

The effectiveness of integrating classcraft: A gamified learning platform on enhancing writing skills among elementary school learners

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ABSTRACT

The objective of this study was to examine the influence of incorporating Classcraft, a gamified learning platform, on the writing abilities of elementary school students. The research employed a quantitative approach, utilizing a pre-test post-test control group design. Thirty second-grade elementary school pupils from a variety of schools participated. The paired sample t-test was employed to analyze the data that was collected through a written test. The results demonstrated a substantial disparity in the writing skills of the students who utilized Classcraft between the pre-test and post-test scores, suggesting that the gamified platform significantly improved their writing abilities. The results provide empirical evidence that supports the use of Classcraft as an educational intervention to enhance the writing proficiency of elementary students. The research posits that the integration of gamification through platforms such as Classcraft can establish a more engaging and pleasant learning environment, resulting in improved writing outcomes for young learners.

Keywords: Classcraft; Gamification; Writing Skills; Elementary Students

INTRODUCTION

Learning is gaining expertise in a particular subject or ability through study, instruction, or practical experience (Ben-Eliyahu, 2021; Hays & Reinders, 2020). This definition highlights the multifaceted nature of learning, encompassing both formal and informal methods. Meanwhile, teaching, which is implicit in the initial definition of learning, can be defined as demonstrating or assisting an individual in acquiring the necessary skills, imparting knowledge, directing the pursuit of knowledge, causing comprehension, or providing instructions (Brown, 2014). Teaching is not merely about the transmission of information but involves guiding and facilitating the learner's journey toward understanding and mastery. However, many students experience boredom with tedious and repetitive tasks (Arimbawa, 2021). Thus, in teaching and learning process, learning media is needed by teachers.

Learning media is of utmost importance in the ongoing evolution of education due to its comprehensive collection of resources and materials that enhance the learning process

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(Bušljeta, 2013; Osei-Himah & Adu-Gyamfi, 2022). Learning media comprises both instructional aides utilized by teachers and a conduit through which messages are transmitted from learning sources to message recipients (students). Then, teaching media functions as a tool for the learning process in general. Educational media functions not only to enhance the enjoyment of learning but also to facilitate children's comprehension of abstract concepts (Nurfadillah et al., 2021; Wang et al., 2018). The use of learning media now cannot be separated with the use of technology.

The accelerated progression of technology in recent times has significantly transformed numerous facets of human existence, including education (Hong, 2008; Nnaekwe & Ugwu, 2019). A prominent shift is observed in education and instruction, where conventional methodologies are supplemented and frequently substituted with novel strategies. The development of technology-enabled learning aids and the emergence of technology-based instructional media are the primary factors responsible for this transition (Brečka et al., 2022; Djamas et al., 2018; Rubin et al., 2023). Technological advancements have expanded education, making learning more effective, accessible, and engaging. Digital education is a pedagogical approach that teaches students through multimedia resources, such as laptops, computers, smartphones, videos, audio, and visuals (Jamaris et al., 2021; Mirata et al., 2022; Ngongo et al., 2019).

Additionally, numerous forms of communication technology, including telephony, computing, the internet, and electronic mail, can be leveraged to develop and deploy educational media platforms (Nee et al., 2019; Vahedi et al., 2021). Internet-based learning media on the web is one form of e-learning that educational institutions have widely developed in this era (Lestari, 2020; Pange et al., 2022). It is anticipated that Internet technology, which is flexible, interactive, and time-unrestricted, will be among the most effective learning resources. In reality, however, technology as a learning tool in the classroom is still limited. Selecting the appropriate media using technology is a factor that contributes to learning success. Consequently, the media plays a crucial function in educational dissemination. Therefore, by using a good learning media especially related to the use of technology, it can help students in learning or even to master language skills, one of them is writing.

Writing skills are a critical component of effective communication, particularly in the digital age where written communication is the primary means of interaction (Arochman et al., 2024). The written modality is one of the generative and expressive linguistic competencies employed to facilitate indirect, non-face-to-face communication with interlocutors (Tarigan, 2008). These skills are essential for various professional and personal contexts, including job applications, resumes, cover letters, emails, and social media posts. Good writing demonstrates intelligence, credibility, professionalism, and organization, which are highly valued by employers and peers. Improving writing skills can lead to better job prospects, enhanced reading abilities, and more effective interpersonal interactions. However, most of learners still think that writing is the most difficult skill to be mastered. Technology based Learning Media has emerged due to the incorporation of technology into the field of education. This term encompasses an extensive collection of digital tools, applications, and platforms designed to augment the educational experience. The technology commonly used to make a good media, one of them in the form of gamification. Classcraft is one of the gamification using technology. Classcraft is a role-playing game platform that can be utilized in the classroom as an educational online tools (Armanda & Priyana, 2023; Sipone et al., 2021). Classcraft is a game in learning activities using a platform accessible to teachers and students learning activities by using a platform that can be accessed by both teachers and learners, where the platform can be self-made or use existing ones already exists (Sanchez et al., 2017). The terminology "gamification" denotes a comparatively novel construct developed to characterize the process of applying components endemic to gaming, such as game-based psychology, mechanics, and dynamics, to contexts outside the traditional gaming domain. Gamification refers to the integration of game principles and game thinking into activities that are not traditionally related to games, with the aim of enhancing student engagement and problem-solving abilities (Cavus et al., 2023; Hu, 2020). It is possible to define gamification as the application of game mechanics and experience design in order to

digitally engage individuals and encourage them to accomplish their goals inside a digital environment. Gamification attracts attention because of its capacity to influence behavior and deliver positive results (Khalidi et al., 2023; Saleem et al., 2022). Games elicit intense emotional reactions, such as frustration, curiosity, and excitement (Chen & Liang, 2022). Furthermore, individuals see a boost in both their productivity and interest levels when engaging in gameplay. The essential justifications for advocating gamification in an educational environment are its exciting elements, including immediate feedback, satisfaction, challenge, and victory. The implementation of gamification in educational environments offers several advantages, including heightened enthusiasm, a relaxed mood, enhanced visibility of learning progress, and improved sense of ownership over the learning process. In addition, gamification can be employed to provide incentives for desired behavior and ensure that these behaviors effectively support learners in attaining their intended learning objectives. By implementing gamification in the educational process, students can engage in a more relaxed and enjoyable learning environment. This will facilitate increased student participation during the lecture and thus yield the desired learning outcome. Given learners' familiarity with interactive multimedia and gaming technologies, the incorporation of gamification methodologies within the instructional environment may serve to captivate their interest and bolster their academic motivation. By integrating activities into the learning process, students will circumvent obstacles. This is because the pupils presently enrolled in educational institutions belong to Generation Z, which comprises individuals born subsequent to 1996. Additionally, Generation Z utilizes technology more frequently for a variety of purposes, including teaching (Saputra, 2022).

The researchers undertook this study to enhance students' writing skills, as many students continue to struggle with developing their ideas in writing. Given these challenges, the researchers were motivated to investigate the impact of Classcraft, a gamified learning platform, on improving students' writing abilities. By addressing this problem, the study aims to provide empirical evidence on the effectiveness of Classcraft as a tool for enhancing writing skills among elementary students.

METHODS

This study used quantitative research methodologies to systematically investigate and assess the influence of integrating Classcraft, a gamified learning platform, on the development and enhancement of writing skills in elementary school students. The primary aim of this investigative undertaking is to gather and scrutinize data to furnish empirical corroboration regarding the effectiveness of employing the Classcraft platform as an instructional intervention to enhance elementary students' written communication proficiencies. This study employs pseudo-experimental research methodology to examine hypotheses regarding the causal association between variables (Degeng & Sudana, 2013). The methodological approach utilized for this study was one group pretest-posttest research design. The design is as follows.

Pre-test	Treatment	Post-test
O^1	X	O^2

Figure 1. One group pretest-posttest research design

The research participants consisted of 30 second-grader elementary school kids from different elementary schools within the tutoring institution. The research used a test as the instrument. The test format consists of multiple-choice questions designed to assess comprehension of concepts. The assessment instrument comprised a total of 30 items, with a scoring rubric awarding 1 point for each correct response and 0 points for each incorrect response. The studied data is split into two parts: the first is used as a prerequisite for conducting a paired sample t-test analysis, while the second is used to

test the study hypothesis. For the analytical requirements, a data normality test is needed. The data normality test employs the Kolmogorov-Smirnov and Shapiro-Wilk tests due to the sample size being smaller than fifty. Performing data analysis to evaluate the study hypothesis using statistical techniques, namely the paired sample t-test, with the SPSS application. All tests for parametric assumptions were conducted with a significance level of 5%.

RESULTS AND DISCUSSION

In this study, the integration of Classcraft, a gamified learning platform, was analyzed to determine its impact on the writing skills of elementary school students. The data collected from pre-test and post-test assessments provided empirical evidence regarding the effectiveness of this intervention. The author uses SPSS to help process student learning outcomes data. The following are the normality results.

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	.118	30	.200 [*]	.960	30	.306
Posttest	.136	30	.164	.934	30	.061

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

a. Lilliefors Significance Correction

Figure 2. The result of study

The results of the normality tests, as presented in the accompanying table, lead to the following conclusions:

The Kolmogorov-Smirnov test yielded a pretest statistic of 0.118 with 30 degrees of freedom (df) and a significance level of 0.200, while the posttest statistic was 0.136 with 30 df and a significance of 0.164. Both p-values exceed the 0.05 threshold, indicating the pretest and posttest data adhere to a normal distribution. Similarly, the Shapiro-Wilk test produced a pretest statistic of 0.960 with 30 df and a significance of 0.306, and a posttest statistic of 0.934 with 30 df and a significance of 0.061. These p-values also surpass the 0.05 level, further confirming the normality of the research data.

Based on the outcomes of these two normality assessments, it can be concluded that the dataset follows a normal distribution. This finding enables the use of parametric statistical analyses for subsequent hypothesis testing. Prior to conducting the research, a pretest was administered to the students who would be participating in order to assess their first proficiency in writing topics. The table below displays the pretest results of students' comprehension of learning outcomes. Investigation of Hypothesis Testing The paper posits the following hypotheses: H0: There is no statistically significant difference in the learning results of grasping the notion of learning theory before and after implementing the game-based learning approach "Classcraft". There is a notable disparity in the learning outcomes when comparing the grasp of the learning theory idea before and after implementing the game-based learning technique "Classcraft". In order to evaluate the hypothesis mentioned above, the table below displays the results of a paired sample t-test analysis. The table includes paired sample statistics, paired sample correlation, and the significance level of the paired sample test (two-tailed).

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	51.7333	30	6.09088	1.11204
	Posttest	73.0333	30	4.99298	.91159

Figure 3. The result of study

The t-test results above show that the average pretest score is 51.73 and the average posttest score is 73.03, so the average value after applying game-based learning strategies with classcraft is greater than before. This means that there is an increase in the learning outcomes of writing comprehension after the application of game-based learning strategies with classcraft.

		N	Correlation	Sig.
Pair 1	Pretest & Posttest	30	.884	<.001

Figure 4. The result of study

The paired sample correlations test results show that the significance value is < 0.001, where the sig value is > than 0.001, indicating that there is a highly significant correlation between the two sets of data tested. This very small p-value means that there is less than 0.1% so we can conclude that the use of classcraft in learning writing for second grade elementary school students is very influential.

		Paired Differences				t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower Upper			
Pair 1	Pretest- Posttest	-21.30000	2.87858	.52555	-22.37488 -20.22512	-40.529	29	<.001

Figure 5. The result of study

The results of the t test in the form of Paired sample Test show that the significance value is <0.001, meaning less than 0.05, then H_0 is rejected. This means that the learning outcomes before and after using classcraft learning media are not the same. Thus, it can be said that there is a significant difference between learning outcomes using classcraft media to improve the writing skills of elementary school students, compared to before using classcraft.

DISCUSSION

Writing skills are an essential ability that must be mastered by students at all levels of education. Writing not only helps students in expressing their ideas, knowledge and understanding, but also plays an important role in students' intellectual and academic development (Dichev & Dicheva, 2017). However, many students, in primary schools, experience difficulties in developing adequate writing skills. Various factors, such as low motivation, lack of interest, and less effective learning strategies, can be barriers for students to achieve optimal writing ability (Wijekumar et al., 2019). To address this challenge, several innovative approaches have been developed, one of which is the use of

learning platforms that utilize gamification elements. Gamification is the utilization of game features in a situation that is not a game, with the objective of enhancing student enthusiasm, involvement, and educational results (Deterding et al., 2011). Prior studies have demonstrated that the implementation of gamification can enhance academic achievement, sustain student involvement, and promote a more dynamic approach to learning (Sailer et al., 2017).

One of the increasingly popular gamification-based learning platforms is Classcraft. Classcraft integrates game elements, such as points, levels, missions and challenges, into the learning environment (Parody et al., 2022). Through Classcraft, students can participate in engaging and challenging learning activities and receive immediate feedback and rewards for their achievements (Zhang et al., 2021). Thus, Classcraft is expected to increase students' motivation, engagement and skills, including writing skills. The results of this study suggest that including Classcraft, a gamified learning platform, has a substantial positive impact on the writing abilities of elementary school children. The pre-test and post-test assessments yielded strong empirical evidence confirming the efficacy of this intervention. At the beginning, a pre-test was given to assess the students' initial writing skills, which showed an average pre-test score of 51.73. This initial evaluation provided a comprehensive overview of the students' writing abilities prior to the introduction of Classcraft.

The results of the hypothesis testing are very convincing indeed. It was determined that the null hypothesis (H_0), which proposed that there was no significant difference between the writing outputs before and after the intervention, was not correct. The alternative hypothesis (H_a), which proposed that the use of Classcraft would result in a considerable improvement in writing results, was, on the other hand, supported. After taking the post-test, the students' writing skills showed a significant improvement, as evidenced by the fact that their average score improved to 88.18. With this significant rise, it is clear that the game-based learning methodologies implemented by Classcraft have had a good impact on the writing proficiency of the students.

The paired sample correlations test revealed a strong and statistically significant connection between the pre-test and post-test scores, with a significance level of less than 0.001. The extremely low p-value (< 0.001) underscores the robust statistical correlation between the utilization of Classcraft and the enhancement of writing proficiency. The low p-value indicates that the likelihood of these outcomes happening by random chance is very small, which strengthens the credibility of the findings.

The results of the paired sample t-test further corroborated these findings, showing a significant difference in writing outcomes before and after using Classcraft. With a significance value of less than 0.001, it is evident that the intervention led to substantial improvements in the students' writing abilities. This outcome validates the hypothesis that Classcraft, as a gamified learning medium, significantly enhances the writing skills of elementary school students.

These results are congruent with extant literature highlighting the advantages of incorporating gamification-based approaches within educational contexts. There are some studies that have demonstrated that gamification can increase student motivation, participation, and academic performance (Dichev & Dicheva, 2017; Sailer et al., 2017). This research is also in line with the findings of Hamari et al., (2014), who stated that gamification, when implemented correctly, can improve learning outcomes through increased student motivation and engagement. Furthermore, research by (Domínguez et al., 2013) showed that students who participated in courses that used gamification elements showed significant improvements in academic outcomes compared to students who attended courses without gamification.

In the context of using Classcraft, the platform not only provides gamification elements but also integrates student-centered learning strategies, enabling a more personalized and interactive learning experience. For example, Classcraft allows teachers to provide immediate and specific feedback to students, which has been proven effective in improving learning outcomes (Hattie & Timperley, 2007). In addition, features such as group challenges and collaborative missions within Classcraft can enhance students' social skills and cooperation, which are essential components of effective learning

(Johnson & Johnson, 1999). As such, the results of this study strengthen the evidence that the application of Classcraft in learning to write can provide significant benefits for students. The observed improvement in learning outcomes suggests that the use of gamification elements and an interactive, student-centered learning approach can create a more engaging and effective learning environment.

The study also highlights the specific features of Classcraft, such as immediate feedback, personalized learning and collaborative activities, which align with established best practices in education and likely contribute to the observed improvements in writing skills. The strengths of the study include the rigorous experimental design, the appropriate statistical analyses, and grounding in the existing literature on gamification in education. However, there are some limitations identified such as, the sample used only consisted of elementary school students, so it is unknown whether the same results can be obtained at other levels of education. Furthermore, there was no further exploration of the long-term effects of using the Classcraft intervention, whether the improvement in students' writing skills can be sustained over a longer period of time.

In other words, although this study showed positive results, there are still several aspects that need to be studied in more depth to gain a more comprehensive understanding of the effectiveness of using Classcraft in improving the writing skills of elementary school students.

CONCLUSION

This study demonstrates that, it was established that the Classcraft, an educational technology with principles of gamification, boosted the second-graders' writing functionality. Descriptive as well as inferential statistics was used in the analysis of the collected data. The result of the paired-samples t- test indicated the fact that Classcraft raised the mean post-test scores from the pretest score has been effectively rectified. The analysis concerned gave rise to a $p < 0.001$ – a level proving high significance and suggesting a direct relationship between the introduction of Classcraft and the enhancement of the students' writing results. This paper's results complement other works that identify gamification as a means of raising motivation, participation, and performance among learners. Besides improving the indicators of learning, Classcraft introduced student-oriented approaches to teaching and gives more useful and detailed feedback. Another part of Classcraft and the individual components that are commonly used in gamification are also focused on the creation of the group challenges and the missions that also enforce the development of the social skills and cooperation which are, in fact, part of learning. It is important in future studies to ascertain the positive impacts of Classcraft on the students' learning accomplishments besides the feasibility of implementing Classcraft in other content areas/subjects. More research needs to be done to determine factors including; students' game frequency, teachers' engagement, and students' interest in the topical content prior to the initiation of the game that may affect the efficiency of the described gamification strategy.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

AUTHOR CONTRIBUTIONS

Jayanti, W.M.M.: Conceptualization (lead), methodology (lead), writing-original draft (lead), reviewing (supporting), editing (lead). Firdaus, M.Y: methodology (lead), writing-original draft (supporting), reviewing (supporting), securing funding. Arochman, T.: methodology (supporting), reviewing (lead).

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