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GAME FOR IMPROVING STUDENTS' ENGLISH LITERACY IN TARGETED SCHOOL OF *KAMPUS MENGAJAR*

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Abstract: GEMOY (Gleaming English Game for Youth) is an Android-based educational game designed to enhance English literacy among students of *Kampus Mengajar* program in Trenggalek. This study aims to develop interactive and engaging activities through an Android-based to improve students' literacy levels. Fifty students at the eighth grade in two of junior high schools were equally divided into an experimental group and a control group. Three media validators and three material validators were involved in validating the game. Questionnaires and test were used to collect the data and analyzed using descriptive and Independent T-

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tests. The findings revealed that the media validation and material validation were valid and the score showed high improvement. The t-value was -51.187. It indicates that there was a significant difference. Based on the result, an important implication of implementing the game in *Kampus Mengajar* program demonstrates its potential to support educational initiatives and improve students' literacy competence proven by the significant improvement of the process.

Keywords: Android-based game, English literacy, *Kampus Mengajar*

INTRODUCTION

Technological improvements in the era of Society 5.0 have had a significant influence on students' learning styles and motivation. Technology could improve personalized learning (Hamdan et al., 2015), collaborative learning (Dvorak & Buchanan, 2002), remote learning using applications (Sudadi et al., 2024), website-based learning (Biancarosa & Griffiths, 2012), and android-based learning (Puspitasari et al., 2022). Technology currently plays an important part in educational activities ranging from online PDF textbooks to instructional films on YouTube and to synchronous and asynchronous learning modalities. When negotiating these technological advancements, student literacy skills become crucial. Students having high literacy abilities can not only read, but also engage in critical thinking, effectively process information, and create innovative works (Dehaene, n.d. 2009). Their skills enable them to analyze and synthesize information from various sources, leading to deeper understanding and more original contributions.

Incorporating technology into education increases students' engagement and motivation, resulting in a more dynamic and individualized learning experience. Incorporating technology into education can increase students' engagement and motivation, as making technology use enjoyable and challenging optimizes intrinsic motivation and learning engagement (David & Weinstein, 2024; Godzicki et al., 2013; Kainulainen, 2024). Furthermore, the capacity to

adapt to digital tools and resources is critical for students to succeed in a continuously changing digital environment. According to Anthonysamy et al. (2020) literacy supplements conventional literacy by providing students with the abilities necessary to appropriately examine, evaluate, and produce digital material. Thus, developing both conventional and digital literacy is critical for educating students to meet the challenges of the twenty-first century. The World Economic Forum 2015 identified core literacy and character as critical skills that both teachers and students must develop to thrive in the rapidly evolving global landscape. Core literacy encompasses essential reading, writing, and numeracy skills, while character skills include attributes such as resilience, adaptability, and ethical reasoning. Core literacy focuses on essential foundational skills, including reading, writing, and numeracy, which are crucial for enabling students to understand, interpret, and engage with information effectively across various subjects and real-life contexts (David & Weinstein, 2024). Developing these competencies is crucial for fostering a well-rounded education that prepares students for the complexities of the modern world and equips teachers to effectively guide and support their students in this endeavor (Voogt et al., 2013).

Students need to familiarize themselves with literacy of reading and numeracy. Reading and numeracy are fundamental abilities that students must have to adapt to a variety of life situations (Apriliawan et al., 2024). In line with this, the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) cited in kemdikbud.go.id website in 2021 has encouraged the improvement of literacy and numeracy through the program of Teaching Campus (*Kampus Mengajar*) could fundamentally students' competence. This initiative focuses on schools requiring support to improve reading and numeracy abilities, as determined by the National Assessment and the Minimum Competency Assessment (AKM).

State junior high schools (SMPNs) 2 Dongko and 2 Trenggalek have been selected as target schools for the *Kampus Mengajar* program due to their relatively low AKM scores. These schools have been identified as needing additional support to improve their educational

outcomes. The *Kampus Mengajar* program aims to address these gaps by providing targeted assistance and resources to enhance the quality of teaching and learning at these institutions. By focusing on these schools, the program seeks to raise their academic performance and contribute to a more equitable educational environment.

An interview was conducted with the principal and teachers of SMPN 2 Trenggalek who confirmed that the school faces significant challenges in literacy, acknowledging that many students struggle to meet the expected standards. In a separate interview, an English teacher expressed similar concerns, stating, "The reading abilities of our students are quite low, as evidenced by their average reading scores, which remain below the minimum competency criteria." This highlights the need for focused intervention to improve literacy outcomes at the school.

These findings indicate that inadequate learning resources and ineffective teaching methods can have a significant impact on student achievement. When students do not have access to appropriate materials or when instructional strategies fail to engage them, their ability to develop essential skills, such as reading and literacy, is hindered. This situation underscores the importance of providing schools with the necessary learning media based on technology and professional development to equip teachers with effective pedagogical techniques that can foster better learning outcomes and improve overall student performance.

Several previous studies have discussed the game for effective learning Primasari et al. (2019) in their research on the development of timun mas game applications with construct 2. The game developed with Construct 2 makes it easier for students to learn (Primasari, 2020). This research is currently focused on developing Android-based games for reading comprehension while this research is focused on literacy improvement. Another research presented by Febriyanti and Boediono (2021) found that constructing a game using Construct 2 platform as a learning media for elementary students could motivate and engage them in learning. Mathventure educational games with features tailored to the needs of elementary

school students are valid and suitable for use. The research developed games with Construct 3 which is packaged based on Android to be used anywhere. In their development of educational games as learning media for English primary students, Pratami et al. (2023) have demonstrated that 90% of game players expressed great satisfaction and agreed that the game was practical for use in sixth-grade English instruction. This research has the same package but is designed for secondary EFL learners at the target school of the teaching campus. Santoso (2011) promotes that implementing GBL is very helpful in learning and makes it easier for students to practice or learn the material. He then emphasized the fun and dynamic learning process using GBL with different steps. GBL has also promoted a constructivist model of learning (Ghazy et al., 2021). Finally, Puspitasari et al. (2022) designed an Android-based game for vocabulary learning and Maulidyah et al. (2022) developed an Android game for learning grammar. Both games developed were used to improve vocabulary and grammar mastery. To answer the issue above, this research is focused on developing an android-based learning application called Gleaming English Game for Youth (GEMOY) to improve English literacy using Borg and Gall's theory. In contrast to previous studies, this research is also novel in terms of platform and research subjects. Some previous studies used elementary school students as subjects, while this research uses students of eight grade in SMPN 2 Dongko and SMPN 2 Trenggalek as the target schools of *Kampus Mengajar*.

Android-based media allow for mobile learning, offering students the convenience to practice literacy skills anytime and anywhere, thereby increasing their exposure to reading and writing tasks. These tools collectively contribute to a more dynamic and effective approach to literacy improvement. Quality learning media, according to Sari and Hestiningrum (2019) can be seen from (1) being able to create a meaningful learning experience; (2) being able to facilitate the process of interaction between students and teachers; and (3) being able to enrich students' learning experiences; (4) through

learning media, being able to change the learning environment from passive students to active discussions and information seeking.

While Android-based learning media offers the flexibility and engagement crucial for literacy improvement (Cahyono et al., 2024; Sari et al., 2019). There remains a need for media specifically designed to address literacy challenges in low-performing schools. Current solutions lack this level of targeted focus, especially within the context of the *Kampus Mengajar* program. To address this gap, this study focuses on the development of Android-based learning media aimed at improving students' literacy skills and designated for targeted school of *Kampus Mengajar* program. By concentrating on these specific schools, where literacy levels are notably low, this research seeks to provide a more targeted solution. For those purposes, the Android-based learning media developed in this study is grounded in Borg and Gall's theory, which involves a 10-step process designed to systematically enhance students' literacy skills. This approach aims to improve literacy from level 1 to level 6, offering a comprehensive framework for gradual development. Additionally, this research seeks to assess the impact of implementing GEMOY on English literacy learning in targeted School of *Kampus Mengajar*.

METHOD

This research employed the Borg and Gall R&D framework to develop GEMOY, an Android-based game designed to improve English literacy among students. Research and Development in education involves creating and validating educational products through rigorous testing and revision (Borg & Gall, 1989; Widyastuti & Susiana, 2019). Research and Development in education focuses on the systematic creation and validation of educational materials and strategies, involving detailed testing and refinement to ensure their effectiveness in teaching and learning (Kainulainen, 2024). The development process uses the Borg and Gall R & D cycle, which consists of 10 steps: research and information gathering, planning, developing a preliminary product form, limited testing, initial product revision, field testing/large-scale testing, operational

product revision, operational field testing, final product revision, and dissemination and implementation, as depicted in Figure 1:

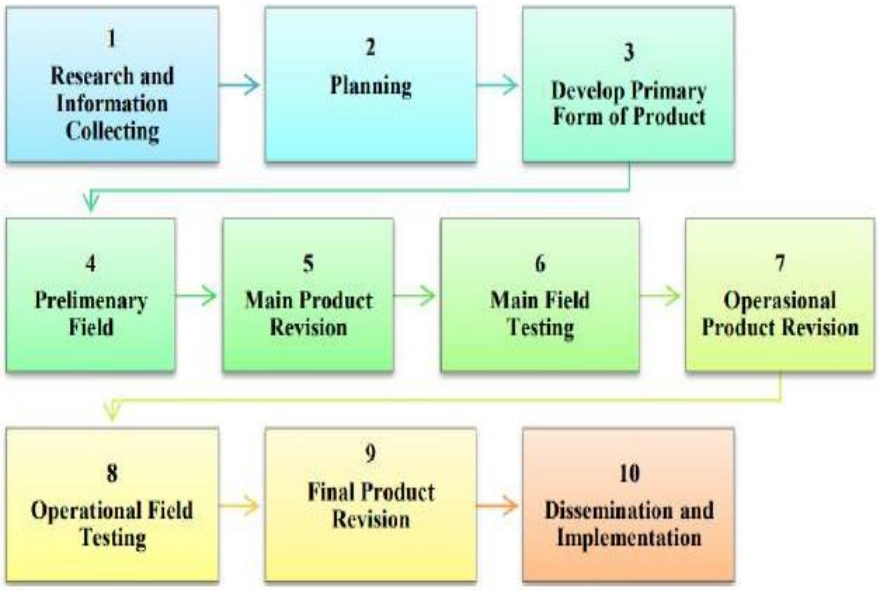

Figure 1. GEMOY Development Process

The development of GEMOY to improve English literacy at SMPN 2 Dongko and SMPN 2 Trenggalek follows Borg and Gall's R&D cycle, starting with research and information collection by interviewing the teacher and principal to understand the students' literacy challenges and needs. Then, followed by planning, where game objectives, content, and design are outlined. This section is ended by content validation. A preliminary product is then created, focusing on core features and initial content, which undergoes limited testing of media validation by the media validator using black box testing. Based on this feedback, an initial product revision is made to refine the game. After that, the main field testing was conducted in both SMPN 2 Dongko and SMPN 2 Trenggalek to evaluate its broader educational impact. Following field testing, operational revisions are made to enhance functionality and address any remaining issues. The revised game is implemented again in an operational field test to ensure its effectiveness under classroom conditions. Final revisions are then made to optimize the game for usability and educational

value. In the final stage, the completed game is disseminated and implemented in both targeted schools.

The participants in this study consist of 8th-grade students from SMPN 2 Trenggalek and SMPN 2 Dongko, with 25 students from each school, all enrolled in the 2024/2025 academic year. These students will be involved primarily in a step of testing. Data collection involved three expert validation tests, which included assessments from both material and media experts to ensure a comprehensive evaluation. Aiken's analysis was applied to validate data, providing accuracy and reliability checks for the content. Additionally, data collection included student testing, with results analyzed using an Independent T-test to compare differences between pre- and post-implementation of GEMOY. Aiken's validity was specifically used to assess the content validity of individual items within the testing instrument, such as questionnaires or surveys, ensuring that each item accurately reflected the intended literacy skills and educational objectives (Penfield & Giacobbi, 2004).

From the result of the pre-test and post-test, the researchers found the efficiency of GEMOY development that assessed using an independent T-test using SPSS version 27. The normality and homogeneity tests were performed as preliminaries to the hypothesis test. The findings of the data analysis were compared between the experimental and control groups to see if there was a significant difference in pupils' literacy development.

FINDINGS

The result of this research is presented in two groups. The first result explained the development process result of developing GEMOY and the second result was the effectiveness of game in improving students' literacy.

GEMOY Development Process Result

To develop the game, the researchers designed the materials to be presented in the game. The materials have been validated to validators. The researcher used Aiken to validate the game content.

Aiken's validation method is used to evaluate the relevance and clarity of content items based on expert judgment. This method quantifies the level of agreement among experts on each item, resulting in a content validity index. By using Aiken's validation, researchers ensure that each item in the content is accurate, relevant, and appropriate for its intended purpose (David & Weinstein, 2024). The result of Aiken validation is 0.828 and it is close to point 1 indicating a high content validity as presented in Table 1:

Question	**Validator**			**S1**	**S2**	**S3**	**∑s**	**V**	**Interpretation**
	I	II	III						
1-20	69	82	79	47	60	57	164.	0.828	High

Table 1. Aiken Analysis report for material validity

After validating the material, the researchers validated the media. The display, function, usability, and engagement of GEMOY have been validated by three expert validators, and the results show that the game is deemed valid with significant validation outcomes. The game is considered appropriate and effective for enhancing students' literacy skills based on the validation as shown in Table 2:

Table 2. Result of Media Validation

Validator	**Aspect Validated**	**Score (%)**	**Result Validation**
Validator 1	Media Display	88%	Valid
Validator 1	Vontent Accuracy	85%	Valid
Validator 1	Interactivity	90%	Valid
Validator 2	Media Display	90%	Valid
Validator 2	Usability	87%	Valid
Validator 2	Pedagogical Effectiveness	91%	Valid
Validator 3	Media Display	89%	Valid
Validator 3	Engagement	86%	Valid
Validator 3	Visual and Audio	88%	Valid

The validation of findings from three validators show that the game is legitimate in all aspects tested. Media presentation achieved consistently good marks, ranging from 88% to 90%, suggesting a visually appealing and user-friendly interface. Content correctness, usability, and engagement scores ranged from 85% to 87%, indicating that the game is dependable and simple to use while keeping user participation. Interactivity and pedagogical effectiveness were highly praised, with ratings of up to 91% indicating the game's efficacy in encouraging active learning and literacy development. The visual and audio components were also verified, and received an 88% score, highlighting the game's multimedia quality. Overall, the game has been thoroughly vetted and is appropriate for usage in improving literacy for students at *Kampus Mengajar* program.

The result of media validation shows the game features both educational materials and interactive game sessions. The six levels of the game are designed to progressively build literacy skills: Levels 1 and 2 focus on vocabulary, levels 3 and 4 on language structure, and levels 5 and 6 on reading comprehension. To start the game, the students will meet the main cover as shown in Figure 2:

Figure 2. Main Cover GEMOY

After the main cover, the students can start the game by clicking the start button as presented in Figure 3:

Figure 3. Start Button

To start the game, they are presented with a choice of levels, as illustrated in Figure 4. This allows learners to select an appropriate level based on their proficiency and preferences, ensuring a personalized gaming experience.

Figure 4. GEMOY level 1 display menu

Finally, the game provides support and rewards to the students of SMPN 2 Dongko and SMPN 2 Trenggalek in the end of each level. When they are able to finish perfectly, they could get 4

starts as shown in Figure 5.

Figure 5. GEMOY reward for finishing the game level

Game Effectiveness in Improving Students' Literacy

The researcher conducted pre-tests and post-tests and then counted the average of the scores to know whether there was an improvement in the implementation of game in students' literacy level. The following table shows the results of the control class using a textbook and the experimental class using the Android-based game. The experimental class shows superior results, and the difference between the two groups is statistically significant.

Table 3. Mean Score of Control versus Experimental Class

Class	Number of Students	Mean of pre-test	Mean of Post-Test	Improvement
Control	25	60.4	70.1	16%
Experiment	25	61.0	85.2	39.7%

After counting the average score, the researchers counted the score of standard Deviation and Standard Error Mean. The control group's standard deviation was 1.10567 while the standard deviation of experiment group was 0.96738. The standard Error Mean for the control group was 0.22113 while experiment group was 0.19348. The t-value of an independent t-test is presented in Table 4.

Table 4. The Result of T-Value of an Independent T-test

	F	Sig.	T	df	Sig. (2tailed)	Mean Difference	Std Error Difference	Lower	Upper
Equal variances assumed	.454	.504	-51.187	48	<.001	-15.04000	.29383	- 15.630	-14.4492

The independent t-test results show a statistically significant difference between the control and experimental groups in post-test literacy scores, with a t-value of -51.187, degrees of freedom (df) of 48 and a p-value less than 0.001. This indicates that the null hypothesis (Ho), which states there is no significant difference between the two groups, is rejected. The alternative hypothesis (Ha) is accepted, meaning that the experimental group, which used the game, demonstrated significantly higher literacy improvement compared to the control group. The mean difference between the groups was -15.04, with a 95% confidence interval ranging from -15.63 to -14.45, confirming that the game had a positive impact on students' literacy skills.

DISCUSSION

The game's concept focused on enhancing literacy by providing materials on vocabulary, grammar, and reading comprehension settled for improving student's literacy. The game development process, the most crucial phase of the project, was carried out using Construct 3 (Wu & Wang, 2012). The 3D models and animations were created with blended software including adobe flash, SketchUp, and Autodesk. By combining these tools, educators can leverage the strengths of each software to create interactive, visually appealing content that caters to diverse learning styles, promoting a more dynamic and effective learning experience (De Jongh, 2011; Kleftodimos, 2024; McNeil & Stine, 2011; Moussa & Agarwal, 2024). After two rounds of revisions, the game was successfully developed. The game features both educational materials and interactive game sessions. The six levels of the game are designed to progressively build literacy skills: Levels 1 and 2 focus on vocabulary, levels 3 and 4 on language structure, and levels 5 and 6 on reading comprehension. This

step-by-step approach helps ensure that learners are not overwhelmed and can acquire foundational skills before moving on to more advanced concepts, which is key to effective literacy development (Snow, 2010; Vygotsky, 1978).

Following Borg and Gall's R&D cycle, GEMOY was developed to enhance English literacy at SMPN 2 Dongko and SMPN 2 Trenggalek. Research and information gathering began with interviews with the principal and teacher to learn about the literacy needs and challenges of the students. Planning, which outlines the game's goals, content, and design, comes next. Content validation concludes this section. After that, a draft product is made with an emphasis on essential features and preliminary material, which is subjected to restricted media validation testing utilizing black box testing by the media validator. An initial product modification is created to improve the game based on these comments. The primary field testing was then carried out at SMPN 2 Trenggalek and SMPN 2 Dongko. Then the researchers revised the game and finally implemented in both SMPN 2 Dongko and SMPN 2 Trenggalek. It was a wonderful ending when the students and the teachers were very satisfied with the development of GEMOY. Game-based activities make learning more engaging and effective. The activities of GBL helped create a more relaxed, non-threatening environment, improved students' perceptions of grammar learning, and enhanced their communicative skills (Fithriani, 2018).

Upon initiating the game, they are presented with a choice of levels, this allows learners to select an appropriate level based on their proficiency and preferences, ensuring a personalized gaming experience (Alexiou & Schippers, 2018). Offering players the ability to select from different levels in a game, based on their preferences and proficiency, can enhance the overall gaming experience by providing a personalized environment. This approach ensures that players engage with content that is challenging yet achievable, fostering greater motivation and sustained interest (Turkay & Adinolf, 2015). Those, the level of performance was applied in this Gleaming English for Youth. In Level 1, students encounter vocabulary expression

questions. Each level contains 20 questions, with 10 randomly selected for each session. The game is timed to track the time spent by learners. To foster competition, a scoring system is in place, with each correct answer earning 5 points.

GEMOY has been meticulously crafted to align with the educational needs of eight grade students of SMP. This engaging game features multiple levels of interactive gameplay, each designed to enhance English literacy in a fun and effective manner. By incorporating a diverse array of challenging and stimulating activities, this game not only addresses key literacy skills but also sustains student motivation and investment in their learning journey (Wei et al., n.d.; Woo, 2014). The carefully curated levels ensure that learners can progressively develop their English proficiency while immersed in an entertaining and enriching experience (Geng et al., 2019; Procel et al., 2024). The GEMOY stands as a dynamic tool to support and advance the literacy development of young learners, transforming language acquisition into an enjoyable and rewarding adventure. This is proved by the result of validation as stated in finding.

Moreover, the results of the independent t-test indicate a statistically significant difference between the control and experimental groups in terms of post-test literacy scores, with a t-value of -51.187 and a p-value less than 0.001. This finding suggests that the experimental group demonstrated significantly greater improvement in literacy compared to the control group, which used the traditional grammar method. The mean difference of -15.04, along with a confidence interval ranging from -15.63 to -14.45, confirms that the game had a positive and meaningful impact on enhancing students' literacy skills. These results underlined the effectiveness of integrating educational games like GEMOY in English literacy instruction, supporting the growing evidence that game-based learning can substantially improve academic outcomes of Eight grade students in SMPN 2 Dongko and SMPN 2 Trenggalek.

CONCLUSION

The use of the GEMOY game in the *Kampus Mengajar* program

is extremely effective in improving English literacy among eighth-grade students at SMP Dongko and SMP Trenggalek. With strong validation ratings from media and material experts, as well as a substantial improvement in post-test results compared to pre-tests, the study proved that the usage of interactive, Android-based games may play an important role in increasing students' reading skills. The data reveal that the GEMOY achieved instructional objectives and had a statistically significant influence on students' literacy competency.

In conclusion, this study demonstrates the effectiveness of the GEMOY Android-based game in enhancing literacy skills students in the *Kampus Mengajar* program. The independent t-test results revealed a statistically significant improvement in literacy performance for the experimental group compared to the control group, underscoring the positive impact of game-based learning. The development process, grounded in Borg and Gall's framework, ensured that the game was both educationally sound and engaging. The high validation scores for content, interactivity, and usability further confirm that GEMOY is a viable tool for literacy improvement, providing students with a dynamic and accessible learning experience.

Future research should investigate the long-term benefits of utilizing the game on students' reading abilities across grade levels and topics. Expanding the research to encompass bigger and more varied student groups might lead to a better understanding of the game's usefulness in different educational contexts. Furthermore, incorporating comments from both instructors and students would provide valuable insights into fine-tuning the game's content and dynamics for wider use. Further research on how game-based learning affects student engagement and motivation might be beneficial in maximizing its use in classroom settings.

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