

Research Article

The Effectiveness of Using Trello as a Learning Tool for PjBL to Improve Senior High School Students' Hortatory Writing Text

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Abstract: This study aims to investigate the effectiveness of using Trello as a learning tool in project-based learning (PjBL) to improve senior high school students' hortatory exposition text writing skills. The research employed a quasi-experimental method with a pretest-posttest control group design. It was conducted in one of the senior high schools located in Sidoarjo, Indonesia. The total population of the study consisted of 202 students, from which a sample of 60 students was selected using purposive sampling. The sample was divided equally into two groups: an experimental group and a control group. The experimental group was taught using Trello as part of the PjBL approach, while the control group received instruction through a conventional learning method. The instruments used to gather data were writing essay tests and a writing assessment rubric. Data were collected through pretests and posttests to assess students' writing performance. The statistical analysis showed that there were significant differences in the writing outcomes between the two groups. The experimental group's mean pretest score was 64.50, which improved to 91.23 in the posttest. Meanwhile, the control group's pretest score averaged 64.37 and increased to 83.80 in the posttest. Notably, the improvement in the experimental group was more substantial, particularly in the areas of content development and text organization. These findings indicate that integrating Trello into a project-based learning framework can significantly enhance students' abilities in writing hortatory exposition texts. In conclusion, the use of Trello as a collaborative digital platform within PjBL has a positive impact on students' writing skills and can serve as an effective learning tool in EFL writing classrooms.

Keywords: Trello, project-based learning, hortatory exposition text, writing skills, senior high school students

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1. Introduction

In the current situation, writing skills play a crucial role for students who aspire to focus at a higher level, as many companies and jobs require workers who can write and communicate in English. Mastering writing skills is crucial for career and business success in today's global workplace (Ranaut, 2018; Washington, 2014). As stated by Hapsari & Sukavatee (2018), writing helps students develop their critical thinking, idea management, and analytical skills. This skill is especially important in education, where writing enables students to explore their understanding of subjects and develop critical thinking. Rahmat et al. (2020) analyzed the relationship between academic writing and critical thinking, highlighting how writing practices reflect critical thinking abilities. When a learner possesses the critical ability to write, it enables individuals from diverse backgrounds to share their stories and experiences.

However, in the modern era, high school students face significant challenges in improving their writing skills, primarily due to difficulties in the writing process. According to Muthanna (2016), developing writing abilities in an English as a Second Language (ESL) setting is a difficult process that involves constant work and several steps. Although some models include conferring as an extra step, the writing process normally consists of five stages: prewriting, drafting, revising, editing, and publication (Johnson & Westkott, 2021; Scott & Vitale, 2003). Many students have difficulty organizing their ideas, developing strong arguments, and revising their work, caused by teachers being unable to maximize the use of technology, which can make students feel frustrated and doubt their writing abilities. Besides that, teachers who struggle to deliver innovative lessons through comprehensive technology use often resort to conventional and individualized teaching methods, which leads to passive and monotonous classroom activities. Consequently, students become disengaged, lacking collaboration and motivation in the learning process. Lack of motivation is a significant issue, which is caused by low self-esteem, little control over writing assignments, and a lack of real-world applicability (Cook et al., 2001). As a result, underutilization of this technology can hinder students' overall development as confident and competent writers.

Therefore, utilizing Trello as a learning tool in project-based learning can promote a more innovative and collaborative learning environment, consequently enhancing student motivation and critical thinking and encouraging active participation in writing. According to Susanti et al. (2020), project-based learning also motivates students to learn writing by making the teaching and learning process more pleasant. PjBL promotes active engagement, collaboration, and exploration of ideas, resulting in enhanced writing skills and a more stimulating classroom atmosphere (Sholihah, 2018). Additionally, Trello serves as an effective virtual learning tool for project-based learning (PjBL), supporting both project-based and collaborative learning in higher education. Mansur et al. (2019) mentioned that the integration of project-based learning and Trello facilitates active learning, project organization, and formative assessment. Trello seems to be an effective tool for improving collaboration, communication, and project management in project-based learning methods.

This study focuses on the implementation of Trello, a project management application, as a collaborative learning tool to support students in writing hortatory exposition texts. Previous studies have shown that integrating project-based learning (PjBL) with Trello positively impacts student outcomes across various educational levels. Mansur et al. (2019) found that using Trello in a Brazilian Applied Science Institute improved project organization and promoted active learning. Similarly, Handoko et al. (2022) reported enhanced creative thinking skills at the junior high school level, while Lema and Enciso (2022) highlighted increased motivation, self-directed learning, and inclusivity among senior high school students. While most studies focus on Trello's use in fields like business or software development, its role in supporting writing skills, especially in the aspect of hortatory text among senior high school students, remains underexplored. This study aims to investigate whether the use of Trello as a learning tool for project-based learning has an effect on improving students' hortatory writing text than the conventional learning approach. To investigate the effectiveness of Trello in enhancing hortatory writing text through project-based learning, this study addresses the following research question: "Does the use of Trello as a learning tool for project-based learning have an effect on improving students' hortatory writing text compared to a conventional learning approach?"

2. Preliminaries or Related Work or Literature Review

Writing Skills

Writing skills represents the capacity to express ideas, thoughts, and information using written language in a clear, cohesive, and structured manner. Chicho (2022) states that writing skills is a multifaceted capability that includes the combining of words and sentences to convey thoughts. Bogachevska (2023) asserts that writing skills are crucial for efficient communication across academic, professional, and personal domains. They facilitate individuals in articulating ideas with clarity, influencing others, and creating a lasting impression across many fields (Bogachevska, 2023). Thus, the writing process is generally categorized into five essential stages: prewriting, drafting, revising, editing, and publication (Johnson & Westkott, 2021; Scott & Vitale, 2003). It aims to assist students in developing ideas, drafting, and revising, ultimately fostering their proficiency as writers. Each stage is essential to the writing

process since it facilitates the development of a coherent, engaging, and well-organized written work.

It is implemented an analytical rubric that was derived from Brown's (2019) *Language Assessment: Principles and Classroom Practices (3rd Edition)* to evaluate students' writing skills. The rubric's initial purpose was to assess a variety of writing elements, such as content, organization, vocabulary, grammar, and mechanics. The rubric was adjusted to correspond with the specific objectives and contextual requirements of this investigation, which concentrates on hortatory exposition writing. The adaptation of the rubric enabled a more precise and legitimate evaluation of students' argumentative writing, guaranteeing that the evaluation criteria were pertinent to the genre and indicative of the instructional objectives. This method not only preserved the theoretical rigor that Brown had proposed, but it also guaranteed practical relevance to the context of the study.

The Positive Impact of Hortatory Text on Students' Writing Skills

Hortatory text significantly enhances students' writing skills, especially in expressing opinions, making logical arguments by analyzing real-world problems, and persuading readers effectively. Making arguments in exposition texts can help students think more critically by getting them to look into issues, evaluate evidence, and give strong, logical reasons for their points of view. Fisher (2004) also stated that teaching students to analyze real-world issues and assess evidence can enhance their critical thinking skills. Besides that, the writing of hortatory texts fosters creativity and self-expression, enabling students to articulate their opinions on diverse topics while considering their audience's perspective. Kiptiyah (2009) stated that writing hortatory exposition texts can improve students' critical thinking and creativity. In conclusion, writing hortatory exposition texts not only improves students' critical thinking skills but also fosters creative expression, helping them develop deep knowledge of diverse subjects and articulate their viewpoints effectively.

Trello as a Learning Tool Media

Trello is a visual project management application grounded in Kanban principles, utilized for task organization and progress monitoring (Ostergaard, 2016; Rodhi et al., 2021). Trello employs a system of boards, lists, and cards to enable users to create, assign, and monitor tasks, thereby offering a transparent perspective of project advancement and accountability. Nicoll (2015) asserts that the system offers visibility and accessibility across many platforms, allowing users to access schedules and activities remotely while ensuring privacy and security. Each card in Trello signifies a distinct assignment or item, which can be tailored with descriptions, deadlines, checklists, attachments, and labels.

Project Based Learning as an Innovative Teaching

Project-Based Learning (PjBL) is an interactive, student-centered pedagogical method that involves students in addressing real-world issues through collaborative projects (Kokotsaki et al., 2016; Bell, 2010). This project-based learning method promotes comprehensive understanding, enabling students to connect theoretical concepts to practical results while simultaneously cultivating essential abilities such as communication, cooperation, and self-regulation.

Project-Based Learning (PjBL) has arisen as a productive approach for instructing English, especially in enhancing writing skills. According to Fatmawati et al. (2023), project based learning encompasses practical tasks that improve students' writing skills through significant experiences. Through collaborative projects, students enhance their capacity to organize ideas, articulate concepts, and generate coherent texts while simultaneously engaging with real-world challenges or themes of interest.

In learning to write by implementing project based learning as the method, there are several stages in project based learning that must be implemented. There are the general syntax of Project-Based Learning (PjBL) namely essential question, designing a plan for a project, collecting data, create a project, presenting a project, evaluating a project.

Previous Studies

Three previous research studies have investigated the use of Trello in project-based learning settings. Trello's use as a virtual learning environment in a Brazilian "Creativity & Innovation" program was studied by Mansur et al. (2019), who discovered that it successfully facilitated task organization, teamwork, and active learning in interdisciplinary projects. A quasi-experimental study by Handoko et al. (2022) demonstrated that a Trello-based project-based learning model significantly improved students' capacity for creative thinking, particularly in online learning environments. Lastly, even though Trello was not the main focus of the study, Lema and Enciso's (2022) investigation on project-based learning implementation in a high school setting showed that it encouraged self-directed learning, engagement, and collaboration between students and teachers. None of these studies have explicitly looked at how project-based learning and Trello affect students' writing abilities, particularly when it comes to creating hortatory texts. Accordingly, this study addresses a research gap by investigating whether the use of Trello as a learning tool for project-based learning has an effect on improving students' hortatory writing text than the conventional learning approach.

3. Proposed Method

This study utilized a quantitative approach through an experimental design. The choice of study design is essential for establishing data collection methods and verifying the precision of quantitative research methodology (Nwabuko, 2024). This study employed a quasi-experimental methodology to assess the intervention's effect in a practical setting while controlling for particular variables. The design involved the division of research subjects into two groups: the control group and the experimental group. The experimental and control groups were chosen for their comparable academic levels and features to assure equivalence. This research provided a novel perspective on the examination of advanced educational platforms and their influence on student learning outcomes.

Population and Sample

This study included 202 11th grade students from a senior high school in Sidoarjo. It was chosen because, in accordance with the English curriculum, students at this level learned about hortatory exposition texts. Meanwhile, the sampling process included selecting participants who accurately reflected the specified population of interest (Knechel, 2019). The researcher selected 60 students from this population to participate in the investigation. The sampling method employed was purposive sampling, in which students were selected based on particular criteria related to the study's objectives.

Instruments

This study employed a pre-test and a post-test, both conducted as essay-based writing assessments to evaluate students' writing proficiency. The essay allowed students to showcase their capacity to structure thoughts, articulate concepts, and convey arguments cohesively. The essay aimed to evaluate their capacity to argue and persuade through writing communication. The pre-test and post-test outcomes were evaluated using a writing evaluation rubric modified from Brown (2019). This study emphasized substance and organization in its scoring procedure. The writing process necessitated that students produce and systematically organize thoughts over an extended duration. This aspect was deemed tough as students were required to formulate arguments and organize them coherently.

Validity and Reliability

The essay writing tool and rubric were deemed valid as they were endorsed by an excellent lecturer with substantial experience in academic writing instruction. It was implemented a test-retest reliability approach. to guarantee the dependability and uniformity of the results. This method was utilized to ascertain if the same participants would yield consistent results over time. A cohort of 15 students engaged in reliability testing by executing a hortatory exposition writing task, facilitated by a project-based learning methodology utilizing the Trello platform. The instrument's dependability was subsequently evaluated with Cronbach's Alpha. The study produced a Cronbach's Alpha coefficient of 0.805 for five items. Statistical standards dictate that a result exceeding 0.80 signifies strong reliability, indicating that the rubric consistently assessed the same construct among various respondents. The results validate that the instrument was both reliable and appropriate for

evaluating students' hortatory writing performance.

Data Collection Techniques

Several organized techniques were employed to gather the data. Initially, formal authorization was secured from the chosen school to carry out the study operations. A lesson plan was developed to encompass four educational sessions, along with the study's objectives. Trello was created and modified as a digital learning instrument to facilitate project-based learning for the experimental group in anticipation of the treatment. Subsequently, both the control and experimental groups underwent a pretest to evaluate their first writing performance. Subsequent to the pretest, the experimental group underwent the intervention via a sequence of organized lessons utilizing Trello. The chronology and sequence of these actions were structured and executed in accordance with the established treatment schedule. The table below was a treatment schedule for the experimental groups:

Table 1 Schedule for Treatment

Meeting	Stages	Activities
1	Treatment	<p>Meeting 1: Giving Essential Question – Pre Writing</p> <ol style="list-style-type: none"> a. The teacher brainstormed students by giving a short quiz in the form of Quizizz about hortatory texts. To access Quizizz, the teacher had provided a link on the Trello learning platform. b. After being given the Quizizz, the teacher gave students an assignment to do Activity 1. In Activity 1, the teacher directed students to access Trello so they could read the incomplete hortatory text that the teacher had provided. After that, the teacher played audio so that students could complete the incomplete sentences to become a complete text. c. Next, the teacher asked students to pair up to work on Activities 2 and 3. To work on Activities 2 and 3, students were directed to access Trello to complete the assignments. d. Given a hortatory exposition text about plastic pollution, students were expected to be able to mention the social function and the generic structure of the hortatory exposition text. e. Given a hortatory text about plastic pollution, students could classify abstract nouns and action verbs in the hortatory text correctly. f. The tasks they had completed had to be submitted in the "attachment" feature on Trello. g. After carrying out Activities 1 to 3, the teacher provided an explanation of the material regarding hortatory exposition text in PPT form—starting from the definition, function, generic structure, language features, types, and also examples. To make it easier for students, the teacher had provided the PPT on Trello so that students could more easily understand the material and use it as learning material at home. h. In the fourth activity, the teacher provided pieces of paper containing abstract nouns and action verbs and directed students to stick the paper to the missing hortatory paragraph on the board. i. In carrying out assignments and discussions, the teacher assessed students' activity and work results during class. j. The teacher provided feedback on the results of students' work.

2	Treatment	<p>Meeting 2: Designing a Plan and Collecting the Data – Pre Writing</p> <ol style="list-style-type: none"> a. The teacher directed students to access Trello so they could work on the fifth and sixth activities. b. In the fifth activity, the teacher gave students jumbled paragraphs to analyze and arrange into the proper text structure to maximize students' understanding. c. Students' answers had to be written in the "write a comment" feature by adding their full name and student number so the teacher could give a score. d. After maximizing students' understanding, the teacher formed students into pairs to carry out the task. e. The teacher provided themes so that students could create hortatory texts. f. Students started by creating a text outline first. g. The teacher provided guidance by showing a sample outline and giving feedback on students' work. h. Students researched and gathered relevant ideas to support their arguments. They used textbooks, the internet, or discussed with their peers to develop their points. i. The teacher monitored their progress and assisted students who struggled to find appropriate information. j. Students organized the text framework they created into one hortatory paragraph that followed the correct structure. k. After that, students presented in front of the class and submitted the results of their work in Trello.
3	Treatment	<p>Meeting 3: Create a Project – Drafting, Revising, and Editing</p> <ol style="list-style-type: none"> a. In the seventh activity, students accessed Trello to read the hortatory project given by the teacher. b. The teacher explained the activity of creating a digital campaign for the project that students had to work on during that meeting. c. The teacher provided guidance and circulated to assist students. d. First, students had to create a hortatory text that they would use for the digital campaign. The theme of the project was protecting the earth and caring for the environment. e. Next, students designed the text into a digital campaign, which could be created in the form of social media posts like an infographic. f. Students submitted their project on Trello.
4	Treatment	<p>Meeting 4: Presenting and Evaluating – Publishing</p> <ol style="list-style-type: none"> a. The teacher directed students to revise their projects using Quillbot to make it easier for them. b. Students uploaded their Hortatory Exposition Text into Quillbot to check and improve grammar, punctuation, and clarity. c. Each student presented their project to the class, explaining their arguments clearly and persuasively.

		<p>d. In providing feedback, teachers and students were given feedback sheets to provide scores for the completed projects.</p> <p>e. After each presentation, students posted their written feedback on Trello.</p> <p>f. After that, students collected the revised project results in Trello, based on the written feedback.</p>
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After the treatment was given, a post-test was administered to both groups to determine the development of students' writing skills. The post-test scores were assessed using a writing rubric adapted from Brown (2007).

Data Analysis

This research used SPSS version 26 for data analysis. The steps included: (1) testing normality with the Shapiro-Wilk test, (2) testing homogeneity with Levene’s Test, (3) conducting an independent sample t-test to examine the hypothesis, and (4) calculating effect size using Eta Squared to measure treatment impact.

In this study, the normality test was employed to ensure whether the data were normally distributed, which is a necessary assumption when choosing the right statistical test.

Table 2 Normality Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Pre Test Experimental	.185	30	.010	.929	30	.046
Post Test Experimental	.195	30	.005	.918	30	.024
Pre Test Control	.242	30	.000	.909	30	.014
Post Test Control	.129	30	.200*	.975	30	.689

Table 2 showed that the pre-test and post-test significance values for the experimental and control groups are greater than 0.5, which meant the data were normally distributed. Normality test results were crucial in this study since they validated the research technique and ensured that the data interpretation remained statistically strong and accurate.

The second step, the homogeneity test was used to determine whether the variances in the experimental and control groups were statistically equivalent. In this study, Levene's Test was used to assess variance homogeneity between the two groups. The researcher assessed the homogeneity of the test using the pretest scores from both the control group and the experimental group.

Table 3 Homogeneity Test

		Levene Statistic	df1	df2	Sig.
Pre Test Score	Based on Mean	.388	1	58	.536
	Based on Median	.074	1	58	.786
	Based on Median and with adjusted df	.074	1	49.431	.786
	Based on trimmed mean	.360	1	58	.551

Table 3 showed that the homogeneity test on the pre-test data had a significance value (p) of 0.536. This result was greater than the significance level of 0.05, which indicated that the variances between the groups were homogeneous.

The third step calculated the independent sample T-test to determine the hypothesis. If the Sig. (2-tailed) value was greater than 0.05, the null hypothesis (Ho) was accepted, indicating no significant difference in students' hortatory writing improvement between those who used Trello in project-based learning and those taught conventionally. Conversely, if the Sig. (2-tailed) value was less than 0.05, the alternative hypothesis was accepted, indicating a significant difference between the two groups.

Lastly, the researcher calculated the effect size using Eta Squared to show how much influence the treatment had. The formula to calculate eta squared was:

$$\eta^2 = \frac{t^2}{t^2 + (N1 + N2 - 2)}$$

Note:

- A. η^2 is the eta squared value
- B. t is the t-value from an Independent Sample T-Test
- C. N is the sample

Interpreting η^2 values typically follows this guideline:

- A. Small effect: 0.01
- B. Medium effect: 0.06
- C. Large effect: 0.14 or higher

Thus, using eta squared provided a better understanding of how effective a treatment was instead of just whether it had a statistically significant effect. This became useful in supporting the overall result of the research study.

4. Results and Discussion

Result

The purpose of this study was to investigate whether the use of Trello as a learning tool for project-based learning has an effect on improving students' hortatory writing text than the conventional learning approach. The result addressed the research question, yes. The study found that using Trello as a learning tool in a Project-Based Learning (PjBL) approach improved students' writing skills. The comparison of pre-test and post-test results shows that the experimental group, which uses Trello, performs significantly better than the control group. This can be seen from the score analysis that has been calculated by the researcher in the following analysis steps.

In this study, the researcher conducted a pre-test on the experimental and control groups that had the same ability level, namely at the 11th grade level, to find out whether Trello as a learning tool for project-based learning can improve students' writing skills or not. The pre-test is designed to guarantee that both groups begin at the same point before any treatment is started. The table below is the result of the mean pretest scores of both groups.

Table 4 Mean Pre Test Comparison

	Group	N	Mean	Std. Deviation	Std. Error
Pre Test	Experimental	30	64.50	7.780	1.420
	Control	30	64.37	8.422	1.538

Table 4 indicates that the pre-test scores suggest the experiment commenced under relatively balanced conditions, as reflected by the minimal difference between the two mean scores, which is only 0.13 points. Following the calculation of the mean pre-test scores, an independent sample t-test was conducted to statistically examine any initial differences between the experimental and control groups.

Table 5 Independent Sample T-Test

	Group	T-Test for Equality of Means		95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
		Mean Difference	Std. Error Difference	Lower	Upper			
Pre Test Score	Experimental	.133	2.093	-4.057	4.324	.064	58	.949
	Control	.133	2.093	-4.058	4.324	.064	57.640	.949

Table 5 shows the outcomes of the independent samples t-test for the pre-test scores of both the experimental and control groups. The null hypothesis is accepted since the significance value is higher than 0.05, indicating that there is no statistically significant difference between the experimental and control groups' pre-test scores.

After the pre-test, the experimental group received a treatment using Trello as a learning tool, while the control group continues to learn using conventional learning approach. After the treatment, both groups are given a post-test to assess their progress and the treatment's success. The mean comparison of post-test results helps determine the impact of the intervention on students' writing performance.

Table 6 Mean Post Test Comparison

	Group	N	Mean	Std. Deviation	Std. Error
Post Test	Experimental	30	91.23	3.234	.591
	Control	30	83.80	4.544	.830

Table 6 shows the mean scores of the experimental and control groups throughout the post-test. This comparison indicates that the experimental group, which receives the treatment, improves their writing ability more than the control group. The statistics show the treatment's effectiveness in improving students writing skills.

After calculating the mean scores of the post-test for the experimental and control groups, the researcher used an independent sample t-test to determine whether there was a significant difference between the two groups after they received treatment.

Table 7 Independent Sample T-Test

	Group	T-Test for Equality of Means		95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
		Mean Difference	Std. Error Difference	Lower	Upper			
Post Test Score	Experimental	7.433	1.018	5.395	9.472	7.300	58	.000
	Control	7.433	1.018	5.390	9.476	7.300	52.383	.000

Table 7 shows the results of the independent sample t-test, which compares post-test scores in the experimental and control groups. The significance value (sig. 2-tailed) is .000, which is less than 0.05. The statistics show the treatment's effectiveness in improving students writing skills. As a result, the alternative hypothesis is accepted, indicating that the use of Trello significantly impacted students' writing results.

After conducting the T-test, the researcher analyzes the effect size to assess the treatment's practical significance. The researcher's goal in calculating the effect size is to measure the strength of the connection between the treatment and an improvement in students' writing skills. The calculated formula can be seen below.

$$\begin{aligned} \eta^2 &= \frac{t^2}{t^2 + (N1 + N2 - 2)} \\ &= \frac{7.300^2}{7.300^2 + (30 + 30 - 2)} \\ &= \frac{7.300^2}{7.300^2 + (30 + 30 - 2)} \\ &= \frac{7.300^2}{7.300^2 + 58} \\ &= 0.479 \end{aligned}$$

Based on the calculation above, the η^2 value shows 0.479, which means that the intervention has a significant contribution to improving students' writing performance. According to standard interpretation guidelines, a η^2 value above 0.14 is considered a large effect size. Therefore, a value of 0.479 indicates a very strong effect. This value indicates that the use of treatments, such as the use of Trello as a learning tool, has a substantial impact on student outcomes.

Lastly, in order to gain a more thorough and comprehensive insight into the effects of the treatment on students' writing performance, the researcher examines the average improvement across various aspects of hortatory text, including content, organization, grammar, vocabulary, and mechanics. Analyzing each component separately enables the researcher to determine which specific areas have seen the most substantial improvement and which may still require more development.

Table 8 Experimental Average Score

Aspect	Average Score		Improvement
	Pre Test Experimental	Post Test Experimental	
Content	15.2	23	7.8
Organization	13.6	22.4	8.8
Grammar	14.5	17.16	2.66
Vocabulary	10.5	13.6	3.1
Mechanics	10.6	15.06	4.46
TOTAL	64.4	91.22	26.82

Table 8 shows the average pre- and post-test scores of the experimental group across five writing aspects: content, organization, grammar, vocabulary, and mechanics. The highest improvement appears in organization (+8.8), attributed to consistent training on text structure. Content follows with a 7.8-point gain, supported by brainstorming and discussion via Trello, helping students express arguments clearly. Mechanics improve by 4.46 points, aided by tools like QuillBot and peer feedback. Vocabulary increases by 3.1 points due to repeated writing practice. Grammar shows the smallest gain (+2.66), as students already had a relatively strong foundation in this area.

Discussion

The findings indicate that using Trello as a project-based learning tool significantly enhances students' writing skills. Both groups started with similar pre-test scores (64.4 for the experimental group and 64.33 for the control group), but the experimental group showed greater improvement in the post-test (91.22 vs. 83.79), with a higher gain (26.82 vs. 19.46). The effect size ($\eta^2 = 0.479$) reflects a strong impact of the treatment. This finding is in line with several previous studies. Handoko et al. (2022) discovered that this model effectively fosters collaboration, creativity, and active participation, emphasizing its potential as an innovative educational approach, especially during the online learning phase. This finding also is

in line with previous research from Mansur et al. (2019), which found that Trello has the potential as an innovative instrument to improve active learning and project management in a project-based learning environment. Their research found that Trello's visual and interactive features help students plan, organize, and reflect on their learning more effectively. Similarly, Lema and Enciso (2022) found that using Trello increases student enthusiasm, inclusion, and autonomous learning in senior high school students. Trello provides a collaborative platform that encourages active and independent learning. This study adds evidence from Hortatory writing classes, showing its effectiveness in improving text organization and content. Trello supports both academic skills and essential 21st-century competencies like collaboration and self-direction.

The analysis shows that the experimental group made greater progress in writing skills, particularly in organization and content, compared to the control group. In terms of organization, the experimental group improves by 8.8 points, whereas the control group only increases by 5.6 points. The improvement of the organization score occurs when the teacher systematically trains students in creating hortatory texts according to the appropriate structure throughout the learning process. Through the introduction of example texts and training in the analysis of cohesive devices and thematic patterns, teachers can improve their students' writing abilities (Cahyono, 2018). Furthermore, the content aspect in the experimental group improves by 7.8 points, outperforming the control group's improvement of 5.6 points. Students improve their content by collaboratively generating persuasive concepts through brainstorming and peer discussion. Collaborative brainstorming in academic writing classes fosters the development of essential 21st-century competencies, including critical thinking, creativity, collaboration, and problem-solving (Listyani, 2020).

The third and fourth aspects that improved after treatment were mechanics and vocabulary. Finding shows a significant improvement in the mechanics score, increasing from 10.6 to 15.06. The improvement of mechanics scores occurs as students utilise tools like QuillBot, which assist in checking and correcting writing mechanics, including punctuation, capitalization, and sentence structure. Research indicates that by detecting spelling, grammar, and punctuation mistakes, QuillBot can greatly enhance pupils' writing quality (Fitria, 2025). Meanwhile, the vocabulary score increases from 10.5 to 13.6, indicating that students acquire a broader and more suitable range of word choices in their writing. The improvement in vocabulary is likely due to consistent practice in writing hortatory text. This enhancement indicates that the students improved their vocabulary comprehension and used it more proficiently following the intervention.

The last aspect that shows a slight improvement from the treatment effect was grammar. Grammar is perceived not solely as a collection of rules but as a fundamental component that influences a writer's capacity to create meaning and articulate intricate concepts (Andleeb et al., 2025). Finding indicates a slight improvement in the grammar aspect following the treatment. The students' mean score increases from 14.5 in the pretest to 17.16 in the posttest, showing a gain of 2.66 points. This signifies that students maintain a comparatively strong foundation in grammar prior to the intervention.

Limitation of the Study

This study has several limitations that should be acknowledged. First, the research employed a quasi-experimental design with two groups, namely the experimental and control groups, where the sample was selected using purposive sampling. Since the participants were not randomly assigned and were drawn from only one senior high school, the findings may not be generalized to a broader population. Second, the study was conducted over only six meetings, consisting of one meeting for the pretest, four meetings for treatment using Trello as a part of project-based learning, and one for the posttest. This short duration may not be sufficient to observe the long-term impact of the intervention on students' writing skills. Third, the data were collected solely through a pretest and posttest in the form of a writing essay test assessed using a writing rubric. This limited use of instruments may not capture all aspects of students' writing development. Lastly, although the learning process generally ran smoothly, a few students experienced occasional internet connectivity issues, which slightly delayed the implementation of some learning sessions but did not significantly disrupt the overall process.

5. Conclusion and Suggestion

Conclusion

The findings and discussions in previous chapters indicate that the use of Trello provided to the experimental group positively influences students' writing performance in hortatory texts. The posttest results indicate enhancement in all aspects of writing, including organization, content, mechanics, vocabulary, and grammar. Each aspect shows different levels of improvement, indicating that the learning process effectively facilitates students' writing development across multiple areas.

The most significant improvement is the organization and content aspects. Students are instructed to organize their work coherently and rationally, frequently utilizing brainstorming sessions and collaborative planning for guidance. In the mechanics stage, students enhance their understanding of writing rules, including punctuation, capitalization, and spelling, by utilizing tools like QuillBot, which aids in finding and rectifying mechanical problems. Moreover, consistent criticism from peers and instructors is essential for students to enhance their writing and improve their precision. The vocabulary significantly improves with the constant practice of creating hortatory texts. This constant exposure enables students to become more acquainted with persuasive and particular vocabulary, which is crucial for formulating compelling arguments. The findings indicate that Trello, utilized as a digital learning tool during the treatment, effectively improves students' writing skills. Students can use Trello to systematically arrange their thoughts, communicate with peers, and obtain organized feedback, thereby enhancing writing results.

Overall, these findings suggested that Trello helped students better organize their thoughts, collaborate with peers, and manage activities, which improved their ability to compose hortatory exhibition texts.

Implication

The findings of this study carry several important implications for English teachers, students, and future researchers. For teachers, the use of Trello as a learning tool for project-based learning provides teachers with a useful and efficient way to oversee writing instruction. Trello enables teachers the ability to monitor student progress, clearly arrange writing stages, and provide quick feedback in a collaborative online setting. In addition to encouraging active engagement, accountability, and creativity in writing assignments, this fosters a more student-centered learning environment. Therefore, in order to promote their learning goals and improve classroom engagement, teachers are encouraged to use Trello or similar digital platforms.

For students, especially EFL learners, Trello offers an interactive and structured platform that supports every aspect of the writing process, starting from prewriting, drafting, revising, editing, and publication. Students can organize their work, evaluate their progress, and participate in peer feedback because of the collaborative features and visual layout. In addition to improving students' writing skills, these exercises foster critical thinking, communication, and understanding of technology. Trello helps students gain more control over their education and deal with communication issues in class and in life.

Suggestion

This study suggests the potential of Trello as an effective digital tool in education, especially for enhancing writing skills through project-based learning. Future researchers are encouraged to address limitations such as sample size and scope by involving broader participant groups and exploring other language skills like speaking and reading. Further studies could also examine students' perceptions of Trello through qualitative methods to design more tailored learning strategies.

For English teachers, Trello offers a practical platform to manage writing activities, provide timely feedback, and encourage collaboration. Teachers should align Trello features with learning goals and rubrics while continuously adapting their methods to maximize its effectiveness in writing instruction.

EFL students are encouraged to use Trello to plan, track, and reflect on their writing progress. Regular self-assessment and engagement with feedback through Trello can promote independent learning. Embracing digital tools like Trello helps make the writing process more organized, interactive, and aligned with real-world communication needs.

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