The Effect of Gamefied Instruction on Vocabulary and Motivation on Students at South Nias

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Abstract

Background:
Gamified instruction is a challenging solution to problems in students' vocabulary and motivation in rural areas like South Nias. This study aims to determine the effect of gamified instruction on students' vocabulary ability and motivation.

Methodology:
The aims of this study were achieved by implementing a mixed research method (qualitative and quantitative). The experimental research design was used to determine the effect of treatment on vocabulary ability; however, a questionnaire and semi-structured interview were delivered to the experimental students. The sample of this study is 60 students.

Findings:
After analyzing the data, it is shown that the experimental group positively affects students' motivation. The control group has a higher motivation but is not significant in their vocabulary achievement. In addition to that significant effect on experimental vocabulary achievement. Gamified instruction can be concluded as an efficient strategy to achieve learning goals.

Conclusion:
Gamified instruction can be an alternative solution for English teachers to improve student vocabulary and motivation to learn English as a foreign language.

Originality:
Most of the current studies focus on online media (platforms) and less research investigates vocabulary and students' motivation.

1. INTRODUCTION

Vocabulary is a language sub-skill that can be learned through gamified instruction. There has been a growing interest in utilizing gamification in English vocabulary learning in recent years (Dindar, 2021). Gamification has on motivation so students can learn English in a more dynamic environment (Infante-Paredes, 2024). Motivation is considered an important and contributing factor in the language learning process (Nguyen, 2021). In addition to that, the prime factors that directly affect language learning are motivation (Mehdi, 2022). Motivation affects learning and achievement (Reilly, 2020).

Nias is located in the west of Sumatra Island. The most progressive among the West Island is Nias. Even though the progress is good but not life community interaction is harmonious and peace (Ridwan, 2022). South Nias is a disadvantaged area in all aspects like education. Low education on parenting patterns in families in underprivileged areas has contributed greatly (Purnama, 2023). The obstacles that occur in the implementation of underdeveloped area (Nias) development programs are internal and external constraints (Maria, 2021). Some statements above are the main parameters of students' motivation to learn English. To boost the students' motivation, various approaches are delivered for the emergency. One of them is gamified instruction.

Gamified instruction is instruction with a game concept but not in the game context. Gamified instruction can improve students' motivation and achievement on language learning (Cruz, 2020; Sadeghi, 2022; Vagianou, 2021; Zainuddin, 2018). In addition to that, Gamification proved effective in the actual field of education and give a positive impact on improving academic motivation and academic achievement of first-year high school learners (Cho, 2020). Controversy, (Santoro, 2022) state that not all motivations have a positive impact on students' achievement. This is one reason for researchers to make as a topic for investigation.

A recent study investigated the impact of online gamified on students' motivation (Kim, 2021; Mikašytė, 2018; Vagianou, 2021; Waluyo, 2021; Zainuddin, 2018). The impact of online gamified on academic achievement (H. L. Chen, 2020; Cho, 2020; Li, 2021; Vân et al., 2022). Most researchers above investigate the online gamified on students' motivation. Several researchers investigate the impact of online gamified on students' enjoyment (Ebrahimzadeh & Alavi, 2016), performance (Flanagan, 2020; Giráldez, 2022; Zainuddin, 2018, 2019), engagement (X. Chen, 2023; Permana, 2021). None of the research was conducted in a low area like South Nias yet. This study occurred in South Nias without mobile phones, computers, or internet access. It means that this investigation was done based on the area of

disadvantageous characteristics. The novelty of this research is that it gives alternative solutions based on the situation at SMA 1 Lahusa South Nias.

2. METHODOLOGY

To achieve the research objectives of this research, the researcher applied a mixed-methods research design (quantitative and qualitative). Quantitative design was used to determine the effect of gamified instruction on students' vocabulary. The instruments that the researcher used were a vocabulary test (completing sentences), a questionnaire and interview. The researcher applies internal validity to the vocabulary test by measuring the consistency through the reflection of the coefficient correlation. The researcher distributed a pre-test of vocabulary to both groups (experimental and control). Both groups had a different treatment, control with traditional instruction and experimental with gamified instruction. Finally, both groups had a post-test on vocabulary. The vocabulary test was given by completing sentences.

To know the students' motivation for learning vocabulary through gamified instruction. The questionnaires were constructed and modified based on Lin & Cortina's 2014 concept. In addition to that, the questionnaires were sixteen questions, five to investigate their motivation on interest-value, six questions to investigate their motivation on utility value, and the rest to investigate expectancy for success. The researcher applies external validity to measure the student's motivation. The researchers used the experts to measure the validity of the questionnaire and interview sheet before collecting the data.

A qualitative research design was conducted to support the results of the questionnaire by conducting semi-structured interviews. The interview was done with experimental students. The participants in these activities are only ten students. Their responses are a piece of supported information on the motivation questionnaire.

The population of this research is one hundred and fifty students, and the sample of this study is sixty students for quantitative and ten students for qualitative (from an experimental group). To analyze the data, the researchers measured the average of students' ability on vocabulary achievement in both groups. To know the student's motivation, the researcher applied interactive data analysis.

3. FINDINGS

Kolmogorov-Smirnov was used to examine whether the data were distributed normally or not. The result showed that both groups (experimental and control) were normally distributed ($p > .05$). The description of the normality test can be seen in the following table.

Table 1. t-test of pre-test vocabulary score

Group	N	M	S	SD	t	df	p
Experimental	30	57.13	18.56	4.75	1.07	58	0.294
Control	30	56.73	17.01	4.28			

The table 1 indicates that the t-test was not statistically different between the pre-test of the experimental and control.

In addition to that, the normality test (Kolmogorov-Smirnov) was conducted to compare the pre-test and post-test of vocabulary on both groups (experimental and control). The description of the comparison between the t-test of pre-test and post-test of vocabulary both of groups can be seen in the following table.

Table 2. Comparison between pre-post test on experimental and control group

Group		N	M	S	SD	t	df	p
Exp	Pre-test	30	57.13	18.56	4.75	-3.15	29	.007
	Post-test	30	83.73	19.33	4.80			
Cont	Pre-test	30	56.73	17.01	4.28	-4.55	29	.000
	Post-test	30	61.07	18.59	4.55			

The table 2 shows that there is an improvement in the post-test of experimental groups. According to Kolmogorov-Smirnov, both groups are normally distributed (p >.05).

After knowing that independent and dependent variables are normally distributed (p >.05). it is important to figure out the inter-group's statistics on vocabulary score. The inter groups statistics can be seen on table 3.

Table 3. inter-groups statistics on vocabulary scores

Group	N	M	S	SD	t	df	p
Exp	30	26.60	19.10	4,63	-89	58	.352
Cont	30	4.34	17.15	4.30			

Based on the table 3 shows that the increasing score (S) in the experimental group was 19.10 and the SD is 4,63. However, the increase of the control group was S=17.15 and the SD=4.30. It's to indicate that gamification instruction gives a contribution to improving students' vocabulary. In other words, gamification instruction gives a significant difference in vocabulary achievement at SMA 1 Lahusa South Nias.

To figure out the motivation score to both groups the researcher conducted the pre-test motivation score. Kolmogorov-Smirnov is implemented to figure out the normality distribution. The normality distribution can be seen in the following table.

Table 4 Motivation score

Group	N	M	S	SD	t	df	p
Exp	30	30.01	2.20	.57	.70	58	.458
Cont	30	27.11	2.08	.55			

Based on the table 4 indicates that the pre-test motivation score was normally distributed (p >.05). Based on the t-test result shows that no significant difference between the control and experimental groups. The experimental (M: 30.01, SD: .57) and control (M: 27.11, SD: .55) and (p >.05).

After knowing the pre-test motivation was distributed normally, with the Kolmogorov-Smirnov test. It's found that the t-test motivation result is distributed normally. It can be seen in the following table.

Table 5. t-test result of motivation

Group		N	M	S	SD	t	df	p
Exp	Pre-test	30	30.31	2.17	.61	-6.34	29	.000
	Post-test	30	40.12	2.16	.61			
Cont	Pre-test	30	29.19	3.11	.70	-3.12	29	.002
	Post-test	30	39.23	3.17	.72			

The table 5 shows that there is a significant difference between the groups. Statistical difference on both scores of motivations after the implementation of gamified instruction shown that (p >.05).

The implementation of gamified instruction to SMA 1 Lahusa South Nias was significantly different in improving the score. It can be seen in the following table.

Table 6. The motivation score on inter-group

Group	N	X	S	SD	t	df	p
Exp	30	9.81	2.14	.86	3.88	58	.002
Cont	30	10.04	1.98	,075			

The improvement of the experimental group was 9.81 and the mean of the experimental group was 10.04. It was to indicate that gamification instruction was significant in improving the students' motivation.

After knowing whole quantitative data are distributed normally as stated above, as a quantitative finding, the researcher can conclude that gamified instruction has a positive impact on vocabulary ability (see table 3). Control class was taught with traditional instruction. The table 6 shows that traditional instruction or control class is weak in improving the students' ability in vocabulary (see table 3). Contrary to that, in experimental was taught with gamified

instruction. It has a significant effect on students' vocabulary ability. It's to indicate that gamified instruction affects the students' vocabulary ability (see table 3).

As qualitative findings, gamified instruction also had a positive impact on students' motivation to learn vocabulary. The researcher distributed a questionnaire with sixteen questions. Five questions with interest value, six questions for utility value, and five questions for expectancy for success. It's to indicate that qualitative results support to quantitative findings. To support the result of the questionnaire, the researcher conducted a semi-structured interview. These activities explore the perception of experimental students related to gamified instruction' perception. The following information as their viewpoints on gamified instruction:

(S1, data of interview) …. Vocabulary is important to us to speak English, without vocabulary we can not speak English, I think it's very important for us to memorize and practice English in-game concepts….

(S3, data of interview)…. Vocabulary is key for us to succeed in learning English, it's difficult for me to know your speech because we have limited vocabulary….

The perception, as stated above, describes that vocabulary is important to master in English speaking. It means that gamified instruction can motivate the respondents to learn vocabulary. The respondents commit to memorizing some words but need to practice in the game concept and context. In addition to that, the participant realized that he/she is difficult to understand what the teacher said in the process of the interview. Fun situation, being interesting and positive competitive atmosphere are created while teaching and learning process using gamified instruction.

(S2, data of interview) …we can learn English faster if we have as much vocabulary as you put in the teaching and learning process….

(S4, data of interview) …every student' will learn vocabulary if you give fun instruction in our class….

Here are some perceptions of gamified instruction in the process of teaching and learning. When the researchers asked their reasons more motivated to learn vocabulary. Some of them said that the situation is more competitive, and they feel enjoy and have fun, in addition, most experimental students are interested in learning English. However, some students have other perceptions because of their difficulties in expressing certain words. Here is some supported data.

(S7, data of interview) …. It's like a competition in groups which make me study more on vocabulary…

(S9, data of interview) … this situation is very fun, enjoyable, competitive, and different from the lesson before as usual monotonous…

(S10, data of interview) ….it excited because we do in team which affected to our success in competition, we are more motivated to learn vocabulary or to keep our success…

Based on the interview data as stated above, it can be concluded that qualitative results on interview information support quantitative findings.

4. DISCUSSION

It's important to know that gamified instruction (sophisticated) has a positive effect than non-gamified instruction (traditional) on students' vocabulary and motivation. In addition to that, gamified instruction also has a significant effect on students' motivation to learn vocabulary. However, the unexpected finding states that motivation in the control group was higher but did not contribute to vocabulary achievement. According to (Santoro, 2022) explore a similar result, well motivation did not contribute to the student's achievement. While (Elgarhy, 2024; Fernández-Vázquez, 2024; Infante-Paredes, 2024; Kazhamiakin, 2021; Manzano-León, 2022; Mikašytė, 2018; Parra-González, 2021) state that gamification has a positive impact on student's development in learning English as a foreign language.

The result of the interview explores gamified instruction leads to the class being more dynamic. The dynamic situation because of the competitive situation, teamwork situation, the same experience to face difficult words together with team, confused together with team and fun. It's a part of language learning that students have to face in class. This finding supports to (Cho, 2020; Infante-Paredes, 2024; Vagianou, 2021; Zainuddin, 2018) which states that language learning must be fun and have a positive impact on motivation

5. CONCLUSION

The result of this study declares that gamified instruction has a positive impact on students' ability on vocabulary and motivation. Other English teachers around Nias can adopt and use it as an alternative solution to implement in teaching English. This game is beneficial since this strategy is based on students' characteristics. Most students like to competitive situations with groups. As the pedagogical implication, English teachers in SMA 1 Lahusa South Nias can implement it to achieve the learning goal through roleplaying to increase the student's motivation to learn English. The element of the game can be implemented in the gamified instruction. However, this study is limited to the impact of gamified instruction on vocabulary. It's recommended for future research to conduct similar research but to investigate other language sub-skills like pronunciation and structure (grammar) in the disadvantaged area.

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