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Blended Learning as a Pedagogical Catalyst for Enhancing University Students' Writing Skills: A Comparative Study

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Abstract
This study examined the effectiveness of blended learning in improving academic writing skills among first-year university students at Addis Ababa University, Sefere Selam Health Science College. A quasi-experimental, non-randomized pretest–posttest design was used with 80 students. The control group received conventional face-to-face instruction, while the experimental group learned through blended learning using Telegram and digital feedback tools for writing practice, peer review, and instructor feedback. Writing performance was assessed across six components, and qualitative interviews were used to explore students' learning experiences. Both groups improved in writing performance; however, the blended learning group showed significantly greater gains, with mean scores increasing from 43.21% to 62.37%. The intervention produced a very large effect size (Cohen's d = 2.47), indicating strong practical significance. The greatest improvement was seen in grammar and mechanics, suggesting that digital feedback and repeated revision opportunities supported writing development. This study provides empirical evidence from Ethiopian higher education by linking the national Digital Education Strategy (2023) with classroom practice. Guided by the Complex Adaptive Blended Learning System (CABLS) framework, it highlights the pedagogical value of blended learning for improving academic writing in resource-constrained contexts. Academic writing skills; blended learning; higher education; Ethiopia; writing proficiency; digital feedback; Telegram-based learning; EFL writing; quasi-experimental study; instructional technology; peer feedback; writing assessment.

Keywords: Academic writing skills; blended learning; higher education; quasi-experimental design; writing proficiency.

INTRODUCTION

In the digital era, Information and Communication Technology (ICT) has significantly reshaped teaching and learning in higher education. Its integration has created more flexible, interactive, and learner-centred environments that support the development of academic and professional competencies. Among these innovations, blended learning (BL) which combines face-to-face instruction with online learning has gained increasing attention for its potential to improve teaching effectiveness and student learning outcomes. Research shows that BL enhances student engagement, learning flexibility, and responsiveness to diverse learner needs by integrating classroom interaction with digital learning spaces

(Anderson & Dron, 2011; Bonk & Graham, 2006; Means et al., 2013). More recent studies also highlight its role in promoting active participation, collaboration, and timely feedback, all of which are essential for academic writing development (Graham, 2013; Rasheed et al., 2020). Learner-centre

In Ethiopia, however, the use of digital technologies in higher education remains limited. Many institutions still rely heavily on traditional teacher-centered approaches, which restrict student participation and limit opportunities for developing higher-order language skills (Fekadu, 2021). This challenge is particularly visible in English language instruction, where students often struggle with academic writing due to insufficient practice, delayed feedback, and limited access to technology-supported learning environments (Teshome, 2007). Since academic writing requires continuous drafting, revision, and feedback, it is especially suited to technology-supported instruction. In this regard, blended learning offers a practical way to extend learning beyond the classroom and increase opportunities for interaction and revision (Liu & Kuo, 2017).

Previous studies on blended learning in writing instruction have produced mixed findings. Several studies report positive effects on writing achievement and student engagement, particularly through peer interaction and continuous feedback (Al-Jarf, 2015; Shih, 2011). More recent research also shows that digital feedback and collaborative online writing improve writing quality and revision practices (Zhang, 2022; Wang & Sun, 2021). However, other studies point to challenges such as weak technological infrastructure, limited teacher preparedness, and varying levels of student digital literacy, which can reduce its effectiveness (Dziuban et al., 2018; Rasheed et al., 2020). These findings suggest that the success of blended learning depends strongly on context and instructional design.

In response to these developments, the Ethiopian Ministry of Education introduced the Digital Education Strategy and Implementation Plan (2023), which emphasizes the integration of digital tools to improve teaching quality, access, and students' digital competencies. Despite this policy direction, the practical use of blended learning in university classrooms particularly in English language instruction remains limited. As a result, many students continue to face challenges in developing academic writing skills due to limited sustained practice, timely feedback, and collaborative revision opportunities.

Although international studies suggest that blended learning can improve language learning outcomes, there is still limited empirical evidence in the Ethiopian higher education context, particularly regarding academic writing development. This gap is important, as writing instruction in Ethiopian universities continues to face both pedagogical and technological constraints. Therefore, there is a need to examine whether blended learning can enhance students' academic writing performance compared to traditional instruction.

Accordingly, this study investigates the effectiveness of blended learning in improving university students' academic writing skills. In this study, blended learning combined classroom instruction with Telegram-based discussions, peer review activities, and digital instructor feedback to extend writing practice beyond the classroom.

Specifically, the study addresses the following research questions:

1. Is there a significant difference in academic writing performance between students taught through blended learning and those taught through traditional instruction across key writing components (introduction, organization, content development, grammar, mechanics, and conclusion)?
2. To what extent does blended learning improve students' overall academic writing performance compared with traditional instruction?
3. Which writing components benefit most from blended learning?

Blended Learning in Higher Education

In today's digital era, Information and Communication Technology (ICT) has reshaped higher education by making teaching and learning more flexible, interactive, and learner-centered. One widely used approach is blended learning (BL), which combines face-to-face instruction with online learning activities, allowing students to learn both inside and outside the classroom (Anderson & Dron, 2011; Bonk & Graham, 2006).

Blended learning is generally valued for combining the strengths of traditional teaching with the flexibility of digital tools. It enables students to access materials at their own pace, revisit content when needed, and take part in interactive learning tasks that strengthen understanding and engagement. Research further shows that, when well designed, blended learning can improve collaboration, learner autonomy, and academic achievement (Graham, 2013; Means et al., 2013). However, recent studies emphasize that its effectiveness depends less on technology itself and more on instructional design quality, learner readiness, and meaningful interaction within the learning process (Rasheed et al., 2020; Singh & Srivastava, 2021)

Blended Learning and Academic Writing Development

Academic writing is a complex skill that requires continuous practice, revision, and feedback. Many university students still struggle with coherence, organization, grammar, and content development. Because of this, blended learning has increasingly been applied in writing instruction to extend learning beyond limited classroom time and support iterative writing practice.

In blended environments, online tools allow students to draft, receive feedback, revise their work, and collaborate with peers- activities that are essential for writing development. Studies show that technology-supported feedback and collaborative writing tasks can improve both writing accuracy and organization (Albiladi & Alshareef, 2019; Zhang & Zhu, 2021). Similarly, Hyland and Hyland (2006) highlight that feedback-rich environments help students improve writing through continuous revision cycles. More recent studies also confirm that digital platforms enhance engagement and revision quality when feedback is timely and specific (Lee, 2020; Wu & Miller, 2022).

Despite these advantages, results are not always consistent. The effectiveness of blended learning depends on how well tasks are designed, how actively instructors guide the process, and how prepared students are to use digital tools. When these conditions are weak, learning gains may be limited (Bawa, 2016; Rasheed et al., 2020).

Blended Learning in the Ethiopian Higher Education Context

In Ethiopia, English is the medium of instruction in higher education, yet many students continue to face challenges in academic writing. Traditional teacher-cantered instruction is still widely used, which limits student participation and reduces opportunities for meaningful writing practice and feedback (Teshome, 2007; Zeleke, 2017). As a result, students often experience difficulties in grammar, coherence, and organization (Haregewoin, 2008).

Blended learning has been suggested as a useful approach to address these challenges because it allows students to continue practicing writing beyond classroom time while also receiving feedback and support (Graham, 2006; Dziuban et al., 2018). In line with global developments, the Ethiopian Ministry of Education introduced the Digital Education Strategy (2023) to promote ICT integration in teaching and learning. However, in practice, the use of blended learning in universities especially in English language instruction remains limited. This situation highlights the need for empirical studies that examine its effectiveness in improving academic writing skills in the Ethiopian context.

Theoretical Framework

This study is guided by Social Constructivism and Connectivism. Social Constructivism (Vygotsky, 1978) emphasizes that learning develops through interaction, collaboration, and social engagement. In blended learning environments, this is reflected in peer feedback, group writing, and teacher–student interaction, all of which help students construct meaning and improve writing skills (Gee, 2003).

Connectivism (Siemens, 2005) explains learning in digital environments as the ability to build and navigate networks of information, people, and digital resources. In this sense, blended learning supports learning by connecting students to online tools, resources, and feedback systems that encourage continuous and self-directed learning. Recent research also shows that such networked environments enhance learner autonomy and engagement in writing tasks (Siemens & Gašević, 2021).

Together, these two theories explain how blended learning supports both social interaction and digital

connectivity, which are essential for developing academic writing skills.

Conceptual Framework

This study views blended learning as the independent variable influencing students' academic writing performance. It combines face-to-face instruction with online activities such as discussion, drafting, peer review, and instructor feedback. In this study, Telegram-based communication and digital feedback tools were used to extend writing practice beyond classroom sessions.

The dependent variable is academic writing performance, which is assessed in terms of introduction, organization, content development, grammar, mechanics, and conclusion.

The study is also guided by the Complex Adaptive Blended Learning System (CABLS) framework (Wang et al., 2015). This framework views blended learning as an interconnected system involving learners, teachers, technology, content, institutional support, and the wider learning context. These components interact dynamically to create flexible and adaptive learning environments that support skill development.

Within this system, technology facilitates communication and feedback, teachers guide and support learning, and students actively engage in writing and revision processes. This interaction is expected to improve accuracy, coherence, and overall academic writing performance.

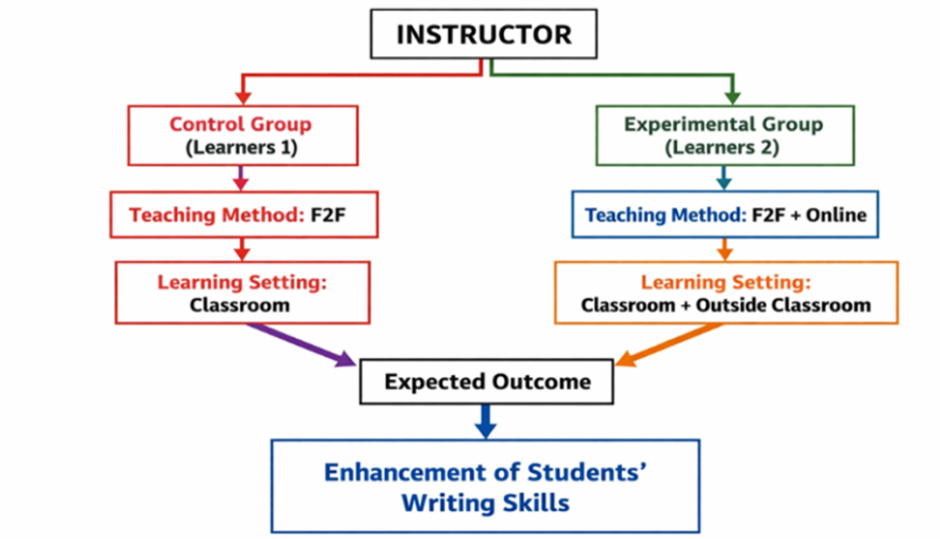

Figure 1. Conceptual Framework

RESEARCH METHODS

This study employed a mixed-methods approach using a quasi-experimental design to examine the effect of blended learning on students' academic writing skills. The research was conducted during the second semester of the 2024 academic year at Addis Ababa University, Sefere Selam Health Science College, involving first-year students enrolled in the English Language Skill II course. The study consisted of two groups: an experimental group that received blended learning instruction integrating face-to-face teaching and Telegram-based online writing activities, and a control group that received conventional face-to-face instruction. Data were collected through writing tests and semi-structured interviews, and were analyzed using both quantitative and qualitative techniques to provide a comprehensive understanding of the effectiveness of the intervention. The following subsections present the research design, participants, procedures, instruments, data collection techniques, and data analysis methods used in this study.

Research Design

This study used a quasi-experimental, non-randomized pretest–post-test design to examine the effect of blended learning on students' academic writing skills. Two intact groups were used: an

experimental group, which received blended learning, and a control group, which received traditional face-to-face instruction.

Both groups studied the same content over the same period and were assessed using the same evaluation criteria to ensure fairness and comparability. The main difference was the learning approach: the experimental group used both classroom instruction and online support, while the control group relied only on classroom teaching.

Research Target/Subject

The study was conducted at Addis Ababa University, Sefere Selam Health Science College, during the second semester of the 2024 academic year. Participants were first-year students enrolled in the English Language Skill II course.

A total of 80 students were selected through purposive sampling and divided equally into two groups (40 experimental, 40 control). To reduce instructor-related variation, both groups were taught by the same instructor. A pre-test confirmed that the two groups had similar writing abilities before the intervention.

Research Procedure

The blended learning intervention combined face-to-face instruction with Telegram-based online writing activities to extend students' writing practice beyond classroom time. Each face-to-face session lasted 50 minutes and focused on introducing writing concepts, providing guided practice, and clarifying common writing problems.

In addition to classroom instruction, a Telegram group was created for the experimental group. Students were required to submit one 250–300-word essay per week through the platform for 12 consecutive weeks. The instructor provided written corrective feedback directly on students' submissions within Telegram, focusing on grammar, mechanics, organization, and content development. Feedback was guided by the analytic writing rubric used in the study to ensure consistency and alignment with the assessment criteria.

Students were encouraged to revise their work based on instructor feedback and resubmit improved versions. In addition, all students in the group were able to view peers' submissions and the corresponding feedback, which created opportunities for peer learning and comparison of writing practices. This helped students learn from both instructor comments and peer performance.

No external digital tools such as Google Docs were used; all online interaction, submission, and feedback were managed exclusively through Telegram. The control group, in contrast, received only traditional face-to-face instruction, where writing tasks were completed in class or as homework and feedback was provided during classroom sessions only.

Instruments, and Data Collection Techniques

Students' academic writing skills were measured using pre- and post-writing tests. These tests assessed six key components: introduction, organization, content development, grammar, mechanics, and conclusion. Improvement was determined by comparing pre- and post-test scores using an analytic scoring rubric.

To complement the quantitative data, semi-structured interviews were conducted with 15 students from the experimental group. These interviews focused on students' experiences with blended learning, their engagement, motivation, and perceptions of online feedback.

Data collection was carried out in three stages. First, a pre-test was given to both groups to measure their initial writing ability. Second, the intervention was implemented over one semester.

The experimental group received blended learning instruction, while the control group received traditional instruction only.

Finally, a post-test was administered to both groups to measure improvement in writing performance. Quantitative data were analyzed using paired-sample t-tests (within groups) and independent-sample t-tests (between groups). Effect sizes (Cohen's d) were calculated using standard benchmarks (0.20 small, 0.50 medium, 0.80 large).

Qualitative interview data were analyzed thematically to help explain and support the quantitative findings (Creswell, 2009). Ethically, participation was voluntary, and students were informed about the purpose of the study. Confidentiality was maintained using coded identifiers, and students were assured that participation or withdrawal would not affect their grades.

Data analysis technique

An analytic scoring rubric was used to assess students' writing across six components: introduction, organization, content development, grammar, mechanics, and conclusion. To ensure consistency and reduce subjective bias in scoring, several procedures were implemented to strengthen the reliability and validity of the assessment.

Prior to the actual scoring process, both raters (experienced English instructors) participated in a calibration session using a set of sample student writing scripts. During this session, the raters discussed the application of the analytic rubric criteria in detail to ensure a shared understanding of performance standards and scoring expectations. Any differences in interpretation were discussed until consensus was reached. This calibration process helped to minimize scoring discrepancies and improve inter-rater consistency before formal assessment began.

Following the calibration session, a post-assessment inter-rater reliability check was conducted on 20% of the post-test scripts (n = 16), which were randomly selected. These scripts were independently rated by a second experienced English instructor who was blind to group assignment. Inter-rater reliability was calculated using the Intraclass Correlation Coefficient (ICC; two-way random-effects model, absolute agreement). The results indicated strong agreement between raters (ICC = .88). According to Koo and Li (2016), an ICC value above .75 indicates good reliability, while values above .90 indicate excellent reliability. Therefore, the obtained ICC value demonstrates good inter-rater reliability and supports the consistency of the writing assessment scores.

After scoring, minor discrepancies between raters were reviewed and resolved through discussion to reach final consensus scores. This multi-step process—comprising rater calibration, independent scoring, and consensus discussion—enhanced the reliability of the scoring procedure and strengthened the validity of the writing assessment and the interpretation of students' performance outcomes.

RESULTS AND DISCUSSION

Pre-test Results of Both Groups

Although the mean scores for the experimental and control groups were slightly different across the six assessment criteria, none of these differences were statistically significant ($p > .05$). Effect size analysis showed negligible to small differences between the groups (Cohen's d ranged from −0.32 to 0.17), indicating that the two groups were comparable at baseline. The total pre-test difference also showed a negligible effect size ($d = -0.03$), confirming baseline equivalence.

Table 1. Pre-test results of Experimental and Control groups

Assessment criteria	Experimental Mean	Control Mean	Mean difference	Experimental SD	Control SD	**T-test**	**P-value**	**Cohen's d**
Introduction	5.65	6.13	-0.48	1.52	1.42	-1.45	.150	-0.32
Organization	9.18	8.81	0.37	1.98	2.20	0.78	.440	0.17
Content & logical flow	9.35	9.44	-0.09	1.81	1.77	-0.23	.830	-0.05
Grammar	7.38	8.15	-0.77	1.83	1.35	-0.63	.530	-0.14
Mechanics	6.80	7.08	-0.28	1.22	1.49	-0.90	.370	-0.20
Conclusion	4.85	4.44	0.15	1.23	1.11	0.37	.710	0.13
Total	43.21	44.31	-1.10	9.59	9.34	-0.14	.510	-0.10

Although the mean scores for the experimental and control groups were slightly different across the six assessment criteria, none of these differences were statistically significant ($p > .05$). For instance, the control group obtained a slightly higher mean score on the introduction component ($M = 6.13$ vs. $M = 5.65$) and the mechanics component ($M = 7.08$ vs. $M = 6.80$), while it also scored higher in grammar ($M = 8.15$ vs. $M = 7.38$). However, these differences were small, and effect sizes were negligible to small, with Cohen's d values ranging from −0.32 to 0.17.

The total mean scores for both groups were nearly identical (experimental group: $M = 43.21$, $SD = 9.59$; control group: $M = 44.31$, $SD = 9.34$), confirming their equivalence at baseline. The independent samples t-test indicated no statistically significant difference between the groups ($t = −0.14$, $p = 0.510$). This confirms that both groups had comparable academic writing abilities before the intervention, allowing post-test differences to be attributed to the instructional treatment.

Pre- and Post-test Results of the Control Group

To determine whether students in the control group showed improvement in their writing performance over the study period, a comparison was made between their pre-test and post-test scores across six writing components. The analysis focused on changes in mean scores, statistical significance, and effect sizes to assess the extent of improvement under regular classroom instruction.

Table 2. Results for Pre and Post-test Scores of Control Group

Assessment criteria	**N**	**Mean**		**SD**		**Mean Difference**	**SD difference**	**t-test**	**p-value**	**Cohen's d**
		pre	**post**	**Pre**	**post**					
Introduction	40	6.13	9.26	1.42	3.14	3.13	2.02	9.80	< 0.001	1.55
Organization	40	8.81	10.29	2.20	1.48	1.48	1.08	8.69	< 0.001	1.37
Content & logical flow	40	9.48	10.90	1.77	1.43	1.42	1.25	7.16	< 0.001	1.13
Grammar	40	8.15	9.03	1.35	1.45	0.88	1.46	3.81	< 0.001	0.60
Mechanics	40	7.14	10.40	1.59	2.71	3.26	2.70	7.63	<0.001	1.21
Conclusion	40	4.44	4.44	0.97	0.40	0.00	0.00	0.00	1.00	0.00
Total	40	44.31	54.32	9.30	10.61	10.01	4.46	14.40	<0.001	2.27

The results presented in Table 2 indicate that students in the control group demonstrated improvement in most writing components between the pre-test and post-test. The introduction component showed a notable increase in mean score from 6.13 to 9.26, with a mean difference of 3.13. This improvement was statistically significant ($t = 9.80$, $p < .001$) and yielded a large effect size ($d = 1.55$), indicating substantial progress in writing introductions.

Similarly, organization improved from 8.81 to 10.29, with a mean difference of 1.48. The improvement was statistically significant ($t = 8.69$, $p < .001$) and demonstrated a large effect size ($d = 1.37$), suggesting considerable enhancement in structuring ideas coherently.

Content development and logical flow increased from 9.48 to 10.90, with a mean difference of 1.42. This improvement was statistically significant ($t = 7.16$, $p < .001$) and reflected a large effect size ($d = 1.13$), indicating better development and organization of ideas.

In terms of grammar, students showed moderate improvement, as the mean score increased from 8.15 to 9.03 (mean difference = 0.88). This improvement was statistically significant ($t = 3.81$, $p < .001$) with a medium effect size ($d = 0.60$), suggesting measurable progress in grammatical accuracy. Likewise, mechanics improved substantially, with mean scores rising from 7.14 to 10.40 (mean difference = 3.26). This increase was statistically significant ($t = 7.63$, $p < .001$) and produced a large effect size ($d = 1.21$), indicating notable gains in punctuation, spelling, and formatting.

In contrast, the conclusion component showed no change, remaining at 4.44 in both pre-test and post-test scores (mean difference = 0.00), with no statistically significant difference ($t = 0.00$, $p = 1.000$) and no effect ($d = 0.00$), suggesting no improvement in concluding essays. Overall, the total writing score increased from 44.31 in the pre-test to 54.32 in the post-test, with a mean difference of 10.01, indicating an overall improvement in writing performance. These findings suggest that regular classroom instruction contributed to improvements in several writing components, although gains varied across different aspects of writing.

Pre- and Post-test Results of the Experimental Group

The pre-test and post-test scores of the experimental group were analyzed to examine the effect of the blended learning intervention on students' writing performance. The analysis compared students' performance across six writing components- introduction, organization, content and logical flow, grammar, mechanics, and conclusion to determine the extent of improvement following the intervention.

Table 3. Pre- and Post- tests Results of Experimental Group

Assessment criteria	N	Pre-Mean	Post Mean	Pre SD	Post SD	Mean Difference	t-test	p-value	Cohen's d
Introduction	40	5.65	9.10	1.52	1.52	3.45	10.29	< .001	1.63
Organization	40	9.18	11.50	1.98	1.60	2.32	6.46	< .001	1.02
Content & logical flow	40	9.35	11.25	1.81	1.44	1.90	5.34	< .001	0.84
Grammar	40	7.38	12.89	1.83	1.62	4.41	8.40	< .001	1.32
Mechanics	40	6.80	12.63	1.22	1.41	5.83	14.95	< .001	2.36
Conclusion	40	4.85	5.00	1.23	1.07	0.15	2.50	.018	0.39
Total	40	43.21	62.37	9.59	8.65	19.16	10.79	<.001	2.47

The results presented in Table 3 indicate that students in the experimental group demonstrated significant improvement across most writing assessment criteria following the blended learning intervention. Introduction writing showed a substantial increase in mean score from 5.65 to 9.10, with a mean difference of 3.45. This improvement was statistically significant ($t = 10.29$, $p < .001$) and reflected a large effect size ($d = 1.63$), indicating strong improvement in students' ability to write effective introductions.

Similarly, organization improved from a mean score of 9.18 to 11.50 (mean difference = 2.32), with a statistically significant difference ($t = 6.46$, $p < .001$) and a large effect size ($d = 1.02$), suggesting better structuring and sequencing of ideas.

Content development and logical flow also showed significant improvement, with scores increasing from 9.35 to 11.25 (mean difference = 1.90). The result was statistically significant ($t = 5.34$, p

< .001) and demonstrated a large effect size (d = 0.84), indicating improved idea development and coherence.

In grammar, students showed notable improvement, as the mean score increased from 7.38 to 11.79 (mean difference = 4.41). This improvement was statistically significant (t = 8.40, p < .001) and yielded a large effect size (d = 1.32), suggesting substantial gains in grammatical accuracy.

The most substantial improvement was observed in mechanics, where the mean score increased from 6.80 to 12.89 (mean difference = 5.83). This change was statistically significant (t = 14.95, p < .001) and produced the largest effect size (d = 2.36), indicating considerable improvement in punctuation, spelling, and formatting.

Although improvement in the conclusion component was comparatively smaller, the mean score increased from 4.85 to 5.00 (mean difference = 0.15). This improvement was statistically significant (t = 2.50, p = 0.018) with a small effect size (d = 0.39), suggesting modest gains in writing conclusions.

Overall, the descriptive results show that the total writing score increased from 43.21 in the pre-test to 62.37 in the post-test, with a mean difference of 19.16, indicating considerable overall improvement in writing performance.

Post-test Results of Experimental and Control Groups

This section compares the post-test scores of the experimental and control groups to examine the effect of the blended learning intervention on students' writing performance.

Table 4. Post-Test Comparison of Experimental and Control Groups

Assessment criteria	Experimental Mean	Control Mean	Mean difference	Experimental SD	Control SD	t-test	p-value	Cohen's d
Introduction	9.10	9.26	-0.16	1.43	1.32	-0.77	.443	-0.12
Organization	11.50	10.29	1.21	1.61	2.03	3.26	.002	0.52
Content & logical flow	11.25	10.90	0.35	1.42	1.81	0.84	.408	0.13
Grammar	12.89	9.03	3.86	1.51	1.78	10.59	< .001	1.67
Mechanics	12.63	10.40	2.23	1.59	2.19	7.68	< .001	1.21
Conclusion	5.00	4.70	0.30	1.09	1.02	3.08	.004	0.49
Total	62.37	54.32	8.05	8.65	10.15	3.72	< .001	0.83

Table 4 presents the comparison of post-test scores across the six writing components. Overall, the results indicate that the experimental group generally outperformed the control group in most writing areas, particularly grammar, mechanics, and organization.

No significant difference was found in introduction writing, where the experimental group (M = 9.10) and control group (M = 9.26) achieved similar performance (p = 0.443, d = -0.12). Similarly, the difference in content and logical flow was not statistically significant (p = 0.408, d = 0.13), indicating comparable performance between the two groups in this component.

In contrast, significant differences were observed in several writing components. The experimental group performed significantly better in organization (M = 11.50) compared to the control group (M = 10.29), with a moderate effect size (p = 0.002, d = 0.52), indicating improved ability to structure ideas effectively.

The largest differences were observed in grammar and mechanics. In grammar, the experimental group significantly outperformed the control group (M = 11.79 vs. 9.03; p < .001), with a large effect size (d = 1.67). Similarly, substantial improvement was found in mechanics (M = 12.63 vs. 10.40; p < .001, d = 1.21), indicating strong gains in punctuation, spelling, and formatting.

A statistically significant difference was also found in conclusion writing (M = 5.00 vs. 4.44; p = 0.004, d = 0.49), suggesting moderate improvement in the ability to write effective conclusions.

Overall, the total writing score of the experimental group (M = 62.37) was significantly higher than that of the control group (M = 54.32), with a large effect size (d = 0.83, p < .001). These findings suggest that the blended learning intervention had a positive impact on students' academic writing performance across most assessed components.

Summary of Post-test Results of Experimental and Control Groups

Table 5 summarizes the overall post-test performance of the experimental and control groups. The results show that both groups improved their writing performance; however, the experimental group achieved higher overall scores compared to the control group.

Table 5. Summary of Post-test Results of Experimental and Control Groups

Students Group	Mean (M)	Standard Deviation (SD)	Minimum	Maximum	t-value	p-value	d-value
Experimental	62.37	8.65	49.0	78.0	3.72	<0.001	0.83
Control	54.32	10.15	38.0	71.0			

As shown above in Table 5, the experimental group obtained a mean score of 62.37 (SD = 8.65, range = 49–78), while the control group obtained a mean score of 54.32 (SD = 10.15, range = 38–71). The mean difference between the two groups was 8.05 points, indicating a higher level of performance in the experimental group.

These results suggest that students who participated in the blended learning intervention demonstrated better overall writing performance than those who received traditional instruction

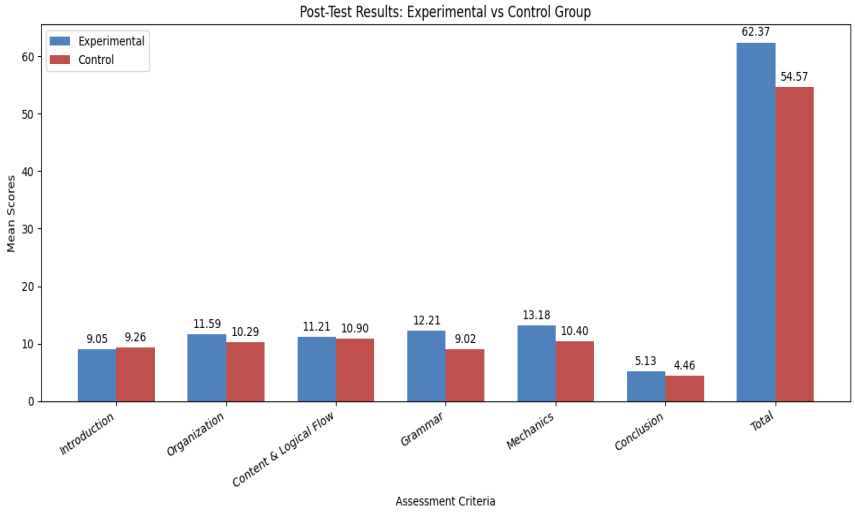

Figure 1 Post-test Result Experimental vs Control Group

Results of Student Interviews

To complement the quantitative findings, 15 out of 40 students from the experimental group participated in semi-structured interviews to explore their experiences with the blended learning (BL) intervention, particularly its impact on writing skills, motivation, and instructional practices.

The vast majority of students (93.3%) reported using the internet daily for academic purposes, indicating readiness for online learning. However, prior exposure to blended learning was limited, as nearly three-quarters (73.3%) had only experienced traditional face-to-face instruction, while 26.7% reported some prior exposure to BL, mainly from private high schools in Addis Ababa. In addition, approximately 80% of students indicated that their English teachers had no prior experience with blended learning, with only occasional use of platforms such as Telegram and WhatsApp for communication and announcements.

During the intervention, students reported generally positive experiences. About 80% expressed satisfaction with blended learning compared to traditional instruction, while 73.3% reported moderate to high levels of motivation. Almost all participants (93.3%) indicated that BL contributed to the improvement of their writing skills, particularly in paragraph and essay structure, grammar, and mechanics.

Students further emphasized that instant feedback from the online platform helped them quickly identify and correct errors, while self-paced activities supported self-monitoring and self-correction. Overall, the interview responses suggested that blended learning enhanced students' writing development and was perceived to promote greater learner autonomy and confidence through active engagement, timely feedback, and opportunities for independent learning.

This study examined the effect of blended learning (BL) on university students' academic writing skills. The findings showed that the experimental group significantly outperformed the control group in overall writing performance, particularly in grammar, mechanics, and organization. However, improvements were less pronounced in content development and introduction writing. These results suggest that blended learning influences different dimensions of writing in different ways, rather than producing uniform gains across all components.

Blended Learning as a Process Extension Tool

The most plausible explanation for the superior performance of the experimental group lies in the extension of the writing process beyond classroom limits. Unlike traditional instruction, where writing is constrained by limited contact hours, the blended environment enabled continuous drafting, feedback, and revision through Telegram.

This finding supports the view that writing development is fundamentally recursive rather than linear. The added time-on-task and repeated exposure to feedback appear to have strengthened students' engagement with revision practices. This aligns with Vygotsky's (1978) notion of learning as socially mediated scaffolding, as well as connectivist views that emphasize continuous learning through digital interaction (Siemens, 2005). Importantly, the improvement is not attributable to technology itself, but to how it reorganized writing practice.

Differential Impact on Writing Components

The strongest gains were observed in grammar and mechanics. This suggests that blended learning is particularly effective for accuracy-focused dimensions of writing. The likely reason is that these aspects benefit from immediate, targeted feedback and repeated correction cycles, which were made possible through Telegram-based interaction.

This finding is consistent with recent studies (e.g., Almelhi, 2021; Wu & Miller, 2022), which argue that digital feedback environments enhance language accuracy through iterative revision. However, it also highlights a limitation: accuracy-focused improvement may occur more readily than higher-order writing development.

In contrast, content development and logical flow showed limited improvement. This suggests that blended learning alone may not sufficiently promote deeper cognitive processes such as argumentation and idea synthesis. As Rasheed et al. (2020) note, the effectiveness of blended learning depends heavily on task design. In this study, online tasks appear to have emphasized correction and practice rather than critical engagement with ideas.

Role of Interaction and Peer Learning

Another important factor contributing to improvement is the interactive nature of the Telegram environment. Students were exposed not only to instructor feedback but also to peer writing samples and comments. This created opportunities for observational learning and informal comparison of writing strategies.

However, the effect of peer interaction should not be overstated. While it may enhance awareness of structure and language use, its impact on deeper writing development depends on the quality of feedback and students' ability to critically evaluate peer work.

Complementarity of Instructional Modes

Both experimental and control groups improved over time, indicating that traditional instruction still plays a meaningful role in writing development. However, the greater gains in the experimental group suggest that blended learning functions best as a complement rather than a replacement for classroom teaching.

This supports Müller and Mildenberger (2021), who argue that blended learning enhances learning outcomes when it extends, rather than replaces, structured instruction. The findings therefore reinforce the idea that effective writing instruction requires a balance between guided classroom teaching and extended practice opportunities.

Motivation and Self-Regulated Learning

Qualitative findings suggest that blended learning increased student motivation and autonomy. However, motivation alone is not sufficient to explain performance gains. The key mechanism appears to be self-regulated learning students' ability to revise, reflect, and respond to feedback independently.

This supports connectivist assumptions that learning is strengthened when students actively manage their own learning networks (Siemens & Gašević, 2021). Nevertheless, without structured feedback and task design, increased motivation would not necessarily translate into measurable writing improvement.

Pedagogical Implications

Overall, the findings suggest that blended learning is most effective when it is deliberately designed to support iterative writing processes rather than simple content delivery. Its strongest impact is on accuracy and structure, while higher-order writing skills require more explicit instructional scaffolding.

Therefore, a balanced pedagogical model is recommended: online environments should support drafting, feedback, and revision, while classroom instruction should focus on idea development and critical writing skills.

CONCLUSION

This study examined the effectiveness of blended learning (BL) in enhancing university students' academic writing skills in an Ethiopian higher education context. The results indicate that students who experienced blended learning achieved greater overall improvement in writing performance compared to those who received traditional face-to-face instruction. The most notable gains were observed in grammar, mechanics, and organization, while improvements in content development and introduction writing were relatively limited. This suggests that blended learning contributes more strongly to accuracy-focused and structural aspects of writing than to higher-order writing skills.

Overall, the findings demonstrate that blended learning supports academic writing development by extending learning beyond classroom boundaries and enabling continuous cycles of drafting, feedback, and revision. The use of Telegram-based interaction and digital feedback created a more interactive and flexible learning environment that fostered student engagement and learner autonomy.

However, the differential improvement across writing components indicates that blended learning is not uniformly effective across all dimensions of writing. Higher-order skills such as content development may require more sustained instructional scaffolding and longer exposure to blended learning environments. In conclusion, blended learning should be understood as a complementary instructional approach rather than a replacement for traditional teaching. When appropriately designed and supported, it can enhance writing instruction by combining structured classroom teaching with extended digital learning opportunities. In the Ethiopian higher education context, its effectiveness will depend on adequate technological infrastructure, teacher preparedness, and institutional support aligned with national digital education reforms.

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