# THE DEVELOPMENT OF ENGLISH VOCABULARY PRONUNCIATION SKILLS USING BRAIN-BASED LEARNING MANAGEMENT OF THE GRADE 8 STUDENTS AT WAT BAN KHUN TRIAM BHUDASAD SCHOOL

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## Abstract

This research article aims to achieve the following objectives: 1) to test the efficiency of English vocabulary pronunciation exercises for Grade 8 students at Wat Ban Khun Triem Bhudasad School against the 70/70 standard criteria, 2) to compare the achievement in English vocabulary pronunciation before and after implementing brain-based learning, and 3) to examine students' satisfaction with brain-based learning. The sample group consisted of Grade 8 students from Wat Ban Khun Triem Bhudasad School, selected through simple random sampling. The research employed a quasi-experimental design using 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 statistics such as mean, standard deviation, percentage, and t-test.

The research findings revealed that:

1) The efficiency of the English vocabulary pronunciation exercises for Grade 8 students at Wat Ban Khun Triem Bhudasad School was 70.56/70.14, exceeding the specified standard criteria.

2) The achievement in English vocabulary pronunciation after using brain-based learning was significantly higher than before at the 0.05 level.

3) Students' satisfaction with brain-based learning was at a high level.

**Keywords**: Pronunciation; English vocabulary; Brain-based learning

## Introduction

The 21st-century learning skills framework (3R8C) emphasizes essential competencies, including reading, as a foundational skill that enables students to communicate effectively, acquire knowledge, and express satisfaction. This concept aligns with the National Education Act B.E. 2542 (1999), which defines education as fostering academic progress, lifelong learning, and supportive factors for continuous development. Specifically, Section 22 of the Act stipulates that education must recognize each learner's ability to learn and develop, positioning learners as the core of the educational process.

Educational approaches should promote learners' natural growth and full potential development. This vision is consistent with the Grade 8 core curriculum, which aims to ensure that students, upon completing Grade 8, can engage in conversations and written communication about themselves, their surroundings, experiences, situations, news, and socially relevant topics. They should be able to communicate continuously and appropriately by: Making and responding to requests, clarifications, explanations, and recommendations; Expressing needs, offering and requesting help, and appropriately accepting or declining assistance in simulated or real-life situations; Describing, explaining, comparing, and sharing satisfaction regarding topics and events they listen to or read about; and Expressing feelings and preferences related to various topics, activities, experiences, news, and events in a logical manner through speaking and writing. This educational framework emphasizes fostering learners' communication abilities and critical thinking while ensuring that they meet the required competencies in reading and expressing their thoughts effectively.

Vocabulary pronunciation refers to the characteristic methods that enhance fluency and smoothness in speech. It is a skill that requires repetitive practice to achieve proficiency. It involves the way individuals articulate sounds according to the phonetic structure of a particular language, forming words and sentences, and decoding English vocabulary with accurate and clear pronunciation. From practical teaching experience in a Grade 8 classroom at Wat Ban Khun Triam School, Bhudasadic Studies Division, observations and discussions with mentor teachers revealed that students were unable to correctly read English texts and vocabulary according to pronunciation principles. They lacked confidence and were hesitant to perform reading aloud in front of others. Furthermore, students exhibited a negative attitude towards learning foreign languages. This aligns with the National Education Testing (O-NET) results for English proficiency among Grade 9 students for the academic year 2022, which reported an average score of only 37.62% (National Institute of Educational Testing Service, 2022). Similarly, research by Lalida Thongrat (2020), which focused on developing English pronunciation skills using phonics through the practice-based teaching approach of Davies, found that Grade 11 students at Tha Khon Yang Pittayakhom School faced challenges in pronouncing English vocabulary. This foundational reading ability, including accurate pronunciation for effective communication, was hindered by a lack of basic knowledge of phonics systems, encompassing vowels and consonants. Consequently, students struggled to decode words, leading to frequent pronunciation errors, reduced confidence in reading aloud, slower vocabulary retention, and ineffective communication. This also resulted in diminished interest in learning English. In addition, research by Ratchadakan YaiDee (2022) and Taungrut Saejong (2021) further supports the notion that phonics-based learning activities significantly improve students' ability to read English vocabulary correctly. Ratchadakarn's study on Grade 4 students at Ban Non Tarot School in Kamphaeng Phet

Province revealed that, while students could verbally recognize and understand the meaning of words, they were unable to read and pronounce words accurately when presented in text form. This was evident during classroom reading activities, where students often displayed anxiety due to poor performance or inability to complete tasks effectively. Similarly, Tuangrat's research on Grade 3 students at Songwit Thepharak School found that learners struggled with spelling and pronouncing English vocabulary. Many relied on memorizing words through pictures or writing Thai transliterations above the English words. This dependency created barriers to effective English language learning and significantly impacted their academic progress. In conclusion, developing students' ability to read and pronounce English vocabulary correctly requires tailored instructional methods, such as phonics-based approaches, to build foundational phonetic knowledge, foster confidence, and encourage active interest in English language learning.

The brain-based learning approach refers to an educational method designed to stimulate brain cells to enhance cognitive, analytical, and intellectual development at increasingly advanced levels. This approach integrates principles from neuroscience, psychology, and educational science into the learning process, aligning with the developmental stages of students. It emphasizes understanding the brain's functioning and applying this knowledge to create effective learning experiences. Learners are encouraged to engage in hands-on activities and discover knowledge independently. According to Phanrasi Prachachoti (2014: 54), the theory of brain-based learning highlights the importance of allowing students to practice and engage in activities by themselves, guided by educators who integrate various theories, such as the theory of joyful learning, participatory learning, and thinking skill development. In brain-based learning, teachers are tasked with organizing activities systematically to avoid confusion and to focus on hands-on experiences, enabling students to internalize knowledge and draw conclusions independently. Similarly, Kamolrut Pawapootanon (2015: 50) elaborated on the brain-based learning approach as a method that stimulates brain cells to function effectively, fostering advanced cognitive and analytical abilities. This method helps transfer knowledge to long-term memory, making it readily applicable to real-life situations. Teachers must consider the learners' foundational knowledge and brain-based learning principles, particularly the importance of emotions in the learning process. Effective learning involves a combination of emotions, thinking, and practical application, making it the most comprehensive form of learning. The process and style of instruction based on brain-based learning facilitate meaningful learning patterns. Furthermore, Urairat Loapakdee (2016: 36) found that brain-based learning integrates neuroscience and psychology research into educational practices. This approach aligns with the natural learning processes and brain functioning of all individuals, making it an effective method for promoting holistic learning and skill development. In summary, brain-based learning is a comprehensive educational strategy that incorporates scientific insights into

brain functionality to enhance intellectual development. It prioritizes emotional engagement, critical thinking, and hands-on practice, enabling learners to achieve meaningful and sustainable learning outcomes.

Therefore, the researcher is interested in studying the development of English vocabulary pronunciation skills using brain-based learning management of the grade 8 students at Wat Ban Khun Triam Bhudasad School. The study employs innovative brain-based learning strategies to create an engaging and effective classroom environment. The Brain-Based Learning (BBL) framework used in this study comprises five key steps: Warm-Up: Preparing and setting the stage for learning; Present: Introducing new knowledge and information; Learn-Practice: Engaging students in hands-on activities, practice, and skill development; Summary: Summarizing and consolidating the knowledge gained; Apply: Applying the acquired knowledge to enhance practical skills, solve problems, and further develop the students' pronunciation abilities. This approach aims to address students' learning challenges, improve their skills in English pronunciation, and align their development with desired learner characteristics. The integration of Brain-Based Learning techniques ensures a systematic and effective method for fostering students' overall learning outcomes.

## Objectives

1. To test the efficiency of English vocabulary pronunciation exercises for Grade 8 students at Wat Ban Khun Triem Bhudasad School against the 70/70 standard criteria.
2. To compare the achievement in English vocabulary pronunciation before and after implementing brain-based learning.
3. To examine students' satisfaction with brain-based learning.

## Research Methodology

This study employed a quasi-experimental research design, specifically a one-group pretest-posttest design.

### 1. Scope of the Research

1.1 Population and Sample Population: The population comprised 44 Grade 8 students from Wat Ban Khun Triem Bhudasad School, located in Bo Luang Subdistrict, Hot District, Chiang Mai Province, under the National Office of Buddhism, Chiang Mai Education Service Area 5, during the first semester of the 2024 academic year. Sample Group: A specific sample of 24 students from Grade 8, Class 2, of the same school was selected purposively, as it is a network school and the class was authorized for research purposes.

1.2 Content: The content was derived from the 2008 Basic Education Core Curriculum, Foreign Languages Learning Area, Standard FL 1.1, Indicator M.2/2, focusing on the accurate reading of texts, news, announcements, and short verses.

1.3 Duration: The research was conducted during the first semester of the 2024 academic year, from June to September 2024, with one session per week lasting one hour each. The intervention spanned six weeks for a total of six hours.

1.4 Variables: Independent Variables: Brain-Based Learning lesson plans and the student satisfaction questionnaire. Dependent Variables: The students' achievement in English vocabulary pronunciation.

**2. Research Instruments**

Research Instruments: Lesson Plans: The Brain-Based Learning lesson plans, with an efficiency value of 3.63. English Vocabulary Pronunciation Test: A test with an overall reliability coefficient of 0.72. Student Satisfaction Questionnaire: A 5-point Likert scale questionnaire, validated by experts, with an average score of 4.46.

**3. Research Implementation Process**

3.1 Orientation: Students were oriented to understand the learning activities, objectives, preparation requirements, and appropriate participation in the activities.

3.2 Implementation: Learning activities were conducted following the Brain-Based Learning framework, with key activities highlighted in each lesson plan.

3.3 Data Collection: The researcher collected data from students' English vocabulary pronunciation worksheets to analyze their performance.

**4. Data Collection and Analysis**

4.1 Data Collection: Scores from students' English vocabulary pronunciation activities were collected and analyzed using basic statistics: 1) Mean; 2) Standard Deviation; and 3) t-test analysis.

4.2 Student Satisfaction: The levels of student satisfaction, as indicated in the questionnaire, were analyzed using basic statistics.

5. Statistical Analysis Used: The following statistical tools were used for the research: - Mean - Standard deviation - t-test

**Research Results**

Objective 1: To test the efficiency of English vocabulary pronunciation exercises for Grade 8 students at Wat Ban Khun Triem Bhudasad School against the 70/70 standard criteria. The findings revealed the following: The average score obtained from the practice exercises during the lessons was 42.33 out of a maximum score of 60, with a standard deviation of 1.41. The process efficiency (E1) was calculated at 70.56, exceeding the established standard criterion of 70. Additionally, the total score from the post-test amounted to 505, with an average score of 21.04 and a standard deviation of 2.49. This indicates that students who participated in the training module achieved higher average post-test scores compared to

pre-test scores. The efficiency of the final outcome (E2) was calculated at 70.14, which also exceeded the 70/70 standard criterion. These results demonstrate that the use of the English vocabulary pronunciation skill training module effectively enhanced the students' pronunciation abilities and met the efficiency standards set for the study.

Objective 2: To compare the achievement in English vocabulary pronunciation before and after implementing brain-based learning. The results indicated the following: Post-learning scores: The average score was 21.04 with a standard deviation of 2.49. Pre-learning scores: The average score was 16.21 with a standard deviation of 3.19. The findings show that the students' English vocabulary pronunciation skills significantly improved after the intervention, with both the average score and the standard deviation higher post-learning compared to pre-learning. This suggests that the Brain-Based Learning approach effectively enhanced the students' pronunciation abilities.

Objective 3: To examine students' satisfaction with brain-based learning. The results revealed that: The overall satisfaction level of students towards the Brain-Based Learning approach was high, with an average score of 4.06 and a standard deviation of 0.74. This indicates that the students expressed a high level of satisfaction with the Brain-Based Learning approach used in their education, reflecting its effectiveness and positive reception among the learners.

**Discussion of the Research Findings**

1. The efficiency of English vocabulary pronunciation exercises. The study showed that the effectiveness of the phonics-based practice for English vocabulary pronunciation for Grade 8 students at Wat Ban Khun Triem Bhudasad School exceeded the established standard, with an efficiency rating of 70.56/70.14. This result suggests that the practice was adequately aligned with the course content, and it was at an appropriate level of difficulty for the students. The students were sufficiently challenged by the exercises and found the learning activities engaging and enjoyable. This finding supports the research of Wanutchaporn Puengprom and Kanyarat Cojorn. (2018), who developed a learning activity set for reading comprehension skills based on brain-based learning for Grade 7 students, and found an efficiency score of 79.51/82.54. Similarly, Ratchadakan YaiDee (2022) used phonics practice to enhance English word pronunciation skills for Grade 4 students, with an effectiveness score of 80.30/82.00, exceeding the expected benchmark. This consistency in results across different studies indicates that incorporating phonics into learning activities significantly enhances pronunciation skills, supporting the notion that such methods improve learners' language proficiency effectively. Comparison with Other Studies: In line with Atschima Chaichit (2020), who developed a phonics-based practice to improve English word pronunciation skills for Grade 2 students, the effectiveness of the developed practice in the current study, with an efficiency rating of 80.00/81.00, surpassed the standard expected scores. This reinforces the idea that phonics-based learning methods are effective at different

educational levels, helping students improve their pronunciation and language skills efficiently. Overall, these results underline the effectiveness of brain-based learning and phonics techniques in improving English pronunciation skills, as they create a learning environment that engages students, makes learning enjoyable, and challenges them appropriately.

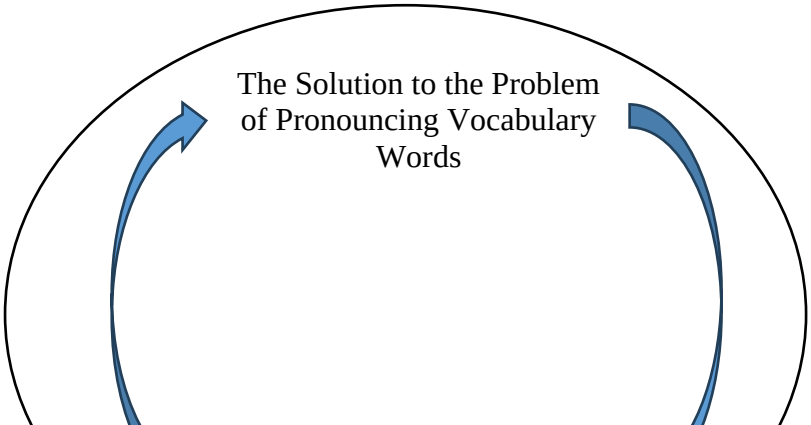
2. The achievement in English vocabulary pronunciation before and after implementing brain-based learning. The study found that the English vocabulary pronunciation achievement of Grade 8 students at Wat Ban Khun Triem Bhudasad School significantly improved after learning, with an average score that was statistically higher than before the lessons at the .05 significance level. This improvement is attributed to the clear explanation of teaching strategies, well-organized learning materials, and appropriately designed assessments that aligned with the content. The step-by-step knowledge transfer was coherent and not confusing, successfully stimulating student interest and engagement in the learning process. However, it was noted that the teacher's limited use of media and technology in the lessons occasionally led to student boredom. This suggests that while the overall structure of the lessons was effective, integrating more multimedia resources could further enhance student engagement. This finding aligns with research by Lalida Thongrat (2020), who studied the development of English pronunciation skills using phonics in a practical teaching model for Grade 11 students. Thongrat's study found that students' skills in English pronunciation improved significantly, with results reaching 73.33%, surpassing the expected threshold of 70%, and showed statistical significance at the .05 level. Similarly, Ratchadakan YaiDee (2022) researched The Reading Alou Skill Development by Using phonice exercises of Grade 4 Students at Bannontarod School, KamphaengPhet Province, and found that after the intervention, students' pronunciation skills significantly improved, with results reaching statistical significance at the .05 level. Additionally, Rutwisan Ngarmsom (2017) investigated A study of learning management Using brain-based learning to develop English speaking skills for prathomsuksa three students and found that the post-test results for English speaking skills were significantly higher than pre-test scores at the .05 significance level. These findings collectively reinforce the effectiveness of phonics-based learning and brain-based learning (BBL) methods in improving language skills such as pronunciation, reading, and speaking. They also highlight the importance of engaging teaching methods, which could be enhanced by incorporating more technology and media to maintain students' attention and motivation.

3. 3. To examine students’ satisfaction with brain-based learning: The study found that the Grade 8 students at Wat Ban Khun Triem Bhudasad School expressed a high level of satisfaction with the Brain-Based Learning (BBL) approach, as evidenced by an average score of 4.06 and a standard deviation of 0.74. This suggests that the students found the BBL approach highly effective and engaging. The success of BBL is attributed to its design, which

is grounded in an understanding of how human brains work and how learning processes operate. The structured steps of BBL, which align with cognitive principles, helped to engage students meaningfully and foster a positive learning experience. The approach's emphasis on aligning teaching strategies with brain research contributed to the students' satisfaction and their positive engagement with the lessons. This finding is consistent with the research by Pharita Garaparp (2021), who studied 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. Karaphap found that students were highly satisfied with the content, the design of the motion graphics, and the overall benefits of the lessons, with satisfaction scores in the "high" range ($\bar{x}$ = 2.61, S.D. = 0.03). Similarly, Wanutchaporn Puengprom and Kanyarat Cojorn (2018) researched The Development of Learning Activity Package in English Reading Comprehension Skills Based-on Brain Based Learning Approach for Mattayomsueksa 1 Students. They reported high levels of student satisfaction with the approach, which was also consistent with the findings of Rutwisan Ngarmsom (2017), who explored A study of learning management Using brain-based learning to develop English speaking skills for prathomsuksa three students. In that study, students expressed significant satisfaction with the BBL-based learning activities, underscoring the positive impact of BBL on student learning and motivation. These findings highlight the potential of Brain-Based Learning to foster student engagement and satisfaction by providing a learning environment that is scientifically informed and tailored to the cognitive needs of students. The BBL approach, which considers how the brain processes and retains information, appears to be an effective strategy for enhancing the learning experience and increasing students' enthusiasm for their studies.

**New Knowledge Gained from the Research**

The new knowledge gained from this research focuses the development of English vocabulary pronunciation skills using brain-based learning management of the grade 8 students at Wat Ban Khun Triam Bhudasad School. The research aims to address the pronunciation issues of the students and improve their English vocabulary pronunciation ability by applying Brain-Based Learning to enhance their English language achievement according to their potential, following the learning process model



Student

Development of English
Vocabulary Pronunciation Skills

Brain-Based Learning (BBL)

**Summary**

1. The efficiency of the English vocabulary pronunciation exercises for Grade 8 students at Wat Ban Khun Triem Bhudasad School was 70.56/70.14, which is higher than the established standard of 70/70.

2. The achievement in English vocabulary pronunciation after using brain-based learning for Grade 8 students at Wat Ban Khun Triam Bhudasad School showed significant improvement after the lesson. The post-test average score was higher than the pre-test score, with statistical significance at the .05 level.

3. The students' satisfaction with Brain-Based Learning (BBL) was at a high level ($\bar{x}$ = 4.06, S.D. = 0.74), indicating that the students were highly satisfied with the learning approach.

**Recommendations:**

**Policy Recommendations**

1. Teachers can integrate the innovation of Brain-Based Learning (BBL) into their teaching methods to enhance the effectiveness of lessons.

2.Schools can adopt and further develop the process and innovation of the learning management model for future use.

3. Students show a greater interest in learning when Brain-Based Learning (BBL) is applied, and this trend should be encouraged and expanded.

**Recommendations for Applying Research Results**

1. Teacher trainees can use the learning management methods in this research to improve reading skills.

2. Schools and teachers can continue using the innovative learning management model to further develop students' abilities.

3. Teachers can adapt and implement the research framework in future educational practices to enhance learning outcomes.

**References:**

Atschima Chaichit. (2020). Developing the skill of reading and pronouncing English words (Phonics) using practice exercises for second-grade students at Srinakharinwirot University. (In Thai)

Kamolrut Pawapootanon. (2015). The Comparisons of learning achievement reading comprehension abilities and attitudes towards Thai subject of Mathayomsueksa1 students between learning through the Multiple – intelligence approach and Brain – Based learning approach. Mahasarakham University.

Lalida Thongrat. (2020). The Developing of English Reading Aloud skills through the Ues of Phonics based on Davies Instructional Model of Grade 11 Students. (Master's thesis), Mahasarakham: Rajabhat University.

National Institute of Educational Testing Service. (2022). Basic Education Core Curriculum B.E. 2551. Bangkok: The Printing House of the Agricultural Cooperatives of Thailand Ltd

Ministry of Education. (2008). Basic Education Core Curriculum B.E. 2551. Bangkok: Ministry of Education. Agricultural Cooperative Printing House.

Taungrut Saejong. (2021). Developing english spelling pronunciation skillsby using phonics reading excercises book of grade 3 studentsongvithaya theparak. Journal of Developmental Arts and Sciences, 5(2), July-December 2021.

Phanrasi Prachachoti. (2014). Developing academic achievement in Thai language, analytical thinking, and motivation for success in compound words by using brain-based learning activities for sixth-grade students. Master's Thesis, Mahasarakham University: Mahasarakham 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's thesis]. Silpakorn University.

Ratchadakan YaiDee. (2022). The Reading Alou Skill Development by Using phonice exercises of Grade 4 Students at Bannontarod School, KamphaengPhet Province. Master's degree in education, Graduate School: Naresuan University.

Rutwisan Ngarmsom. (2017). A study of learning management Using brain-based learning to develop English speaking skills for prathomsuksa three students. Master of Education, Curriculum and Instruction, Graduate School: Silpakorn University.

Wanutchaporn Puengprom and Kanyarat Cojorn. (2018). The Development of Learning Activity Package in English Reading Comprehension Skills Based-on Brain Based Learning Approach for Mattayomsueksa 1 Students. Praewa Kalasin Journal, Kalasin University, 5(1). January-April 2018.

Urairat Loapakdee. (2016). Compaction of learning Achievement in Summation Subtraction Multiplication Decimal of Prathomsuksa 5. Mahasarakham: Graduate School, Rajabhat University.