

# The Effects of the Jigsaw Method on Vocabulary Learning of English Program Students in a Thai Public School

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## ABSTRACT

This study aimed to 1) investigate the effects of the Jigsaw method on English vocabulary acquisition among Grade 9 English Program (EP) students in a public school and 2) examine the students' overall attitude in learning through the Jigsaw method. A quasi-experimental one-group pretest-posttest research design was employed. The participants consisted of 30 Grade 9 EP students selected through convenience sampling method. Research instruments included a 30-item vocabulary pretest and posttest aligned with the CEFR B1 level, and a six-item Likert-scale questionnaire designed to measure students' attitudes toward learning through the Jigsaw method. Quantitative data were analyzed using a dependent samples t-test, while descriptive statistics were used to interpret students' attitudinal responses. The findings revealed a statistically significant improvement in students' vocabulary performance following the intervention ( $t(29) = 16.02, p < .001$ ), with an average score gain of 6.67 points. Furthermore, the results of the attitude questionnaire indicated a high level of positive student perception toward the Jigsaw method, particularly in terms of active participation, collaborative learning, clarity of understanding, and enjoyment of the learning process. The findings indicated that the Jigsaw method is associated with the improved vocabulary scores and positive student attitudes among English Program students in the Thai public school.

**Keywords:** Jigsaw Method, Cooperative Learning, Vocabulary Learning, English Program Students

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## Introduction

In the dawn of the 21<sup>st</sup> century, teachers are constantly reminded of the importance of using various techniques in teaching other than the lecture method. The National Education Act of B.E. 2551 (2008) proposes several sections as to how education should be given to the students. Section 24 expresses how educational institutions are to organize the learning process, which emphasizes in the shift from traditional to student - centered learning. According to this section, educational institutions should design the learning process to match students' interests, abilities, and individual differences. They must develop learners' thinking skills, decision-making abilities, and problem-solving competence by teaching them how to apply knowledge in real-life situations. Schools should also provide meaningful, authentic

experiences that encourage critical thinking, strong reading habits, and a lifelong desire to learn. Furthermore, learning should be collaborative, with both teachers and students engaging with diverse media and knowledge sources together. Finally, education should promote lifelong learning, allowing individuals to learn anytime and anywhere. (Ministry of Education, 2008)

English proficiency has become an increasingly important skill in today's globalized society, particularly in countries where English is learned as a foreign language. In Thailand, English serves as a crucial medium for academic advancement, international communication, higher education opportunities, and future career development. Consequently, the development of English language proficiency remains a significant priority within the Thai educational system. Among the various components of language proficiency, vocabulary knowledge plays a fundamental role in effective communication, reading comprehension, writing, listening, and speaking. According to Schmitt (2010), learners without sufficient vocabulary repertoire struggle to understand texts, express ideas clearly, and unable to participate meaningfully in academic and social interactions. Thus, limited vocabulary knowledge can impede language development and negatively affect students' overall academic performance (Nation, 2022).

For students enrolled in English Program (EP) schools in Thailand, vocabulary acquisition is particularly important because English is used extensively across different subjects and learning activities. Despite receiving greater exposure to English than students in regular programs, many EP students continue to experience challenges in learning, retaining, and applying vocabulary effectively. Recent studies have identified vocabulary acquisition as one of the most persistent difficulties faced by English as a Foreign Language (EFL) learners. Vocabulary instruction in many EFL classrooms continues to rely heavily on memorization, translation, and teacher-directed explanations, which often provide limited opportunities for active language use and meaningful interaction. In Thai EFL classrooms, vocabulary instruction has frequently been characterized by explicit teacher-led explanations and form-focused activities, with fewer opportunities for learners to actively construct meaning through interaction and collaborative use of language (Liangpanit, 2024). Similar patterns have been reported in other EFL contexts, where repetition drills and translation continue to be commonly employed due to their perceived practicality and effectiveness for immediate recall (Kusumawati & Arifin, 2024).

Evidence from the research setting further indicates the need for instructional approaches that strengthen English language proficiency. According to Thanyaburi School's TOEFL Junior performance report for Grade 9 students during the 2023 academic year, 42.11% of students were classified at the A1 level, 26.32% at the A2 level, 26.32% at the B1 level, and only 5.26% at the B2 level (Thanyaburi School, 2023). These results indicate that approximately 68.43% of the students remained below the B1 proficiency level. Since B1 is generally regarded as an intermediate level at which learners can understand and communicate about familiar topics with greater independence, the results suggest that a substantial proportion of students continued to experience difficulties in developing the language proficiency expected of English Program learners. Given that English Program students receive enhanced English exposure compared with students in the regular program, the finding that more than two-thirds of the cohort remained below the B1 proficiency level underscores the need for more effective instructional strategies to support language development.

Classroom observations conducted by the researcher further revealed that many students struggled to recall previously learned vocabulary, use target words appropriately in context, and apply vocabulary knowledge during classroom activities. Students often demonstrated limited participation during vocabulary-learning tasks and relied heavily on teacher explanations rather than actively engaging with peers or independently constructing meaning. Because vocabulary knowledge serves as a foundation for overall language proficiency, these observations highlighted the need for instructional approaches that could increase student engagement, promote active participation, and provide meaningful opportunities for vocabulary practice and peer interaction (Beck et al., 2013; McKeown, 2019).

To address these challenges, educators have increasingly explored cooperative learning strategies that encourage learner engagement and knowledge construction through social interaction (Johnson & Johnson, 2009). One such strategy is the Jigsaw Method, a cooperative learning approach developed by Aronson et al. (1978). The Jigsaw Method requires students to work collaboratively in small groups, become responsible for learning specific content, and subsequently teach that content to their peers (Aronson & Patnoe, 2011). Through expert-group discussions, peer teaching, and collaborative problem-solving activities, students actively participate in constructing knowledge rather than passively receiving information. The method is grounded in Cooperative Learning Theory and Vygotsky's Sociocultural Theory, both of which emphasize the importance of interaction, collaboration, and peer support in facilitating learning and cognitive development. (Aronson et al., 1978; Vygotsky, 1978)

Recent research has demonstrated the effectiveness of cooperative learning strategies in English language instruction. Haghnia et al. (2024) found that collaborative learning activities significantly enhanced vocabulary acquisition among EFL learners by promoting meaningful interaction and deeper cognitive engagement. Previous research in Thailand has yielded similar results. For example, Tanapanyaworakul (2021) found that the Jigsaw method significantly improved vocabulary retention and engagement among Thai secondary students. These findings echo international studies showing that cooperative learning strategies like Jigsaw foster positive interdependence, reduce passive learning, and increase academic achievement (Gömleksiz, 2007; Mengduo & Xiaoling, 2010). Similarly, Harnsamer (2024) reported that cooperative learning activities improved vocabulary knowledge and created positive learning experiences among Thai EFL learners. Khan et al. (2018) further found that cooperative learning approaches positively influenced students' academic achievement and attitudes toward learning by encouraging active participation and shared responsibility. These findings suggest that cooperative learning strategies such as the Jigsaw Method have considerable potential to address many of the challenges associated with vocabulary instruction in EFL classrooms.

Despite the growing body of research supporting cooperative learning approaches, limited studies have specifically examined the effectiveness of the Jigsaw Method in teaching CEFR-aligned English vocabulary among Grade 9 English Program students in Thai public schools, particularly in Pathum Thani Province. Furthermore, relatively few studies have simultaneously investigated both students' vocabulary achievement and their attitudes toward learning vocabulary through the Jigsaw Method. Addressing this gap is important because effective vocabulary instruction should not only improve academic

performance but also foster positive learner attitudes that contribute to sustained language development and engagement.

Therefore, this study aimed to investigate the effectiveness of the Jigsaw Method in teaching English vocabulary to Grade 9 English Program students in a public school in Pathum Thani Province, Thailand. Specifically, the study sought to determine whether the implementation of the Jigsaw Method could improve students' vocabulary achievement and examine their attitudes toward learning vocabulary through the instructional approach. The findings of the study are expected to contribute to the growing body of knowledge on cooperative learning and provide practical implications for English language teachers seeking effective learner-centered approaches to vocabulary instruction.

### Research Objectives

1. To investigate the effectiveness of using the Jigsaw method in teaching English vocabulary to grade 9 students.
2. To examine the students' overall attitudes toward learning through the Jigsaw method.

### Literature Review and The Conceptual Framework

This study is anchored in Cooperative Learning Theory and Vygotsky's Sociocultural Theory, which emphasize the importance of social interaction, collaboration, and peer-assisted learning in promoting cognitive development. According to Vygotsky (1978), learning occurs through interaction with others, particularly within the learner's Zone of Proximal Development (ZPD), where guidance from more knowledgeable peers or teachers helps learners achieve higher levels of understanding.

Based on these theoretical foundations, the study investigates the effectiveness of the Jigsaw Method in teaching English vocabulary to Grade 9 students. The Jigsaw Method is a cooperative learning strategy in which students work together in small groups and become responsible for learning and teaching specific portions of the lesson content to their peers. Through collaborative learning, students actively participate in the learning process, share knowledge, and support one another's understanding of vocabulary concepts.

In this study, the independent variable is the implementation of the Jigsaw Method through a series of structured learning activities. The dependent variables are (1) students' academic achievement in English vocabulary, as measured by pretest and posttest scores, and (2) students' attitudes toward learning vocabulary through the Jigsaw Method, as measured by the attitude questionnaire.

The conceptual framework proposes that the implementation of the Jigsaw Method influences students' vocabulary achievement and their attitudes toward learning.

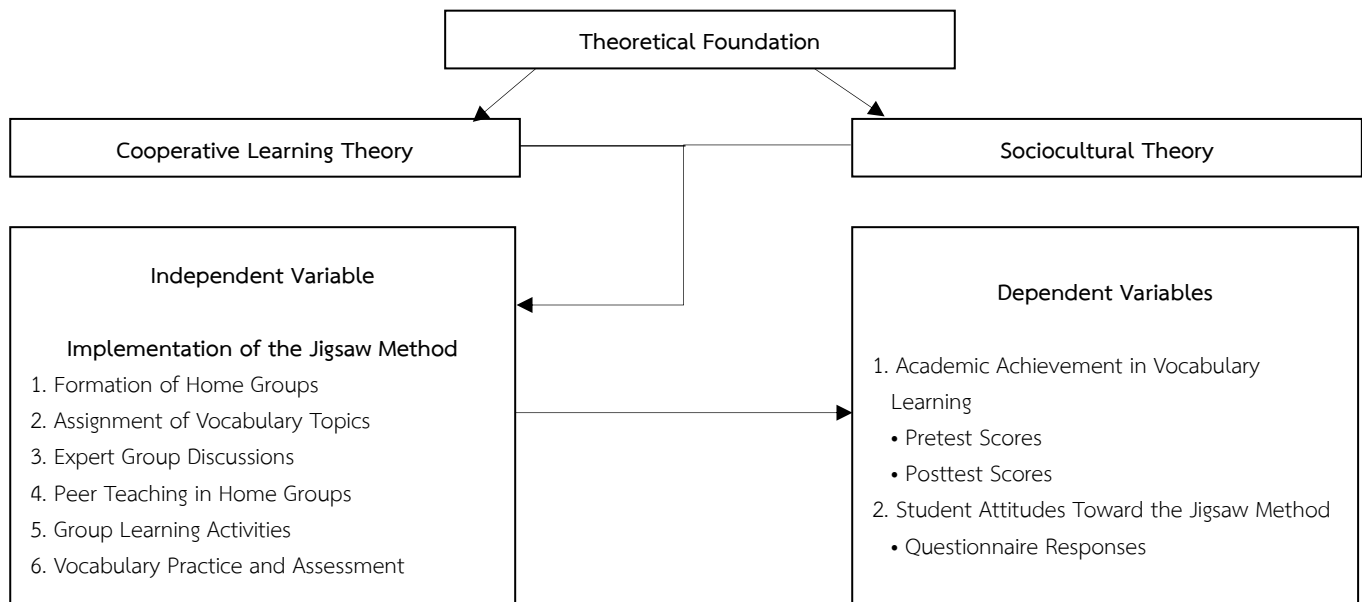


**Figure 1** Conceptual Framework of the Study

## Research Methodology

This study employed a quasi-experimental research design, specifically the one-group pretest-posttest design. In this design, a single group of participants is measured before and after an intervention to determine whether significant changes occur as a result of the intervention.

### 1. Population and Sample

The population of the study consisted of 502 Grade 9 students enrolled in a government secondary school in Pathum Thani Province, Thailand, during the academic year 2024. The students were distributed among twelve Grade 9 sections, including regular, gifted, and English Program classes.

The sample consisted of 30 Grade 9 students enrolled in the English Program. The participants were selected using convenience sampling, as they were readily accessible to the researcher and available during the period of data collection.

The English Program class was chosen because the researcher had direct access to the students and was able to implement the intervention within the regular classroom schedule. The use of convenience sampling enabled the researcher to conduct the study efficiently while maintaining consistency in the delivery of instruction and assessment procedures.

### 2. Research Instruments

Three research instruments were utilized in this study: (1) a vocabulary pretest and posttest, (2) an attitude questionnaire, and (3) Jigsaw-based lesson plans.

**2.1 Vocabulary Pretest and Posttest** - The vocabulary pretest and posttest were developed to measure students' vocabulary knowledge before and after the implementation of the Jigsaw Method. The test consisted of 30 multiple-choice items derived from the B1-level vocabulary list of the Common European Framework of Reference for Languages (CEFR).

To ensure content validity, the test items were reviewed and evaluated by three experts in English language teaching and assessment. The Item-Objective Congruence (IOC) technique was

employed to determine the alignment between the test items and the learning objectives. The IOC values equaled to 1.00, indicating acceptable content validity.

A pilot test was conducted with students who possessed characteristics similar to those of the target participants but were not included in the actual study. The reliability of the test was calculated using the Kuder-Richardson Formula 20 (KR-20), which is appropriate for dichotomously scored items. The analysis yielded a reliability coefficient of 0.88, indicating high internal consistency and reliability.

**2.2 Attitude Questionnaire** - A researcher-developed questionnaire was utilized to determine students' attitudes toward learning vocabulary through the Jigsaw Method. The questionnaire consisted of six statements measured using a five-point Likert scale, where:

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

The questionnaire measured students' perceptions regarding participation, cooperation, motivation, engagement, confidence, and overall satisfaction with the learning process.

To establish content validity, the questionnaire was evaluated by three experts in English language teaching and educational research. The IOC values equaled to 1.00, indicating satisfactory content validity.

A pilot test was conducted prior to the implementation of the study. The internal consistency reliability of the questionnaire was determined using Cronbach's Alpha, yielding a coefficient of .87, which indicates a high level of reliability.

### 2.3 Jigsaw-Based Lesson Plans

Five 1-hour Jigsaw-based lesson plans were developed and implemented throughout the intervention period of seven weeks. Each lesson plan covered one vocabulary topic aligned with the Grade 9 English curriculum and CEFR B1 vocabulary requirements. The topics included Family and Relationships, Sports and Recreation, Shopping and Consumer Activities, Education and School Life, and Feelings and Emotions

Each lesson plan followed the core principles of the Jigsaw Method. Students were first assigned to home groups consisting of six members. Each member was assigned a specific vocabulary subtopic to study. Students then joined expert groups, where members from different home groups who had the same assigned vocabulary topic studied and discussed the vocabulary items. After completing the expert group discussions, students returned to their home groups and taught their assigned vocabulary to their peers.

The teacher acted as the facilitator throughout the learning process by providing instructional guidance, monitoring group interactions, clarifying misunderstandings, and ensuring active participation among all students. Individual accountability was maintained through vocabulary exercises, participation monitoring, group tasks, and formative assessments conducted during each lesson.

The lesson plans underwent expert validation using the IOC method and obtained an overall IOC score of 1.00, indicating excellent alignment between the lesson objectives, learning activities, instructional materials, and assessment procedures.

### 3. Data Collection

The data collection process was conducted over a seven-week period.

During the first week, the researcher introduced the objectives of the study and explained the procedures of the Jigsaw Method to the participants. Students were informed of their roles and responsibilities within the cooperative learning environment. Following the orientation, the vocabulary pretest was administered to determine the students' baseline vocabulary knowledge.

During the second to sixth weeks, the intervention was implemented through the five Jigsaw-based lesson plans. Students participated in structured cooperative learning activities involving home-group discussions, expert-group discussions, peer teaching, collaborative exercises, and vocabulary application tasks. Throughout the intervention period, the researcher monitored student participation and provided assistance when necessary.

During the seventh week, the vocabulary posttest was administered to measure changes in students' vocabulary knowledge after the intervention. Immediately after completing the posttest, the students were asked to complete the attitude questionnaire to determine their perceptions of learning vocabulary through the Jigsaw Method.

### 4. Data Analysis

The collected data were analyzed using both descriptive and inferential statistics. The students' pretest and posttest scores were analyzed using mean (M) and standard deviation (SD) to determine their overall vocabulary performance.

A paired-samples t-test was employed to determine whether there was a statistically significant difference between the pretest and posttest scores of the participants at the 0.05 level of significance.

The responses from the attitude questionnaire were analyzed using mean scores and standard deviations. The mean scores were interpreted according to the following criteria:

| Mean Range  | Interpretation |
|-------------|----------------|
| 4.51 – 5.00 | Very High      |
| 3.51 – 4.50 | High           |
| 2.51 – 3.50 | Moderate       |
| 1.51 – 2.50 | Low            |
| 1.00 – 1.50 | Very Low       |

The results of the statistical analyses were used to determine the effectiveness of the Jigsaw Method in improving Grade 9 students' vocabulary learning and to examine students' attitudes toward the intervention.

## Research Results

The research study found that:

### 1. To investigate the effectiveness of using the Jigsaw method in teaching English vocabulary to grade 9 students.

To address the first research question as to whether there is a significant improvement to the vocabulary skills of Grade 9 students when taught using the Jigsaw method, a dependent t-test was conducted to compare the pretest and posttest scores and the results are shown in Table 1.

**Table 1.** Comparison of the Pretest and Post Test of the Students before and after the Use of Jigsaw Method

| Testing   | Full Score | $\bar{x}$ | S.D. | $(\bar{D})$ | S.D. $(\bar{D})$ | t     | df | Sig     |
|-----------|------------|-----------|------|-------------|------------------|-------|----|---------|
| Pre-test  | 30         | 13.70     | 6.31 | 6.67        | 2.28             | 16.02 | 29 | < 0.001 |
| Post-test | 30         | 20.37     | 5.20 |             |                  |       |    |         |

Note: \*Statistically significant at 0.05 level.

As shown in Table 1, students obtained a mean pretest score of 13.70 (SD = 6.31), which increased to a mean posttest score of 20.37 (SD = 5.20) following the implementation of the Jigsaw-based instructional activities. The analysis revealed a statistically significant difference between the pretest and posttest scores,  $t(29) = 16.02$ ,  $p < .001$ , indicating that students performed significantly better after the intervention.

The mean difference between the two assessments was 6.67 points (SD = 2.28), suggesting a substantial improvement in students' vocabulary achievement after participating in the Jigsaw Method. Furthermore, the magnitude of the intervention effect was very large, as indicated by Cohen's d value of 2.92. This finding suggests that the improvement observed was not only statistically significant but also educationally meaningful. These results support the first objective of the study, which sought to determine the effectiveness of the Jigsaw Method in enhancing the English vocabulary achievement of Grade 9 English Program students.

### 2. To examine the students' overall attitude in using the Jigsaw method.

To complement the test score data, a six-item questionnaire was administered to explore students' attitudes toward the Jigsaw method in vocabulary instruction. The results, summarized in Table 3, revealed positive perceptions throughout the sample. Students responded to statements using a 5-point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). All six statements received high average scores, indicating favorable student sentiment across multiple dimensions of the learning experience.

**Table 2** Students' Opinions on the Use of Jigsaw Method in Teaching Vocabulary

| Statement                                                                   | $\bar{x}$ | S.D. | Interpretation |
|-----------------------------------------------------------------------------|-----------|------|----------------|
| 1. I felt that my participation mattered during the class.                  | 4.13      | 0.68 | High           |
| 2. I saw that every one of my classmates gave inputs during the class.      | 4.10      | 0.71 | High           |
| 3. I believe that my classmates and I worked well during the class.         | 4.17      | 0.79 | High           |
| 4. I understood the topics clearer when discussed with my classmates.       | 4.23      | 0.63 | High           |
| 5. I didn't feel bored during the class.                                    | 4.23      | 0.68 | High           |
| 6. Overall, I liked working/discussing with my classmates during the class. | 4.57      | 0.73 | Highest        |
| Total                                                                       | 4.24      | 0.70 | High           |

The first statement, "I felt that my participation mattered during the class," received a mean score of 4.13 with a standard deviation of 0.68, interpreted as a high level of agreement. This shows that the students felt valued and believed their presence and contributions had an impact during the Jigsaw sessions. The second item, "I saw that every one of my classmates gave inputs during the class," scored a mean of 4.10 and a standard deviation of 0.71, also interpreted as high. This suggests that students perceived their classmates as being actively involved, although this item received the lowest mean among the six. The third item, "I believe that my classmates and I worked well during the class," received a mean of 4.17 and a standard deviation of 0.79, reinforcing the collaborative spirit fostered by the Jigsaw method.

The fourth statement, "I understood the topics clearer when discussed with my classmates," received a mean of 4.23 and a standard deviation of 0.63, which shows that peer discussions greatly facilitated comprehension. Similarly, the fifth item, "I didn't feel bored during the class," had the same mean of 4.23 and a slightly higher standard deviation of 0.68, indicating that the Jigsaw method maintained student engagement and reduced classroom boredom. Finally, the sixth statement, "Overall, I liked working/discussing with my classmates during the class," received the highest mean score of 4.57 and a standard deviation of 0.73. This demonstrates the students' strong preference for cooperative learning and their enjoyment of the Jigsaw process. The overall mean across all items was 4.24 with a standard deviation of 0.70, categorically interpreted as a "High" level of satisfaction. The findings indicate that students held positive attitudes toward learning vocabulary through the Jigsaw method, suggesting that this cooperative learning approach was favorably perceived by the participants.

## Discussions

Based on the study results, the discussion is as follows:

### 1. Effect of the Jigsaw Method on Students' Vocabulary Achievement

The findings of this study revealed that the implementation of the Jigsaw Method significantly improved the vocabulary achievement of Grade 9 students. The posttest scores were substantially higher than the pretest scores, indicating that the intervention was effective in enhancing students' vocabulary knowledge. These findings suggest that cooperative learning environments provide learners with meaningful opportunities to engage with vocabulary through discussion, explanation, and peer interaction, which contribute to deeper vocabulary processing and retention.

The results can be explained through Vygotsky's Sociocultural Theory (1978), which emphasizes that learning occurs through social interaction and collaborative meaning-making. Through the Jigsaw Method, students worked within their Zone of Proximal Development (ZPD), where peers provided support and scaffolding that enabled learners to understand and use new vocabulary more effectively. As students assumed the role of "experts" and taught vocabulary items to their group members, they were required to process information more deeply, thereby strengthening vocabulary acquisition and retention.

The findings are also consistent with Cooperative Learning Theory, which posits that positive interdependence, individual accountability, and peer teaching contribute to improved academic achievement (Slavin, 1995). In the Jigsaw Method, students become responsible not only for their own learning but also for assisting their peers' learning. Such responsibility encourages active participation, repeated exposure to vocabulary items, and meaningful communication, all of which are essential elements of vocabulary acquisition.

Recent empirical studies provide further support for these findings. For example, Harnsamer (2024) found that collaborative learning significantly enhanced Thai EFL learners' vocabulary knowledge and positively influenced students' perceptions of vocabulary learning. Their findings suggested that cooperative learning activities increased opportunities for interaction and meaningful engagement with vocabulary, resulting in improved learning outcomes. Similarly, Haghnia et al. (2024) reported that collaborative learning tasks significantly improved EFL learners' vocabulary acquisition, particularly when learners actively interacted and negotiated meaning during learning activities. These studies support the present finding that collaborative approaches such as the Jigsaw Method facilitate vocabulary development by encouraging active learner participation and social interaction.

The results also align with contemporary vocabulary acquisition research. Eskandari et al. (2024) found that vocabulary learning tasks requiring deeper cognitive processing resulted in significantly greater vocabulary gains than more passive learning activities. The Jigsaw Method similarly requires learners to analyze, explain, and teach vocabulary to others, thereby promoting deeper processing and long-term retention. Furthermore, Gao et al. (2023) demonstrated that interactive vocabulary activities contributed to greater vocabulary acquisition among EFL learners because students actively engaged with language rather than simply memorizing word meanings.

The findings of the present study are therefore consistent with both theoretical perspectives and recent empirical evidence indicating that collaborative learning strategies enhance vocabulary

acquisition. However, the current findings extend previous research by demonstrating that the Jigsaw Method can also be effective among Grade 9 English Program students in a Thai public-school context.

Despite these positive outcomes, caution must be exercised when interpreting the results. The study employed a one-group pretest-posttest quasi-experimental design without a control group. Although the improvement in posttest scores suggests that the Jigsaw Method contributed to vocabulary development, the very large effect size observed in the present study (Cohen's  $d = 2.92$ ) should be interpreted carefully. The substantial improvement may be attributable to the intensive and highly interactive nature of the Jigsaw activities, which provided repeated opportunities for peer explanation, vocabulary rehearsal, and meaningful engagement with target lexical items. Nevertheless, alternative explanations such as testing effects, maturation, prior exposure to the target vocabulary, or external learning experiences cannot be entirely ruled out. Therefore, causal conclusions should be drawn cautiously. Future studies employing randomized or controlled experimental designs are recommended to confirm the magnitude of the intervention effect and provide stronger evidence regarding the effectiveness of the Jigsaw Method.

## **2. Students' Attitudes Toward Learning Vocabulary Through the Jigsaw Method**

The findings also revealed that students demonstrated highly positive attitudes toward learning vocabulary through the Jigsaw Method. The overall mean score indicated a high level of satisfaction with the instructional approach, suggesting that students viewed the learning experience as engaging, enjoyable, and beneficial.

This finding can be explained through Sociocultural Theory (Vygotsky, 1978), which highlights the importance of social interaction in promoting engagement and learning. The collaborative nature of the Jigsaw Method provided students with opportunities to communicate, exchange ideas, and support one another during the learning process. Such interactions may have increased students' confidence and reduced anxiety, thereby fostering more positive attitudes toward vocabulary learning.

The findings are likewise supported by motivational perspectives in second language learning. When students perceive learning activities as meaningful, interactive, and learner-centered, they are more likely to participate actively and sustain their engagement. The Jigsaw Method encourages students to assume responsibility for learning and teaching vocabulary, which may strengthen their sense of ownership and involvement in classroom activities (Aronson & Patnoe, 2011).

Recent studies support these interpretations. For example, Harnsamer (2024) reported that Thai EFL learners developed positive perceptions toward collaborative learning, with participants expressing appreciation for the opportunities to work with peers and learn through interaction. Similarly, research by Gao et al. (2023) found that interactive and collaborative language-learning activities increased learners' engagement and motivation, resulting in more favorable attitudes toward language learning. Furthermore, studies examining collaborative vocabulary-learning tasks have consistently reported that students value opportunities for peer discussion and cooperative problem-solving because such activities make learning more enjoyable and meaningful.

The findings of this study therefore support the growing body of evidence suggesting that cooperative learning strategies contribute not only to cognitive outcomes but also to affective outcomes such as motivation, engagement, and positive attitudes toward learning. In the context of English

vocabulary instruction, these positive attitudes may play an important role in sustaining learners' interest and encouraging continued vocabulary development.

Nevertheless, the findings concerning students' attitudes should also be interpreted with caution. Attitudes were measured using a self-report questionnaire, which may be subject to response bias or social desirability effects. Students may have provided favorable responses because they were aware that they had participated in the intervention. Future research may incorporate interviews, focus-group discussions, or classroom observations to obtain a more comprehensive understanding of students' perceptions and experiences with the Jigsaw Method.

### Originality and Body of Knowledge

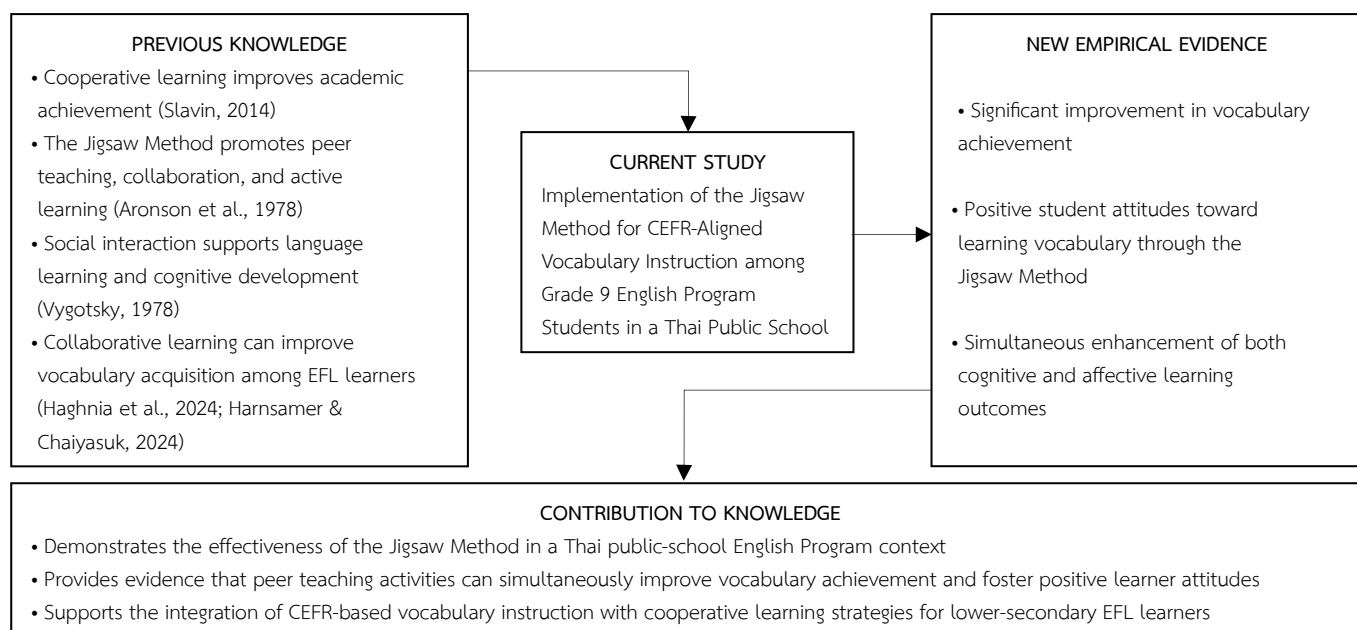


**Figure 2** Originality and Body of Knowledge

The present study contributes to the growing body of literature on cooperative learning and English vocabulary instruction by providing context-specific empirical evidence regarding the effectiveness of the Jigsaw Method among Grade 9 English Program students in a Thai public-school setting. While previous studies have established that cooperative learning strategies can improve language learning outcomes and promote learner engagement (Slavin, 2014; Khan et al., 2021), limited research has examined the implementation of the Jigsaw Method in CEFR-aligned vocabulary instruction among lower-secondary English as a Foreign Language (EFL) learners in Thailand.

The findings of this study demonstrated that the Jigsaw Method significantly improved students' vocabulary achievement, as evidenced by higher posttest scores compared with pretest scores. These results support previous research indicating that collaborative learning environments promote vocabulary acquisition by encouraging meaningful interaction, peer explanation, and active engagement with learning materials (Haghnia et al., 2024; Harnsamer, 2024). The findings further reinforce the principles of Sociocultural Theory, which emphasize the role of social interaction in cognitive development (Vygotsky,

1978), and Cooperative Learning Theory, which highlights the importance of positive interdependence and peer teaching in promoting academic achievement (Slavin, 2014).

Beyond vocabulary achievement, the study also revealed that students developed positive attitudes toward learning vocabulary through the Jigsaw Method. The participants reported favorable perceptions of collaborative learning activities, peer discussions, and shared responsibility for learning. These findings are consistent with recent studies suggesting that cooperative learning strategies positively influence learners' motivation, engagement, and attitudes toward language learning (Khan et al., 2018; Harnsamer, 2024).

The primary contribution of this study lies in its demonstration that peer-teaching activities embedded within the Jigsaw Method can simultaneously support both cognitive and affective learning outcomes. Specifically, the findings indicate that structured collaboration not only enhanced students' vocabulary achievement but also fostered positive attitudes toward vocabulary learning. While previous studies have often examined academic achievement or learner attitudes separately, the present study provides evidence that both outcomes can be developed concurrently through a single instructional intervention.

Furthermore, the study extends existing knowledge by demonstrating the applicability of CEFR-aligned vocabulary instruction through cooperative learning in a lower-secondary Thai EFL context. The integration of expert-group discussions, peer teaching, collaborative problem-solving, and vocabulary practice activities provided learners with opportunities to actively construct knowledge while developing confidence in using English vocabulary. These findings offer practical guidance for English language teachers seeking learner-centered instructional approaches that address both language development and learner engagement.

Consequently, the study contributes additional empirical evidence supporting the implementation of the Jigsaw Method in secondary-level EFL classrooms and strengthens the evidence base for cooperative vocabulary instruction in contexts similar to Thai public schools. The findings suggest that structured peer interaction can serve as an effective pedagogical approach for enhancing vocabulary learning while simultaneously cultivating positive attitudes within the context of an English learning classroom at a lower secondary level.

## Conclusions

This study examined the effectiveness of the Jigsaw Method in improving the English vocabulary achievement of Grade 9 English Program students and explored their attitudes toward learning vocabulary through the method. The findings revealed that the implementation of the Jigsaw Method resulted in a statistically significant improvement in students' vocabulary achievement, as evidenced by the higher posttest scores compared with the pretest scores. These results indicate that the Jigsaw Method was effective in enhancing students' vocabulary learning.

The findings also showed that students demonstrated positive attitudes toward learning vocabulary through the Jigsaw Method. The participants reported favorable perceptions of the collaborative learning activities, peer interactions, and shared learning responsibilities that characterized the instructional approach.

Taken together, the results suggest that the Jigsaw Method can serve as an effective learner-centered strategy for English vocabulary instruction among lower-secondary EFL learners. The method not only contributed to improved vocabulary achievement but also fostered positive attitudes toward learning. Therefore, the integration of cooperative learning strategies such as the Jigsaw Method may provide valuable opportunities for enhancing both the academic and affective dimensions of vocabulary learning in English language classrooms.

## Recommendations

### 1. Policymaking Recommendations

1.1 English language teachers may consider piloting the Jigsaw Method as a supplementary instructional strategy for vocabulary instruction, particularly in contexts where student interaction and collaborative learning are encouraged. The positive outcomes observed in this study suggest that the method has potential for improving vocabulary achievement and fostering positive attitudes toward learning.

1.2 Schools may support teachers who are interested in implementing cooperative learning strategies by providing opportunities for professional development, peer collaboration, and the sharing of instructional practices. However, broader implementation should be accompanied by continued monitoring and evaluation of student learning outcomes.

1.3 Educational practitioners may adapt the Jigsaw Method to suit the needs of their learners and instructional contexts. Future classroom applications may explore the use of the method with different proficiency levels, content areas and learning environments to determine its broader applicability.

### 2. Recommendations for Future Research

2.1 Future studies should investigate the long-term retention of vocabulary knowledge by administering delayed posttests several weeks or months after the intervention. Such research would help determine whether the learning gains observed through the Jigsaw Method are sustained over time.

2.2 Future researchers should employ experimental or quasi-experimental designs that include comparison or control groups. Such designs would strengthen causal interpretations regarding the effectiveness of the Jigsaw Method and reduce potential threats to internal validity.

2.3 Studies involving larger sample sizes and participants from different schools, educational programs, and geographical locations are recommended to improve the generalizability of the findings.

2.4 Future research may examine the effectiveness of the Jigsaw Method across different English language skills, such as reading comprehension, speaking, writing, and listening, to determine whether the benefits extend beyond vocabulary learning.

2.5 Qualitative approaches, including classroom observations, focus-group discussions, and student interviews, may be employed to gain deeper insights into learners' experiences, peer interactions, and perceptions of cooperative learning.

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