai primary school students in an EFL setting. Synthetic phonics instruction was considered particularly beneficial for receptive and productive vocabulary knowledge. Two primary measurement instruments, the Spelling Recog-nition Test and the Spelling Recall Test, were designed and pilot-

ed to examine the effects.

There were significant gains for the experimental group in both dimensions of word knowledge. Synthetic phonics taught students achieved an increase of 21% in receptive knowledge and around a one-third of a standard deviation in productive vocabulary knowledge. These results contrast with the control group who learned rote-based instruction. The control group also made gains: 4.75% for receptive knowledge and 3.65% for productive knowledge. Both groups progressed, but the experimental group significantly surpassed the control, which highlights the superiority of synthetic phonics over traditional teaching approaches. These results support previous research that ascertained the effectiveness of synthetic phonics on the improvement of vocabulary in teaching [31–33,36].

The huge effect sizes found in the present study will support synthetic phonics as significantly improving the children's recognition of words and their recall of spellings, and this is particularly so for younger EFL learners. By comparison, traditional grammar-translation and memorization methods yielded minimal gains, highlighting the critical demand for empirically-based, student-centered instruction [42]. These results agree with Jamaludin et al. [40], providing additional evidence for an extended use of the synthetic phonics approach in the EFL classroom.

One of the key benefits of synthetic phonics teaching is its systematic approach, with students being taught how to blend graphemes (letters) together to read unfamiliar or unknown words. For example, students discover that hat is made out of the /h/, /æ/, and /t/ sounds. They then blend the word "hat" back together when reading it. This decoding and encoding, or recoding, forwards and backwards, is phonological awareness, and it is key to both fluent reading and accurate spelling. This is in agreement with the findings of Crawford et al., Moats, and Price-Mohr and Price that developing phonological awareness through explicit instruction leads to an increase in the speed with which vocabulary is acquired [43–45], which is particularly important for EFL learners who might have trouble broadening their lexical base even after prolonged contact with the target language.

In addition, vocabulary learning in the current study was highly associated with cognitive strategies, including noticing, retrieval, and creative use [2]. These processes were supported by instructional activities (e.g., practicing spelling rules, multimedia integration, and interactive tasks). For instance, video material (visual and auditory) had students blending phonemes with visual and aural recognition, enriching multimodal learning. Spelling games with drag-and-drop also fostered active participation and cognitive involvement over time. These results accord with previous research [46,47], which em-phasizes the importance of frequent and repeated exposure, conscious attention and conscious noticing, and active re-trieval in reinforcing vocabulary retention.

Moreover, this research also provides evidence to the vocabulary development continuum model, which specifies the movement from identifying words (receptive knowledge) to making an independent word (productive knowledge) by learners [20,48]. Students scored significantly higher on the Spelling Recognition Test than the Spelling Recall Test in both tasks (recognition advantage), which could be attributed to the cognitive load. Choosing among several spelling options is not as challenging (mentally less exerting) as spelling a word from memory, which involves greater phoneme-graphic awareness and a more profound thought process.

Recognition tasks lower the cognitive load by of-fering external visual cues so students can return to re-cognition and pattern matching. Most such questions, like the right spelling of "read" among "raed," "reed," "read," and "rard," are, to be fair, about pattern recognition and educated guessing. In contrast, tasks involving productive spelling, such as writing in a blank to complete the word bear in the sentence "The _____ is brown," require students to produce the correct spelling without an external cue and are presumed to up the rate of phonological and orthographic mastery required for accurate spelling retrieval.

These results highlight the complexity of the cogni-tive demands when using productive vocabulary. As productive tasks involve more complex cognitive ope-rations, such as phonological decoding, memory retrieval, and self-monitoring, they are more difficult than recog-nition tasks. This is another point that supports the impor-tance of teaching strategies that carefully guide learners from passive recognition to independent recall through the use of scaffolding, controlled accessibility, and explicit spelling exercises [6,49].

Therefore, while recognition tasks help to establish initial meaning from mappings, which enlarge vocabulary, productive tasks are necessary to create more subtle and

robust lexical memory structures that can support long-term L2 proficiency. Awareness of these cognitive demands can aid teachers in designing lesson plans and in selecting assessments that support the gradual development of word production skills among students.

This research presented strong empirical support for the synthetic phonics approach in enhancing Thai primary school students' vocabulary and word recognition skills. Syntactic phonics targets critical deficiencies of traditional EFL learning by introducing systematic phonological instruction and cognitive learning strategies. These results have pedagogical implications for curriculum design and teaching practice as they indicate that synthetic phonics may potentially open up opportunities for early literacy and language achievements of early EFL learners.

5.2. Thai Primary School Students' Attitudes Toward Synthetic Phonics Instruction

To answer RQ2, the study used qualitative data from focus group interviews to examine Thai primary school students' perceptions toward the use of synthetic phonics instruction in vocabulary development. Thematic analysis resulted in two overarching dimensions: behavioral engagement and affective responses.

To establish the credibility and trustworthiness of the qualitative analysis, six participants were intentionally selected through purposive sampling based on their results of the Spelling Word Recognition and Spelling Word Recall posttests. Learners were stratified into three proficiency levels (high, medium, and low), with two members from each level and as many different points of view as possible.

The qualitative findings were concurrent with quan-titative findings, contributing to a fuller understanding of behavior and emotion associated with synthetic phonics instruction. The findings showed that synthetic phonics instruction notably enhanced students' vocabulary recognition, grasp, and emotional investment. Learners who were more motivated and derived enjoyment and the persistence necessary for learning were more successful. These results are consistent with earlier findings that promote the role of systematic phonics instruction in enhancing the literacy development of EFL students [50–52].

Regarding behavioral engagement in synthetic phonics instruction, the results on behavioral engagement showed that the synthetic phonics instruction was interactive and highly motivating. The systematic approach to the letter-sound correspondence and the multisensory activities, such as spelling games, phoneme blending exercises, and team challenges, maintained students' engagement and promoted active involvement. These findings support previous research that has shown that engaging and structured learning environments can greatly impact vocabulary retention and student motivation [43–45].

In addition, the participants mentioned that pair activities were effective in promoting their phonetic abi-lity and strengthening their classroom relationships. The students liked being able to brainstorm and help each other and working together to solve a shared task, and learning became more fun and less stressful. The students' responses can support this claim: "*I like doing activities that we can check with our partner or with the teacher because we can still help each other when we spelt words.*" (S1) and "*It helped me remember the sounds doing spelling together and feel comfortable to use them*" (S4).

In addition, competition was also a key factor in be-havioral engagement. A substantial number of students pointed to competition as a motivation for participation in active involvement in spelling races (e.g., run the classroom, word/spelling bee) so as not to "clerch" or attempt to spell the last word of the group's cued list [53]. The student's statement presented in **Table 7** can support this argument, which suggests that combining collaboration with compe-tition fostered a dynamic classroom environment that sup-ported cognitive and social development.

Concerning the affective engagement factor, most students demonstrated positive affective experiences with synthetic phonics program implementation. This may be because phonics works as a time when the students often express feelings of pleasure, self-assurance, and eagerness. They explained that the procedures were interactive, and the classroom had an encouraging environment, motivating them to learn and participate in classes. The students' statements in **Table 8** provide evidence to support the argu-ment for the positive affective experiences with synthetic phonics instruction. However, some students, specifically low-vocabulary ones, claimed they felt nervous and lacked confidence when performing more difficult tasks, such as read aloud difficult words in front of their friends. This cognitive load was apparent in remarks such

as: "*When I saw a difficult word, I felt unconfident, but practicing with my friends helped me do better*" (S3) and "*I felt nervous when the teacher asked me to spell aloud the word in front of the class*" (S5). While competition motivated some students, it also impacted others by creating enough stress to seek more individually tailored supportive strategies.

Together, the qualitative evidence from this study lends support to the usefulness of implementing synthetic phonics to promote vocabulary acquisition in the Thai primary school setting. This was a practical pathway to motivate behavioral and emotional engagement, develop phonemic knowledge, and mobilize change in the learning environment. However, the quality of instruction, which should be inclusive and supportive, is crucial for its effectiveness. This study has significant implications for phonics-based vocabulary instruction, as well as a picture of what future research is needed to further support a variety of learners.

6. Conclusions

The present study examines the impact of synthetic phonics instruction on word attack skills and vocabulary knowledge of Thai primary school children. The first result clearly shows that synthetic phonics teaching greatly improves both receptive and productive vocabulary through a syste-matic introduction of phoneme-grapheme correspondence. Students in the experimental condition made significant gains in phonological awareness, working memory, and word decoding compared to children in the control condition (who received typical instruction). These findings present compelling quantitative evidence of the usefulness of syn-thetic phonics in early English vocabulary learning in an EFL context.

The qualitative results echo these by showing that students liked the interactive and fun aspect of synthetic phonics instruction. Learners described that with phonics learning, they had higher motivation, more cooperation and more confidence, which demonstrates that the appro-ach successfully stimulates both behavioral and affective engagement. However, the results also suggest signs of trouble: Some students got anxious during competitive tasks, especially weaker ones. This highlights the impor-tance of individualized learning and the use of supportive teaching strategies for learners as defined by their needs.

6.1. Implications

This study has pedagogical implications. Synthetic phonics teaching should be incorporated into vocabulary and reading programs to address decoding, spelling, and vocabulary weaknesses. First, we believe that teachers need to integrate synthetic phonics instruction with their vocabulary and reading programs since doing so may improve student decoding, spelling, and vocabulary abilities. Teachers are encouraged to use scaffolding methods, ongoing formative feedback, and a low-threat, supportive classroom atmosphere to realise optimal gains. Although they could be motivating for some, competitive features of learning should be combined with cooperative tasks to avoid putting an excessive load on learners. Curriculum writers and policymakers should also think of incorporating systematic phonics instruction over EFL education to fill in the early literacy void, particularly in a nationality like Thailand or other countries where traditional transmissive teachers' approaches prevail.

6.2. Limitations and Suggestions for Future Research

There are several limitations to this study despite its contributions. First, the limitation of this study is the relatively small sample size (N = 40), which limits the statistical power of the study and may lead to the overgeneralization of the findings to other Thai primary EFL learners. Although the results provide significant results, they should be taken with caution when generalized to different educational settings with various kinds of availability in instruction materials or learners' characteristics. Second, the quasi-experimental design of the study may have introduced some threats to internal validity. While steps were taken to ensure matched participants between groups based on learners' proficiencies and to control for teacher-level variables, random assignment could not be implemented and their subsequent risk of selection bias, uncontrolled confounding variables (e.g., learner motivation, prior phonics exposure, home literacy environment). Third, the small sample size came from one public primary school in Thailand, which may restrict the generalizability to other populations. Future

research might gather larger, randomized samples from different schools or regions to enhance generalizability and reduce contextual bias. Finally, although fidelity checks and teacher training were used to ensure fidelity of the delivery of the phonics intervention, the study was conducted with one teacher only while controlling for teacher variance. This may have introduced teacher bias or unmeasured effects on student engagement and performance.

The study was relatively short (10 weeks) and prima-rily emphasized immediate learning gains rather than as-sessing long-term vocabulary retention or knowledge trans-fer. Furthermore, although the focus groups provided valid qualitative data, a greater variety of qualitative techni-ques (e.g., classroom observations or longitudinal case studies) could contribute to a better understanding of learner experiences. Longitudinal research is also needed to examine the effects of synthetic phonics instruction on vocabulary, reading fluency, and overall English lan-guage proficiency. Furthermore, it would be interesting for future research to investigate how learner variables, such as anxiety, self-efficacy, and prior phonological awareness, affect learners' engagement and achievement with phonics-focused instruction. Investigating combining synthetic phonics with the use of computers, game-based learning or communicative activities could also provide new direc-tions for promoting vocabulary learning among young EFL learners.

Author Contributions

Conceptualization, T.L. and A.S.; methodology, T.L. and A.S.; formal analysis, T.L., A.S. and N.Y.; data collection, T.L.; writing—original draft preparation, T.L.; writing—review and editing, A.S. and N.Y.; supervision, A.S. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee of Mahasarakham University (protocol code 669-629/2024 and October 30, 2024).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon request.

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Conflicts of Interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

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