

The Effectiveness of A Gamified Vocabulary learning Media for Thai Junior High School Students

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Abstract

This study aims to determine the effectiveness of gamification-based learning media in improving vocabulary mastery among junior high school students in Thailand and to examine whether there is a significant difference between students' vocabulary achievement before and after the implementation of gamification. This research employed a quantitative experimental design using a pre-test and post-test approach. The population of this study consisted of 40 seventh-grade students at Nida Suksasat School, while the sample included 20 students selected for the experimental group. The data were collected through vocabulary tests administered before and after the treatment. The data were analyzed using descriptive statistics, normality testing (Shapiro-Wilk), and paired sample t-test. The results of the study showed that the mean score increased from 53.65 in the pre-test to 78.80 in the post-test. The normality test indicated that the data were normally distributed, with significance values greater than 0.05. Furthermore, the paired sample t-test revealed a significance value of less than 0.05, indicating that there is a statistically significant difference between pre-test and post-test scores. Based on these findings, it can be concluded that gamified vocabulary learning media is effective in improving students' vocabulary mastery. The use of gamification elements such as points, badges, and leaderboards contributes to increased motivation, engagement, and active participation, resulting in better learning outcomes. Therefore, gamification can be considered an effective and innovative approach to vocabulary learning, especially in EFL contexts like Thailand.

INTRODUCTION

This study addresses the persistent challenges of vocabulary acquisition among junior high school students in Thailand, an EFL (English as a Foreign Language) context where exposure to English remains limited. The findings of previous studies indicate that traditional, teacher-centered approaches such as rote memorization, translation, and repetitive drilling, continue to dominate classroom practices, often resulting in low student motivation, minimal engagement, and inadequate vocabulary mastery. These conditions are further reflected in Thailand's relatively low performance in international benchmarks such as the EF English Proficiency Index, highlighting the urgent need for more effective and engaging instructional approaches.

Vocabulary plays a fundamental role in language learning, as it underpins all four language skills: listening, speaking, reading, and writing (Yulistiani et al., 2020; Ha, 2021). Students with limited vocabulary tend to struggle across these skills, often experiencing difficulties in comprehension, expression, and participation in learning activities. Moreover, vocabulary mastery has been consistently identified as a strong predictor of overall language proficiency in Second Language Acquisition (SLA) research (Yusuk, 2021). Therefore, improving vocabulary learning is a crucial step toward enhancing students' overall English competence.

In response to these challenges, gamification has emerged as a promising pedagogical approach. By incorporating game elements such as points, badges, rewards, levels, and leaderboards, gamification transforms conventional learning into a more interactive and motivating experience (Samortin, 2020). This

approach aligns with the learning preferences of adolescent students, who tend to respond positively to visual, interactive, and challenge-based activities (Srimanee et al., 2021). Gamification not only increases motivation but also promotes deeper engagement and repeated exposure to vocabulary, which are essential for long-term retention (Budiyani & Sujarwo, 2020; Raskova Octaberlina, 2023).

Empirical studies have further demonstrated the effectiveness of gamification in vocabulary learning. For instance, gamified platforms such as Gimkit and Wordwall have been shown to significantly improve vocabulary mastery through interactive and competitive learning environments (Yasfin Osadhi, 2024; Muarif & Febrianti, 2024). However, despite these promising findings, research focusing specifically on gamified vocabulary learning in the Thai junior high school context remains limited. Existing studies are often concentrated at the tertiary level or lack rigorous experimental designs, resulting in a gap in empirical evidence regarding causal effects in secondary education settings.

Furthermore, there is a lack of gamified learning media that are fully aligned with the Thai curriculum and adapted to local educational and cultural contexts. Many existing tools are imported or insufficiently localized, which may reduce their effectiveness in classroom implementation. This gap highlights the need for context-specific research that not only evaluates the effectiveness of gamification but also considers its practical applicability within the Thai education system.

Therefore, this study aims to examine the effectiveness of gamification-based learning media in improving vocabulary mastery among Thai junior high school students and to determine whether significant differences exist between gamified and conventional learning methods. By employing an experimental approach, this research seeks to provide stronger empirical evidence regarding the impact of gamification on vocabulary acquisition.

The findings of this study are expected to contribute both theoretically and practically. Theoretically, this study enriches the body of knowledge in English language education by reinforcing the role of gamification as an effective instructional approach in EFL contexts. Practically, it offers valuable insights for teachers, schools, and policymakers in designing and implementing more engaging and effective vocabulary learning strategies. Additionally, this study opens opportunities for future research to further explore gamification across different contexts, educational levels, and learning variables.

This study is grounded in an integrated theoretical framework combining Second Language Acquisition (SLA), vocabulary acquisition theory, motivation theory, and gamification design, which directly relates to the issues identified in the introduction. From the SLA perspective, vocabulary learning is a complex process influenced by input, exposure, cognitive processing, and interaction (Dai & Papatungan, 2024). In the Thai EFL context, where exposure to English is limited, effective learning requires meaningful input and repeated practice to support long-term retention.

Vocabulary acquisition theory further emphasizes that learners must move from receptive to productive vocabulary through repetition, context, and active use (Yulistiani et al., 2020; Ha, 2021). However, traditional teaching methods often fail to provide these conditions, resulting in superficial learning. From a motivational perspective, Self-Determination Theory (SDT) explains that students learn more effectively when autonomy, competence, and relatedness are fulfilled. Gamification supports these needs by incorporating elements such as points, badges, and leaderboards, which enhance motivation and engagement (Laksanasut, 2025).

In addition, gamification theory explains how structured game elements create feedback, repetition, and challenge, which strengthen cognitive processing and retention (Toda et al., 2019a). These elements transform passive vocabulary learning into active and interactive experiences, making them particularly suitable for junior high school students who prefer engaging and visual learning environments (Budiyani & Sujarwo, 2020; Raskova Octaberlina, 2023).

Overall, this theoretical framework highlights that effective vocabulary learning requires not only cognitive support but also motivational and interactive elements. However, as identified in the problem identification, vocabulary learning in Thai junior high schools is still characterized by low mastery, limited student engagement, low motivation, and the dominance of traditional teacher-centered methods, while the use of gamification-based learning media remains limited.

METHODS

The conceptual framework of this study explains the relationship between gamification-based vocabulary learning media (X) and vocabulary mastery (Y). Gamification elements such as points, badges, and levels are used to increase students' motivation and engagement in learning.

Vocabulary mastery is measured through two main aspects: vocabulary acquisition and vocabulary retention. These show that learning success depends not only on understanding new words but also on the ability to remember them. Based on this framework, the hypotheses are H_0 (no significant difference) and H_1 (a significant difference) between students taught using gamification and those using conventional methods.

This study uses a quantitative experimental approach with a pre-test and post-test design. The research was conducted at Nida Suksasat School, Thailand, during the 2025/2026 academic year.

The sample consisted of 20 students. Data were collected using vocabulary tests, observations, and interviews (YM Htun, 2025; HF Labibah, 2024; L Oktaviani, 2024; Fikri M, 2025). Previous studies show that gamification can improve vocabulary learning outcomes (Febrianti & Taufiq, 2025; Purnawan et al., 2022). Data analysis included descriptive statistics, a normality test (Shapiro–Wilk), and a paired sample t-test (Sig. < 0.05). Finally, conclusions were drawn inductively based on Sugiyono (2017).

RESULTS AND DISCUSSION

Observation Results

The observation was conducted during the implementation of gamification-based vocabulary learning to examine students' engagement, motivation, and participation in the classroom. The results indicate that most students showed a positive response toward the use of gamified learning media. In terms of attention and focus, the majority of students consistently paid attention to the teacher's instructions and remained focused on the gamified activities. They were actively involved in completing tasks and demonstrated serious engagement throughout the learning sessions. Regarding motivation and enthusiasm, students appeared highly motivated, especially when receiving rewards such as points, badges, and leaderboard rankings. Many students showed excitement and enthusiasm, which encouraged them to participate more actively in the learning process. In the aspect of active participation, several students frequently asked questions, answered tasks, and engaged in discussions with their peers. Collaboration among students was also observed, as they helped each other complete challenges and understand vocabulary tasks.

Furthermore, students demonstrated learning independence by taking initiative to try higher levels, improve their scores, and complete tasks on time. Some students even repeated activities voluntarily to achieve better results. Overall, the observation results suggest that gamification-based learning media not only improved students' engagement and motivation but also created a more interactive and enjoyable learning environment. These findings support the quantitative results, indicating that gamification contributes positively to students' vocabulary mastery.

Results

a) Pre Test and Post Test

Based on the pre-test results of 20 students, the average score was 53.65, with the lowest score being 45 and the highest being 62. This indicates that students' initial vocabulary skills are still low to moderate, necessitating treatment to improve their vocabulary mastery.

Based on the post-test results, the average score was 78.8, with the lowest score being 70 and the highest being 88. This indicates an increase in students' vocabulary skills after being given treatment in the form of learning media.

Table 1. Pre Test and Post Test Score

No	Name	Test		No	Name	Test	
		Pre	Post			Pre	Post
1	Anan	50	75	11	Wichai	52	76
2	Somchai	55	80	12	Rattana	49	74
3	Niran	60	85	13	Somsak	61	87
4	Kanya	45	70	14	Lalita	47	73
5	Suda	50	78	15	Pranee	56	81
6	Chai	58	82	16	Kittisak	54	77
7	Arun	62	88	17	Boonmee	59	84
8	Mali	48	72	18	Sirin	51	76
9	Preecha	53	79	19	Thida	46	71
10	Dao	57	83	20	Chanin	60	85

The mean score increased from 53.65 in the pre-test to 78.8 in the post-test, indicating a significant improvement in students' vocabulary mastery after the treatment. This improvement can be supported by the use of gamified learning activities such as quiz-based games, word matching challenges, and level-based vocabulary missions. In these activities, students earn points for correct answers, receive badges as rewards, and compete through a leaderboard, which increases their motivation, engagement, and active participation in learning. As a result, students are more encouraged to practice vocabulary repeatedly in a fun and interactive way, leading to better learning outcomes.

b) Normality Test

Before conducting the hypothesis test, a normality test was carried out to determine whether the data distribution of the pre-test and post-test scores was normal. This step is important because the paired sample t-test requires normally distributed data. In this study, the Shapiro-Wilk test was used since the number of samples was less than 50 ($n = 20$).

The Shapiro-Wilk test works by comparing the distribution of the sample data with a normal distribution. If the data follows a normal pattern, the significance value (Sig.) will be greater than 0.05.

1. The data from pre-test and post-test were input into statistical analysis software.
2. The Shapiro-Wilk formula compares each score to the expected normal distribution.
3. The differences between observed values and expected values are calculated.
4. These differences are then converted into a significance value (Sig.).

$$W = \frac{(\sum_{i=1}^n a_i x(i))^2}{\sum_{i=1}^n (x_i - \bar{x})^2}$$

The results show that the significance value of the pre-test is 0.112 and the post-test is 0.094, both of which are higher than 0.05. This indicates that the data are normally distributed. Therefore, the assumption of normality has been met, and the data are suitable for further analysis using a paired sample t-test.

Based on the normality test, both pre-test and post-test data are normally distributed. Thus, the analysis can proceed to hypothesis testing using the paired sample t-test.

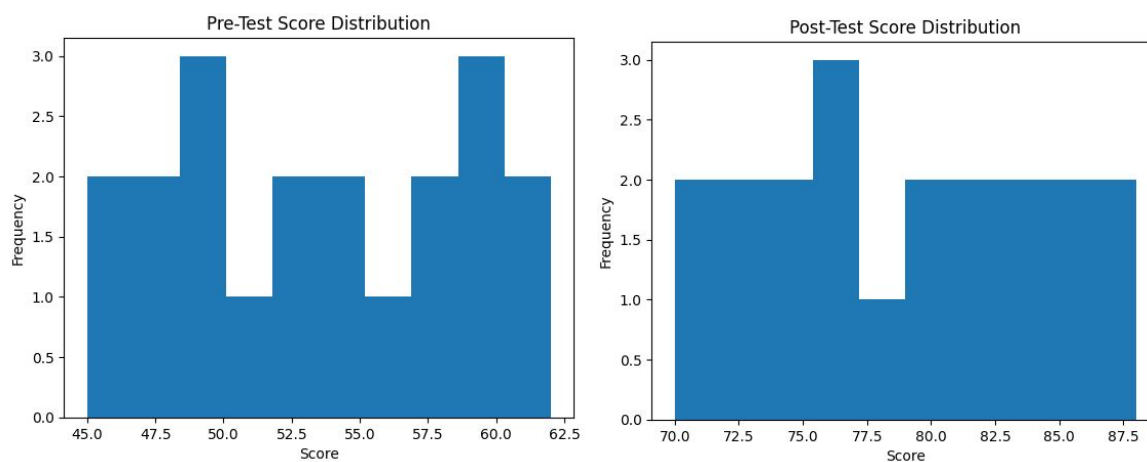


Figure 1-2. Normality Test

The histograms above illustrate the distribution of students' scores in both the pre-test and post-test. In the pre-test, the scores are spread between 45 and 62, with most students clustered around the average score. The distribution appears relatively balanced, indicating that the data are moderately symmetrical and close to a normal distribution. In the post-test, the scores are distributed between 70 and 88. Similar to the pre-test, the data show a fairly even spread around the mean, with no extreme outliers. The shape of the histogram also indicates a normal distribution pattern.

Overall, both histograms show that the data are reasonably symmetrical and do not deviate significantly from a normal distribution. This visual evidence supports the results of the Shapiro-Wilk test, which confirmed that the data are normally distributed. Therefore, the data meet the assumption required for further analysis using the paired sample t-test

c) Paired Sample t-test

A paired sample t-test was conducted to determine whether there was a significant difference between students' pre-test and post-test scores.

Table 2. Pre and Post Test Mean

Test	Mean	N
Pre Test	53.65	20
Post Test	78.80	20

A paired sample t-test was conducted to determine whether there was a significant difference between students' pre-test and post-test scores. The results showed that the mean score increased from 53.65 in the pre-test to 78.80 in the post-test, with a mean difference of 25.15.

The t-test result indicated a t-value of 108.15 with 19 degrees of freedom, and the significance value (Sig. 2-tailed) was 0.000, which is less than 0.05. This means that there is a statistically significant difference between the pre-test and post-test scores.

Table 3. Paired Sample t-test

Variable Pair	Mean Difference	Std. Deviation
Post-Pre	25.15	1.04

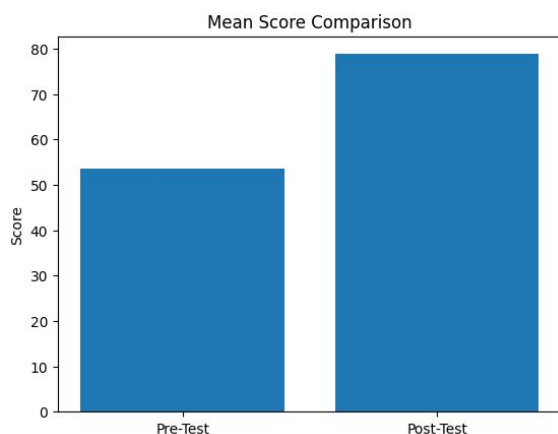


Figure 3. Mean Comparison

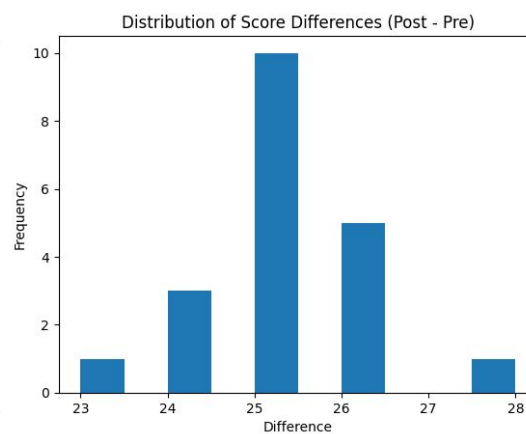


Figure 4. Disrtibusi Selisih

Mean from 53.65 to 78.80. Selisih: +25.15. t-value: 108.15 (sangat tinggi). Karena nilai Sig < 0.05, maka terdapat perbedaan signifikan antara pre-test dan post-test. Jadi, gamifikasi terbukti efektif meningkatkan vocabulary siswa. Maka dari itu H₀ ditolak dan H₁ diterima. Gamified vocabulary learning media efektif meningkatkan vocabulary siswa

Discussion

The findings of this study indicate that the use of gamified vocabulary learning media has a significant positive effect on students' vocabulary mastery. This is clearly reflected in the improvement of students' scores, where the mean score increased from 53.65 in the pre-test to 78.80 in the post-test. In addition, the result of the paired sample t-test showed that the significance value was lower than 0.05, which confirms that the improvement is statistically significant. Therefore, it can be concluded that the implementation of gamification in vocabulary learning is effective for junior high school students in Thailand.

This improvement can be explained through several interconnected factors related to the characteristics of gamified learning. First, gamification plays an important role in increasing students' motivation. Traditional vocabulary learning methods, such as memorization, translation, and drilling, often make students feel bored and less interested in the learning process. In contrast, gamified learning introduces elements such as points, badges, and leaderboards, which create a sense of achievement and competition. These elements encourage students to participate more actively and consistently in learning activities. When students feel motivated, they are more likely to engage with the material and make greater efforts to understand and remember new vocabulary.

Second, gamification significantly enhances student engagement. In traditional classrooms, students often act as passive learners who only listen to explanations from the teacher. However, in a gamified learning environment, students are required to interact directly with the material through various activities such as quizzes, word matching, and challenges. This interactive approach makes the learning process more dynamic and enjoyable. As a result, students remain focused for longer periods and are less likely to lose interest during the lesson. Increased engagement also means that students process the learning material more deeply, which contributes to better understanding and retention.

Third, gamification promotes active participation, which is a key factor in effective language learning. Through gamified activities, students are encouraged to answer questions, repeat vocabulary, and try again when they make mistakes. This continuous practice provides repeated exposure to new words, which is essential for transferring vocabulary from short-term memory to long-term memory. The immediate feedback provided in gamified systems also helps students quickly recognize and correct their mistakes, further strengthening their learning process.

Moreover, the results of this study can also be explained using vocabulary acquisition theory, particularly the concepts of input, repetition, and meaningful context. Gamified learning provides rich and comprehensible input through interactive tasks and contextualized activities. Students are exposed to vocabulary in various forms and situations, which helps them understand not only the meaning of words but also their usage. Repetition is naturally embedded in the game structure, as students often repeat tasks to gain higher scores or rewards. This repeated exposure plays a crucial role in improving vocabulary retention.

In the context of Thailand as an EFL (English as a Foreign Language) country, the effectiveness of gamification becomes even more significant. Thai students generally have limited exposure to English outside the classroom, which makes vocabulary acquisition more challenging. Gamified learning helps overcome this limitation by providing an engaging and immersive learning environment within the classroom. It allows students to experience more interaction with English vocabulary in a way that feels enjoyable rather than forced.

Furthermore, the findings of this study are consistent with previous studies that highlight the positive impact of gamification on language learning. Many researchers have found that gamification not only improves learning outcomes but also enhances students' attitudes toward learning. Students tend to feel more confident and less anxious when learning through games, which further supports their language development.

In summary, the significant improvement in students' vocabulary mastery is influenced by the combined effects of increased motivation, higher engagement, and active participation, all of which are facilitated by gamified learning media. These factors work together to create a more effective and enjoyable learning experience, ultimately leading to better vocabulary acquisition among students.

CONCLUSION

The findings of this study indicate that the use of gamified vocabulary learning media has a significant positive effect on students' vocabulary mastery. This is evident from the increase in the mean score from 53.65 in the pre-test to 78.80 in the post-test. The result of the paired sample t-test also showed a significance value lower than 0.05, which means that there is a statistically significant difference between students' scores before and after the implementation of gamification.

The improvement in students' vocabulary mastery is influenced by several important factors. Gamification increases students' motivation through game elements such as points, badges, and leaderboards. It also enhances engagement by transforming traditional learning into more interactive and

enjoyable activities. In addition, gamification promotes active participation, allowing students to be more involved in practicing vocabulary through repetition and meaningful use.

Furthermore, in the context of Thailand as an EFL country, where students have limited exposure to English outside the classroom, gamified learning provides an effective alternative to support vocabulary acquisition. It creates a more dynamic learning environment that encourages students to practice English more frequently and confidently.

Overall, it can be concluded that gamified vocabulary learning media is an effective and innovative approach to improving students' vocabulary mastery, particularly for junior high school students in EFL contexts. Based on the findings of this study, several suggestions are proposed:

1. For Teachers: teachers are encouraged to implement gamification in vocabulary learning to create a more engaging and motivating classroom environment. By using elements such as points, badges, and leaderboards, teachers can increase students' interest and participation in learning English.
2. For Students: students are encouraged to actively participate in gamified learning activities and make use of interactive media to improve their vocabulary mastery. Practicing vocabulary regularly through games can help them remember words more effectively.
3. For Schools: schools are recommended to support the use of technology-based learning media, including gamification, by providing adequate facilities such as digital devices and internet access to enhance the learning process.

For Future Researchers: future researchers are suggested to explore gamification in different contexts, subjects, or educational levels. They may also investigate other variables such as students' motivation, attitudes, or long-term retention to gain deeper insights into the effectiveness of gamified learning

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REFERENCES

- Budiyani, W., & Sujarwo, D. (n.d.). Interactive learning multimedia enhancing vocabulary mastery for junior high school students.
- Dai, O., & Papatungan, N. A. (2024). Developing vocabulary in second language acquisition through theory to class (individual differences in SLA). In *Jurnal Bahasa dan Sastra Inggris* (Vol. 13, Issue 2).
- Febrianti, D. T., & Taufiq, W. (2025). The Wordwall-Based Gamification in Teaching English Vocabulary. *Informasi Artikel Abstrak Histori Artikel. Jurnal Metaedukasi*, 7(1). <https://doi.org/10.37058/metaedukasi>.
- Giovani Br Lubis, Meikardo Samuel Prayuda, & Fiber Yun Alminda Ginting. (2025). The Effectiveness of Gamification Technique to Students' English Vocabulary Acquisition for Seventh Grade Junior

- High School Students at SMP N 31 Medan. *Jurnal Pengabdian Masyarakat Dan Riset Pendidikan*, 4(1), 2827–2832. <https://doi.org/10.31004/jerkin.v4i1.2059>
- Ha, H. T. (2021). Exploring the relationships between various dimensions of receptive vocabulary knowledge and L2 listening and reading comprehension. *Language Testing in Asia*, 11(1). <https://doi.org/10.1186/s40468-021-00131-8>
- Kruawong, T., & Phoocharoensil, S. (n.d.). Enhancing Science Vocabulary and Content Knowledge of Thai EFL students through Content and Language Integrated Learning (CLIL) and English Science Textbooks Word Lists (ESTWL). In *rEFLections* (Vol. 31, Issue 1).
- Laksanasut, S. (2025). Gamification in ESL/EFL Education: Transforming Language Learning and Teaching Through Play. *TESOL and Technology Studies*, 6(1), 16–29. <https://doi.org/10.48185/tts.v6i1.1562>
- Permainan Edukatif Muarif, P., & Febrianti, H. (2024). Penerapan Permainan Edukatif dalam Meningkatkan Motivasi Belajar Siswa SMA Dalam Pelajaran Pendidikan Agama Islam. In *Binary: Jurnal Teknologi Informasi dan Pendidikan* (Vol. 1, Issue 1).
- Purnawan, N., Padmadewi, N. N., & Budiarta, L. (2022). The Effect of Online Gamification Quiz Application on Vocabulary Mastery for Young English Learners. *JINOTEP (Jurnal Inovasi Dan Teknologi Pembelajaran): Kajian Dan Riset Dalam Teknologi Pembelajaran*, 9(1), 33–43. <https://doi.org/10.17977/um031v9i12022p033>
- Raskova Octaberlina, L. (2023). EFL learning gamification : exploring high school learners' vocabulary acquisition through experimentation. In *Salience Journal* (Vol. 3, Issue 1). <https://jurnal.stkipgriponorogo.ac.id/index.php/Salience>
- Samortin, M. (2020). Effects of Gamified Learning Activities in Enhancing Junior High School Students' English Vocabulary Retention. In *Asian Journal on Perspectives in Education* (Vol. 1, Issue 1).
- Srimanee, J., Ruangnoi, K., Bin, M. J., & Abidin, Z. (n.d.). International Journal of Linguistics, Literature and Translation (IJLLT) A Study of Vocabulary Learning Strategies in EFL Reading of High, Middle and Low Vocabulary Achievers of Thai Tertiary Students. <https://doi.org/10.32996/ijllt>
- Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta, CV.
- Toda, A. M., Klock, A. C. T., Oliveira, W., Palomino, P. T., Rodrigues, L., Shi, L., Bittencourt, I., Gasparini, I., Isotani, S., & Cristea, A. I. (2019a). Analysing gamification elements in educational environments using an existing Gamification taxonomy. *Smart Learning Environments*, 6(1). <https://doi.org/10.1186/s40561-019-0106-1>
- Toda, A. M., Klock, A. C. T., Oliveira, W., Palomino, P. T., Rodrigues, L., Shi, L., Bittencourt, I., Gasparini, I., Isotani, S., & Cristea, A. I. (2019b). Analysing gamification elements in educational environments using an existing Gamification taxonomy. *Smart Learning Environments*, 6(1). <https://doi.org/10.1186/s40561-019-0106-1>
- Yasfin Osadhi, S. (2024). The Effects of Vocabulary Learning Gamification on Students' Vocabulary Development. *Retain: Journal of Research in English Language Teaching*, 12, 21–29.
- Yulistiani, E., Wicaksono, A., Hastomo, T., & PGRI Bandar Lampung, S. (n.d.). The Correlation between Vocabulary Mastery, Reading Habits, and The Students' Writing Ability.
- Yusuk, S. (n.d.). Perceptions and Practices of EFL School Teachers on Implementing Active Learning in Thai English Language Classrooms. In *THAITESOL JOURNAL* (Vol. 33, Issue 1).