Fostering 21st-Century Skills Through Online Collaboration: A Quasi-Experimental Study of Google Classroom

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Abstract: The use of digital platforms in education, particularly tools such as Google Classroom, has significantly changed the way learning materials are delivered and how students and teachers interact, collaborate, and exchange feedback—both synchronously and at their own pace. This study investigates the effectiveness of Google Classroom in improving the narrative writing skills of students learning English as a Foreign Language (EFL). Conducted at SMP IT Al-Birru Pekanbaru, this research employed a quasi-experimental design involving two groups of eighth-grade students. One group participated in digital learning via Google Classroom, while the other group followed a traditional face-to-face teaching approach. Students' narrative writing skills were evaluated through pre- and post-tests, focusing on key components such as idea development, structural coherence, grammar usage, vocabulary choice, and writing mechanics. The results showed that students in the digital learning group outperformed their peers, as evidenced by higher post-test scores and more significant improvements in learning outcomes. Additionally, students using Google Classroom demonstrated improvements in learning autonomy, collaborative participation, and a stronger sense of responsibility—skills essential for success in the 21st-century learning landscape. These results indicate that digital tools, when integrated wisely, can not only enhance academic performance but also develop essential learning competencies. For educators in the context of English as a foreign language (EFL) learning, integrating platforms like Google Classroom can be a meaningful step toward more engaging and student-centered writing instruction.
Keywords: Google Classroom, EFL, 21st-century skills, student autonomy, online collaboration.

1.   INTRODUCTION

The development of writing skills is considered a fundamental component in learning English as a foreign language. Writing not only functions as a means of communication, but also involves complex cognitive processes that involve linguistic competence, analytical reasoning, and creative thinking (Flower & Hayes, 1981). In an educational context, effective writing skills enable students to express ideas clearly, construct logical arguments, and participate in academic discourse. Among various forms of writing, narrative composition stands out in language teaching because it capitalizes on the human tendency to recount life experiences and organize them into meaningful sequences (Hyland, 2021). However, many students face significant challenges when attempting to write narratively, often struggling to create coherent and engaging stories due to a mix of linguistic and cognitive barriers.

One of the main difficulties lies in understanding and applying standard narrative structures. Generally, effective narratives are built on a series of stages, beginning with orientation, followed by complication, leading to resolution, and sometimes ending with a coda (Oktavia et al., 2023). Students unfamiliar with this framework may struggle to present their ideas in a logical sequence, resulting in disjointed or underdeveloped writing. Studies have shown that providing direct instruction on narrative structure can significantly improve the cohesion of students' writing, reinforcing the value of genre-based teaching strategies (Hyland, 2021). This problem is exacerbated by limited vocabulary, which often prevents students from expressing themselves clearly. Alhassan (2023) highlights that having a broad vocabulary is essential for creating expressive and emotionally resonant stories. When students rely on repetitive or overly simple language, it weakens their ability to describe vivid scenes or convey subtle emotions are essential features of compelling narratives.

Field observations at SMP IT Al-Birru Pekanbaru indicate that the main challenge for students is developing and elaborating narrative ideas. Creating a narrative goes beyond simply listing events; it involves constructing a storyline where each part contributes meaningfully to the whole (Smith & Storrs, 2023). For students who are still developing their language skills, especially in the early stages, imagining such a narrative structure can be daunting. Without proper guidance or support mechanisms, students often create stories that lack logical flow and narrative unity, making them difficult to follow and less engaging for readers (Hoeriyah, 2022). This issue is often linked to students' limited awareness of the writing process itself particularly their ability to plan, organize, and revise their work effectively.

Addressing the challenges of narrative writing such as developing ideas, mastering structure, and using rich vocabulary requires planned and integrated teaching practices. Instruction must go beyond grammatical accuracy and also aim to develop creativity, cohesion, and vocabulary depth (Zhuang, 2023). Integrating process-oriented

pedagogy that includes activities such as idea mapping, storyboarding, and peer-based revision can gradually help students improve their narrative skills. Additionally, exposing students to a variety of narrative examples and explicitly teaching vocabulary relevant to the context can strengthen their expressive abilities (Hoeriyah, 2022). Addressing these aspects comprehensively is crucial for cultivating confident writers who can produce engaging and well-structured narratives in English, thereby enhancing their overall linguistic competence and academic success.

Over the past few years, the integration of digital platforms into educational environments has seen rapid growth, especially following the global shift towards remote and hybrid learning formats. Innovations in educational technology have paved the way for more dynamic and accessible teaching methods, enabling both educators and students to interact with academic material beyond the confines of the conventional classroom. Among these digital tools, Google Classroom stands out as a leading learning management system, widely recognized for its ease of use and accessibility. The platform serves as an effective medium for organizing instructional content, facilitating communication, and monitoring student performance (Hariyanti & Damanik, 2024). This shift in instructional delivery not only ensures the continuity of learning but also encourages more creative and adaptive teaching strategies in line with the digital age.

Yet, one of the main advantages of Google Classroom is its flexibility in accommodating various instructional models, whether fully online or blended. The platform supports synchronous teaching through its integration with Google Meet, enabling educators to conduct live sessions, participate in interactive discussions, and provide instant feedback. At the same time, the platform accommodates asynchronous learning by allowing students to review materials, submit assignments, and review instructor feedback at their convenience (Baker & Spencely, 2023). This dual capability is particularly beneficial in the context of writing instruction, where students can process feedback, revise drafts, and reflect on their writing. The asynchronous nature of feedback exchange encourages deeper engagement with the writing process and promotes continuous improvement over time (Zheng & Wang, 2023).

Additionally, Google Classroom creates a learning environment that promotes student independence and collaboration. By consolidating course materials and simplifying communication, the platform enables learners to take better ownership of their academic responsibilities. The organized interface helps students manage tasks efficiently, reduce mental load, and support intrinsic motivation (Yahiaoui et al., 2022). In writing-focused courses, these features enhance students' ability to engage in multiple drafts, conduct peer reviews, and actively participate in the writing process and practices, therefore, it is essential for developing strong analytical and compositional skills. Research by Hafel (2023) shows that the clarity and speed of the platform help improve consistent engagement and better submission quality.

Given these insights, several studies including those conducted by Febiyanti et al. (2021), Furqaan (2020), and Labibah et al. (2024), highlight the significant potential of Google Classroom in supporting writing instruction within online and hybrid education frameworks. Its flexible design accommodates diverse learning preferences while maintaining academic standards. As more schools and universities adopt digital solutions, platforms like Google Classroom are likely to remain at the forefront of instructional innovation, effectively bridging conventional pedagogy with modern technological practices in language learning. This development has led to the emergence of new teaching methods and learning tools that are increasingly being used in classrooms. Writing is a complex language skill that requires regular practice and careful guidance, making the integration of digital platforms highly relevant in today's classrooms (Banunaek et al., 2022).

Within this context, Google Classroom has become a popular educational platform due to its promotion of interactive and adaptive learning experiences. The platform simplifies task management, facilitates timely feedback, and encourages collaborative activities, all of which can significantly contribute to the learning process of students. However, while its general benefits are widely recognized, more focused research is needed to understand its specific impact on students' narrative writing abilities, particularly at the secondary school level. Therefore, this study aims to determine whether Google Classroom has a meaningful impact on the narrative writing skills of eighth-grade students at SMP IT Al-Birru Pekanbaru.

Moreover, the objective of this study is to evaluate the influence of Google Classroom on students' performance in narrative writing tasks. By analyzing the relationship between the use of digital platforms and writing outcomes, this study aims to provide valuable data for educators and policymakers who wish to integrate technology into language teaching more effectively. Based on previous evidence and theoretical foundations, this study hypothesizes that integrating Google Classroom into writing instruction will improve student performance. It is expected that students who use this platform for narrative writing practice will show greater progress compared to those taught

through traditional and offline approaches. This hypothesis forms the basis of the study and directs its focus on assessing the educational impact of Google Classroom in a writing-focused curriculum.

2. METHODS

This study, therefore, uses a quasi-experimental method within a quantitative framework, a design often used in educational settings to evaluate the impact of specific teaching strategies when random group assignment is impractical. According to Creswell (2012), experimental research represents the basic approach in quantitative studies, and quasi-experimental designs are considered part of this tradition because they apply systematic procedures to explore cause-and-effect relationships. This study was conducted at SMP IT Al-Birru Pekanbaru in the second semester of the 2024/2025 academic year, with details of the participants described in the following section:

Table 1. Sample of the research

No	Group	Class	Total of students
1	Control class	VIII.4	25
2	Experimental Class	VIII.5	25
	Total		50 Students

This study involved eighth-grade students selected through random sampling as listed in Table 1. From the sample, two different classes were identified: Class VIII.5, which served as the experimental group and was taught using Google Classroom, and Class VIII.4, which acted as the control group and continued conventional face-to-face learning without the integration of digital tools. The main tool used in this study was a narrative writing test administered twice—once before the intervention (pre-test) and once after (post-test). Students were required to produce narrative texts that corresponded to the topics listed in their English curriculum. Their writing was then evaluated based on a structured rubric that assessed five components: content, organization, vocabulary, grammar, and writing mechanics.

This study was conducted in three main stages: an initial pre-test stage, followed by an intervention stage, and concluded with a post-test. These stages were designed to assess changes in students' narrative writing abilities during the intervention. For data analysis, this study used quantitative methods. To determine whether the instructional approach produced statistically significant results, an Independent Samples T-Test was conducted on the post-test scores of both groups. Additionally, N-Gain Scores were calculated to assess the level of individual improvement between the pre-test and post-test. Together, these analytical tools provide a clear picture of how effective Google Classroom is in improving students' narrative writing performance.

3. FINDINGS AND DISCUSSION

This study aimed to investigate the effect of using Google Classroom on the narrative writing ability of students at SMP IT Al-Birru Pekanbaru, comparing the performance of those taught with Google Classroom to those taught using conventional methods. Previously, the normality test confirmed that the students' narrative writing scores were normally distributed, while Levene's Test demonstrated that the variances between the experimental and control groups were homogeneous. These conditions ensured that the data were suitable for further analysis using the Independent Samples T-Test which described as follow:

Table 2. T-Test Result of Post-test

Independent Samples Test

		Levene's Test for Equality of Variances		T-Test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Post-Test Experiment	Equal variances assumed	.825	.367	-1.586	68	.037	-1.429	.901	-3.226	.369
	Equal variances not assumed			-1.586	64.247	.038	-1.429	.901	-3.228	.371

Based on the statistical output in the table 2, Levene's Test for Equality of Variances yielded a significance value of 0.037, which exceeds the standard threshold of 0.05. This result indicates that the assumption of homogeneity of variance between the experimental and control groups holds true. Consequently, the appropriate row for interpretation in the Independent Samples T-Test is the one assuming equal variances. The significance value (2-tailed) obtained from the test was 0.037, which is below 0.05. This finding implies that the null hypothesis (H_0), which posits no difference between the groups, must be rejected, while the alternative hypothesis (H_a) is accepted.

Therefore, a statistically significant difference exists between the narrative writing performance of students in the experimental group and those in the control group. The mean difference, calculated at -1.429, reveals that the average score in the experimental class (82.230) was lower than that of the control class (80.801), a result supported by the confidence interval ranging from -3.226 to -0.369. Importantly, the negative t-value is not indicative of an error but simply reflects the direction of the difference, confirming that the control group outperformed the experimental group in this instance. Furthermore, to assess the impact of the instructional treatment applied in the experimental class, the N-Gain score was then calculated, offering a clearer picture of the treatment's effectiveness beyond statistical significance alone as follow:

Figure 1. N-Gain Score of Experimental class and Control class
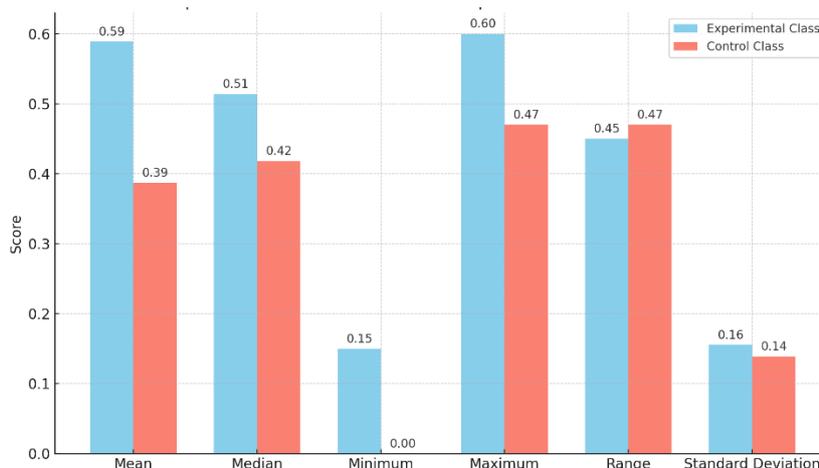
Analysis using SPSS software demonstrates a clear advantage in writing improvement for the group taught via Google Classroom. This experimental group achieved a mean N-Gain score of 0.59, substantially higher than the 0.39 recorded by the control group. This disparity signifies a more notable advancement in writing proficiency among students exposed to digital instruction. When delving into score distributions, the experimental class

showed a range of 0.45—scores stretching from 0.15 to 0.60—whereas the control group had a slightly broader spread of 0.47, with values from 0.00 to 0.47. Median scores further emphasize this distinction: 0.51 for the experimental group compared to 0.42 for the control. In terms of score variability, both groups demonstrated similar patterns; the standard deviation was 0.16 for the experimental class and 0.14 for the control, suggesting relatively uniform spread in both data sets. Furthermore, skewness and kurtosis values for both groups fell within the acceptable range, indicating that the data maintained a normal distribution. Collectively, these figures support the conclusion that implementing Google Classroom significantly boosts students' narrative writing outcomes compared to conventional classroom methods.

The outcomes of this research point to a marked improvement among students in the experimental group who engaged with instructional content through Google Classroom. In contrast to students in the control group who relied on traditional face-to-face teaching methods, students in the experimental group not only achieved higher test scores but also showed greater initiative and participation throughout the learning process. The flexible structure of this digital platform provides students with on-demand access to course materials, opportunities for real-time interaction, and quick, individually tailored feedback. These features collectively create an environment that supports deeper learning and skill development. On the other hand, the conventional methods used in the control class seem to limit opportunities for student-centered engagement and individually tailored instruction. These findings suggest that digital platforms like Google Classroom can create a more effective learning environment, especially for language-based skills like narrative writing.

Google Classroom has proven to be a valuable tool in improving students' ability to compose narrative texts (Noor et al., 2022; Pulungan et al., 2022; Sarwendah et al., 2023). One of its main advantages is its ability to provide unlimited access to a variety of learning materials, without being bound by time or place. Educators can easily share various resources—including narrative examples, graphic organizers, visual stimuli, and explanatory videos—through this platform. These materials are well-organized and easily accessible to students, allowing them to tailor their learning journey to their individual needs and schedules. As emphasized by Abuhassna et al. (2020), Cheong et al. (2023), and Orakci & Gelisli (2017), this level of accessibility enhances students' independent learning by allowing them to review lessons and clarify complex ideas at their own pace. This autonomy is particularly beneficial in narrative writing, which often requires repeated practice and reflection to develop key elements such as plot coherence, characterization, and effective descriptive techniques.

Google Classroom offers a flexible framework for teaching writing through seamless integration between assignment and feedback functions. Educators can easily distribute writing assignments, monitor student progress in real time, and

oversee the entire submission process digitally. The system simplifies how students submit drafts, receive comments, and make revisions. Importantly, the platform supports automatic correction for surface errors, such as grammar and spelling as well as more nuanced, teacher-led feedback that addresses structure, argument, and originality. Research by Colomar and Menn (2024) and Metzler and Garcia (2023) shows that the speed and personalization of digital feedback through platforms like Google Classroom significantly improves the learning process, encouraging repeated improvements in student writing. This approach aligns with the principles of process-based writing pedagogy, which focuses on the cycle of drafting, feedback, and revision to build effective writing practices.

In addition to feedback mechanisms, Google Classroom plays an important role in facilitating collaboration among classmates, which is another essential component in the development of writing skills. As noted by Furqaan (2020), Hsieh and Teo (2023), and Kamalov et al. (2023), the platform supports various interactive tools such as comment threads, discussion forums, and review options between classmates. These features create an environment that is socially engaging and intellectually stimulating, even in an online setting. Collaboration between students not only introduces them to different perspectives but also challenges them to engage critically with their own and others' texts. Drawing on Vygotsky's (1978) socio-cultural theory, learning most effectively occurs through social interaction, and digital platforms such as Google Classroom serve as a bridge for such exchanges. Through peer critiques and group discussions, students improve their ability to express ideas clearly, provide constructive criticism, and refine both form and content-skills that are vital for academic and creative forms of writing.

Therefore, Google Classroom's diverse capabilities, from organizing learning materials to providing a robust feedback system and facilitating collaboration-make it a valuable tool for improving narrative writing skills. Its

features align with current pedagogical frameworks that emphasize active learning, continuous feedback and peer engagement (Mashau & Nyawo, 2021). As education evolves in response to digital innovations, tools like Google Classroom provide sustainable, student-centered solutions to support long-term growth in language proficiency (Febiyanti et al., 2021; Firmansyah et al., 2023).

In addition, the rapid development of digital technology has brought transformative changes in educational approaches, especially in the way students collaborate and communicate online. What was once considered an optional enhancement is now an integral part of the teaching and learning process. Hrastinski (2019) argues that digital collaboration facilitates deeper learning through active dialog and shared engagement. These virtual interactions give students the opportunity to express their thoughts, critique different viewpoints, and collaboratively build knowledge - mirroring the communication dynamics found in professional and real-life environments. Structured discussions in digital forums often encourage higher-order thinking skills, as students are required to present well-structured arguments and consider alternative perspectives, often in written or multimedia formats.

The fact that digital learning environments prioritize interaction is in line with the core competencies of 21st century education. Frameworks such as the one proposed by the Partnership for 21st Century Skills (P21) emphasize the importance of critical thinking, collaboration, communication and creativity-skills that develop in an environment where learners interact with others through technology. As noted by Rorimpandey and Midun (2021), as well as Ammade et al. (2018) and Kuang et al. (2023), the development of these competencies goes beyond the mere delivery of content. It requires learners to use digital tools not only to absorb information, but also to interact, analyze and create meaning collectively. Platforms such as Google Classroom, Padlet and Microsoft Teams provide educators with the means to develop such skills by facilitating student-led inquiry and peer collaboration.

Furthermore, beyond cognitive benefits, participating in online collaborative assignments helps students develop important personal skills such as independence and responsibility. As students take responsibility for their contributions in group projects, meet deadlines, and participate in asynchronous discussions, they gradually develop the habit of self-regulation. Silitonga (2021) highlights that the ability to manage one's own learning is crucial, especially in a digital context where students must navigate content independently. Supporting this, Bansal and Choudhary (2024) found that students who felt personally engaged in online coursework demonstrated higher motivation, perseverance and academic achievement. These findings suggest that, when designed well, online collaboration not only supports learning-but also shapes character and instills lifelong learning habits.

This heightening reliance on digital tools for learning signals a broader shift in educational philosophy. Teachers are not only expected to impart knowledge, but also act as facilitators who help students navigate online environments, assess the credibility of information, and practice ethical digital behavior. This evolving role demands careful lesson design and a strong emphasis on digital literacy. As outlined in the TPACK framework by Fang and Abdullah (2024) and Xue et al. (2024), successful technology integration relies on educators' ability to bring together their knowledge of content, pedagogy and technology. To effectively support students in today's digital age, educators must commit to continuously honing these interrelated competencies.

In accordance with these findings, this study reaffirms the educational benefits of using Google Classroom in supporting students' writing development. For example, Indrayani (2022) observed that the platform significantly improved students' grammar skills, especially in mastering subject-verb agreement, among engineering students at the polytechnic level. The improvement on the final test suggests that with planned use, digital tools can help address long-standing language learning challenges. Similarly, Labibah et al. (2024) reported that junior secondary school students responded positively to Google Classroom, with flexibility and ease of access as key motivators. The ability to interact with learning materials at their own pace and submit assignments outside of traditional class hours contributed to a more personalized and student-centered learning experience.

As a consequence, educators are increasingly recognizing the practicality of Google Classroom in managing virtual learning environments. According to Panjaitan et al. (2022), secondary school teachers find the platform valuable for making their teaching tasks easier - especially in organizing assignments, providing timely feedback, and reducing reliance on printed materials. This reflects the platform's dual function, operating as both a pedagogical tool and an administrative aid. Similarly, Prasetya (2021) observed that the integration of Google Classroom with other Google applications such as Forms and Slides increased student participation and facilitated

the delivery of material. In addition, Lythreatis et al. (2022) highlighted the platform's ability to simplify assessment procedures and strengthen communication between teachers and learners.

However, in spite of its advantages, some limitations have been identified in recent studies. Research by Indrayani (2022) and Labibah et al. (2024) highlighted inconsistent internet access and insufficient interactivity of Google Classroom's discussion features as major drawbacks. Many students expressed their preference for more instant communication tools, such as WhatsApp or LINE, especially for group discussions and real-time collaboration. These concerns suggest that while Google Classroom supports many aspects of teaching and learning, its synchronous communication capabilities are still limited. Nonetheless, the platform still plays an important role in supporting writing instruction, especially in hybrid or fully online environments. To maximize its benefits, educational institutions are encouraged to upgrade their digital infrastructure and provide comprehensive training programs for teachers and students to use the platform effectively and inclusively.

The findings of this study further confirm that Google Classroom can positively influence students' writing development, especially in the narrative genre. At SMP IT Al-Birru Pekanbaru, the platform facilitates structured learning by allowing students to access lessons, submit written assignments and receive consistent feedback from their teachers. Its key features, including compatibility with Google Docs, flexible content access, and integrated communication tools, help create a learning environment that encourages self-revision and reflective thinking. This is especially beneficial in narrative writing, which often requires multiple stages of drafts and refinement. Based on these insights, it is recommended for English educators in junior secondary schools to integrate digital platforms such as Google Classroom into their teaching strategies. This not only aligns with the technological habits of modern students but also promotes more engaging, inclusive, and skill-oriented teaching that matches the demands of 21st century education.

4. CONCLUSION

However, a significant and positive effect of Google Classroom on the narrative writing skills of grade VIII students at Al-Birru Junior High School in Pekanbaru was found. Students who interacted with learning materials through this digital platform showed significantly greater progress in their writing performance compared to those who were taught through conventional methods. This improvement can be attributed to the dynamic and well-organized features of the platform-such as easily accessible learning materials, flexible options for submitting assignments, and built-in feedback mechanisms-which likely increased student engagement and contributed to their writing development. Moreover, students' positive attitudes towards using Google Classroom reinforce the view that this kind of digital environment supports students' independence and increases motivation are set as to important components for strengthening narrative writing skills in the context of learning English as a foreign language (EFL).

In light of these results, some practical suggestions can be made. Educators should consider integrating platforms such as Google Classroom into their teaching strategies, ensuring that digital tools are used to enrich the learning experience rather than simply replace face-to-face instruction. For students, it is beneficial to view digital platforms not only as tools for completing academic tasks but also as spaces to practice and hone language skills through repeated exposure and feedback. The ease of access and interactivity these tools offer can create opportunities for collaboration among classmates and continued language development. In addition, future studies could extend this research by exploring the impact of Google Classroom on other core language competencies, such as reading comprehension, oral communication or listening skills. Longitudinal research could also provide insights into how long-term use of this kind of platform affects language learning outcomes over time.

Conflicts of Interest: The authors affirm that there are no conflicts of interest that may have influenced the conduct or results of this study. Identifying and disclosing potential sources of bias whether personal, financial, or professional-is a critical component of ethical research practice, ensuring that the interpretation and presentation of findings remains transparent and trustworthy.

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