THE DEVELOPMENT OF ENGLISH VOCABULARY PRONUNCIATION SKILLS USING BRAIN-BASED LEARNING FOR GRADE 5 STUDENTS AT WAT KHUANG SINGH SCHOOL

1. Kamolwan Keereesuwanket*, 2. Arkom Ukhote, 3. Metha Sola

Affiliate: 1., 2., 3. Faculty of Education, Mahamakut Buddhist University, Lanna Campus
* Corresponding Arthor E-Mail: kamonwan2545sa@gmail.com

ABSTRACT

This research article aimed to: 1) test the effectiveness of English vocabulary pronunciation skill exercises for Grade 5 students at Wat Khuang Singh School based on the 70/70 standard criteria; 2) compare the learning achievement in English vocabulary pronunciation before and after instruction using brain-based learning (BBL) for Grade 5 students at Wat Khuang Singh School; and 3) examine the satisfaction of Grade 5 students at Wat Khuang Sing School with the Brain-Based Learning (BBL) approach. The sample consisted of Grade 5 students from Wat Khuang Singh School, selected through simple random sampling. The study employed a quasi-experimental design with a single-group pretest-posttest method. Research instruments included lesson plans, pretest and posttest assessments, and a student satisfaction questionnaire. Data were analyzed using basic statistical methods, including mean, standard deviation, percentage, and dependent sample t-tests.

The findings revealed that:

1) the efficiency of the English vocabulary pronunciation skill exercises achieved a level of 82.61/82.11, surpassing the standard criterion of 70/70;

2) students' learning achievement in English vocabulary pronunciation after instruction using the brain-based learning approach was significantly higher than before at the .05 level

3) students' satisfaction with the brain-based learning approach was at the highest level ($\overline{X}$ = 4.69, S.D. = 0.53).

Keywords: Pronunciation skill, English vocabulary, Brain-based learning

Introduction

The 21st-century learning skills framework (3R8C) emphasizes essential competencies for living, including both cognitive and emotional skills. These encompass listening, speaking, reading, writing, and non-verbal communication to achieve intended goals, as well as accurately receiving and interpreting information. This aligns with the National Education Act

B.E. 2542 (1999), which defines education as a learning process aimed at fostering individual and societal growth through the transmission of knowledge, training, and cultural continuity. Section 22 of the Act stipulates that education must be based on the principle that every learner has the capacity to learn and develop and that learners are the most important element. Educational processes must encourage learners to develop naturally and to their fullest potential. Furthermore, the Ministry of Education (2008: 39) should be able to: follow instructions in manuals, guides, and explanations; read aloud texts such as news, announcements, advertisements, poetry, and short plays correctly according to reading principles; describe and write sentences and texts related to various non-narrative forms they have read; and connect these non-narrative forms with sentences and texts they have listened to or read. Additionally, students should be able to identify key points, analyze, summarize, interpret, and express opinions on factual and fictional content, supporting their reasoning with examples.

Vocabulary pronunciation refers to reading aloud words, or phrases so that others can hear. Reading has two main purposes: reading aloud to convey meaning and exchange ideas, and silent reading to comprehend the content. Both forms require a foundation of knowledge, experience, and practice to improve comprehension. Observations of students and feedback from teachers reveal that most students struggle with reading English aloud. They lack confidence, are reluctant to express themselves, and face difficulties in phonetic decoding. Many students rely on memorizing vocabulary as individual words and annotating them with Thai phonetics, which stems from the influence of their native language. This interference affects their ability to correctly and clearly pronounce English vocabulary. Consistent with these challenges, The National Institute of Educational Testing Service (O-NET) for Grade 6 English proficiency in the academic year 2022 showed an average score of 37.62% (National Institute of Educational Testing Service: NIE). Similarly, Lalida Thongrat (2020: 67) researched on the development of English reading aloud skill through the use of phonics based on the Davies instructional model of grade 11 students. The findings revealed that students achieved only 32.41% English proficiency in the 2015 academic year, which was below the school's 70% benchmark. This lack of proficiency was linked to students' insufficient phonetic knowledge of vowels and consonants, resulting in mispronunciations, low confidence, slow vocabulary retention, and unsuccessful communication. Ajjima Chaichit (2020) researched on Developing the skill of reading and pronouncing English words (Phonics) using practice exercises for second-grade students at Srinakharinwirot University found that low proficiency stemmed from a reliance on rote memorization of vocabulary and Thai phonetic annotations. This method hindered students from pronouncing unfamiliar words outside the prescribed lessons. Similarly, Ratchadakarn Yaidee (2022) researched on the reading aloud skill development by using phonics exercises of grade 4 students at Bannontarod school in Kamphaeng Phet. The findings indicated that although students could

understand vocabulary meanings through listening and speaking, they struggled to read aloud and comprehend words in written form. English reading proficiency is essential not only for decoding written symbols but also for deeply understanding the content and appreciating the cultural and linguistic beauty embedded in texts. Developing reading skills requires practice both in and outside the classroom. Research has shown that fostering these skills can help students improve their language abilities and cultivate a love for oral reading, which enhances their overall learning experience.

Brain-Based Learning (BBL) refers to a learning approach that utilizes the structure and functions of the brain as tools for acquiring knowledge. Instead of hindering brain activity, this approach promotes the brain's optimal functionality, operating under the principle that everyone is capable of learning and is born with a brain ready for this purpose. BBL aims to support learners in maximizing their brain's potential by focusing on the fundamental connection between emotions and cognition. The primary goal of BBL is to prepare students for learning by incorporating knowledge of brain functionality and natural learning processes into the design of instructional activities. This includes planning engaging activities and enriching experiences to capture students' interest, foster understanding, and enable long-term memory retention. BBL emphasizes a learner-centered approach that recognizes the brain's structure and developmental stages, ensuring that learning aligns with the cognitive and emotional readiness of students at each age. In line with this approach, Rutwisan Ngarmsom (2017) researched on a study of learning management using brain-based learning to develop English speaking skill for Prathomsuksa three students. Investigated the effects of BBL on developing English speaking skills among Grade 3 students. The study found that clear and accurate pronunciation is crucial for effective communication, as it allows speakers to articulate sounds correctly and listeners to analyze spoken words for accurate interpretation. Proper pronunciation of English vowels and consonants is thus a fundamental component of language learning. Similarly, Jariya Sukkaew (2022) researched on a development of reading ability on learning activities with based brain learning according to skills practice forms of grade 1 students. The study revealed that student satisfaction in terms of content, media design, and benefits received was high ($\bar{x}$ = 2.61, S.D. = 0.03). Another study by Wanatchaporn Puengphrom & Kanyarat Kohjorn (2018) who researched on development of reading comprehension skills in English based on brain-based learning for grade 1 secondary school students. It highlighted the importance of English reading skills, not just for decoding letters but also for deeply appreciating content, language, and culture. Thus, English reading and pronunciation skills must be nurtured both inside and outside the classroom. This allows students to build proficiency, develop a love for language, and gain a deeper understanding of its cultural richness. BBL offers a powerful framework to achieve these goals by leveraging the brain's natural learning capabilities.

The researcher was motivated to study the development of English vocabulary pronunciation skills using brain-based learning for grade 5 students at Wat Khuang Singh school. This innovative approach aims to enhance classroom learning environments and foster greater learning efficiency. The BBL framework consists of five steps designed to improve students' pronunciation abilities and address learning challenges: 1.Warm-Up: Preparing students mentally and emotionally for learning. 2.Present: Introducing new knowledge and content. 3. Learn-Practice: Engaging students in active learning, hands-on practice, and skill development. 4. Summary: Consolidating and summarizing the acquired knowledge. 5. Apply: Encouraging students to apply their knowledge to solve problems and further develop their skills. By integrating these steps, the study seeks to enhance students' pronunciation skills in English vocabulary and address learning difficulties. Additionally, it aims to cultivate essential learning qualities and competencies in students, aligning with desired educational outcomes.

Objectives

1. To test the effectiveness of English vocabulary pronunciation skill exercises for Grade 5 students at Wat Khuang Singh School based on the 70/70 standard criteria.

2. To compare the learning achievement in English vocabulary pronunciation before and after instruction using brain-based learning (BBL) for Grade 5 students at Wat Khuang Singh School.

3. To examine the satisfaction of Grade 5 students at Wat Khuang Sing School with the Brain-Based Learning (BBL) approach.

Research Methodology

This study employed a quasi-experimental research design using a single experimental group. The research utilized a One-Group Pretest-Posttest Design, wherein the participants were assessed before and after the intervention to evaluate the effects of the Brain-Based Learning (BBL) approach on their English vocabulary pronunciation skills.

1. Experimental Group:

1.1 The participants consisted of Grade 1 -6 students from Wat Khuang Sing School total 261, located in Chang Phueak Sub-district, Mueang Chiang Mai District, Chiang Mai Province, under the jurisdiction of the Chiang Mai Primary Educational Service Area Office 1. The sample comprised of grade 5 for 30 students divided into 15 male and 15 female students, selected through purposive sampling as the school is part of a network and the class was approved for research purposes.

1.2 Content Scope: The study was based on the Basic Education Core Curriculum of B.E. 2551 (A.D. 2008) in the subject area of Foreign Languages, focusing on Strand 1: Language for Communication. The specific learning standard was T1.1, with the Grade 5 indicator P5/2, emphasizing the topic of pronunciation of English vocabulary.

1.3 Timeframe: The research was conducted during the first semester of the 2024 academic year (June–September 2024). The intervention spanned six weeks, with one session per week lasting one hour each. Including pretest and posttest sessions, the total duration was six instructional periods.

1.4 Variables: Independent Variables: Brain-Based Learning (BBL) lesson plans and a student satisfaction questionnaire. Dependent Variable: Students' achievement in English vocabulary pronunciation.

2. Research Instruments

The tools used in this research are as follows: 1) Lesson Plans: Developed using the Brain-Based Learning (BBL) framework. Evaluated with an efficiency score of 3.61. 2) Pronunciation Skills Test: Designed to assess the development of English vocabulary pronunciation skills. The test demonstrated reliability, with a Cronbach's alpha coefficient of 0.70 for the entire test. 3)Student Satisfaction Survey: Used to measure students' satisfaction with the BBL approach. Employed a five-point Likert scale for evaluation. Reviewed by experts, achieving an average score of 4.42.

3. Research Implementation Steps

3.1 Orientation for Students: Provide an introduction to the learning activities, ensuring students understand the objectives, preparation, and proper participation in the activities according to the prescribed steps.

3.2 Conduct Learning Activities: Implement the activities based on the steps of the innovation. The activities will follow the structured learning plans, which summarize the key activities in each lesson.

3.4 Data Collection: The researcher will collect data based on the students' scores from their vocabulary pronunciation worksheets. This data will be analyzed in the next step to assess the effectiveness of the intervention.

4. Data Collection and Analysis

4.1 Collect Data on Vocabulary Pronunciation: The researcher will collect the pronunciation scores of English vocabulary from all students in the sample group. The data will then be analyzed using basic statistical methods, including: 1) Mean ($\overline{x}$) 2) Standard Deviation S.D.), and 3) t-test (for dependent samples)

4.2 Collect Student Feedback: The researcher will gather student opinions on the learning experience using a questionnaire. The feedback will be analyzed to calculate basic statistics and assess the overall satisfaction with the learning process.

5. Statistical Methods Used: The statistical tools for this research will include: 1) Mean Mean ($\overline{x}$) 2) Standard Deviation S.D.), and 3) t-test (for comparing results before and after the intervention

Research Results

Objective 1: To test the effectiveness of English vocabulary pronunciation skill exercises for Grade 5 students at Wat Khuang Singh School based on the 70/70 standard criteria, were as follows: Pre-training Test Results: The average score of the pre-training test was 49.57 out of a possible 60 points, with a standard deviation of 1.46. The effectiveness of the process (E1) was 82.61, which exceeds the established standard. Post-training Test Results: The total score of the post-training test was 793 points, with an average score of 24.63 and a standard deviation of 4.58. This indicates that students' average scores after the training were higher than before the training. The effectiveness of the post-training pronunciation skills (E2) was 82.11, also exceeding the established standard. These results demonstrate that the Grade 5 students at Wat Khuang Singh School, who learned English vocabulary pronunciation skills through the training, showed significant improvement in their pronunciation scores after the intervention. The effectiveness of the training was higher than the set standard.

Objective 2: To compare the learning achievement in English vocabulary pronunciation before and after instruction using brain-based learning (BBL) for Grade 5 students at Wat Khuang Singh School. The comparison of the achievement in English vocabulary pronunciation before and after the implementation of Brain-Based Learning for Grade 5 students at Wat Khuang Sing School revealed the following results: Before the Training: The average score was 18.50, with a standard deviation of 3.84. After the Training: The average score was 24.63, with a standard deviation of 4.58. The results show a statistically significant improvement in the students' pronunciation achievement after the learning process, with a p-value less than 0.05. This indicates that the Brain-Based Learning approach was effective in enhancing the students' English pronunciation skills.

Objective 3: To examine the satisfaction of Grade 5 students at Wat Khuang Sing School with the Brain-Based Learning (BBL) approach revealed that the students expressed a high level of satisfaction with the learning approach. The overall satisfaction score was 4.69 with a standard deviation of 0.53, indicating a high level ($\overline{x}$ = 4.69, S.D. = 0.53) of satisfaction among the students. This suggests that the Brain-Based Learning approach was well-received and contributed positively to the students' learning experience.

Discussion of Research Findings

1. The efficiency of the English vocabulary pronunciation skill exercises for Grade 5 Students at Wat Khuang Sing School. The results show that the phonics skill training for Grade 5 students at Wat Khuang Sing School had an effectiveness score of 82.61/82.11, which is significantly higher than the set standard of 70/70. This indicates that the Brain-Based Learning approach, combined with phonics training, is highly effective. The content was appropriately aligned with the learners' capabilities, providing moderate to high levels of challenge, which made the learning activities engaging and enjoyable for the students. This finding is supported by studies such as Ratchadakarn Yaidee. (2022), who researched on the reading aloud skill development by using phonics exercises of grade 4 students at Bannontarod school in Kamphaeng Phet found that the effectiveness of a phonics-based reading program for Grade 4 students achieved 80.30/82.00, surpassing the established standard of 80/80. Furthermore, Ajjima Chaisit (2020) researched on developing the skill of reading and pronouncing English words (Phonics) using practice exercises for second-grade students at Srinakharinwirot University also found that a phonics-based training program for Grade 2 students demonstrated effectiveness scores of 80.00/81.00, exceeding the standard of 80/80, reinforcing the idea that phonics-based instruction leads to positive learning outcomes. Additionally, Saipraew Chaimatchim (2020) researched on the development of scientific learning activities based on brain-based learning concept integrated with inquiry teaching method (5es) on the topic of water for life and air surrounded us of science learning area for Pratomsuksa 3 students found that a Brain-Based Learning approach integrated with inquiry-based learning (5Es) for Grade 3 science students yielded an effectiveness score of 90.16/82.11, also higher than the expected benchmarks. These findings suggest that combining Brain-Based Learning with skill development in reading and phonics is highly beneficial in promoting student achievement.

2. The comparison of the learning achievement in English vocabulary pronunciation before and after instruction using brain-based learning (BBL) for Grade 5 students at Wat Khuang Singh School shows a significant improvement, with the post-learning mean score being higher than the pre-learning score at a statistical significance level of 0.05. This result indicates that the Brain-Based Learning approach was effective. The instructor's clear explanation of teaching strategies, the suitability of the learning materials and mid-course assessments, and the sequential and coherent delivery of the content contributed to the students' enhanced performance. Moreover, the learning environment effectively engaged students, stimulating their interest in the subject. However, the limited use of multimedia and technology in the teaching process occasionally led to student boredom. This finding aligns with the research by Ratchadakarn Yaidee (2022) on the reading aloud skill

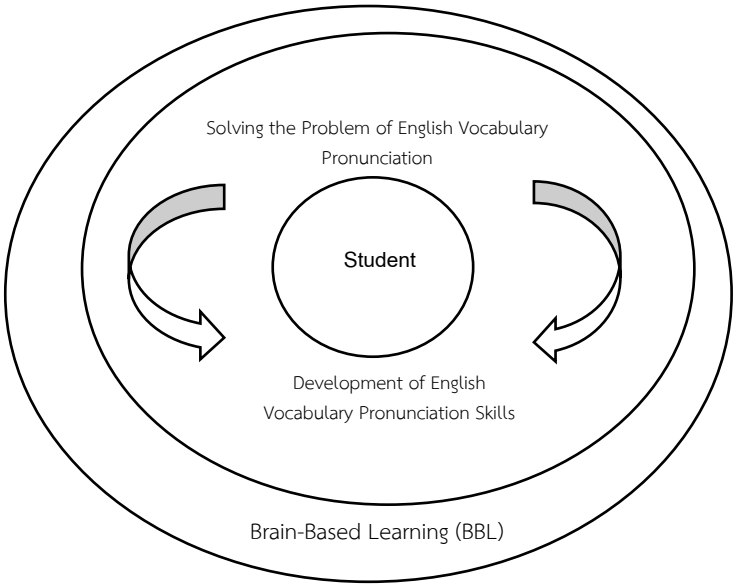
development by using phonics exercises of grade 4 students at Bannontarod school in Kamphaeng Phet, found that students significantly improved after the intervention using phonics-based training, with statistical significance at the 0.05 level. Similarly, Patcharamon Polpraphrut (2022) researched on management of brain-based learning affecting learning achievement and creativity for primary 4 students studying the concept of goods and services in the economic learning area found that the post-learning scores were significantly higher than the set benchmark of 75%, with a statistical significance level of 0.05. Additionally, the study by Wanatchaporn Puengphrom & Kanyarat Kohjorn.et al. (2018: 141) on development of reading comprehension skills in English based on brain-based learning for grade 1 secondary school students. The study found that the students' average post-learning reading comprehension skills were significantly higher than pre-learning levels at a significant level of 0.05, supporting the effectiveness of this approach in enhancing reading skills. In conclusion, the findings from this study support the notion that Brain-Based Learning, when combined with well-structured instructional strategies and activities, can significantly improve students' pronunciation and overall English language skills.

3. The satisfaction of Grade 5 students at Wat Khuang Sing School with the Brain-Based Learning (BBL) approach revealed that students had the highest level of satisfaction with the Brain-Based Learning (BBL) approach, with a mean score of 4.69 and a standard deviation of 0.53. This high level of satisfaction can be attributed to the students' eagerness to learn new things and their enthusiasm for participating in various activities. Their strong cooperation in the learning process further contributed to their positive attitudes toward the teaching approach, resulting in a very high level of satisfaction with the learning experience. This finding is consistent with the research by Pharita Garaparp (2021) on the development of learning activities based on brain-based learning (BBL) with motion graphic media to enhance reading and spelling of students in Pratom 2. The study found that students' satisfaction with the Brain-Based Learning approach was at a very high level ($\bar{x}$ = 4.94, S.D. = 0.23). Similarly, Jariya Sukkaew (2022) researched on a development of reading ability on learning activities with based brain learning according to skills practice forms of grade 1 students found that Grade 1 students' satisfaction with Brain-Based Learning activities and skills training was high ($\bar{x}$ = 4.48, S.D. = 0.15). Additionally, Rutwisan Ngarmso. (2017) researched on a study of learning management using brain-based learning to develop English speaking skill for Prathomsuksa three students. The study found that students at Wat Ratsombun School expressed high levels of satisfaction with the BBL approach, further reinforcing the positive impact of this learning strategy on students' engagement and overall learning satisfaction. In conclusion, these studies suggest that Brain-Based Learning is an effective teaching strategy that not only enhances students' academic performance but also

significantly boosts their satisfaction with the learning process. The engaging and interactive nature of BBL encourages active participation and fosters a positive learning environment.

New Knowledge Gained from the Research

The research on the development of English vocabulary pronunciation skills using brain-based learning for grade 5 students at Wat Khuang Singh school focuses on addressing the challenges students face in pronouncing English vocabulary. The study aims to enhance their ability to pronounce English vocabulary by applying Brain-Based Learning (BBL), with the goal of improving English learning outcomes in accordance with the students' potential, following the learning model outlined below.



Summary

1. The efficiency of the English vocabulary pronunciation skill exercises of grade 5 students at Wat Khuang Singh School with the Brain-Based Learning approach. The results of the English vocabulary pronunciation skills test for the grade 5 students at Wat Khuang Singh School, based on the 70/70 standard, revealed a higher score than the standard with an effectiveness score of 82.61/82.11, which surpasses the set standard.

2. Students' learning achievement in English vocabulary pronunciation of grade 5 students at Wat Khuang Singh School with the Brain-Based Learning approach. A comparison of the students' phonetic reading skills before and after using the Brain-Based Learning approach showed a significant improvement. The post-learning scores were significantly higher than the pre-learning scores, with statistical significance at the 0.05 level.

3. Student Satisfaction with Brain-Based Learning. The study on the satisfaction of grade 5 students at Wat Khuang Singh School with the Brain-Based Learning approach revealed high satisfaction ($\overline{x}$ = 4.69, S.D. = 0.53). The overall average satisfaction score was 4.69 with a standard deviation of 0.53, indicating the students' very positive response to the learning method.

Recommendations

Based on the research results, the researcher offers the following recommendations:

Policy Recommendations

1. Teachers can incorporate the innovative learning management methods into their teaching practices for future lessons.

2. Schools can utilize the processes and model learning innovations to further develop their teaching strategies.

3. Students have shown increased interest in learning through innovative educational methods, which should be further encouraged.

Recommendations for Applying the Research Findings

1. Students can adopt the learning management techniques to enhance their reading and writing skills.

2. Schools and teachers can continue to use the learning innovations to further improve student development.

3. Teachers can apply the research framework in future lessons to continue improving educational outcomes.

References

Ajjima Chaichit. (2020). *Developing the skill of reading and pronouncing English words (Phonics) using practice exercises for second-grade students at Srinakharinwirot University*. Samut Prakan: Primary Educational Service Area (PESA). (In Thai).

Jariya Sukkaew. (2022). *A development of reading ability on learning activities with based brain learning according to skills practice forms of grade 1 students*. (Master Thesis). Bangkok : Naresuan University.

Lalida Thongrat. (2020). *The Development of English Reading Aloud Skill through the Use of Phonics based on the Davies Instructional Model of Grade 11 Students*. (Master's Thesis), Maha Sarakham: Rajabhat Maha Sarakham University.

Ministry of Education. (2008). *The Basic Education Core Curriculum B.E. 2551.* Bangkok: Teacher Council Printing House, Lat Phrao.

Patcharamon Polpraphrut. (2022). *Management of Brain-based Learning Affecting Learning Achievement and Creativity for Primary 4 Students Studying the Concept of Goods and Services in the Economic Learning Area.* (Master Thesis). Chanthaburi: Rambhai Barni Rajabhat University.

Pharita Garaparp. (2021). *The development of learning activities based on brain-based learning (BBL) with motion graphic media to enhance reading and spelling of students in Pratom 2.* (Master Thesis). Bangkok : Silpakorn University

Ratchadakarn Yaidee. (2022). *The reading aloud skill development by using phonics exercises of grade 4 students at Bannontarod school, Kamphaengphet province*. (Master Thesis). Phitsanulok: Naresuan University.

Rutwisan Ngarmsom. (2017). *A study of learning management using brain-based learning to develop English speaking skill for Prathomsuksa three students*. (Master Thesis). Bangkok : Silpakorn University.

Saipraew Chaimatchim. (2020). *The development of scientific learning activities based on brain-based learning concept integrated with inquiry teaching method (5es) on the topic of water for life and air surrounded us of science learning area for pratomsuksa 3 students.* (Master Thesis). Sakon Nakhon: Sakon Nakhon Rajabhat University.

The National Education Act. (1999). *National Education Act B.E. 2542.* [Retrieved on June 30, 2021]. Available at https://shorturl.asia/3sE5P

The National Institute of Educational Testing Service (2022). *Summary of the National Educational Test (O-NET) results for Grade 6 in the academic year 2022.* Retrieved from https://www.niets.or.th/th/content/view/25618 on 13 May 2024.

Wanatchaporn Puengphrom & Kanyarat Kohjorn. (2018). Development of Reading Comprehension Skills in English Based on Brain-Based Learning for Grade 1 Secondary School Students. Prawa Academic Journal, 5(1), January-April 2018.