

The Implementation of *Gamification* to Enhance Grammar and Vocabulary in EFL Students' Writing Skills

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Abstract

This research objective aims to explore the effects of gamification in improving students' English writing skills. Many students face challenges in developing this skill due to limited vocabulary and difficulties with grammar. The study focused on 10th-grade high school students using a quasi-experimental design with a quantitative approach. Researchers collected data by using pre-test and post-test assessments to assess the ability to write recount texts. researchers evaluate the quality of writing using criteria such as content, organization, vocabulary, grammar, and mechanics, based on Heaton's (1988) framework. Findings indicated that the experimental group, which utilized gamification, achieved a better mean score (28.22) compared to the control group (24.64). However, Mann-Whitney test results indicate there is no statistically significant difference between the groups ($p = 0.393 > 0.05$). This implies that while gamification shows potential in improving grammatical accuracy and vocabulary in writing, its impact remains statistically insignificant. The study suggests that for gamification to be more effective in writing instruction, it may require a longer implementation period, better calibration of task difficulty, and an enhanced feedback system targeting grammar and vocabulary development.

Keywords: *Writing skills, EFL students, Gamification, Grammar mastery, Vocabulary development.*

INTRODUCTION

The quality of education, particularly in language proficiency, remains a significant concern within the educational sector. Writing is a critical language skill that students must develop, yet many continue to struggle with improving their writing abilities. This challenge is becoming increasingly pressing, given the importance of English writing skills—not only for advancing in higher education but also as a key element in effective communication that directly impacts future career opportunities. In Indonesia, students learning English as a foreign language (EFL) begin writing at a fundamental level. According to the curriculum, secondary school students are expected to compose texts in various genres, including descriptive, expository, procedural, and narrative forms. However, mastering these skills is often hindered by challenges such as generating and organizing ideas, limited vocabulary, grammatical mistakes, incorrect use of prepositions, and inconsistent sentence structures. Additionally, insufficient practice, lack of confidence, and limited feedback from teachers exacerbate these difficulties, making it harder for students to improve their proficiency. As a result, many students feel unprepared to meet academic and professional demands.

Based on these problems, the researcher wants to conduct an experiment to test the use of innovative and interesting learning approaches. Gamification is one of the promising strategies, which involves applying game elements in non-game settings, such as education. This approach introduces enjoyable components like points, levels, challenges, and rewards (Kapp, 2012).

Gamification in education has demonstrated potential for improving student engagement and academic achievement across various educational levels (Vrcelj et al., 2023; Qudsi, 2024). In English language learning it is argued that gamification can Improve student student writing outcomes in terms of focus, content, organization style and conventions (Samosa et al., 2021); implementing gamification also can be an effective tool for improving vocabulary acquisition (Flores and Auquilla, 2021); Gamification could be a great strategy to improve students grammar competence (Allam, Abdel-Haq, & El-Sayed, 2022).

While there have been various studies on gamification to improve students' writing skills, there is still a significant research gap. Most previous studies have focused on the use of gamification with the help of digital game applications, while this research employs Canva solely to display points, badges, and leaderboards in a more visually engaging way. Moreover, there are still limited studies that specifically examine the implementation of gamification to enhance writing skills at the high school level in Indonesia. This gap becomes more evident given the lack of research integrating gamification with traditional teaching methods, particularly in rural and under-resourced schools. Exploring how gamification can be adapted to different learning environments and assessing its long-term impact on students' writing performance and motivation could provide valuable insights for educators and curriculum developers alike.

The application of gamification in education has many benefits, even so gamification also has some weaknesses in its application in education. In teaching and learning progress students might be too focused on getting external rewards (points, badges, prizes) rather than understanding underlying concepts. Furthermore, Competitive elements in games can lead to unhealthy competition, making learning less healthy and enjoyable (Lee & Hammer, 2011). Despite these challenges, with thoughtful design and application, gamification remains a promising approach to enhance student engagement and motivation in education.

From the explanation above, This research aims to investigate whether gamification has a significant impact on students' writing skills, especially in grammar and vocabulary. It seeks to validate gamification as an engaging and effective alternative learning method that enhances motivation and improves writing outcomes for 10th-grade high school students. This research builds on prior studies in language learning and addresses the following hypotheses:

- Null hypothesis (H_0): Gamification does not significantly affect students' writing skills in grammar and vocabulary.
- Alternative hypothesis (H_1): Gamification significantly improves students' writing skills in grammar and vocabulary.

By testing these hypotheses, this study aims to contribute to the development of more effective writing instruction methods.

METHODS

This research was conducted at Labschool Untad Palu High School and used a quantitative approach with a quasi-experimental design to answer the research questions to prove the research hypothesis test. Data will be collected using written pre-test and post-test. In addition, this study focuses on investigating the effect of gamification on students' writing ability in terms of grammar and vocabulary.

Research design

The design to be used in this research is a quasi-experimental design with a nonequivalent control group design model. In nonequivalent control group design, neither the experimental group nor the control group will be randomly selected. Both the experimental group and the control group will be given a pretest to determine their initial condition before the treatment. After the treatment, both groups will be given a posttest to assess their condition.

In this study, the experimental group will conduct learning using the gamification method, while the control group will follow the conventional method. The test method will be chosen as a comparison to evaluate how effective the gamification method is in improving the writing ability of grade X students at Labschool Untad Palu High School. This study will be conducted in six meetings for each group. This is in accordance with the quasi-experimental design model with a nonequivalent control group as described by (Sugiyono, 2017).

Table 1

Nonequivalent control group design

Group	Pre-test	Treatment	Post-test
Experiment	O ₁	X	O ₂
Control	O ₃	—	O ₄

Note. (Sugiyono, 2017)

Research participants and Sampling Procedures

The population in this study is 191 grade X students at SMA Labschool Untad Palu.

Table 2

List of 10th grade students at SMA Labschool Palu

Class	Number of students
A	28
B	27
C	26
D	27
E	27
F	28
G	28
TOTAL	191

The technique applied to select samples in this research is purposive sampling, Purposive sampling according to Sugiyono (2017) is sampling using certain considerations in accordance with the desired criteria to determine the number of samples to be studied. The considerations taken by researchers to take samples here are classes that have equal abilities and have the same problems in writing skills, Specifically in vocabulary and grammar. Based on this, the samples selected for this study were classes E and G.

Data Collection

This research will adopt *pre-test* and *post-test* as research instruments and use Pencil and paper for collecting data. According to (Kaplan & Saccuzzo, 2017) Pencil and paper test is a data collection method in which respondents are presented with a written stimulus and asked to provide a written response, which may be a choice from the options provided or a self-generated answer. The aim of this test is to measure students' writing skills before and after treatment. The type of test used for this research is a written test, where students will be told to write down *fun experiences or bad experiences* that happened in their lives. Then the researcher will score this test using Analytic scoring by (Heaton, 1988) as follows:

Table 3 *Scoring Rubric of written test*

Component	Point	Benchmarks	Details
Content	30 – 27	Very good.	Demonstrates thorough knowledge and understanding. Well-developed thesis with relevant and substantial content aligned to the assigned topic.
	26 – 22	Good	Shows some understanding of the subject. Covers a sufficient range but with limited development of the thesis. Mostly relevant to the topic but lacks detail.
	21 – 17	Average.	Displays limited subject knowledge with minimal substance. Topic development is inadequate.
	16 – 13	Poor	Lacks knowledge of the subject. Content is nonsubstantive, irrelevant, or insufficient to evaluate.
Organization	20 – 18	Very good.	Fluent expression with clearly stated and supported ideas. Organized logically, with cohesive and concise structure.
	17 – 14	Good	Somewhat disjointed, with loosely organized content. Main ideas are evident but lack sufficient support. Sequencing is logical but incomplete.

	13 – 10	Average.	Lacks fluency, with confused or disconnected ideas. Logical sequencing and development are missing.
	9 – 7	Poor	Content lacks communication and organization, or is insufficient for evaluation.
Vocabulary	20 – 18	Very good.	Demonstrates a sophisticated range of vocabulary with effective word and idiom usage. Word forms are mastered, and register is appropriate.
	17 – 14	Good	Adequate range with occasional errors in word or idiom choice and usage, though meaning remains clear.
	13 – 10	Average.	Limited vocabulary range with frequent errors in word/idiom choice and usage, causing confusion or obscurity in meaning.
	9 – 7	Poor	Minimal vocabulary knowledge, heavily reliant on translation, or insufficient to evaluate.
Grammar	25 – 22	Very good.	Effective use of complex sentence structures. Few errors in agreement, tense, number, word order, articles, pronouns, or prepositions.
	21 – 18	Good	Effective use of simple sentence structures, but minor issues in complex constructions. Several errors in grammar aspects, though meaning is seldom unclear.
	17 – 11	Average.	Major issues in both simple and complex sentence structures. Frequent grammar errors, leading to confusion or obscured meaning.
	10 – 5	Poor	Numerous errors in grammar and sentence construction, with meaning largely unclear or insufficient to evaluate.
Mechanics	5	Very good.	Mastery of spelling, punctuation, and paragraphing conventions.
	4	Good	Occasional errors in mechanics, but meaning remains clear.

3	Average.	Frequent mistakes in spelling, punctuation, and capitalization.
2	Poor	Dominated by mechanical errors, with little adherence to conventions.

Note. Adopted from Heaton(1988)

Interventions

The intervention applied in this research is gamification. The learning process was conducted through steps involving videos, discussions, group games and individual assignments. The main intervention is the provision of group games, one of which is “Holiday Story Chain”, which is designed to increase students' engagement in writing activities through game elements. Research Conditions :

- **Experimental group:** Students who will receive this intervention, namely gamification through the “Holiday Story Chain” game to improve their writing skills.
- **Control group:** If there is a control group, they will probably receive traditional learning methods without any game or gamification elements, although this is not mentioned in this description.

This process is done in 6 learning sessions, where students are first given a video, then play an educational game in groups followed by individual recount text writing. Assessment and awarding of results is done after students have completed their individual tasks.

Thus, this gamification intervention combines elements of collaborative learning, competition, and individual tasks that lead to strengthening recount text writing skills through a fun and engaging approach.

RESULTS, FINDINGS AND DISCUSSION

Before the hypotheses were tested, means, standard deviations, and improvement scores were calculated by the researchers. Data analysis included reviewing the pre-test and post-test results for both experimental and control groups using SPSS and Excel. The analyzed data was displayed in table 4.

Table 4: *The Result of Pre-test, Post-test, St. Deviation, and Normalized Gain*

	Experimental		Control	
	Mean	St.Deviation	Mean	St.Deviation
Pre-test	48,76	13,07	51,42	13,34
Post-test	62,17	15,25	56,66	11,06
N-Gain	0,269	0,236	0,093	0,164

As shown in Table 4, the pre-test results show that the mean score of the experimental group was 48.76 with a standard deviation of 13.07, while the mean score of the control group was 51.42 with a standard deviation of 13.34. The small difference in the mean scores between the two groups indicates that their initial abilities were quite similar before the treatment was applied.

Following the intervention, both groups demonstrated an improvement in their post-test scores. The experimental group's average score rose to 62.17 with a standard deviation of 15.25, while the control group's average increased to 56.66 with a standard deviation of 11.06. This indicates that the experimental group experienced a more notable improvement compared to the control group.

Regarding Normalized Gain (N-Gain), the experimental group achieved an average of 0.269 with a standard deviation of 0.236, reflecting a moderate improvement in writing ability. In contrast, the control group's average N-Gain was 0.093 with a standard deviation of 0.164, indicating a relatively small improvement. The difference in N-Gain values highlights that the gamification intervention had a more substantial effect on the experimental group compared to the control group, which did not receive the gamification treatment.

Moreover, the difference in standard deviation between the pre-test and post-test results for both groups suggests a relatively consistent distribution of data. However, the higher standard deviation in the experimental group's post-test indicates that some students experienced a much more substantial improvement compared to others, likely due to varying levels of engagement, prior knowledge, or adaptability to the gamification approach.

Overall, the implementation of gamification in the experimental group appeared to have a more significant positive effect on enhancing writing skills than in the control group. Nevertheless, further statistical analysis is required to determine if the observed difference is statistically significant. The study will employ a parametric test, specifically the independent sample t-test; if the assumptions for parametric testing are not met, a non-parametric alternative, the Mann-Whitney test, will be used.

Table 5: *Normality Test Outcome*

Tests of Normality

Kelas		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Hasil	Pre-test kelas Control	.237	25	.001	.792	25	.000
	Pre-test kelas Experiment	.154	27	.099	.919	27	.037
	Post-test kelas Control	.193	25	.017	.894	25	.014
	Post-test Kelas Experiment	.114	27	.200 [*]	.949	27	.207

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The normality test result using the Shapiro-Wilk method indicates that the control group's pre-test has a significance value of 0.000 (<0.05), meaning the data is not normally distributed. Similarly, the experimental group's pre-test has a significance value of 0.037 (<0.05), also showing that the data is not normally distributed. For the control group's post-test, the significance value is 0.014 (<0.05), indicating a non-normal distribution. However, the experimental group's post-test has a significance value of 0.207 (>0.05), suggesting that the data is normally distributed. Among the four data sets, only the experimental group's post-test meets the normality assumption, while the other three groups do not. Consequently, it is recommended to use a non-parametric analysis, specifically the Mann-Whitney test, for further statistical evaluation to ensure robust and accurate interpretations.

Table 6 :Non Parametric test (Mann Whitney)

Mann-Whitney Test

Ranks				
Kelas		N	Mean Rank	Sum of Ranks
Hasil	Post-test kelas Control	25	24.64	616.00
	Post-test Kelas Experiment	27	28.22	762.00
	Total	52		

Test Statistics^a

Hasil	
Mann-Whitney U	291.000
Wilcoxon W	616.000
Z	-.854
Asymp. Sig. (2-tailed)	.393

a. Grouping Variable: Kelas

This shows that there is no significant difference in statistical significance between the post-test scores of the control group and the experimental group, as indicated by the Asymp. Sig. (2-tailed) of 0.393, which is greater than the alpha level of 0.05. Although the experimental group had a higher mean score (28.22) than the control group (24.64), this difference was not statistically significant. This analysis involved a sample of 52 students, with 25 students in the control group and 27 students in the experimental group.

This result supports the acceptance of the null hypothesis (H_0) and the rejection of the alternative hypothesis (H_1). This means that gamification does not have a significant improvement on students' writing skills, especially in terms of grammar and vocabulary.

Although the results are statistically insignificant, the data suggests that the treatment applied to the experimental group tends to have a positive effect on improving student learning outcomes. This is reflected in the sum of ranks for the experimental group, which totaled 762.00, higher than the control group's sum of 616.00. Therefore, while the difference may not be statistically significant, the treatment given to the experimental group demonstrates greater potential for enhancing student learning outcomes.

The results showed that gamification does not have a significant improvement on students' writing skills, especially in terms of grammar and vocabulary. This is evidenced by the Mann-Whitney test which resulted in a significance value of 0.393 (>0.05), indicating the acceptance of the null hypothesis. However, the mean rank data shows that the experimental group using gamification (28.22) obtained higher results than the control group (24.64). This finding indicates the positive potential of using gamification in learning, although it has not reached the expected significance level.

Although the results of this study show that gamification has not provided a statistically significant improvement in students' writing skills, especially in the aspects of grammar and vocabulary, this finding is in line with several previous studies that also indicate the positive potential of gamification in learning. For example, research by (Homer et al., 2018) found that gamification can increase student motivation and engagement in ESL classroom activities, but had no significant effect on student learning in grades 1 and 2. Similarly, research by (Lam et al., 2018) stated that gamification tends to have a positive effect on improving students' online contributions, there was no significant difference in the quality of argumentative writing between the group that used gamification and the group that only used a blended learning approach. These findings strengthen the argument that gamification has the potential to contribute to the improvement of students' writing ability, although more effective learning approaches or designs are still needed to achieve a statistically significant impact.

Some factors that may affect this result include: the duration of gamification implementation which may need to be extended to see a more significant impact, students' adaptation to the new learning method which takes time, constraints in the design of the reward system and level progression, coupled with the need to integrate an automated scoring system as well as intensive monitoring from teachers, may cause the implementation of this method to be difficult and ineffective. Based on the researcher's observations students are more focused on collecting points or awards, without paying attention to the quality of their writing. As a result, students may be more likely to choose inappropriate vocabulary or overly simple sentence structures just to avoid mistakes and earn points. This reliance on the reward system, without sufficient attention to the quality of learning, may lead to students' learning outcomes not developing significantly, as they are not really focused on improving substantial writing skills. Last, Negative Effects of Leaderboards. showing the learning outcome leaderboard to students at the bottom of the leaderboard may make students feel anxious.

The findings also indicate the importance of further development in gamification implementation strategies, especially in the aspects of:

- Adjustment of the difficulty level and complexity of game elements to students' abilities

- Deeper integration of game elements with language learning materials
- Increased aspects of student motivation and engagement in the learning process
- Development of a more effective feedback system to support learning
- Preventing Students from Focusing on Collecting Points
- Maintaining a Balance Between Serious and Fun Learning
- Find a strong Crowd control method during the learning process
- Using an anonymous leaderboard system to reduce the anxiety of lower-placed students, so that they do not feel pressured by public judgment.

CONCLUSION

This study aimed to examine the effect of gamification on the writing skills, particularly in grammar and vocabulary, of grade X students at Labschool Untad Palu High School. Utilizing a quasi-experimental design, this research employed two groups: an experimental group and a control group. Gamification was implemented over six instructional sessions. The statistical analysis, using the Mann-Whitney test, showed no statistically significant difference between the two groups, with a significance value of 0.393 (>0.05). However, the mean rank data indicated that the experimental group, which used gamification, scored higher (28.22) compared to the control group (24.64).

The findings underscore that while the implementation of gamification shows positive potential, it requires further consideration and development to achieve optimal effectiveness. Several factors to be considered include the duration of implementation, students' adaptation to the new method, and the balance between game elements and learning objectives. In particular, this study revealed the challenge of preventing students from focusing too much on the reward system versus substantial writing skill improvement.

For future development, future researchers are advised to consider a longer implementation period, better adjustment of the difficulty level, deeper integration of game elements with language learning materials, as well as the development of a more effective feedback system. Moreover, it is essential to design activities that align closely with students' proficiency levels and learning goals to maximize engagement and outcomes. In addition, special attention needs to be paid to classroom control methods and the maintenance of a balance between entertainment and serious learning aspects to ensure the achievement of the expected learning objectives. Researchers should also explore how gamification can accommodate diverse learning styles and foster collaboration among students, thereby creating a more inclusive and effective learning environment.

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