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Enhancing EFL Students' Writing Performance through Computer-Mediated Corrective Feedback

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Abstract

Computer Mediated Corrective Feedback (CMCF) revolutionizes educational communication, bridging the gap between instructors and learners. This study examines the effect of CMCF, using Wikis and Screencast, on EFL students' writing performance and their perceptions of this innovative approach. A quasi-experimental design was used, with 89 participants divided into experimental and control groups. The results showed a significant improvement in writing performance among CMCF recipients, with enhanced task achievement, coherence, lexical resource, and grammatical accuracy. Students praised CMCF for its engaging and supportive nature, leading to improved academic outcomes. The findings uncovered that CMCF's potential to transform EFL students' writing performance, urging educational stakeholders to adopt this pedagogical innovation.

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Introduction

The pervasive influence of technology in modern education has led to its widespread adoption, particularly in the realm of language learning (Lemma & Bogale, 2022). The incorporation of emerging technologies, such as CMCF, has been shown to enhance student learning outcomes by surmounting temporal and spatial barriers (Rassaei, 2019). CMCF modalities, including synchronous and asynchronous approaches, facilitate teacher-student interactions and improve students' writing skills through personalized feedback (Chen, 2016).

In the context of language acquisition, corrective feedback plays a vital role in enhancing language accuracy and acquisition by drawing students' attention to grammatical forms and meanings (Storch, 2018). The significance of feedback in language learning is underscored by scholars such as Vygotsky (1978) and Wang & Han (2022), who emphasize its role in motivating learners, confirming linguistic accuracy, and facilitating language development within the zone of proximal development.

However, the implementation of feedback poses challenges, particularly in EFL writing instruction, where instructors often struggle to provide prompt and comprehensive feedback due to large class sizes and limited teaching hours (Ali, 2016; Kim, 2018; Wang et al., 2017). While research indicates divergent student perceptions of CMCF, the ultimate goal of corrective feedback remains to enhance learning outcomes and promote student engagement (Bitchener, 2021). By considering students' preferences and sociocultural context, CMCF emerges as a valuable tool for improving writing performance (Bjerknes et al., 2024). Writing performance refers to task achievement, coherence and cohesion, lexical resource, and grammatical range and accuracy.

The integration of technology in language teaching has become increasingly important, with computer-mediated language learning scenarios becoming more common (Hasumi & Chiu, 2024). The implementation of CMCF in

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language classrooms offers a convenient and user-friendly approach to language instruction, overcoming limitations of time and distance and reinforcing teacher-student interactions (Chen, 2016; Rassaei, 2019). It is essential to consider diverse modalities, such as text-based, audio-based, video-based, and web 2.0 technologies, to cater to students' varied preferences (Wiboolyasarin et al., 2022). By employing a range of modalities, the efficacy of these approaches can be tested, ultimately enhancing the teaching of writing instruction.

Wikis have been shown to facilitate collaborative learning and communication in educational settings, providing a dynamic space for students and teachers to interact (Hosseini et al., 2020). In this collaborative environment, wikis enable corrective feedback, allowing students to receive comments and suggestions on their writing iteratively and dynamically (Zheng et al., 2022). Recent studies have consistently demonstrated the positive effect of CMCF on language learning outcomes, including the effectiveness of automated feedback (Kim, 2018), explicit feedback (Li, 2023), and peer feedback (Chen, 2016).

The integration of newer internet applications has become increasingly popular in EFL instructional settings, offering a range of benefits for teaching and learning (Reinhardt, 2019). Screencasting has emerged as a valuable tool in education, allowing teachers to provide personalized feedback, which students can review at their own pace (Rybakova, 2020). Studies have consistently shown that screencasting has a positive effect on students' writing skills, leading to improved content, organization, and structure (Ali, 2016; Ghosn-Chelala & Al-Chibani, 2018).

Statement of the problem

Effective use of feedback is a critical component in enhancing student learning outcomes, particularly in the context of EFL instruction. The provision of effective feedback is crucial in EFL instructional settings, where students struggle to master writing skills due to limited practice opportunities (Lemma & Bogale,

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2021, & Li & Zhang, 2021). Despite taking writing courses, students continue to face challenges in producing error-free compositions, highlighting the need for immediate and constructive feedback (Ayana, 2020; Sermsook et al., 2017). The conventional way of paper and pen feedback technique is not effective with students of the digital age (Haleem,et al., 2021). To address these challenges, the integration of educational technologies with feedback delivery has been proposed, offering benefits such as immediate responses, support for student learning, and boosted participation (Wang et al., 2017).

The integration of technology in education has led to the emergence of innovative feedback approaches, and CMCF has been identified as a potential solution, offering advantages such as personalization, time-saving, and collaboration (Chunhui & Liqin, 2015). Two promising approaches to CMCF, screencast feedback and wiki-based feedback, have been investigated separately in recent studies. Screencast feedback offers enhanced student-teacher interaction, precise and timely information, and a sense of belonging within the learning community, as evidenced by research studies (Ali, 2016; Rybakova, 2020). Meanwhile, wiki-based feedback provides simplicity, self-organization, self-growth, and openness, making it an attractive alternative to traditional feedback methods (Chunhui & Liqin, 2015).

Despite the potential benefits of CMCF, several challenges persist, hindering its widespread adoption. For instance, lecturers' limited technical proficiency, inadequate university support, and infrastructure limitations in developing countries pose significant barriers (Oseili et al., 2023). In addition, Stevenson and Phakiti (2020) did not find a statistically significant effect of CMCF on students' writing performance. Xie & Che (2022) reported that screencast feedback did not significantly improve writing performance. Furthermore, wiki-based feedback faces challenges such as time constraints, difficulties in creating a jointly owned text, and

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unequal participation among learners, which can undermine its effectiveness (Aydin & Yildiz,2014).

Students have different perceptions about wiki-based feedback, with some finding it engaging and accessible (Zheng et al., 2022), while others reported the absence of a significant difference in its effectiveness (Bakla, 2020). Similarly, the effectiveness of screencast feedback on students' writing performance is a topic of ongoing debate. Some argue that screencast feedback provides personalized and detailed feedback, enhancing students' understanding of their writing strengths and weaknesses (Ghosn-Chelala & Al-Chibani, 2018; Rybakova, 2020. However, critics argue that screencast feedback does not lead to significant improvements (Xie and Che, 2022). Moreover, when providing writing courses to university students, the researcher consistently observes that writing poses a significant challenge for students, with students not gaining benefits from feedback given in the traditional paper and pen format.

To date, there are no adequate studies that attempted to investigate the effects of screencast and wiki-based feedback in the Ethiopian context. Moreover, the perception of Ethiopian students towards screencast and wiki-based feedback is not yet fully explored. This significant knowledge gap motivated the researchers to look into effects of screencast and wiki-based feedback on student learning outcomes in Ethiopia. Furthermore, this study aims to assess students' perception towards these innovative feedback approaches and their effect on improving writing performance.

Research Methodology

Design of the Study

This study followed a mixed research method with quasi-experimental design. This design is amenable to approaching participants in their natural educational setting (Creswell, 2014) which paves the way for obtaining genuine

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information. Pre-test - post-test two groups design was employed in this study to investigate effects of CMCF n students' writing performance.

Participants

The participants were 89 second-year computer science students whom the researchers taught Basic writing course at Debre Markos University. There were two sections (A&B) of students that were comprehensively selected. There were 44 and 45 participants in section A and B respectively.

Data Gathering Instruments

Data for the study were collected through a writing test, questionnaire, semi-structured interview, and students' reflective journals. The test and questionnaire generated quantitative data on students' writing performance and perceptions, while the interview and reflective journals provided qualitative insights. All qualitative data were analyzed using thematic analysis, following a systematic coding process to identify recurring patterns in students' experiences.

The writing test consisted of a pre-test and a post-test. The pre-test was administered to determine the initial homogeneity of the experimental and control groups and to establish baseline writing performance. After the intervention, both groups completed a post-test with similar instructions but a different writing topic. Two experienced writing instructors independently scored all essays using the British Council IELTS Writing Task descriptors (task achievement, coherence and cohesion, lexical resource, and grammatical range and accuracy). Inter-rater reliability, calculated using Pearson's correlation, was 0.83**,** indicating strong agreement between raters and acceptable scoring reliability**.**

Students' perceptions of using CMCF were measured using a questionnaire consisting of 15 five-point Likert-scale items (1 = strongly disagree, 5 = strongly agree) and five open-ended questions. The questionnaire was administered to the

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experimental group after the intervention. Internal consistency reliability, measured using Cronbach's alpha, was 0.81, demonstrating acceptable reliability.

A semi-structured interview was used to gather in-depth qualitative data on students' perceptions of CMCF and their perceived improvement in writing performance. The interview protocol consisted of seven open-ended questions. A purposive sample of students from the experimental group participated in the interviews, consistent with Creswell's (2018) recommendation for selecting information-rich cases in qualitative inquiry. Interviews were conducted face-to-face, audio-recorded with permission, and later transcribed for thematic analysis.

Reflective journals were used to explore how students experienced the writing tasks and how they perceived their progress while revising drafts using CMCF. These journals were written by the students**.**. Students were guided to reflect on the strategies they used, the challenges they encountered, and their emotional responses during the drafting and revision process. The journals were analyzed thematically to complement the interview data.

Ethical procedures were strictly followed. Participants were informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time. Written informed consent was obtained from all participants. Anonymity and confidentiality were ensured by using pseudonyms and securely storing all data.

Because the participants were computer science majors, they possessed relatively strong familiarity with digital tools and online platforms. This technological inclination likely enhanced their ability to use CMCF effectively, which can be considered a strength of the study. However, this same familiarity may limit the

generalizability of the findings to students from non-technical fields who may not have comparable digital literacy. This dual implication is acknowledged when interpreting the results.

Data Collection Procedure

To gather relevant data, questionnaire, interview, and writing test were first adapted from established instruments identified in the literature, and their content validity was examined through consultations with my advisor, two TEFL PhD holders, and experienced language teachers. Following their expert evaluation, the instruments were revised for clarity, contextual appropriateness, and alignment with the study variables. A pilot study was then conducted with a comparable group of students to check the reliability, comprehensibility, and practical administration of the tools. Based on the pilot results and feedback from participants and teachers, further modifications were made to refine item wording, remove ambiguities, and ensure that the final instruments were both valid and reliable for the main data collection. Then, section A and B computer science students were given a pretest to measure their writing performance. Randomly, section A was labelled as the control group, while section B was assigned as the experimental group, as the two sections had more or less equal performance scores in their pre-test results. After making the necessary arrangements with computer laboratory assistants, participants were given schedules for using the computer lab rooms for composing and exchanging feedback. As a pretest, students in the control and experimental groups were given a topic to write an essay on. After the pre-test, the intervention was given to the experimental group for eight weeks.

In the intervention, students gave and received peer feedback. Then, they revised their drafts by incorporating the feedback they received from their peers. The revised version was given to the teacher. After that, the teacher provided them with corrective feedback. For the experimental group, both the teacher and peer

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feedback were delivered using CMCF, while the conventional method of paper and pen corrective feedback was used for the control group. During peer feedback, in the experimental group, students exchanged their work and commented on each other's work. As a last resort, students revised and rewrote their earlier works in light of the corrective feedback they received from the teacher and submitted their works. Students were given four topics, and the aforementioned procedure was applicable in each round of writing. Topics that were given to the students were reused or modified after the pilot was carried out. In the posttest, paragraph and essay writing topics that have appropriate level of familiarity and difficulty were given to the students who were in the control and experimental group.

Results and Discussions

Results of the Study

Table 1. Independent samples t-test comparing the Experimental and Control groups on academic writing performance before and after CMCF

Tests	Groups	N	Mean	Std. Deviation	t	df	Sig.
Pre-test	Experimental	44	44.86	4.02	.159	87	.874
	Control	45	44.73	3.71			
Post-test	Experimental	44	54.43	4.50	9.429	87	.001
	Control	45	45.77	4.14			

The descriptive statistics (Mean and St. Deviation) presented in Table 1 reveal that both the experimental and control groups exhibited similar academic writing performance levels in the pre-test phase. Specifically, the experimental group demonstrated a mean score of 44.86 with a standard deviation of 4.026, while the control group displayed a mean score of 44.73 with a standard deviation of 3.713. Despite slight variations in the means and standard deviations between the two groups, these differences were not statistically significant, indicating comparable performance levels in the pre-test.

However, significant differences emerged in the post-test results. The experimental group achieved a mean score of 54.43 (SD = 4.505), whereas the control group

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scored 45.77 (SD = 4.149). This disparity suggests a notable improvement in academic writing performance for the experimental group compared to the control group.

Thus, while both the experimental and control groups exhibited similar academic writing performance levels in the pre-test, their performance improved significantly in the post-test, underscoring the efficacy of the intervention in enhancing the academic writing skills of the experimental group.

The independent samples t-test results indicated that there was no statistically significant difference between the control group and the experimental group ($t(87) = .159$ $p > .05$), suggesting that both groups had similar academic writing performance before the intervention. In contrast, the independent samples t-test results for the post-test indicated a statistically significant difference between the control group and the experimental group ($t(87) = 9.429$, $p < .05$), suggesting that students who used the integrated CMCF platforms had significantly improved their academic writing performance.

Additionally, a paired samples t-test was conducted to assess the academic writing performance of students in the experimental group before and after the intervention. The results are presented in the following Table.

Table 2. Paired samples t-test comparing academic writing performance before and after the intervention

Tests	Mean	N	Std. Deviation	t	df	Sig.
Pre-test	44.8636	44	4.02660	29.22	43	.001
Post-test	54.4318	44	4.50528			

In Table 2, a statistically significant difference emerged between the pre-test and post-test scores of the experimental group ($t(43) = 29.22$, $p < 0.05$). This indicates

that the post-test results for the experimental group students were significantly higher than their pre-test results. Consequently, the use of integrated CMCF tools substantially enhanced the academic writing performance of the experimental group.

Specifically, the post-test score (M = 54.43, SD = 4.505) exceeded the pre-test score (M = 44.86, SD = 4.026). This improvement suggests that students in the experimental group enhanced their academic writing skills across various dimensions, including writing task achievement, coherence and cohesion, lexical resource, and grammatical range and accuracy, attributes essential for well-written essays according to IELTS writing task-2 descriptors.

"When I write first draft, I get confuse because many ideas come but I don't know how to put them good. Before CMCF I just write fast and finish, but my writing not clear. When I see the feedback, I find many grammar and spelling mistake and I feel sad because I think I am not good writer. But when I correct many times, my paragraph look better. The comment help me think more and try new words. I feel happy when final writing is more clear. Still I have problem to connect ideas, but I think I am improving slowly."

The student's reflection reveals several interconnected themes that mirror patterns observed across the qualitative dataset. First, the learner describes confusion and difficulty organizing ideas during initial drafting, which reflects the cognitive overload commonly experienced by EFL writers with limited linguistic resources. This challenge is accompanied by emotional strain, as the student expresses discouragement and low confidence when confronted with numerous errors. The journal also shows a growing awareness of language form through exposure to computer-mediated corrective feedback; noticing grammar and spelling problems indicates emerging metalinguistic sensitivity and engagement with revision. As the

student revises repeatedly, there is evidence of gradual improvement and increasing self-efficacy, even though challenges with coherence persist. The learner's shift from frustration to cautious optimism suggests that the feedback process supported both linguistic development and motivational growth, reinforcing the broader pattern of incremental progress observed among participants.

These tools are not only efficient in terms of time and cost but also user-friendly for both students and teachers."

As a result, it is evident that the utilization of integrated CMCF, Web 2.0, and Screencasts proved to be successful in improving students' academic writing proficiency across various aspects such as task achievement, coherence and cohesion, lexical resource, and grammatical accuracy.

Students' perception towards using integrated CMCF

The students' perceptions regarding the integration of computer-mediated corrective feedback (CMCF), Web 2.0, and Screencasts in academic writing instruction were evaluated using questionnaires and interviews. The findings revealed that students held favorable views on utilizing this integrated approach, as they believed that these technologies significantly improved their academic writing skills in terms of achievement, coherence and cohesion, lexical resource, and grammatical accuracy.

The questionnaire responses from students indicated the engaging, effective, and goal-oriented nature of Web 2.0 and Screencasts, leading to improvements in academic writing performance. According to the data in Table 3, students expressed a high level of enjoyment (M=4.1; SD=0.7; SEM=0.1) when writing through Web 2.0 and Screencasts, indicating a strong preference for these tools. Similarly, a majority of participants (M=4.2; SD=0.8; SEM=0.1) expressed a desire to utilize Web 2.0 and Screencasts for essay writing. Additionally, most students (M=4.0;

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SD=0.7; SEM=0.1) showed interest in incorporating Web 2.0 and Screencasts into their academic writing instruction. These results suggest a keen interest among students in utilizing the integrated computer-mediated corrective feedback, Web 2.0, and Screencasts for their writing tasks.

Table 3. Students' interest in using the integrated CMCF

Items	Mean	Std. Deviation	Std. Error of Mean
I enjoy writing through Web 2.0 and Screencast.	4.1	0.7	0.1
I would like to use Web 2.0 and Screencast to write essays.	4.2	0.8	0.1
I was interested in using Web 2.0 and Screencast.	4.0	0.7	0.1

The study revealed that students highly valued the use of Screencasts for computer-mediated corrective feedback. Specifically, they rated the efficacy of Screencasts in delivering audio-visual explanations for essay writing quite favorably (mean score = 4.2; SD = 0.8; SEM = 0.1). This positive perception highlights the effectiveness of Screencasts in enhancing access to audio-visual explanations during the writing process. Additionally, students appreciated the self-paced learning and review opportunities offered by Screencasts (mean score = 4.1; SD = 0.7; SEM = 0.1). They recognized the benefits of receiving feedback on essay structure and thesis development (mean score = 4.0; SD = 0.7; SEM = 0.1) and the facilitation of peer review (mean score = 4.2; SD = 0.7; SEM = 0.1). Moreover, students believed that Screencasts supported the revision and editing process, particularly for grammar and punctuation accuracy (mean score = 4.1; SD = 0.7; SEM = 0.1). Overall, their favorable perception underscores the value of integrating Screencasts into academic writing instruction.

Table 4. Students' views on the relevance of Screencast for academic writing instruction

No	Items	Mean	Std. Deviation	Std. Er. Mean
1	Screencast enables to receive audio-visual explanations for essay writing.	4.2	0.8	0.1
2	Screencast allows for self-paced learning and reviews.	4.1	0.7	0.1
3	Screencast helps to gain feedback on essay structure and thesis development.	4.0	0.7	0.1
4	Screencast facilitates peer review for valuable feedback.	4.2	0.7	0.1
5	Screencast supports receiving feedback on revising and editing essays for grammar and punctuation errors.	4.1	0.7	0.1

Table 5 illustrates that students perceived Web 2.0 (Wikis) as a valuable tool for enhancing the quality of their written essays. Specifically, participants indicated (M=4.2; SD=0.7; SEM=0.1) that the Web 2.0 platform (Wikis) allowed for collaborative essay writing projects. Similarly, students felt (M=4.2; SD=0.8; SEM=0.1) that Wikis provided a platform for gathering and sharing information relevant to essay writing. They also recognized (M=4.1; SD=0.6; SEM=0.1) that Web 2.0 (Wikis) facilitated peer review and feedback on essay writing. Additionally, participants noted (M=4.0; SD=0.7; SEM=0.1) that Wikis offered version control features to track document changes over time. Furthermore, students highlighted (M=4.1; SD=0.7; SEM=0.1) that Web 2.0 (Wikis) aided in organization and effective time management during the essay writing process. These findings indicate that students held positive perceptions of using CMCF, specifically Web 2.0 (Wikis), as it supported collaborative essay projects, information sharing, peer feedback, version control, and efficient time management.

Table 5. Students' view on the relevance of Web 2.0 (Wikis) for academic writing instruction

No	Items	Mean	Std.	Std. Error of

			Deviation	Mean
1	The Web 2.0 platform (Wikis) allow to collaborate on essay writing projects.	4.2	0.7	0.1
2	Wikis provides a platform to gather and share information relevant to write essays.	4.2	0.8	0.1
3	Web 2.0 (Wikis) enables to engage in peer review and receive feedback on essay writing.	4.1	0.6	0.1
4	Web 2.0 (Wikis) offers version control features that track changes made to the document over time.	4.0	0.7	0.1
5	Web 2.0 (Wikis) helps to stay organized and manage time effectively in the essay writing process.	4.1	0.7	0.1

Table 6 illustrates the importance of incorporating Web 2.0 (Wikis) and Screencasts in academic writing instruction. The data indicates that students perceived (M=4.1; SD=0.8; SEM=0.1) that the combined use of Web 2.0 (Wikis) and Screencasts assisted them in visually elucidating complex concepts in their essays. Similarly, participants indicated (M=4.2; SD=0.6; SEM=0.0) that the integrated utilization of Wikis and Screencasts enabled them to provide detailed peer feedback through audio-video comments on essays.

Similarly, students recognized (M=4.2; SD=0.6; SEM=0.1) that the integration of Web 2.0 and Screencast tools offers them flexibility in collaboratively creating, editing, and sharing their essays. Moreover, they believed (M=4.3; SD=0.7; SEM=0.1) that Wikis and Screencasts provided writing prompts that motivated them to hone their writing skills in a structured manner. Likewise, students perceived (M=4.3; SD=0.7; SEM=0.1) that Wikis and Screencasts facilitated vocabulary expansion and enhanced their grammar proficiency.

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Consequently, the findings suggested that students had a favorable perception of utilizing the integrated CMCF modalities, Web 2.0 (Wikis), and Screencasts. These technologies assisted them in visually elucidating complex concepts in their essays, enabled detailed peer feedback through audio-video comments, offered flexibility in collaborative essay creation, editing, and sharing, provided structured writing prompts to enhance writing skills, and facilitated vocabulary expansion and improved grammar knowledge.

Table 6. The relevance of integrating Wikis and Screencast **in writing instruction**

No	Items	Mean	Std. Deviation	Std. Error of Mean
1	Integrating Screencasts with Wikis helps students visually explain complex concepts in their essays.	4.1	0.8	0.1
2	The integrative use of Wikis and Screencasts allows for detailed peer feedback through audio-video comments on essays.	4.2	0.6	0.0
3	The integration of Web 2.0 and Screencast tools provide students with flexibility in creating, editing, and sharing their essays collaboratively.	4.2	0.6	0.1
4	Wikis and Screencasts help to provide writing prompts that encourage students to practice their writing skills in a structured format.	4.3	0.7	0.1
5	Wikis and Screencasts help with vocabulary-building and increase grammar knowledge.	4.3	0.7	0.1

The interview results of the students confirmed their positive perceptions of using integrative CMCF, Web 2.0 (Wikis), and Screencast. They found these modalities interesting, effective for developing written texts, goal-oriented for producing quality essays, and relevant for writing instructions. The majority of interviewees agreed that Web 2.0 or Wikis was enjoyable and expressed a desire to use it in their future academic and career endeavors. One student mentioned how Web 2.0 or Wikis facilitated collaboration on essay writing projects, while another

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student highlighted how Screencast provided audio-visual explanations for essay writing.

One of the interviewed students expressed, "I found using Web 2.0 or Wikis and Screencast enjoyable for writing essays as they [provided] flexibility in creating, editing, and sharing our essays collaboratively." Similarly, another student shared, "The Wikis platform was incredibly helpful and impressive. I recall how this [technology] allowed us to engage in peer review and receive feedback on our essays. Moreover, it provided version control features to track the changes made to the document over time. It was truly remarkable for me."

Furthermore, the majority of interviewees concurred that the integration of Wikis and Screencast was captivating to them as it assisted in improving their academic writing performance in terms of task achievement, coherence and cohesion, lexical resource, and grammatical range and accuracy qualities crucial for a well-written essay according to the IELTS writing task-2 descriptors. Consequently, the findings revealed that the students perceived the use of Web 2.0 (Wikis) and Screencast through integration positively.

Furthermore, the questionnaire results further validated the students' interest in utilizing these technological modalities to receive computer-mediated corrective feedback. The findings indicated that students had a positive perception of Wikis and Screencasts. Consequently, the results demonstrated that students viewed the integrated CMCF modalities of Wiki and Screencast favorably, finding them engaging, effective, and aligned with their learning objectives.

In summary, the findings revealed that the combined use of Web 2.0 (Wikis) and Screencasts effectively improved students' academic writing performance across various aspects such as task achievement, coherence and cohesion, lexical resource, and grammatical accuracy. Additionally, the results showed that students had a positive perception of using these CMCF modalities as

the technologies offered valuable corrective feedback that aided in producing high-quality written texts.

5. Discussions

This study examined the impact of integrated Computer-Mediated Corrective Feedback (CMCF) on students' academic writing performance in the Ethiopian educational context, focusing on the use of Wikis and Screencast technologies. The results showed that students who received CMCF through Wikis and Screencast performed better in academic writing, specifically in task achievement, coherence and cohesion, lexical resource, and grammatical range and accuracy, compared to those who received conventional paper and pencil feedback. This finding is consistent with Kim's (2018) research, which found that CMCF technologies provide students with precise insights to identify areas for revision and improvement.

The study also revealed that CMCF, particularly Web 2.0 or Wikis, facilitated collaboration, peer feedback, and effective time management among EFL students, aligning with the findings of Hsu and Lo (2018) and Chunhui and Liqin (2015). Additionally, Screencast CMCF technology was found to be supportive in providing audio-visual explanations, self-paced learning, and peer review activities, consistent with the results of Ali (2016) and Ghosn-Chelala & Al-Chibani (2018).

The integrated use of Wikis and Screencasts supported students in explaining complex concepts, facilitating in-depth peer feedback, and enhancing vocabulary and grammar comprehension. This discovery is consistent with previous studies, including Al-Olimat & AbuSeileek (2015), Mohsen (2022), Li and Vuogan (2019), and Wang and Han (2022), which demonstrated the effectiveness of computer-mediated corrective feedback in enhancing students' writing performance. This study's findings diverge from the perspectives presented by Aydin & Yildiz,(2014) and Yousop & Siti Mariam (2016), who reported challenges and negative

perceptions towards the use of wikis for collaborative writing and feedback. For instance, Aydin & Yildiz,(2014)cited issues with coordination, uneven participation, and collectively owned text, while Yousop & Siti Mariam (2016) found students had concerns about credibility, anonymity, and personalization.

In contrast, this study found that students held favorable views towards the integrated CMCF platforms, Wikis, and Screencasts. They found these technologies engaging, effective for receiving feedback, and conducive to essay development. This aligns with prior studies by Hosseini et al. (2020), Elabdali (2016), and Xie and Che (2022), which reported positive student perceptions towards CMCF. However, this finding contradicts other studies, such as those by Abrams (2016), Sermsook et al. (2017), Yousop & Siti Mariam (2016), and Zheng et al. (2022), which found negative student perceptions towards CMCF. For example, Abrams (2016) and Sermsook et al. (2017) reported negative views towards CMCF, while Bush (2021) found that some students questioned the relevance of screencasts in enhancing writing performance.

Conclusions and Implications

This study examined effects of computer-mediated corrective feedback in enhancing academic writing performance of EFL students. It scrutinized effects of utilizing integrated CMCF tools, specifically Web 2.0 (Wikis) and Screencast, on elevating EFL students' writing proficiency while also gauging students' perceptions towards these tools. The results illuminated the efficacy of the integrated CMCF tools in bolstering writing instruction, showcasing a significant enhancement in students' academic writing performance. The amalgamation of CMCF tools, Web 2.0 (Wikis), and Screencast in writing instruction proved instrumental in amplifying students' writing performance. This integrated approach enabled experimental group students to craft essays that excelled in task

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achievement, coherence, lexical richness, and grammatical accuracy, fundamental aspects of proficient writing. In contrast, control group students, reliant on the traditional paper and pencil feedback system, struggled to produce essays meeting these criteria, highlighting the limitations of conventional feedback methods.

The findings revealed that the Web 2.0 (Wikis) CMCF platform facilitated collaborative essay writing projects, information sharing, peer review, and feedback exchange among students. Its version control features tracked document changes over time, aiding in organization and time management during the essay writing process. Additionally, the Screencast CMCF tool provided students with audio-visual explanations for essay writing, supported self-paced learning and reviews, offered feedback on essay structure and thesis development, facilitated peer review for valuable insights, and assisted in revising and editing essays for grammar and punctuation errors.

It further revealed that students held positive perceptions towards utilizing the integrated CMCF platforms to improve their academic writing skills. Students found these tools engaging, effective in enhancing written texts, focused on achieving high-quality essays, and aligned with the requirements of writing instructions.

Therefore, it is recommended to incorporate integrated CMCF platforms in writing instruction to boost EFL students' writing performance. Writing course educators should integrate Web 2.0 and Screencast into their teaching practices to amplify students' academic writing capabilities. Similarly, developers of writing course materials should consider these integrated CMCF platforms when creating instructional content. Furthermore, students are encouraged to utilize these platforms to enhance their academic writing skills.

Nevertheless, this study was constrained by limited resources and time, focusing on a small cohort of EFL students and examining only two CMCF platforms. As a result, the study's narrow focus on specific participant

characteristics such as geographic location, field of study, English proficiency, and educational background may limit the generalizability of the results to diverse student populations or educational contexts. Notably, individual learning styles were not addressed in this study, suggesting that future research on CMCF platforms should explore these variations. Moreover, the eight-week intervention period might have overlooked the long-term effects of utilizing the CMCF platforms. However, it is important to note that the participants fully engaged with the CMCF platforms during this period. While the study's findings could have been more robust with extended resources and time, involving a larger and more diverse student sample across a range of CMCF platforms, it is recommended that future investigations allocate more time and resources, expand sample sizes, consider learning styles, and explore diverse writing outcomes using advanced CMCF platforms.

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