



THE CORRELATION BETWEEN THE INTENSITY OF PLAYING ROBLOX ON VOCABULARY SIZE OF EFL SECONDARY SCHOOL STUDENTS

Muhamad Noor Fauzan¹, Luqman Baehaqi², Zaitun Qamariah³

^{1,2,3}Universitas Islam Negeri Palangka Raya

E-mail: ¹mhmdnoorfzn2111120197@uin-palangkaraya.ac.id,

²luqman.baehaqi@uin-palangkaraya.ac.id, ³zaitun.qamariah@uin-palangkaraya.ac.id

Accepted :

9 September 2025

Published :

10 September 2025

Corresponding Author:

Muhamad Noor Fauzan

Email Corresponding :

mhmdnoorfzn2111120197@uin-palangkaraya.ac.id

ABSTRACT

This research explores the relationship between Roblox gaming intensity and the vocabulary size of EFL secondary school learners in Palangka Raya. The study was driven by persistent challenges in vocabulary mastery, low student engagement in conventional learning methods, and the growing relevance of digital platforms as authentic sources of language exposure. Employing a quantitative correlational design, the investigation involved 222 junior high school participants. Data were obtained through a Roblox Intensity Questionnaire adapted from Suryadi et al. (2024) and a receptive Vocabulary Levels Test based on Webb et al. (2017). Pearson correlation analysis revealed a significant positive association between the frequency of Roblox play and students' vocabulary size ($r = 0.244$, $p < 0.001$). Regression analysis further demonstrated that Roblox intensity accounted for 5.9% of the variance in vocabulary outcomes, with each incremental rise in gaming intensity predicting a 0.242-point increase in vocabulary scores. The findings underscore the pedagogical potential of leveraging commercial gaming platforms such as Roblox to foster vocabulary growth within EFL learning environments.

Keywords: *Roblox, Vocabulary Size, EFL Students, Gaming Intensity, Digital Game-Based Learning*

1. INTRODUCTION

In today's rapidly advancing digital landscape, English language learning has been reshaped by the rise of interactive platforms that provide immersive experiences beyond traditional classroom settings. This transformation has become increasingly critical in response to the global demand for English proficiency (Jenkins, 2014; Allman, 2019). Among the many innovations in language education, commercial gaming platforms such as Roblox have emerged as a particularly noteworthy phenomenon within the EFL context. Sinar et al. (2023) reported that students regard Roblox as an effective medium for enhancing multimodal literacy,

underscoring its potential as an informal yet impactful educational tool.

Roblox has gained remarkable popularity worldwide, including in Indonesia. According to Yulastika et al. (2023), the platform reached approximately 54.1 million daily active users globally in the first quarter of 2022. In Indonesia, it ranked seventh among mobile games with the highest average monthly users, reflecting both its global appeal and its significant local player community. More than a recreational game, Roblox functions as a dynamic digital ecosystem, enabling users to create, collaborate, and interact in virtual environments that attract diverse age groups, particularly children and adolescents.

Vol 9, No 1 (2026): ESTEEM

Vocabulary acquisition is a cornerstone of language competence, as it underpins the development of all other linguistic skills reading, writing, listening, and speaking (Almusharraf, 2021; De Wilde et al., 2020; Askhatova A, 2020). Conventional vocabulary instruction in EFL contexts often emphasizes rote memorization, which can be repetitive and disengaging (Lesiana et al., 2023; Sujati et al., 2023). By contrast, platforms like Roblox expose learners to authentic and contextually meaningful vocabulary, fostering acquisition through natural use and interaction.

What distinguishes Roblox as an informal learning medium is its reliance on user-generated content and interactive engagement. Players are not passive recipients but active creators, thereby expanding opportunities for both receptive and productive language exposure. Through gameplay, learners encounter varied English inputs, including system instructions, peer communication, and community-created narratives, all of which contribute to enhanced engagement with the language (Shortt et al., 2023; Riwayatiningasih et al., 2025; Rosyidah et al., 2023).

Insights from cognitive neuroscience further illuminate the link between gaming and vocabulary development. Morgan-Short et al. (2015) argue that vocabulary growth involves the interplay of declarative and procedural memory systems, with neural mechanisms for syntactic and lexical processing differing by learning strategy. Strategy-based games, for instance, stimulate regions such as the prefrontal cortex and hippocampus areas essential for working memory and linguistic processing (Hartanto et al., 2021; Ismayilli & Mammadova, 2025; Kurniawan et al., 2022). This suggests that understanding the neurological underpinnings of game intensity and vocabulary acquisition can enrich perspectives on digital approaches to language learning (Lukita et al., 2023).

Recent empirical findings support the pedagogical promise of game-based learning.

Merta and Sueca (2024) demonstrated that Wordwall, a purpose-built educational platform, significantly boosted vocabulary knowledge and learner motivation, yielding an average test score of 86.6%. Similarly, Chen et al. (2018) confirmed that immersive digital environments promote incidental vocabulary acquisition. However, the majority of existing research has concentrated on educational games explicitly designed for language learning, leaving the role of mainstream platforms underexplored.

Visual media also play an important role in facilitating vocabulary mastery by situating words within meaningful, multimodal contexts (Fadilah et al., 2023; Arif, 2023). Two-dimensional motion pictures have been shown to enhance vocabulary retention by linking abstract lexical items to concrete imagery. As highlighted by Milah et al. (2022), the integration of motion-based visual media alongside game-based tools creates enriched learning environments that promote deeper processing, stronger retention, and sustained learner engagement.

Taken together, these findings reinforce the idea that game-based learning environments are conducive to vocabulary development. Nevertheless, a critical gap remains: limited attention has been given to commercial gaming platforms such as Roblox, particularly in relation to their direct impact on vocabulary growth among Indonesian EFL learners. Most existing scholarship has concentrated on learner motivation or attitudinal aspects rather than measurable vocabulary outcomes.

In light of this gap, the present study investigates the relationship between the intensity of Roblox gameplay and English vocabulary size among EFL secondary school students. By addressing this underexplored dimension, the study seeks to contribute to a more nuanced understanding of how commercial digital platforms can support vocabulary development in English language learning

2. LITERATURE REVIEW

2.1 *Neurolinguistic Foundations of Language Learning*

Language learning is fundamentally linked to brain function. Neurolinguistic research indicates that acquisition relies on neural plasticity, the brain's capacity to reorganize itself in response to repeated exposure to linguistic input (Baggio, 2022). This mechanism supports both first and second language learning, though its efficiency is shaped by factors such as age, prior linguistic background, and cognitive flexibility. Theories such as the Critical Period Hypothesis and neuroplasticity suggest that while early exposure facilitates effortless learning, second language acquisition remains possible throughout life via compensatory neural processes (Kemmerer, 2022).

2.2 *Vocabulary as a Core Component of Proficiency*

Vocabulary size has long been regarded as one of the strongest indicators of overall language proficiency. Schmitt (2020) emphasizes that vocabulary knowledge underpins listening, speaking, reading, and writing skills. In addition to explicit instruction, vocabulary development also benefits from incidental learning opportunities, particularly in digital contexts (Fitria, 2019). Game-based platforms provide learners with repeated and authentic encounters with target vocabulary in meaningful, task-oriented situations (Novia Indriani & Mariani, 2019) Sari & Octaviani, (2022).

2.3 *Roblox as a Learning Environment*

Roblox, a user-generated multiplayer platform, has gained recognition as a potential site for vocabulary acquisition. Its immersive and multimodal features align with constructivist and task-based learning principles, enabling learners to build vocabulary through collaboration,

exploration, and problem-solving. Sinar et al. (2023) demonstrated that Roblox fosters multimodal literacy by integrating text, visual cues, and real-time communication. Similarly, Kurniawan (2025) reported that learners exposed to English during gameplay retained vocabulary more effectively than peers relying on traditional instruction. Han et al. (2023) further conceptualized Roblox as a "community of practice," where students engage in authentic communication, negotiate meaning, and build language skills through peer interaction.

2.4 *Gamification, Motivation, and Pedagogical Innovation*

Platforms like Roblox, which incorporate gamification, collaborative learning, and contextualized practice, create engaging conditions for vocabulary development while simultaneously promoting learner motivation and autonomy. Unlike teacher-centered approaches that emphasize memorization, interactive platforms encourage learners to actively apply vocabulary, collaborate in problem-solving, and participate in authentic communication. These practices not only enhance linguistic competence but also foster creativity, higher-order thinking, and independent learning. Moreover, digital learning tools challenge rigid, standardized teaching methods that limit teacher innovation and restrict pedagogical flexibility. As Baehaqi (2022) argues, integrating adaptive and interactive platforms can better accommodate learners' diverse needs.

2.5 *Intensity of Gameplay as a Key Variable*

A central construct in this study is gameplay intensity, defined as the frequency, duration, and depth of engagement with digital games (Wibisono et al., 2019). Prior research indicates that moderate gameplay intensity enhances learner motivation and ensures repeated encounters with language,

Vol 9, No 1 (2026): ESTEEM

while excessive gaming may result in negative consequences (Fitrian Nur Aklima, 2019). In language learning, however, intensity has been positively linked to vocabulary retention and communicative competence, as learners must process and produce language in real time during gameplay (Ng et al., 2022).

2.6 Research Gap and Aim of the Study

The reviewed literature suggests that digital platforms such as Roblox provide valuable opportunities for incidental vocabulary learning, with gameplay intensity playing a potentially significant role in the effectiveness of lexical acquisition. Nonetheless, few empirical studies have directly examined the correlation between Roblox intensity and vocabulary size, particularly in the context of Indonesian EFL secondary learners. Addressing this gap, the present study investigates whether the intensity of Roblox gameplay significantly correlates with students' vocabulary size, thereby contributing to the expanding body of research on game-based language learning.

3. METHODS**3.1 Research Design**

This study employed a quantitative research approach with a correlational design. According to (Mishra et al., 2019), quantitative research allows researchers to measure variables using numerical data and analyse the statistical relationship between them. The correlational design was chosen because the purpose of this research was to investigate the relationship between the intensity of playing Roblox and the vocabulary size of EFL junior high school students. Through this approach, the researcher sought to determine whether a significant correlation exists between the two variables.

The use of a quantitative design ensured that the findings were based on

structured and objective data, which enabled precise measurement and interpretation. Statistical tools were employed to analyze the data and to evaluate patterns and trends. By applying this approach, the research provided reliable and valid evidence regarding the association between students' gaming intensity and vocabulary acquisition.

3.2 Time and Place of the Study

The research was carried out in Palangka Raya during the period of July 2025 to August 2025. The study focused on junior high school students in Palangka Raya, particularly those who actively engaged in English-language gaming. By involving a wider range of students within the target population, the study aimed to capture diverse learning contexts and gaming experiences. This broader representation provided a more comprehensive understanding of the correlation between playing Roblox and vocabulary size, while also enhancing the generalizability of the findings.

3.3 Population and Sample

The population of this research consisted of junior high school students in Palangka Raya. This age group was chosen because they are in a crucial stage of vocabulary development, exhibit varied levels of English proficiency, and are actively involved in digital gaming. The study targeted this population to better understand how gaming habits may influence vocabulary growth among young learners.

The sample of this study consisted 222 students, selected using purposive sampling. According to Fraenkel et al. (2012), purposive sampling is a technique in which participants are chosen based on predetermined criteria relevant to the study objectives. In this research, the criteria for sample selection included:

- 1) Students who actively play Roblox,

Vol 9, No 1 (2026): ESTEEM

- 2) Students who use English-language settings in the game,
- 3) Students who were willing to participate fully in the research process, and
- 4) Students at the junior secondary school level.

The large sample size also contributed to the reliability and validity of the results, allowing for a more precise analysis of the relationship between gaming intensity and vocabulary size.

3.4 Research Instrument

The main instrument used in this study was a questionnaire. This instrument is suitable for obtaining standardised data from large groups and for quantifying variables such as gaming habits and vocabulary knowledge. The questionnaire consisted of two major sections: (1) intensity of playing Roblox and (2) receptive vocabulary size.

To measure gaming intensity, the instrument was adapted from Horrigan's (2000) framework and from a study by (Sunnardy & Suryadi, 2024) on the role of online game playing intensity in early adulthood. The instrument covered three aspects: (a) frequency of play, (b) duration of play, and (c) use of English in the game. Each aspect was represented by several Likert-scale items. For instance, the item "I play Roblox at least three times a week" measured the frequency of play, while "I often read and understand English instructions, dialogues, or texts in the game" measured the use of English in the gaming context.

To assess vocabulary size, the study used an adaptation of Nation's (2001) Vocabulary Levels Test (VLT), with improvements from Webb et al. (2017) in their Updated Vocabulary Levels Test. This instrument consisted of multiple-choice items designed to measure receptive vocabulary knowledge at different word frequency levels. The test was selected because of its

reliability and widespread use in vocabulary research.

By using validated and widely recognized instruments, this study ensured that the data collected was both reliable and valid. The combination of intensity of playing Roblox and receptive vocabulary size provided a comprehensive picture of the relationship between students' gaming habits and their English vocabulary acquisition.

4. RESULTS AND DISCUSSION

Result

The initial phase of analysis examined the distribution of the two principal variables: Roblox playing intensity and vocabulary size. Descriptive statistics indicated that the mean score for Roblox intensity was 24.47 (SD = 6.87), with scores ranging from 9 to 39. This suggests that, on average, students demonstrated a moderate level of engagement with the platform, though the range highlights notable individual differences, with some students reporting minimal involvement and others indicating considerably higher intensity. For vocabulary size, the mean score was 51.94 (SD = 6.83), spanning from 33 to 60. These results suggest that, overall, students performed relatively well on the vocabulary measure, although meaningful variability across individuals remained evident.

Within the sample of 222 junior high school participants, both gaming intensity and vocabulary mastery displayed substantial variation. The distributional patterns further revealed that Roblox intensity was approximately symmetric, whereas vocabulary size showed slight negative skewness, indicating that while most students achieved high vocabulary scores, a smaller subset demonstrated weaker performance. These findings confirmed that the dataset contained sufficient variance to warrant correlation testing.

To illustrate the operationalization of Roblox intensity, several representative items

Vol 9, No 1 (2026): ESTEEM

from the questionnaire are presented. One item targeting duration asked: “When you play Roblox, how long do you usually play?” Another assessed frequency with the prompt: “In one week, how often do you play Roblox?” Finally, immersion was captured through the question: “When playing Roblox, do you feel so immersed in the game that you lose track of time?” Collectively, these items exemplify the multidimensional nature of the construct, encompassing frequency, duration, and depth of engagement.

The descriptive findings on duration revealed that the largest proportion of respondents (31%) typically played for about 30 minutes per session. Nearly one-quarter reported sessions lasting between 1 and 1.5 hours, while 20% played for 1.5–2 hours. A smaller but noteworthy group (14%) acknowledged spending more than two hours in a single session, signaling deeper levels of immersion among certain students.

With respect to daily frequency, the distribution appeared relatively balanced

between light and heavy users. Approximately 26% of respondents reported playing twice per day, mirrored by a comparable proportion who engaged only rarely. Conversely, nearly 24% indicated playing more than three times daily, reflecting the extent to which Roblox had become integrated into their everyday routines.

Analysis of weekly frequency showed that most students played either 1–2 times (29%) or 3–4 times (28%) per week. However, a considerable proportion reported near-daily engagement, with 20% playing more than seven times weekly and 10% playing exactly seven times. Thus, while a large subset of students could be categorized as casual players, a substantial minority displayed intensive usage patterns, suggesting more consistent and sustained exposure to English vocabulary through the platform.

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
intensity of playing Roblox	222	9	39	24.47	6.870
Vocabulary size test	222	33	60	51.94	6.834
Valid N (listwise)	222				

Table 2. Reliability Statistics

Cronbach's Alpha	N of Items
.817	9

Before analysing the correlation, the researcher conducted a reliability test on the questionnaire measuring Roblox intensity. Reliability analysis is important to ensure that the instrument used produces consistent and dependable results. The test involved 9

items, each addressing aspects of gaming frequency, duration, and use of English in

Roblox. The result showed that the scale achieved a Cronbach’s Alpha of 0.817. According to Fraenkel et al. (2012), a Cronbach’s Alpha above 0.70 is generally considered acceptable, while values above 0.80 indicate high internal consistency.

This result confirmed that the instrument used in this study was both valid and reliable for measuring the intended construct. Therefore, responses gathered

THE CORRELATION BETWEEN THE INTENSITY OF PLAYING ROBLOX ON VOCABULARY SIZE OF EFL SECONDARY SCHOOL STUDENTS

Vol 9, No 1 (2026): ESTEEM

from the students could be trusted as a stable representation of their real gaming intensity. In the context of this research, this high reliability provided a strong foundation for conducting further statistical analysis, such as correlation and regression tests, to examine the relationship between gaming and vocabulary size.

The central analysis of this study was the Pearson product-moment correlation, which aimed to examine whether there was a significant relationship between the intensity of playing Roblox and students' vocabulary size. The results revealed a positive and significant correlation ($r = 0.244$, $p < 0.001$). This means that as students' intensity in playing Roblox increased, their vocabulary size also tended to increase. In other words, students who played Roblox more frequently

and engaged more actively with English content in the game generally scored higher in the vocabulary test.

Although the correlation coefficient ($r = 0.244$) falls into the small-to-moderate category, the statistical significance demonstrates that the relationship is not random but meaningful. This finding is particularly important because it supports the hypothesis that digital game-based contexts, such as Roblox, can facilitate vocabulary acquisition. Therefore, the null hypothesis (H_0), which stated that there was no relationship between Roblox intensity and vocabulary size, was rejected. Conversely, the alternative hypothesis (H_a), which proposed a significant correlation between the two variables, was accepted.

Table 3. Correlations

		TOTALX	TOTALY
intensity of playing Roblox	Pearson Correlation	1	.244**
	Sig. (2-tailed)		.000
	N	222	222
Vocabulary size test	Pearson Correlation	.244**	1
	Sig. (2-tailed)	.000	
	N	222	222

** . Correlation is significant at the 0.01 level (2-tailed).

To strengthen the interpretation of the correlation results, the researcher further conducted a simple linear regression analysis. The purpose was to determine to what extent Roblox intensity could predict or explain variations in vocabulary size. The analysis produced an R value of 0.244 and an R² value of 0.059, indicating that Roblox intensity explained 5.9% of the variance in students' vocabulary scores. While this percentage may appear small, it is statistically significant, and it highlights that gaming intensity contributes a measurable effect on language outcomes.

The regression coefficients showed that the constant (β_0) was 46.006, while the

coefficient for Roblox intensity (β_1) was 0.242 ($p < 0.001$). The resulting regression equation was:

$$Y = 46.006 + 0.242X$$

This means that for every one-point increase in Roblox intensity, vocabulary size increased by approximately 0.242 points. The model was statistically significant ($F(1,220) = 13.890$, $p < 0.001$), confirming that Roblox intensity was a valid predictor of vocabulary performance. These findings emphasize that although gaming is not the sole factor influencing vocabulary growth, it has a

THE CORRELATION BETWEEN THE INTENSITY OF PLAYING ROBLOX ON VOCABULARY SIZE OF EFL SECONDARY SCHOOL STUDENTS

meaningful role in supporting students' lexical development.

Table 4. Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	46.006	1.653		27.836	.000
	intensity of playing Roblox	.242	.065	.244	3.727	.000

Overall, the results of this study demonstrate that there is a positive and statistically significant correlation between the intensity of playing Roblox and the vocabulary size of EFL secondary school students in Palangka Raya. While the strength of the correlation was modest, it indicates that engaging in Roblox gameplay in English may provide meaningful exposure to vocabulary in authentic contexts. Furthermore, the regression analysis highlighted that Roblox intensity could predict a small but significant portion of students' vocabulary performance.

Discussion

This study demonstrates that the intensity of Roblox gameplay is significantly and positively associated with the vocabulary size of EFL junior high school students in Palangka Raya. The results indicate that students who engaged more frequently and deeply with Roblox tended to achieve higher vocabulary scores. Although the observed correlation was modest ($r = 0.244$), its statistical significance underscores the potential of online gaming to serve as a supplementary environment for lexical development. This finding reinforces the broader argument that digital platforms provide authentic and engaging exposure to English input an aspect often constrained in conventional classroom settings.

Regression analysis further confirmed that Roblox intensity functioned as a significant predictor of vocabulary performance, with each additional point in intensity corresponding to a 0.242-point increase in vocabulary scores. While the proportion of explained variance was relatively small (5.9%), the outcome remains pedagogically meaningful, demonstrating that digital games can make a measurable contribution to learners' vocabulary growth. This is consistent with Han et al. (2023), who observed that game-based environments foster vocabulary acquisition through repeated exposure to authentic input, even when effect sizes are moderate. The result also echoes Sinar et al. (2023), who emphasized the motivational and engagement benefits of interactive digital contexts in supporting language learning outcomes.

The analysis further revealed that students with stronger vocabulary knowledge typically reported higher levels of Roblox intensity, while those with weaker vocabulary scores tended to play less frequently. This pattern suggests that sustained engagement in digital gaming environments creates richer opportunities for encountering and internalizing new lexical items. Within Roblox, learners are naturally

Vol 9, No 1 (2026): ESTEEM

exposed to English through system instructions, in-game dialogues, and peer communication, facilitating incidental vocabulary acquisition. Such findings align with Kurniawan et al. (2025), who reported that gamified learning environments enhance contextualized vocabulary practice and improve retention.

Moreover, the results lend support to Mayer's multimedia learning theory, which posits that learning is strengthened when information is presented through multimodal channels that stimulate cognitive engagement. As an immersive platform, Roblox integrates textual, visual, and interactive input, making vocabulary acquisition more meaningful and engaging than rote memorization alone. In this respect, Roblox does not supplant formal instruction but rather complements it by offering authentic, motivating opportunities for language practice.

In sum, the study contributes to the expanding body of research highlighting the pedagogical value of digital games in language learning. The demonstrated correlation between Roblox intensity and vocabulary size suggests that commercial gaming environments can enrich vocabulary development, particularly for EFL learners with limited exposure to English outside school. Although the effect size was modest, the findings suggest that educators may strategically leverage students' pre-existing interest in online games as a bridge to language growth. Integrating game-based activities into classroom instruction can create more engaging, context-rich learning experiences that support vocabulary development in secondary education.

5. CONCLUSION

This study concludes that the intensity of playing Roblox is positively associated with the English vocabulary development of EFL junior high school students in Palangka Raya. Learners who engaged more actively and intensively with the game demonstrated stronger vocabulary

achievement compared to those with lower levels of engagement. These findings suggest that online gaming platforms can serve as meaningful supplementary tools in language learning, offering authentic and contextual exposure to English that complements formal classroom instruction.

The results imply that teachers can leverage students' digital gaming experiences, including Roblox, to enrich vocabulary learning strategies. Integrating online games into classroom practice not only enhances learner motivation but also provides opportunities to encounter and use English in more natural and engaging contexts.

Future research is recommended to explore additional factors influencing vocabulary acquisition, such as playing duration, interaction types within games, or differences across gender and proficiency levels. Further studies may also adopt experimental designs to assess the effectiveness of incorporating Roblox or similar platforms into structured language curricula.

6. ACKNOWLEDGEMENT

I would like to begin by expressing my deepest gratitude to my beloved family, especially my parents, whose continuous prayers, patience, and sacrifices have always been my greatest source of strength. Their encouragement, both emotionally and materially, has supported me throughout the process of completing this research. Without their unwavering love and trust, this journey would have been far more difficult to accomplish.

My sincere appreciation is also directed to the junior high school students in Palangka Raya who participated in this study, as well as to their teachers and school administrators who generously allowed me to conduct the research at their schools. Their willingness, cooperation, and openness provided the necessary conditions for

Vol 9, No 1 (2026): ESTEEM

collecting valuable data, and their contribution is truly meaningful for the success of this work.

Furthermore, I owe my deepest thanks to my supervisors and lecturers for their constructive feedback, academic guidance, and continuous motivation during the writing of this article. Their insights and encouragement have shaped this study in important ways. Lastly, I would like to extend my gratitude to UIN Palangka Raya for providing the academic environment, facilities, and scholarly community that have supported my intellectual growth and enabled me to carry out this research successfully.

7. REFERENCES

- Allman, P. (2019). *Critical education against global capitalism: Karl Marx and revolutionary critical education*. Brill.
- Almusharraf, N. (2021). Perceptions and application of learner autonomy for vocabulary development in Saudi EFL classrooms. *International Journal of Education and Practice*, 9(1), 13–36. <https://doi.org/10.18488/journal.61.2021.91.13.36>
- Arif, T. A. (2023). *The Effect of the Cooperative Integrated Reading and Composition (CIRC) Method Assisted by Visual Media on the Writing Skills of Class V Students*. 23(2), 194–203.
- Askhatova A. (2020). Pedagogical Sciences Importance of Vocabulary and Spoken Grammar in Teaching Spontaneous Speaking Skill. *Sciences of Europe* #, 49.
- Baehaqi, L. (2022). Mandating teaching approaches stifles innovation: a case against. *Journal on English as a Foreign Language*, 12(1), 198–220.
- Baggio, G. (2022). *Neurolinguistics*. MIT Press.
- Chen, M., Tseng, W., & Hsiao, T. (2018). The effectiveness of digital game-based vocabulary learning: A framework-based view of meta-analysis. *British Journal of Educational Technology*, 49(1), 69–77.
- Dakhi, S., & Fitria, T. N. (2019). The Principles and the Teaching of English Vocabulary: A Review. *Online Submission*, 5(1), 15–25.
- De Wilde, V., Brysbaert, M., & Eyckmans, J. (2020). Learning English through out-of-school exposure. Which levels of language proficiency are attained and which types of input are important? *Bilingualism*, 23(1), 171–185. <https://doi.org/10.1017/S1366728918001062>
- Fadilah, I. A., Jaya, A., & Uzer, Y. (2023). Visual Representation and Comprehension: the Exploration of Multimodal Text To Energize Reading of the Tenth Grade Students' At State Vocational High School 5 of Palembang. *Esteem Journal of English Education Study Programme*, 6(1), 125–130. <https://doi.org/10.31851/esteem.v6i1.10226>
- Fitrian Nur Aklima, dan, & Serambi Mekkah, U. (2019). Hubungan intensitas bermain game online dengan prestasi belajar siswa di sd negeri 2 banda aceh. In *Jurnal Tunas Bangsa* (Vol. 6, Issue 2).
- Han, J., Liu, G., & Gao, Y. (2023). Learners in the Metaverse: A systematic review on the use of Roblox in learning. *Education Sciences*, 13(3), 296.
- Hartanto, D., Kusmaedi, N., Ma'mun, A., & Abduljabar, B. (2021). Integrating social skills in traditional games with physical education interventions. *International Journal of Human Movement and Sports Sciences*, 9(5), 921–928. <https://doi.org/10.13189/saj.2021.090513>
- Ismayilli, T. M., & Mammadova, K. M. (2025). *The Impact of Educational Games on Speaking Skills in the Foreign Language Teaching Process*. 19(1), 229–240.
- Jenkins, J. (2014). *Global Englishes: A resource book for students*. Taylor & Francis.
- Kemmerer, D. (2022). *Cognitive neuroscience of language*. Routledge.
- Kurniawan, A., & Rahmawati, Y. (2025). The Role of Video Games in Enhancing English Vocabulary Language Learning. *Riwayat*:

- Educational Journal of History and Humanities*, 8(1), 506–518.
- Kurniawan, Y. I., Yulianti, U. H., Yulianita, N. G., & Pratama, A. P. (2022). English Learning Educational Games For Hearing and Speech Impairment Students At SLB B Yakut Purwokerto. *JUTIF: Jurnal Teknik Informatika*, 3(3), 781–790. <https://doi.org/10.20884/1.jutif.2022.3.3.317>
- Lesiana, N., Mulyadi, Aswadi Jaya, & Pratiwi, E. (2023). Classroom Interaction in Communicative Language Teaching of Secondary School. *Esteem Journal of English Education Study Programme*, 7(1), 61–71. <https://doi.org/10.31851/esteem.v7i1.12661>
- Lukita, C., Hardini, M., Pranata, S., Julianingsih, D., & Santoso, N. P. L. (2023). Transformation of Entrepreneurship and Digital Technology Students in the Era of Revolution 4.0. *APTISI Transactions on Technopreneurship*, 5(3), 291–304. <https://doi.org/10.34306/att.v5i3.356>
- Milah, M., Miftah, M. Z., & Qamariah, Z. (2022). The effect of two dimension motion picture on studentsâ€™ vocabulary mastery. *PROJECT (Professional Journal of English Education)*, 5(4), 820–827. <https://doi.org/10.22460/project.v5i4.p820-827>
- Mishra, P., Pandey, C. M., Singh, U., Gupta, A., Sahu, C., & Keshri, A. (2019). Descriptive statistics and normality tests for statistical data. *Annals of Cardiac Anaesthesia*, 22(1). https://doi.org/10.4103/aca.ACA_157_18
- Morgan-Short, K., Deng, Z., Brill-Schuetz, K. A., Faretta-Stutenberg, M., Wong, P. C. M., & Wong, F. C. K. (2015). A view of the neural representation of second language syntax through artificial language learning under implicit contexts of exposure. *Studies in Second Language Acquisition*, 37(2), 383–419. <https://doi.org/10.1017/S0272263115000030>
- Ng, L. L., Azizie, R. S., & Chew, S. Y. (2022). Factors influencing ESL players' use of vocabulary learning strategies in massively multiplayer online role-playing games (MMORPG). *The Asia-Pacific Education Researcher*, 31(4), 369–381.
- Novia Indriani, M., & Mariani, S. (2019). The Implementation of PBL (Problem Based Learning) Model Assisted by Monopoly Game Media in Improving Critical Thinking Ability and Self Confidence Article Info. *Journal of Primary Education*, 8(2), 200–208. <https://journal.unnes.ac.id/sju/index.php/jpe/article/view/25991>
- Putu Oktha Wahyunia Merta, N., Nengah Sueca, I., Markandeya Bali, I., Bahasa Inggris, P., Bangli, K., & Bangli, K. (n.d.). Implementasi Permainan Bahasa Wordwall Dalam Penguasaan Kosa Kata Bahasa Inggris. *Journal on Education*, 07(01), 7101–7109.
- Riwayatningsih, R., Prastikawati, E. F., Muchson, M., Haqiqi, F. N., Setyowati, S., & Kartiko, D. A. (2025). Empowering Higher-Order Thinking Skills in Writing through Gamification and Multimodal Learning within PBL. *Forum for Linguistic Studies*, 7(2), 385–398. <https://journals.bilpubgroup.com/index.php/fls>
- Rosyidah, U. J., Dewanti Laksmi, E., & Anugerahwati, M. (2023). Gamification in Duolingo App on Improving English Listening Proficiency of Junior High School Students. *ENGLISH FRANCA: Academic Journal of English Language and Education*, 7(1), 119. <https://doi.org/10.29240/ef.v7i1.5377>
- Sari, A., & Octaviani, S. K. (2022). Duolingo Mobile Application for English Listening Skill Improvement of Vocational School Students. *Journal of English Language and Education*, 7(2), 84–95. <https://doi.org/10.31004/jele.v7i2.306>
- Schmitt, N., & Schmitt, D. (2020). *Vocabulary in language teaching*. Cambridge university press.

Vol 9, No 1 (2026): ESTEEM

- Shortt, M., Tilak, S., Kuznetcova, I., Martens, B., & Akinkuolie, B. (2023). Gamification in mobile-assisted language learning: a systematic review of Duolingo literature from public release of 2012 to early 2020. *Computer Assisted Language Learning*, 36(3), 517–554. <https://doi.org/10.1080/09588221.2021.1933540>
- Sinar, T. S., Budiman, M. A., Ganie, R., & Rosa, R. N. (2023a). Students' Perceptions of Using Roblox in Multimodal Literacy Practices in Teaching and Learning English. *World Journal of English Language*, 13(7), 146–153. <https://doi.org/10.5430/wjel.v13n7p146>
- Sinar, T. S., Budiman, M. A., Ganie, R., & Rosa, R. N. (2023b). Students' Perceptions of Using Roblox in Multimodal Literacy Practices in Teaching and Learning English. *World Journal of English Language*, 13(7).
- Sinar, T. S., Budiman, M. A., Ganie, R., & Rosa, R. N. (2023c). Students' perceptions of using Roblox in multimodal literacy practices in teaching and learning English. *World Journal of English Language*, 13(7).
- Sujiati, R., Jaya, A., Rosmiyati, E., & Noviati. (2023). Efl Teachers' Attitudes and Experiences on the Implementation of Multiliteracies. *Esteem Journal of English Education Study Programme*, 7(1), 85–96. <https://doi.org/10.31851/esteem.v7i1.12653>
- Sunnardy, R., & Suryadi, D. (2024). *Hubungan Intensitas Bermain Online Game terhadap Agresivitas pada Dewasa Awal di Jakarta*.
- Wibisono, A., Naryoso, A., & Komunikasi, J. I. (2019). *Hubungan antara intensitas bermain game mobile legend dan pengawasan orang tua dengan perilaku agresif verbal pada anak remaja*. <http://www.fisip.undip.ac.id>
- Yuliasatika, T., Mayasari, M., & Poerana, A. F. (2023). Motif Penggunaan Game Online Roblox pada Anak Usia Sekolah. *Jurnal Ilmiah Wahana Pendidikan*, 9(9), 364–371.