Vol. (11), No. (2); 2025
ISSN : 2355-2069 (Print)
ISSN : 2656-5765 (Online)
Published by UIN Fatmawati Sukarno Bengkulu

THE EFFECTIVENESS OF DIGITAL GAME BASED LEARNING ON STUDENTS' WRITING SKILL BASED ON GENDER DIFFERENCES

RATIH AYU WULANDARI[1], ULINUHA DAHLINA[2], ASIH ROSNANINGSIH[3]
[1,2]*Universitas Faletehan,* [3]*Universitas Muhammadiyah Tangerang*
[1]ratihayu.wulandari88@gmail.com, [2]ulinuha.dahlina@gmail.com, [3]asihrosna@gmail.com

DOI : http://dx.doi.org/10.29300/ling.v11i2.9017

Received: September 2nd 2025 Accepted: November 25th 2025 Published: December 5th 2025

Abstract

This study highlights the importance of preferences between male and female students that should be taken into account when designing digital game-based learning (DGBL) to improve writing skills. Until the present time, there were limited studies exploring gender differences among male and female students in using DGBL to teach narrative writing text. Thus, the purpose of this study is to examine the effect on students' narrative writing skills enhanced through DGBL utilizing the Wordwall application, with an emphasis on gender differences. It employed a mixed-method design combining quantitative and qualitative techniques. A quasi-experimental design with a non-equivalent control group was utilized for the quantitative technique, while descriptive method was employed in the qualitative technique. The samples were selected purposively into different groups: experimental (XI Saintika 2 = 36 students) and control (XI Saintika 4 = 36 students). DGBL was utilized to teach narrative writing to the experimental group, whereas traditional techniques were employed to the control group. Students in the experimental group fared much better than those in the control group on both pre- and post-tests (M = 88.05 vs. 79.27), which was supported by t-test results ($p < 0.05$). It showed that by boosting motivation, engagement, and instant feedback, DGBL successfully improved writing performance. Even among normally passive students, Wordwall's interactive elements encouraged active involvement. Although both male and female students benefited from DGBL, gender-based analysis showed that males were more competitive and females generally had more positive attitudes and structured writing styles. Teachers are required to design DGBL with various learning activities according to students' individual differences to make sure all of them are involved actively during the teaching writing process.

Keywords: Digital Game-Based Learning, gender differences, mixed-method, narrative writing, Wordwall

INTRODUCTION

Education should aim to enhance creative thinking skills. The ability to think critically comes up with new ideas, innovations, or even new breakthroughs. Being creative is key for helping individuals quickly adjust to what is happening around them. To address this, possessing good writing skills have become one of the critical components in language learning. Writing gives people the clarity to articulate what they need in a variety of situations from school to work, business and other purposes (Ritonga et al., 2024). Writing skill indicators include mastery of content or information, organizational structure and logical flow of paragraphs, correct grammar, appropriate word choices, and the use of punctuation, spelling, and appropriate writing formats (Susanti & Oktaviana, 2023).

However, writing skills are widely considered as difficult and uninteresting, mainly because it is a complex skill developed from other language skills (R. A. Wulandari & Rosnaningsih, 2020; R. A. Wulandari & Safira, 2021). Initial observations at SMAN 1 Waringinkurung identified two aspects of students' learning problems. Firstly, form the perspectives of students' abilities in writing narrative text, it revealed that students particularly struggled in generating ideas, structuring information in the story correctly, and vocabulary poverty. These difficulties were even worse with a dismal motivation and low

classroom participations due to teacher's non-innovative teaching methodologies and media. Secondly, from the gender's perspectives, female and male students were learning in different ways. Female students favoured to conduct multi tasks, more interpretive and more adjusted to varieties of learning strategies. Otherwise, male students tended to be more intuitive, goal-oriented and required more detailed and specific explanations, also more frequent practice in writing. These conditions have led to different learning outcomes.

Referring to the above issues, teachers must be aware of the situations arising in the English learning process. This awareness includes understanding students' different characteristics, background, learning needs and preferences, language skills, and the use of various teaching media. Ideally, teachers must create an inclusive, fair, and supportive learning environment where all students are appreciated and motivated both academically and non-academically. All of these aspects depend one to another and make the leaning more meaningful.

Currently, technological advances and the development of information and communication technology have indirectly made students dependent on smartphones (Luh et al., 2025). The impact on education is that teachers must adapt their teaching methods by implementing one of the latest innovations utilizing smartphones, such as Digital Game-Based Learning (DGBL). DGBL is a learning approach utilizing game elements to improve students' understandings and engagements in learning, thereby creating an interesting and interactive learning experience (Wulandari & Safitri, 2024).

One type of DGBL that can be applied is a web-based application, Wordwall, which is easily accessible, user-friendly, flexible, and offers a variety of fun games and activities increasing students' engagements in learning. Wordwall provides templates that can be customised to learning needs, such as 'Match up', 'Open the box', 'Categorise', 'Matching Pairs', etc. Wordwall makes it easy for teachers to prepare materials and provide feedback so that students can identify and correct their mistakes (Pandutama et al., 2023). Using Wordwall fulfils the characteristics of DGBL, that is providing challenges to students, encouraging positive competition among them. Games in learning contain fantasy elements capturing students' attention and actively engage them in learning activities. Games also create meaningful learning experiences. Through games, students understand the essence of the materials being studied and feel that the materials are important to assess, making the measurement of learning outcomes clear and well-defined (Permana, 2022).

However, the application of DGBL in teaching writing skills can produce different results for male and female students because gender differences often lead to different outcomes in academic achievements (Parajuli & Thapa, 2017). Gender based differences in learning styles and preferences of games can also affect the learning outcomes. Acknowledging students' learning styles and abilities, teachers may develop learning materials and processes with the use of practical strategies to meet students' needs. Although DGBL may enhance writing skills, there is limited empirical evidence regarding the efficacy of DGBL for EFL writing involving gender issues. Accordingly, this study aimed to investigate the effects of DGBL integration on narrative text writing performance with respect to the students' genders.

DGBL is one of the best innovations in education that has great potential to develop students' creativity, especially in learning English writing skills (Castillo-Cuesta, 2022; Fahira & Kemal, 2024; Fauziah & Rofi'ah, 2024; Gita Suryani & Gede Yoga Permana, 2024; Satriani, 2018). Using DGBL, students may become more engaged in the learning process and carry out high-quality writing. High-level writing enables students to express innovative concepts and ideas in a variety of disciplines, helping to prepare in facing competitors. However, in Indonesia, the use of DGBL is still not optimal. Many teachers

still use conventional teaching methods; hence, the DGBL approach has not been fully utilised as an alternative in the learning process. Therefore, the use of DGBL needs to be continuously encouraged and improved. In its implementation, teachers need to consider gender differences since gender-based learning approaches can help accommodate students' learning potentials more effectively. It is hoped that DGBL can be used effectively to enhance the narrative writing skills of both male and female students.

Previous studies have shown that DGBL makes the learning process more enjoyable and increases students' motivations and engagements, thereby effectively improve students' writing skills. When it comes to gender, some experts have different views on the use of DGBL. There are no discernible learning differences between male and female students when using DGBL (Chiang, 2020; Korkmaz & Öz, 2021; Xian et al., 2021) . However, other studies indicate differences between female and male students in their perceptions and attitudes towards DGBL. Female students tend to outperform males (Apriani et al., 2022; Hou, 2018; Khan et al., 2017; Safdar & Khan, 2020). They exhibit more positive attitudes than males; hence, gender differences should be considered in the design and implementation of DGBL (Khan et al., 2017). Other studies show that male students outperform females and are more motivated in DGBL (Ismail & Mohammad, 2017). Marantika (2022) and Tsai (2017) emphasise the importance of understanding the differences in learning style preferences between male and female students and considering gender differences in designing DGBL to enhance learning effectiveness and achieve optimal learning outcomes.

The gap of this study relies on the fact that there have been no clear findings on how gender differences influence the effectiveness of DGBL implementation, especially in English writing skills. To fill this shortage, the researchers intended to investigate the effectiveness of DGBL implementation on narrative text writing skills, taking gender differences into account. The questions to be answered through this study were: (1) Is there any significant different effect of DGBL in improving students' writing skills based on their gender differences?; (2) How do female students' writing skills compare to males' after receiving DGBL?

METHOD

Design and Method

In order to integrate qualitative and quantitative methodologies into a single study, this research employed a mixed-method approach. This method is considered effective because it involves data from both types of research. The advantage of this method is the efficiency in processing data and enhancing the validity of research results (Justan et al., 2024). In this study, the quantitative method aimed to measure the effectiveness of DGBL in improving students' narrative text writing skills. The quantitative method used was quasi-experimental design applying non-equivalent control group design, while the qualitative method used was descriptive method. This method seeks to describe a phenomenon accurately and systematically so that it can answer the questions of what, where, when, and how (Fadli, 2021; Ilhami et al., 2024). In this study, the qualitative method aimed to describe gender differences among students based on their previously obtained narrative text writing skills. In its implementation, the research subjects were placed into two groups: the control and the experimental groups. In the control group, the researchers used conventional teaching methods, while in the experimental group, the researchers employed DGBL.

The quantitative data gathered from pre-test and post-test of the narrative writing test was used to discover empirically whether DGBL might have different significant effects on students' writing skills referring to their gender differences. To strengthen the findings, the

qualitative data would compare female and male students experience after receiving the DGBL. It was conducted to sharpen the validity of research findings which enabled a comprehensive explanation.

Respondents

This study involved students of class XI of SMAN 1 Waringinkurung consisting of twelve classes totalling 358 students. Sampling was conducted using non-probability technique by applying purposive sampling where samples selected based on certain considerations. Class XI Saintika 2 (36 students) served as the experimental group, while Class XI Saintika 4 (36 students) served as the control group. The total sample size was 72 students. This sample selection was made because both classes were considered capable of representing the study.

The selection of the sample was based on the theory that students in high school level have cognitive ability, emotional, and social development which might have an impact on their language skills. According to Piaget, high school students are typically at the formal operational stage (Hayat et al., 2024). They possess the capacity for critical, abstract, and logical thoughts. They are also able to comprehend more intricate grammatical ideas, figurative meanings, and literary works or discourses more thoroughly when learning a language. Further, they are accustomed to using technology. They know how to use social media and devices. Therefore, they can make use of technologies like learning applications and digital platforms to increase interests in language learning.

Instruments

The instruments were divided into quantitative and qualitative ones. In quantitative design, the instruments were pre-test dan post-test which were administered to assess students' writing performances before and after the treatment. Each test consisted of 2 items where students were asked to write narrative texts by paying attention to the language features and generic structures of the text. The rubric was adapted from (Brown, 2007) and (Tribble, 1996) involving content, organization, grammar, vocabulary, and mechanics.

In addition, the instruments used in qualitative design were observation guidelines and questionnaires. The observations were conducted in the classroom alongside the teaching learning process to investigate how DGBL was applied in the classroom and the suitability of the learning steps implemented by the teacher with the ideal DGBL steps. As for the questionnaires, two types of questionnaires consisting of 40 items were given to the experimental group receiving the DGBL treatment. The first questionnaire related to the use of DGBL in learning narrative text writing skills to see the suitability of DGBL used in the classroom with the ideal DGBL implementation steps. The second questionnaire addressed gender differences in language learning and in writing skills. The questionnaire used a Likert scale from 1 (strongly disagree) to 5 (strongly agree).

Both quantitative and qualitative instruments were tested before being used in collecting the data. To check the validity and reliability of the pre-test and post-test, the researchers applied the Pearson Correlation and Cronbach Alpha (pre-test = 0.71 and post-test = 0.731) which results showed that the instruments were valid and reliable. Furthermore, to check the validity and reliability of the questionnaires, the researchers also applied the Pearson Correlation and Cronbach Alpha (students' perceptions on the use of DGBL = 0.944 and students' perceptions on gender differences = 0.901) which results showed that the instruments were valid and reliable. Moreover, the interview and observation guidelines had been evaluated by expert judgements: both of them were appropriate to be used.

Procedure

Prior to the process of learning narrative text, students in both groups took a pre-test on composing narrative texts. Then, the researchers utilized DGBL to teach the experimental group, whereas the control group was taught using traditional methods. To assess students' writing skills following the treatment, the researchers gave both groups a posttest on composing other narrative texts at the end of the learning process. Secondly, to find out how DGBL was applied in the classroom and whether the teacher had chosen learning steps appropriate for the best DGBL steps, observations were made during the teaching learning process. Thirdly, the researchers gave two different kinds of questionnaires to the experimental group for 30 minutes. The first questionnaire related to the use of DGBL in teaching English narrative text writing skills to determine the suitability of DGBL use in the classroom with the ideal steps for implementing DGBL. Gender disparities in language acquisition and writing skills were the two topics of the second questionnaire, focusing on gender inequalities.

Data analysis

In this study, data analysis used SPSS version 25 for quantitative analysis including descriptive (mean, standard deviation, percentage, and frequency distribution), while to describe data trends and inferential (normality, homogeneity, and t-test) to test hypotheses and see relationships and differences between variables (Creswell, 2014). Meanwhile, qualitative analysis was conducted through three stages of Miles dan Huberman (Miles et al., 2014), namely data reduction (filtering and focusing data), data display (presenting in the form of matrices, tables, or narratives), and drawing conclusions/verification to obtain valid interpretations. The combination of these approaches provides a comprehensive and in-depth picture of the research results.

FINDINGS

1. The Effect of DGBL on Students' Writing Skills

The stage of quantitative design began with administering a pre-test of narrative text writing skills to students from both groups before the teaching learning process. Then, the researchers administered treatment in the experimental group using DGBL, while the control group using conventional methods. After that, the researchers administered a post-test of narrative text writing skills to both groups to measure students' skills after the treatment.

Descriptive Data of Pre-test

The results of the pertest data analysis in the experimental group showed that the average score obtained was 68.58 out of 36 students. The highest score was 88, while the lowest was 38, the score range was 50. Based on the calculation, the number of classes were categorized into six intervals with a class width of 8. It indicated that before the treatment, the initial abilities of students in the experimental group were in moderate category with a relatively high variation in scores, as seen from the large distance between the minimum and maximum scores. This wide variation indicated a significant difference in initial abilities among students, thus providing an important basis for analysing the effect of the learning intervention implemented later.

Table 1. Frequency Table of Pre-test Score in Experiment Class

Data Classes	Intervals	Lower Bounds	Upper Bounds	Medians	Frequencies	Percentages
1	38-45	37.5	45.5	41.5	1	3%
2	46-54	45.5	54.5	50	1	3%

3	55-63	54.5	63.5	59	10	28%
4	64-72	63.5	72.5	68	14	39%
5	73-81	72.5	81.5	77	8	22%
6	81-88	80.5	88.5	84.5	2	6%
					36	100%

Based on Table 1, the frequency distribution of pre-test scores in the experimental group shows that out of 36 students, most (14 students) obtained scores in the 64–72 interval (39%). Further, 10 students (28%) were in the 55–63 interval, while 8 students (22%) were in the 73–81 interval. Only a small number of students obtained low scores in the 38–45 and 46–54 intervals, each amounting to 1 student (3%). Meanwhile, there were 2 students (6%) obtaining the highest score in the 81–88 interval. These data indicated that the majority of students had initial abilities falling into the medium to high categories, with the peak distribution at the 64–72 interval. These findings are visualized in Figure 1 showing the distribution of pre-test scores more clearly**.**

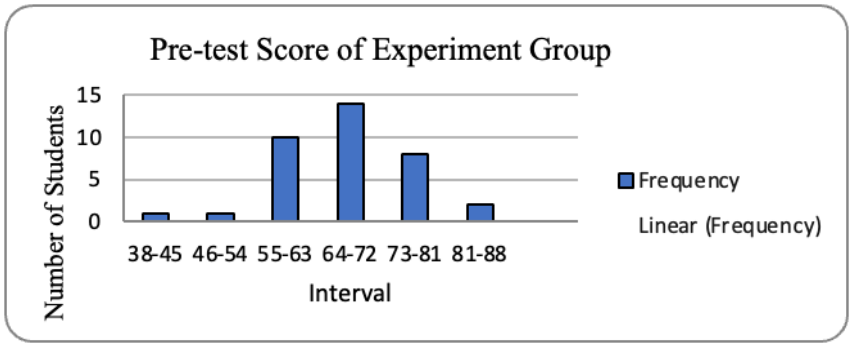


Figure 1. Pre-test Score of Experiment Class

In the control group, the results of the pre-test data analysis showed that the average score was 66.36 from 36 students. The highest score was 83, while the lowest was 52, with a score range of 31. The data distribution was grouped into six interval classes with a class length of 5. These results indicated that the initial abilities of students in the control group were also in the medium category, but with a narrower score variation compared to the experimental group. The smaller score range indicated that the initial abilities of students in the control group were relatively more homogeneous than the experimental group. This data is important for comparing the development of learning outcomes between the two groups after the treatment was given.

Table 2. Frequency Table of Pre-test Score in Control Group

Data Classes	Intervals	Lower Bounds	Upper Bounds	Medians	Frequencies	Percentages
1	52-57	51.5	575	54.5	2	6%
2	58-62	57.5	62.5	60	5	14%
3	63-67	62.5	67.5	65	8	22%
4	68-72	67.5	72.5	70	11	31%
5	73-77	72.5	77.5	75	3	8%
6	78-83	77.5	83.5	80.5	7	19%
					36	100%

Based on Table 2, the frequency distribution of pre-test scores in the control group shows that out of 36 students, most (11 students) obtained scores in the 68–72 interval (31%). Further, 8 students (22%) were in the 63–67 interval, while 7 students (19%) were in the 78–83 interval. Only a small number (2 students) obtained scores in the 52–57 interval (6%) and 5 students (14%) were in the 58–62 interval. Also, there were 3 students (8%) obtaining scores in the 73–77 interval. These data showed that the majority of students' initial abilities in the control group were also in the moderate category with a peak distribution at the 68–72 interval. This distribution pattern is visualized more clearly in Figure 2.

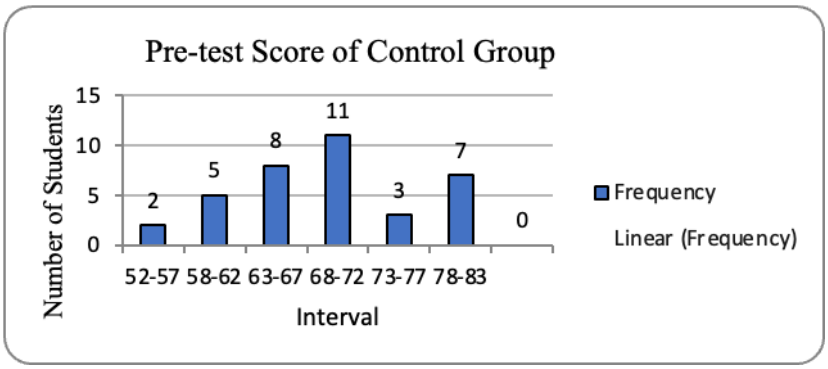


Figure 2. Pre-test Score of Control Class

Based on the pre-test results, both the experimental and control groups demonstrated relatively equal initial narrative writing skills, falling within the moderate category. In the experimental group, the distribution of scores was predominantly in the 64–72 range (39%), while in the control group was in the 68–72 range (31%). Although the peak distribution in the control group was slightly higher (68–72 range) than in the experimental group (64–72), the difference was not significant. The score distributions in both groups was also relatively even in the moderate category, with only a small proportion of students falling within the low or high categories. Thus, it can be concluded that there was no significant difference between the pretest results of students' writing skills in the two groups. This relatively balanced initial condition is important to ensure that differences in post-test results can be attributed more to the learning treatment (DGBL) than to differences in students' initial abilities.

Descriptive Data of Post-test

The results of the post-test data analysis in the experimental group showed that the average students' score was 88.05 out of 36 participants. The highest score was 98, while the lowest was 66, with a score range of 32. The distribution of scores was grouped into six interval classes with a class width of 5. These data indicated a significant increase in learning ability in students after the treatment, marked by a high concentration of scores in the upper category. The relatively moderate variation in scores also indicated that the majority of students were able to master the material more evenly compared to the initial conditions.

Table 3. Frequency Table of Post-test Score in Experiment Class

Data Classes	Intervals	Lower Bounds	Upper Bounds	Medians	Frequencies	Percentages
1	66-71	65.5	71.5	68.5	3	8%
2	72-77	71.5	77.5	74.5	1	3%
3	78-83	77.5	83.5	80.5	3	8%

4	84-89	83.5	89.5	86.5	9	25%
5	90-95	89.5	95.5	92.5	13	36%
6	96-98	95.5	98.5	97	7	19%
					36	100%

Based on Table 3, the frequency distribution of post-test scores in the experimental group shows an increase in students' skills after the treatment. From 36 students, most (13 students) obtained scores in the 90–95 interval (36%), followed by 9 students (25%) in the 84–89 interval. Further, 7 students (19%) were in the 96–98 interval, while only a few students were in the lower interval, namely 3 students (8%) in the 66–71 interval, 1 student (3%) in the 72–77 interval, and 3 students (8%) in the 78–83 interval. This distribution pattern showed that the majority of students managed to achieve high scores on the post-test, with the peak of the distribution at the 90–95 interval. This indicated that the treatment was effective in improving students' learning outcomes in the experimental group. These findings are further visualized in Figure 3.

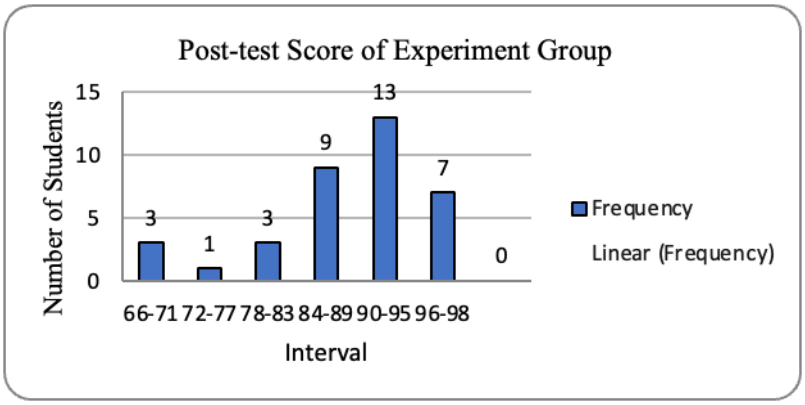


Figure 3. Post-test Score of Experiment Group

The results of the post-test data analysis in the control group showed that the average students' score was 79.27 from 36 participants. The highest score was 94, while the lowest was 62, with a score range of 32. The data distribution was divided into six interval classes with a class length of 5. These results indicated an increase in students' learning skills in the control group, but the average score and distribution were relatively lower than the experimental group. It indicated that the treatment in the experimental group was more effective in improving students' learning outcomes compared to the conventional methods applied in the control group.

Table 4. Frequency Table of Post-test Score in Controlled Class

Data Classes	Intervals	Lower Bounds	Upper Bounds	Medians	Frequencies	Percentages
1	62-67	61.5	67.5	64.5	4	11%
2	68-72	67.5	72.5	70	5	14%
3	73-77	72.5	77.5	75	4	11%
4	78-82	77.5	82.5	80	9	25%
5	83-87	82.5	87.5	85	8	22%
6	88-94	87.5	94.5	91	6	17%
					36	100%

Based on Table 4, the frequency distribution of post-test scores in the control class shows that the majority of students (9 students) obtained scores in the 78–82 interval (25%). Further, 8 students (22%) were in the 83–87 interval, and 6 students (17%) were in the 88–94 interval. Meanwhile, 4 students (11%) obtained scores in the 62–67 interval, 5 students (14%) in the 68–72 interval, and 4 students (11%) in the 73–77 interval. This distribution pattern showed that most students in the control group had learning outcomes in the medium to high category, but the number of students who achieved the highest score category (88–94) was fewer than the experimental group. This finding is visualized in Figure 4 and indicated that the increase in learning outcomes in the control group was not as much as in the experimental group.

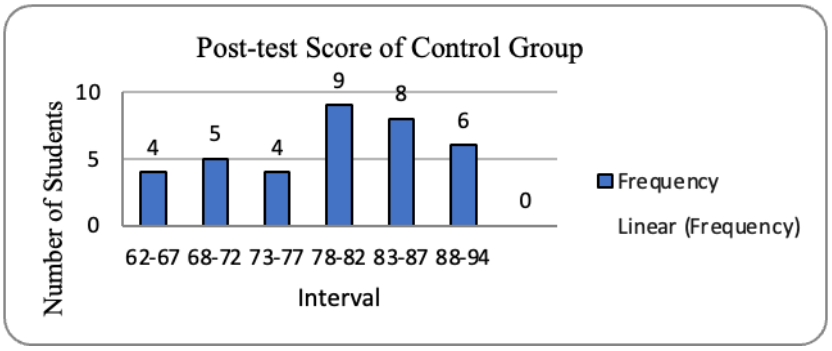


Figure 4. Post-test Score of Control Group

Based on a comparison of the post-test results of the two classes, a clear difference was observed between the experimental and control groups. In the experimental group, the majority of students achieved high scores, with a peak distribution in the 90–95 range (36%), and some even reached the highest range of 96–98 (19%). Nevertheless, in the control group, the majority of students fell within the 78–82 range (25%), and only 17% achieved the 88–94 range, with none exceeding 94. It indicated that the improvement in narrative writing skills was more significant in the experimental group than the control group. Given the relatively balanced initial conditions of both groups in the pre-test, the significant difference in the post-test could be attributed to the effectiveness of the use of DGBL in the experimental group. Therefore, it could be concluded that DGBL was more effective in improving students' writing skills than conventional methods.

Data Normality and Homogeneity

Table 5. Results of Normality Test

No.	Types of Tests	N	Test Statistic	Sig.2 tailed	Results
1.	Pre-test Experiment	36	0.089	0.200	Normal
2.	Pre-test Control	36	0.139	0.075	Normal
3.	Post-test Experiment	36	0.135	0.076	Normal
4.	Post-test Control	36	0.116	0.200	Normal

The results of the normality test on the pre-test and post-test data in both groups indicated that all data were normally distributed. This was evident from the Sig. 2-tailed of each variable which was greater than 0.05, namely the experimental pre-test of 0.200, the control pre-test of 0.075, the experimental post-test of 0.076, and the control post-test of 0.200. Thus, the data met the assumption of normality and was suitable for use in parametric statistical analysis.

Table 6. Results of Homogeneity Test

No.	Types of Tests	N	F-Count	Sig.	Results
1.	Pre-test Experiment and Control	36	0.809	0.371	Homogeneous
2.	Post-test Experiment and Control	36	0.770	0.383	Homogeneous

The results of the homogeneity of variance test indicated that the pre-test and post-test data between both groups were homogeneous. This was evidenced by the significance value in the pre-test of 0.301 and in the post-test of 0.322, both of which were greater than 0.05. It indicated that the variance between groups did not differ significantly, thus fulfilling the requirement of homogeneity of variance as a prerequisite for further analysis.

Hypothesis Testing

Table 7. Result of Hypothesis Testing

No.	Types of Tests	N	T-Counts	T-Tables	Sig.2 tailed	Results
1.	Pre-test Experiment and Control	36	1.088	2.042	0.280	H0 Accepted
2.	Post-test Experiment and Control	36	4.330	2.042	0.001	H1 Accepted

The results of the hypothesis test using a t-test on the pre-test data showed that the t-count < t-table (1.088 < 2.042), with a significance value of 0.280 > 0.05. This means that H_0 was accepted and H_1 was rejected, thus concluding that there was no significant difference between the average pre-test scores of the experimental and control groups. In other words, the initial abilities of both groups were relatively equal before the treatment.

Conversely, the results of the hypothesis test on the post-test data showed that the t-count value > t-table (4.330 > 2.042), with a significance value of 0.001 < 0.05. This means that H_0 was rejected and H_1 was accepted, thus concluding that there was a significant difference between the average post-test scores of the experimental and control groups. It indicated that the learning treatment in the experimental group had a more effective influence on improving student's learning outcomes than the control group.

2. Application of DGBL to teach Narrative Writing Skills

This study was conducted in English class with the topic of narrative text. In the first meeting, the teacher determined the scope of materials covering definitions, social functions, and language features. The teacher provided an initial explanation of the material as an introduction before starting the game-based learning activities. In the second meeting, the focus shifted to the types and generic structures of narrative texts. The third meeting focused on deepening understanding of generic structures and creative activities in the form of writing stories.

Before the learning process began, the teacher prepared all the supporting facilities including PowerPoint presentations, Wordwall application as the main game medium, and supporting devices like laptops, projectors, cables, whiteboards, and markers. Observations showed that the readiness of facilities was an important factor supporting the smooth implementation of DGBL. The teacher also explained the procedures and steps of game-based activities in detail so that students understood the learning flow and applicable rules. The teacher explained the rules before each game began, including time limits. Learning activities were generally conducted individually, although some sessions, such as 'Open the Box', were conducted in groups to practise students' collaborative skills. The teacher played

an active role as leader and supervisor, controlling the game, answering questions, and providing assistance when problems arose.

Figures 5. Students practicing DGBL while learning English

The learning process was carried out using various Wordwall templates adjusted to the learning objectives of each session. In the first session, the teacher used 'Match Up' to match terms with their definitions and 'Group Sort' to categorise language features of narrative text. Each game lasted ten minutes. In the second session, 'Balloon Pop' consisting of four levels was used, where students had to select balloons containing narrative text types. It lasted fifteen minutes. The next template was 'Rank Order', asking students to arrange random sentences into a complete narrative text, lasting ten minutes. In the third meeting, the teacher utilised 'Categorise' to identify the generic structure of narrative texts for ten minutes, and 'Open the Box' to open a box containing story titles, which were then written in groups.

The evaluation process conducted through Wordwall-based exercises, and the results of the games were used to measure learning outcomes. At the end of the session, the teacher and students summarised the materials learnt, teacher provided motivation and conveyed the materials for next meeting so that students could prepare themselves in advance. The teacher also announced the top ten students with the highest scores as a form of appreciation to encourage enthusiasm for learning.

Based on the field observation, the application of DGBL using Wordwall proved to be effective in increasing students' engagements and motivations. Interactive and competitive game activities encouraged students to participate actively and focus more on learning. It also showed that students were enthusiastic about participating in the games, and even those who tended to be passive in conventional methods seemed more excited when interacting with game-based media.

Students' engagements in the game were also in line with DGBL theory stating that the integration of game elements (competition, rules, clear objectives, and immediate feedback) can increase attention and conceptual understanding (Wang et al., 2022). The scoring system at the end of the game provided extrinsic motivation, encouraging students to strive for better results, while the challenging game design fostered intrinsic motivation through curiosity and achievements.

After conducting the observation, the researchers continued to administer questionnaires to grasp students' perceptions and responses towards application of DGBL. Below is the result of questionnaires:

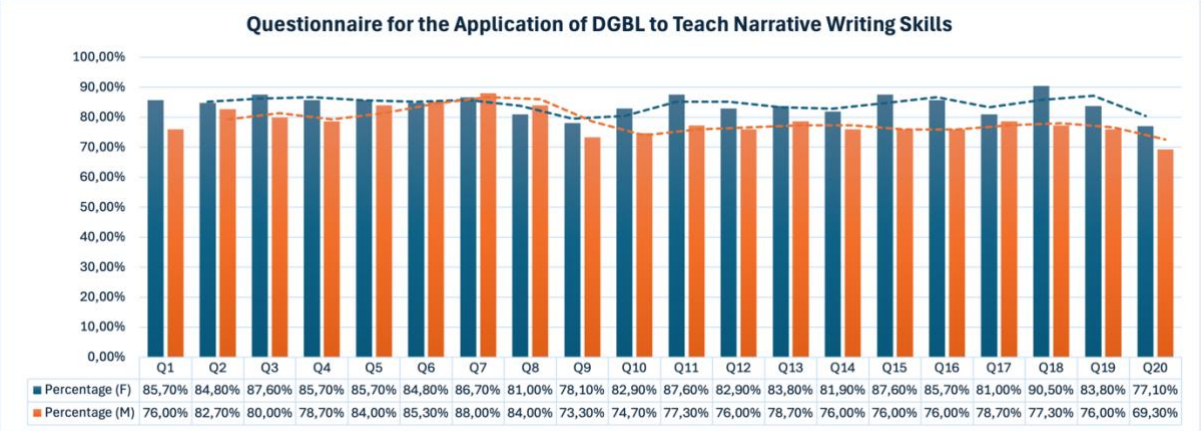


Figure 6. Result of Student's Questionnaires for Application of DGBL

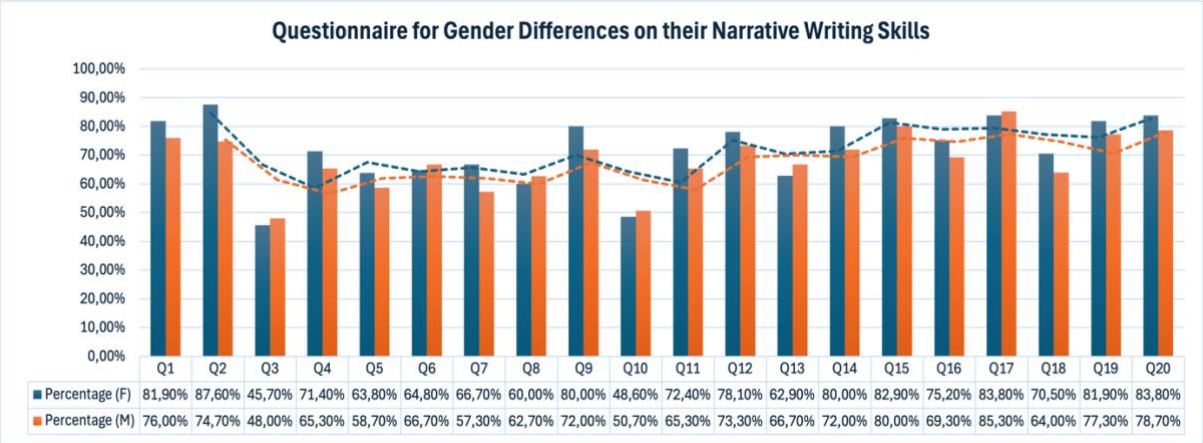
Based on the diagram, it can be seen that the percentage of female respondents (F) consistently outperformed male respondents (M) for almost all questionnaire items. In item Q1 concerning the teacher's explanation of the learning topic before starting an activity, females accounted for 85.7% of the responses, while males accounted for 76%. A similar trend was observed in Q2 through Q7, discussing material preparations, the use of game-based learning contents, and explanations of activity steps. Females consistently reported above 80% of the responses, while males reported slightly lower responses. This indicated that female tended to provide a more positive assessment of the implementation of DGBL in learning narrative writing skills.

In questionnaire items Q8 through Q15, addressing game rules, group structure, the teacher's role, and the appropriateness of evaluation instruments, the same trend remained. Females reported between 78% and 88% of the responses, while males reported between 69% and 84%. There were several items where the differences between female and male ratings were quite significant, for example, Q20 (reflection on the strengths and weaknesses of the game) with 77.1% for females and 69.3% for males. Nevertheless, both groups generally believed that teacher had performed their role well in implementing DGBL, but positive perceptions were more prevalent among female respondents.

In questionnaire items Q16 through Q20, focusing on evaluation, appreciation, and reflection on activities, females' responses showed high scores, with Q18 (appreciation for outstanding students) reached 90.5%. Meanwhile, the lowest score among males was Q20 (69.3%). It indicated that the implementation of DGBL was considered very effective and engaging, but more attention was needed to involve male students so they could experience the same benefits. Overall, the questionnaire results showed that teacher had prepared and implemented DGBL well, yet there was still room for improvement, especially in aspects of reflection and equal distribution of satisfaction between genders.

However, the researchers also noted some technical challenges, such as time constraints or unresponsive devices. These challenges were promptly addressed by the teacher, but they served as important notes for technical improvements in future research or learning. The limited time required the teacher to carefully manage classroom organisation and game duration to ensure learning objectives were fulfilled. Overall, the implementation of DGBL in narrative text learning not only improved materials comprehension but also created a more lively and enjoyable learning atmosphere. It supported the idea that well-designed educational technology could accommodate the learning needs of 21st-century students, particularly in terms of active engagement, collaboration, and digital literacy.

Another questionnaire was designed to measure students' perceptions and learning habits related to English narrative writing skills, including vocabulary understanding strategies, technology utilization, emotional management, study habits, the ability to plan and revise writing, social interactions, motivation and learning goals. The main objective of this questionnaire was to identify differences in students' learning styles and writing skill levels, including gender differences, so that teachers could design more appropriate and effective learning strategies. The expected responses from students were honest and reflective answers about their experiences, so that the data obtained could provide a real picture of their strengths, weaknesses, and needs in learning English, especially in narrative writing.



	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Percentage (F)	81,90%	87,60%	45,70%	71,40%	63,80%	64,80%	66,70%	60,00%	80,00%	48,60%	72,40%	78,10%	62,90%	80,00%	82,90%	75,20%	83,80%	70,50%	81,90%	83,80%
Percentage (M)	76,00%	74,70%	48,00%	65,30%	58,70%	66,70%	57,30%	62,70%	72,00%	50,70%	65,30%	73,30%	66,70%	72,00%	80,00%	69,30%	85,30%	64,00%	77,30%	78,70%

Figure 7. Result of Student's Questionnaires for Gender Differences on Writing Skills

Based on the diagram, there is a difference in the percentage of responses between female (F) and male (M) students regarding English narrative writing skills. In Q1 and Q2, discussing strategies for guessing word meanings from context and the ease of learning through mobile platforms, female had higher percentages (81.9% and 87.6%) than males (76% and 74.7%). This indicated that females tended to be more active in utilizing context and technology in learning. However, in Q3 which measures stress levels when learning using online platforms, the percentage of males was slightly higher (48%) than females (45.7%), indicating that males felt overwhelmed more easily. Furthermore, in Q4 and Q5, regarding the use of emotions and the habit of asking friends, females still had a superior performance in Q4 (71.4% vs. 65.3%), but males had a slightly higher performance in Q5 (58.7% vs. 63.8%), indicating variations in learning patterns by gender.

In terms of writing and planning skills (Q6–Q10), the results varied. Women had higher percentages in Q6 and Q7, which related to the ability to write with clear structure and varied vocabulary (64.8% and 66.7% for women; 66.7% and 57.3% for men), while men had slightly higher percentages in expressing poor writing quality (Q8: 62.7% vs. 60%). In Q9, regarding planning before writing, women significantly outperformed (80% vs. 72%), indicating that women tend to be more structured. However, in Q10, regarding indifference to feedback, men had a higher percentage (50.7% vs. 48.6%), indicating a need to increase awareness of the importance of feedback in both groups.

In the motivation, interaction, and learning goals aspects (Q11–Q20), the majority of items showed females had higher percentages, especially in Q12 (writing considered fun, 78.1% vs. 73.3%), Q14 (actively correcting mistakes, 80% vs. 72%), Q17 (liking game-based materials, 83.8% vs. 85.3%), and Q20 (having clear learning goals, 83.8% vs. 78.7%). However, in several items, males had higher scores, such as Q13 related to feeling unsure

about writing (66.7% vs. 62.9%) and Q16 regarding classroom interaction (69.3% vs. 75.2%). In general, it indicated that females were more positive in assessing narrative writing skills and aspects of technology-based learning, while males still showed some advantages in certain aspects such as Q3 (stress levels), Q6 (learning steps), Q10 (group division), Q13 (roles of the game), and Q17 (achievement). These results could be the basis for learning strategies considering gender differences to be more effective and balanced.

The quantitative and qualitative results were interconnected to each other. The quantitative results served as the basis of empirical evidence that DGBL had improved students' writing skills despite of their gender differences. Whereas, the qualitative results added more nuances in explaining the way female and male students responded to the DGBL implementation in learning writing skills. To conclude. DGBL could be one of the alternatives in teaching writing in senior high school; however, teachers must be aware of the gender differences because each gender has their own characteristics and learning styles.

DISCUSSION

The study results indicated that the implementation of DGBL significantly improved students' narrative writing skills compared to conventional learning methods. The average post-test score for the experimental group reached 88.05, higher than the control group, scoring 79.27. These findings aligned with the theories proposed by Lee (2003) and (Bohyun, 2015), suggesting that integrating game elements such as competition, clear rules, specific learning objectives, and immediate feedback can enhance students' motivations, engagements, and conceptual understandings.

The use of DGBL in form of Wordwall application as learning medium proved to support this success. Various interactive templates such as 'Match Up', 'Rank Order', and 'Open the Box' helped students develop their writing skills through enjoyable and challenging activities. These activities aligned with Vygotsky's social constructivism theory, emphasizing the importance of active students' engagements and interactions with meaningful tasks (Saleem et al., 2021). Students do not merely passively receive knowledge but are actively involved in problem-solving, organising information, and restructuring narrative text components into a cohesive form.

The results of this study also confirmed the findings of previous researches stating that game-based approaches can improve the quality of students' writings and motivations (Safdar & Khan, 2020; Tsai, 2017). This study provided additional contributions by focusing on narrative writing skills and considering gender differences, which were still rarely studied in EFL context in Indonesia. Qualitatively, it appeared that both males and females benefited from the use of DGBL. Females tended to be neater and more detailed in their writing, while males showed a higher competitive spirit during activities. This showed that despite differences in learning styles, DGBL was able to accommodate both effectively through varied activities.

Furthermore, Wordwall's real-time feedback feature allowed students to promptly identify and correct their mistakes. According to Nicol & Macfarlane-Dick (2006), formative assessment should include efficient feedback as a key element fostering independent learning and this is consistent with their findings. Nevertheless, the study also mentioned a number of technological obstacles, such classroom time limits. Teachers and researchers should tackle these issues in order to ensure a better implementation of DGBL in the future, such as by creating offline backup plans or improving time management skills.

In conclusion, the findings of this study support the idea that DGBL is a successful instructional approach for enhancing students' narrative writing skills in EFL, while simultaneously fostering an enjoyable and engaging learning environment consistent with

the demands of 21st-century education. Due to its gender-sensitive design and clever use of technology, DGBL has a lot of potential to advance fair educational opportunities (Bengel & Peter, 2024).

CONCLUSION

Referring to the findings, when compared to traditional approaches, the Wordwall application was shown to be successful in enhancing students' narrative writing skills. The pre-test results (t-count 1.088 < t-table 2.042) revealed a fair balance in the starting skills of students in both groups; however, the post-test results (t-count 4.330 > t-table 2.042) demonstrated a noticeable gain in the experimental group. DGBL fosters students' participations and drives, including those who had previously been passive in traditional learning, in addition to enhancing academic performance. Gender variations were also seen in learning styles and reactions to DGBL. However, both genders gained equally from this method. Consequently, if DGBL is backed by solid classroom management and sufficient technology infrastructure, it may be used as a novel option in English writing instruction in schools. However, the findings suggested that before using the DGBL, teachers must consider students' gender differences and learning styles. They also need to promote the teaching activities adjusted to the students' 21st-century skills.

ACKNOWLEDGEMENT

The researchers would like to express the sincere gratitude to the Directorate of Research and Community Service, Directorate General of Research and Development, Ministry of Higher Education, Science, and Technology of the Republic of Indonesia for funding this research article publication in the funding year of 2025.

REFERENCES

Apriani, E., Arsyad, S., Syafryadin, Supardan, D., Gusmuliana, P., & Santiana. (2022). ICT Platforms for Indonesian EFL Students Viewed from Gender during the COVID-19 Pandemic. *Studies in English Language and Education*, *9*(1), 187–202. https://doi.org/10.24815/siele.v9i1.21089

Bengel, P. T., & Peter, C. (2024). Promoting technological literacy through virtual game-based field trips: Effects on knowledge, atti-tudes, and gender. *European Journal of Geography*, *15*(2), 120–134. https://doi.org/10.48088/ejg.p.ben.15.2.120.134

Bohyun, K. (2015). Gamification. *Journal Library Technology Reports*, *51*(2).

Brown, H. Douglas. (2007). *Principles of language learning and teaching* (5th ed.). Pearson Education, Inc.

Castillo-Cuesta, L. (2022). Using Genially Games for Enhancing EFL Reading and Writing Skills in Online Education. *International Journal of Learning, Teaching and Educational Research*, *21*(1), 340–354. https://doi.org/10.26803/ijlter.21.1.19

Chiang, H. H. (2020). Kahoot! in an EFL reading class. *Journal of Language Teaching and Research*, *11*(1), 33–44. https://doi.org/10.17507/jltr.1101.05

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Method Approaches Creswell 4th Edition* (4th ed.). Sage Publication.

Fadli, M. R. (2021). Memahami desain metode penelitian kualitatif. *Humanika, Kajian Ilmiah Mata Kuliah Umum*, *21*(1), 33–54. https://doi.org/10.21831/hum.v21i1

Fahira, W., & Kemal, I. (2024). Pengaruh Media Pembelajaran Interaktif Berbasis Game Edukasi Menggunakan Wordwall Terhadap Kemampuan Menulis Teks Negosiasi oleh Siswa Kelas X SMK Yapim Taruna Marelan. *BAHASTRA*, *8*(2), 53–62. https://doi.org/10.30743/bahastra.v8i2

Fauziah, Z., & Rofi'ah, S. N. K. (2024). Enhancing Students' Writing Skills through Game-Based Learning Media (An Experimental Study in English Branding Class). *PROCEEDING Al Ghazali Internasional Conference*, *1*, 628.

Gita Suryani, K., & Gede Yoga Permana, I. (2024). The Effect of Gamification of Four-Grade Students' Writing Competency. *IJODLLA*, *1*(1), 41–46.

Hayat, F., Khan, M., Ahmad, S., Kamran, M., & Maleeha. (2024). Exploring the Characteristics of Concrete Operational Stage among Primary School Students. *Qlantic Journal of Social Sciences and Humanities*, *5*(1), 124–132. https://doi.org/10.55737/qjssh.786349315

Hou, Y. J. (2018). Integration of kahoot into EFL classroom. *Communications in Computer and Information Science*, *852*, 31–37. https://doi.org/10.1007/978-3-319-92285-0_5

Ilhami, M. W., Vera Nurfajriani, W., Mahendra, A., Sirodj, R. A., & Afgani, W. (2024). Penerapan Metode Studi Kasus dalam Penelitian Kualitatif. *Jurnal Ilmiah Wahana Pendidikan*, *10*(9), 462–469. https://doi.org/10.5281/zenodo.11180129

Ismail, M. A.-A., & Mohammad, J. A.-M. (2017). Kahoot: A Promising Tool for Formative Assessment in Medical Education. *Education in Medicine Journal*, *9*(2), 19–26. https://doi.org/10.21315/eimj2017.9.2.2

Justan, R., Aziz, A., & Muhammadiyah Makassar, U. (2024). Penelitian Kombinasi (Mixed Methods). *Jurnal Ilmiah Multidisiplin*, *3*(2).

Khan, A., Ahmad, F. H., & Malik, M. M. (2017). Use of digital game based learning and gamification in secondary school science: The effect on student engagement, learning and gender difference. *Education and Information Technologies*, *22*(6), 2767–2804. https://doi.org/10.1007/s10639-017-9622-1

Korkmaz, S., & Öz, H. (2021). Using Kahoot to Improve Reading Comprehension of English as A Foreign Language Learners. *International Online Journal of Education and Teaching (IOJET)*, *8*(2), 1138–1150. https://orcid.org/0000-0002-3128-2245

Lee, N. (2003, October). Digital Game-Based Learning. *Association for Computing Machinery*, *1*(1). https://doi.org/https://doi.org/10.1145/950566.950567

Luh, N., Andika, P., Agustini, K., Gde, I., & Sudatha, W. (2025). Studi Literatur Review: Peran Media Game Based Learning terhadap Pembelajaran. In *Didaktika: Jurnal Kependidikan* (Vol. 14, Issue 1). https://jurnaldidaktika.org

Marantika, J. E. R. (2022). The relationship between learning styles, gender and learning outcomes. *Cypriot Journal of Educational Sciences*, *17*(1), 56–67. https://doi.org/10.18844/cjes.v17i1.6681

Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative Analysis, A Methods Sourcebook* (3rd ed.). SAGE Publications.

Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education*, *31*(2), 199–218. https://doi.org/https://doi.org/10.1080/03075070600572090

Pandutama, I., Kurniawan, E., & Febianti, K. (2023). Penggunaan Aplikasi Word Wall dalam Pengajaran Bahasa Inggris untuk Meningkatkan Kemampuan Menulis. *BaJet*, *7*(2), 464–467. http://journal.unbara.ac.id/index.php/BaJET

Parajuli, M., & Thapa, A. (2017). Gender Differences in the Academic Performance of Students. *Journal of Development and Social Engineering*, *3*(1), 39–47.

Permana, S. N. (2022). Game Based Learning sebagai Salah Satu Solusi dan Inovasi Pembelajaran bagi Generasi Digital Native. *Jurnal Pendidikan Agama Katolik (JPAK)*, *22*(2), 2085–0743. https://doi.org/10.34150/jpak.v22i1.433

Ritonga, A. K., Azizah, N., Pardede, F. Z., Daulay, I. M., & Hutatabarat, R. T. (2024). Keterampilan Bahasa Produktif Sebagai Fondasi Penting bagi Kesuksesan Akademik dan Karier. *Jurnal Pendidikan Tambusai*, *8*(3), 49936–49940.

Safdar, G., & Khan, A. W. (2020). E-Learning: Current Scenario of Internet and Educational Learning among University Students of Punjab Pakistan. *Journal of Educational Research, Dept. of Education, IUB*, *23*(1), 171–185.

Saleem, A., Huma Kausar, & Farah Deeba. (2021). Social Constructivism: A New Paradigm in Teaching and Learning Environment. *PERENNIAL JOURNAL OF HISTORY*, *2*(2), 403–421. https://doi.org/10.52700/pjh.v2i2.86

Satriani. (2018). *Inovasi Pendidikan: Metode Pembelajaran Monoton ke Pembelajaran Variatif (Metode Ceramah Plus)*. *10*(1). https://doi.org/https://doi.org/10.30984/jii.v10i1.590

Susanti, A., & Oktaviana, F. (2023). Assessing Students' Writing Skill in Summary Writing Narrative Text. *English Education, Linguistics, and Literature Journal*, *2*(2), 117–126.

Tribble, C. (1996). *Writing* (C. N. Candlin & H. G. Widdowson, Eds.). Oxford University Press.

Tsai, F. H. (2017). An investigation of gender differences in a game-based learning environment with different game modes. *Eurasia Journal of Mathematics, Science and Technology Education*, *13*(7), 3209–3226. https://doi.org/10.12973/eurasia.2017.00713a

Wang, L. H., Chen, B., Hwang, G. J., Guan, J. Q., & Wang, Y. Q. (2022). Effects of digital game-based STEM education on students' learning achievement: a meta-analysis. In *International Journal of STEM Education* (Vol. 9, Issue 1). Springer Science and Business Media Deutschland GmbH. https://doi.org/10.1186/s40594-022-00344-0

Wulandari, R. A., & Rosnaningsih, A. (2020). Pengaruh Model Pembelajaran Experiential Learning Terhadap Keterampilan Menulis Bahasa Inggris Mahasiswa PGSD Universitas Muhammadiyah Tangerang. *IKRA-ITH Humaniora*, *4*(3), 98–104.

Wulandari, R. A., & Safira, M. (2021). The Effects of Personal Photographs towards Students' Writing Ability. *JEDLISH*, *1*(2), 48–54. http://jurnal.uf.ac.id/index.php/JEDLISH

Wulandari, S. A., & Safitri, S. (2024). Penerapan Metode Game Based Learning dalam Materi Sejarah Bandung Lautan Api di Kelas XI IPS SMA Negeri 4 Pagar Alam. *JIPSOS: Jurnal Inovasi Pendidikan Dan Ilmu Sosial*, *2*(1), 3026–2089.

Xian, C., Wang, Z., & Wang, L. (2021). Multitasking Habits of Chinese Smartphone Users: Under the Influence of Social Media Apps. *Proceedings - 2021 International Conference on Information Science, Parallel and Distributed Systems, ISPDS 2021*, 241–245. https://doi.org/10.1109/ISPDS54097.2021.00054