



Digital Learning Environments and Corrective Feedback Across Modalities: A Comparative Analysis

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ABSTRACT. This study investigates university learners' and instructors' experiences with corrective feedback (CF) across online digital learning and face-to-face classroom environments. Drawing on data from questionnaires and narrative responses from 250 students and their instructors who had participated in both learning modalities, the study explores perceptions of CF types, delivery methods, and their impact on learning. Findings indicate that online CF is often more detailed, private, and re-visitable, with verbal and written feedback being common. Features such as private comments and recasts were highlighted for preserving student motivation and encouraging self-correction. In contrast, face-to-face CF was typically more immediate and direct but limited in depth due to time and situational constraints. Teachers emphasized strategies across both settings that foster learner confidence, including positive reinforcement, error modeling, and opportunities for revision. Overall, the study highlights the strengths and limitations of each modality, suggesting that the effectiveness of CF is influenced not only by delivery method and timing but also by emotional and interpersonal factors within the learning context. The study contributes to the broader field of digital education by offering insight into how corrective feedback practices can be adapted across learning environments to support both linguistic development and learner motivation.

INTRODUCTION

Corrective feedback is a key part of the learning process. It helps students recognize and improve on mistakes, whether related to language use, content, or structure. As teaching increasingly moves between online and in-person formats, it's important to understand how feedback works in each environment—and how students and teachers experience it. Despite the growing integration of digital tools in language education, there remains limited evidence on how corrective feedback operates across online and face-to-face environments from both learner and instructor perspectives, particularly in terms of perceived effectiveness, uptake of feedback, and its sustained impact on learning outcomes.

In traditional classroom settings, feedback often happens in the moment. Teachers may respond verbally during a task, correct errors on the spot, or offer general advice to the whole class. While this can be effective, it's also limited by time and the dynamics of speaking in front of others. Some students may feel embarrassed by public correction, or may not have the opportunity to revisit what was said once the lesson moves on. While in online environments, there exist different possibilities. Digital tools allow teachers to give more detailed, written feedback, often privately. This can make it easier for students to process and reflect on what they need to improve. Many platforms also allow feedback to be stored and revisited, which can support ongoing learning. However, online feedback can also feel less personal, and some students may miss the immediate interaction that comes with face-to-face teaching.

This study examines how students and teachers navigate corrective feedback across online digital learning and face-to-face classroom environments, with the aim of identifying what works effectively in each setting and how feedback practices can be adapted to support learning more efficiently in both physical and digital classrooms. While feedback serves the broader purpose of continuous improvement in teaching and learning by helping instructors evaluate their effectiveness, identify learning difficulties, and refine their instructional approaches, its implementation is often constrained by challenges such as limited time, generic or non-personalized comments, weak student engagement, and insufficient follow-up. These challenges can become more pronounced in digital environments, where additional complexities may emerge if feedback is not carefully designed and monitored. Recent systematic reviews (Chong, 2019) suggest that research on corrective feedback in digital contexts is largely qualitative or mixed-methods in nature, with a strong focus on learner perceptions, engagement, and task-based accuracy, generally reporting positive outcomes. However, important gaps remain, including limited attention to the transfer of digitally delivered

corrections to new communicative contexts (particularly in oral language), insufficient evidence on the long-term retention of improvements from AI-generated feedback, and a lack of comparative studies examining human versus AI-provided feedback within identical tasks, leaving questions about their relative effectiveness.

LITERATURE REVIEW

Corrective feedback (CF) is a well-established pedagogical practice in second language acquisition (SLA), as it helps learners notice linguistic errors and modify them toward more target-like forms (Ellis et al., 2006). In recent years, research on CF has expanded beyond traditional classroom interaction to include digital and technology-enhanced learning environments, leading to growing interest in how different feedback types and delivery methods influence learner motivation, engagement, and language development. Feedback is considered central to language learning because it helps learners recognize gaps between their current performance and expected language use while also supporting learner autonomy and self-regulation. Studies suggest that timely and constructive feedback promotes deeper engagement, particularly in online learning environments where students may experience reduced interaction and isolation (Zheng & Yu, 2021). Research further shows that feedback encouraging learners to reflect on the causes of their errors contributes to stronger retention and transfer of learning across communicative situations (Mao & Crosthwaite, 2022). In technology-mediated learning, positive and supportive feedback has also been linked to increased learner confidence and participation (Li, 2023). These findings suggest that feedback functions not only as error correction but also as a means of supporting learner development and sustained participation in language learning.

Feedback is widely recognized across disciplines as an essential part of learning because it helps learners identify weaknesses, improve performance, and remain engaged in the learning process. In language learning, corrective feedback (CF) is particularly important because it helps learners notice linguistic errors and move toward more accurate language use. Teachers therefore play a central role in determining how feedback is delivered and how effectively it supports learner motivation and understanding. Research suggests that supportive, timely, and constructive feedback encourages learner confidence, reflection, and autonomy, especially in online learning environments where interaction may be limited (Zheng & Yu, 2021). Feedback that encourages learners to reflect on the causes of their errors has also been linked to stronger retention and long-term learning (Mao & Crosthwaite, 2022).

A major discussion in recent literature concerns the differences between oral and digital corrective feedback. Oral feedback allows immediate teacher response and direct interaction, supporting classroom communication and fluency development. However, it may be limited by classroom time and the temporary nature of spoken interaction. Digital feedback, in contrast, allows learners to revisit comments and reflect on corrections privately, which can improve accuracy and deeper learning over time (Klimova & Pikhart, 2022; Lira-Gonzales et al., 2024). Research on AI-assisted feedback further suggests that automated systems can support vocabulary development and cohesion, although challenges remain in handling complex grammar and contextual meaning (Cao & Zhong, 2023). Learners also respond more positively when digital feedback is clear, supportive, and easy to understand (Xu et al., 2024). These findings suggest that combining oral and digital feedback may provide more balanced support for learning.

Digital education has also increased the use of automated corrective feedback (ACF) systems such as Grammarly, Criterion, and Pigai. Studies show that these tools can improve grammatical accuracy, vocabulary, and writing quality, particularly in online and large-class settings (Shadieva & Feng, 2023). At the same time, learner engagement remains important, as students who reflect on explanations benefit more than those who simply accept corrections. Recent neural-based grammatical error correction (GEC) systems have further improved the quality of personalized feedback (Wang et al., 2024). Similarly, CALL and ICALL systems use natural language processing to provide targeted feedback within interactive learning tasks (Heift & Hegelheimer, 2017). Research consistently shows that metalinguistic feedback, which explains why an error occurred, supports stronger long-term learning than implicit correction alone (Ellis et al., 2006). These studies highlight that technology can support learning effectively when combined with active teacher guidance and meaningful learner engagement.

The effectiveness of CF is also shaped by its timing, modality, and level of explicitness. Immediate feedback in synchronous interaction can support rapid correction and fluency development, particularly in oral communication settings (Russell & Spada, 2006). In contrast, delayed or asynchronous feedback often encourages reflection and deeper processing. Shintani and Aubrey (2016) found that synchronous feedback improved short-term grammatical performance, whereas asynchronous feedback supported longer-term retention. Different modalities also influence how learners respond to feedback. Written comments in shared digital documents allow learners to revisit corrections multiple times, while oral feedback during live interaction is often more spontaneous and socially engaging. Similarly, explicit feedback directly identifies and explains errors, producing strong gains in grammatical accuracy (Ellis et al., 2006), whereas implicit

feedback such as recasts may support communicative flow but sometimes fails to draw sufficient learner attention to the error (Hattie & Timperley, 2007). Studies therefore suggest that combining explicit and implicit forms of feedback may be more effective than relying on a single approach (Shadieva & Feng, 2023).

Overall, the literature shows that corrective feedback in both digital and face-to-face learning environments can positively influence language development when it is timely, meaningful, and supportive. While digital systems provide accessibility, personalization, and opportunities for reflection, face-to-face feedback offers immediacy and interpersonal support. Existing research increasingly supports blended approaches that combine technological affordances with teacher involvement to enhance both learner performance and motivation (Kanwal, 2025). However, many previous studies have focused either on technological effectiveness or linguistic outcomes alone. Less attention has been given to how learners and instructors experience corrective feedback across both online and face-to-face contexts. This gap highlights the need for research that examines not only the effectiveness of feedback, but also the perceptions, emotional responses, and interactional factors associated with different feedback practices.

The study is further informed by Feedback Intervention Theory, which suggests that feedback is most effective when it directs learners' attention toward improvement and task performance while minimizing negative emotional reactions and threats to self-confidence (Kluger & DeNisi, 1996). According to the theory, learners respond more positively to feedback that is constructive, supportive, and focused on achievable improvement rather than criticism of personal ability. This perspective is particularly relevant to the present study because many participants emphasized the importance of feedback that encourages participation, preserves confidence, and reduces anxiety. Findings related to private online comments, supportive teacher responses, and respectful correction strategies reflect the idea that emotionally supportive feedback can strengthen learner motivation and engagement while promoting more effective language development.

Despite the growing body of research on corrective feedback (CF) in both digital and face-to-face language learning environments, much of the existing literature has relied either on quantitative measures of linguistic improvement or on small-scale qualitative accounts of learner perceptions. Experimental and survey-based studies have provided valuable evidence regarding the effectiveness of feedback timing, modality, and explicitness (Ellis et al., 2006; Shadieva & Feng, 2023), yet they often overlook the emotional, interpersonal, and contextual dimensions that shape how learners actually experience and respond to feedback. Conversely, qualitative studies have offered rich insights into learner attitudes and classroom dynamics but

are frequently limited in generalizability due to smaller participant samples and context-specific findings. In addition, many studies examine either digital or face-to-face feedback in isolation, with comparatively little research directly comparing learners' experiences across both modalities within the same educational context.

These methodological limitations justify the adoption of a mixed-methods approach in the current study. By combining questionnaire data with narrative responses from both learners and instructors, the study captures not only broader trends in perceptions of corrective feedback but also the nuanced experiences, emotions, and interactional factors that quantitative data alone may fail to reveal. The quantitative component enables systematic comparison of feedback practices across online and face-to-face settings, while the qualitative narratives provide deeper insight into why certain forms of feedback are perceived as motivating, effective, or discouraging. This integrated design therefore addresses gaps in prior research by offering a more comprehensive understanding of corrective feedback as both a pedagogical and interpersonal process within contemporary digital education and second language learning contexts.

METHODOLOGY

This study employed a mixed-methods approach to explore university students' and instructors' experiences with corrective feedback (CF) in both online and face-to-face learning environments. Data were collected from 250 participants, including undergraduate students from various disciplines and their instructors at a medium-sized institution. All participants had experience with both online learning platforms and traditional classroom instruction within the same academic year. Participation was voluntary, and informed consent was obtained prior to data collection. Two instruments were used in the study. First, students completed a structured questionnaire consisting of Likert-scale items and open-ended questions designed to gather quantitative and qualitative data regarding feedback types, delivery methods, perceived effectiveness, learner preferences, and experiences across both instructional modalities. Second, instructors provided written narrative responses reflecting on their corrective feedback practices, challenges faced in online and face-to-face settings, and observations regarding student engagement and responses to feedback.

Quantitative questionnaire data were analyzed using descriptive statistics to identify common trends and preferences related to corrective feedback practices. Qualitative responses from students and instructors were analyzed thematically through an inductive coding process. The researchers first reviewed the responses several times to become familiar with the data and

identify recurring ideas related to feedback content, emotional reactions, learning impact, and modality-specific practices. Initial codes were then generated and grouped into broader themes. To ensure inter-coder reliability and analytical rigor, two researchers independently coded a sample of the qualitative responses and compared their coding decisions. Differences in interpretation were discussed until agreement was reached, and the coding framework was refined accordingly before being applied to the remaining data. Themes were continuously reviewed and compared across responses to maintain consistency and reduce researcher bias. Quantitative findings were also compared with qualitative themes to strengthen the credibility and depth of interpretation. For ethical considerations, all responses remained anonymous and confidential, and participants were informed of their right to withdraw from the study at any stage.

FINDINGS

The present study explored learners' and teachers' experiences with corrective feedback (CF) in both online digital learning and face-to-face classroom environments. Data were collected through questionnaires and teacher narratives from 250 university students and their instructors who had experienced both modalities. The findings revealed that learners and teachers viewed corrective feedback as an essential component of the learning process, not only for improving linguistic accuracy but also for sustaining learner confidence, motivation, and participation. Across both instructional settings, participants emphasized that the effectiveness of feedback depended greatly on how it was delivered, the emotional tone used by the instructor, and the opportunities provided for reflection and revision. Findings from the student questionnaires indicated that, in online classes, the most common form of CF was verbal feedback on errors, accompanied by comments, clues to the nature of the error, and suggestions for improvement. Feedback was often provided to the whole class, but private comments—particularly through the “private comments” feature in learning management systems—were also widely used. Students reported that private feedback preserved their privacy, reduced embarrassment, and encouraged self-correction without fear of public judgment. Many learners described online feedback as more detailed, organized, and easier to understand than face-to-face feedback because instructors could provide written explanations, highlighted corrections, and additional comments on specific weaknesses. Written online feedback frequently addressed grammar and spelling issues, as well as content-related suggestions, enabling learners to make targeted improvements in both language use and assignment quality. Several students also noted that the ability to revisit recorded or written feedback helped them

review their mistakes repeatedly and apply corrections in future tasks, contributing to greater learner autonomy and reflection.

Teacher narratives showed that instructors deliberately adapted their feedback strategies in digital environments to maintain student engagement and motivation. Teachers reported using recast strategies in online classes to correct errors politely without discouraging participation. Many instructors also preferred combining direct correction with encouraging comments so that learners would perceive feedback as supportive rather than punitive. In online settings, teachers highlighted the usefulness of asynchronous feedback tools, recorded comments, and personalized written responses, which allowed them to provide more individualized attention despite physical distance. Some instructors observed that quieter or less confident students participated more actively online because private corrective feedback reduced the anxiety associated with public mistakes.

In contrast, face-to-face feedback was sometimes perceived as less detailed, often limited to short phrases due to time constraints and the public nature of in-class interactions. In-person feedback tended to be immediate and direct, occasionally interrupting students mid-task in order to correct pronunciation, grammar, or task performance. While some learners viewed these interruptions as stressful, others appreciated the immediacy of clarification and the opportunity to correct mistakes in real time. Students who preferred face-to-face feedback often associated it with stronger interpersonal connection, quicker interaction, and clearer understanding through gestures, tone, and facial expressions. Teachers also emphasized that face-to-face classrooms allowed them to monitor learner reactions instantly and adjust their explanations according to students' emotional and academic needs.

Teacher narratives further reinforced the importance of CF for improving student performance and maintaining a positive learning environment. Teachers emphasized strategies that build learner confidence, such as starting with positive remarks, explicitly modeling correct responses, addressing common errors collectively, and providing opportunities for revision after feedback. Instructors also modeled a growth mindset by inviting students to correct their errors respectfully and by framing feedback as a normal and essential part of the learning process rather than as criticism. Several instructors stressed that students responded more positively when feedback focused on improvement and progress instead of only identifying mistakes. This was particularly important for learners with lower confidence levels, who were more sensitive to public correction or overly direct criticism. Overall, the findings suggest that online CF may offer advantages in terms of detail, privacy, flexibility, and the ability to revisit feedback, while face-to-face CF benefits from immediacy, interaction, and interpersonal connection. The findings further indicate that neither modality alone fully addresses all

learner needs; rather, students and teachers valued different aspects of both environments depending on the learning task, communication style, and emotional comfort of the learner. These results align with previous research emphasizing that the effectiveness of CF depends not only on timing and modality but also on the social, emotional, and interpersonal dimensions of the feedback process. Corrective feedback in classrooms is most effective when it is interactive, timely, and encourages learners to notice and self-correct their errors through meaningful teacher–student dialogue. Research has shown that strategies such as explicit correction, elicitation, recasts, metalinguistic feedback, and peer corrective feedback help learners develop greater language awareness and autonomy when used in supportive classroom interaction (Lyster & Ranta, 1997; Mackey et al., 2007; Sato & Lyster, 2012; Shintani, 2015; Hyland & Hyland, 2006; Ferris, 2010; Bitchener & Knoch, 2010; Hattie & Timperley, 2007; Nicol & Macfarlane-Dick, 2006; Carless, 2015; Kanwal, 2025). In recent years, digital technologies have expanded feedback practices through online platforms, automated systems, AI-assisted feedback, and electronic corrective feedback, enabling teachers to provide both synchronous and asynchronous responses while maintaining the same overall goal of improving learner performance and encouraging self-directed correction (Henderson et al., 2019; Ware & Warschauer, 2006). Regardless of whether feedback is delivered face-to-face or digitally, teachers ultimately aim to guide students toward recognizing errors independently, reflecting on their learning, and improving future performance through constructive feedback interaction and students benefit from it (Ene, 2018; Leung, 2021). The study therefore highlights the importance of balanced feedback practices that combine clarity, encouragement, and opportunities for reflection in order to support both language development and learner motivation across different educational settings.

CONCLUSION

To sum up, this study shows that both online and face-to-face settings offer distinct strengths when it comes to providing corrective feedback. The study contributes to existing research by comparatively examining corrective feedback across both online and face-to-face learning environments while also highlighting the emotional and interpersonal factors that shape learners' responses to feedback and overall learning experiences. Online feedback was often seen as more private, detailed, and easier for students to revisit, while in-person feedback stood out for being immediate and more personal. Teachers and students alike highlighted the value of feedback that encourages improvement without discouraging participation. Although the data were collected from participants across different academic programs in higher

education institutions, the study was not longitudinal in nature. The findings therefore reflect participants' experiences at a particular point in time rather than changes developing over longer periods. Future research following the same groups of learners and instructors over extended interventions may provide deeper insight into how different corrective feedback practices influence motivation, engagement, and long-term language development across online and face-to-face learning environments. Overall, the results suggest that the success of feedback depends not just on when or how it's given, but also on how well it supports students emotionally and helps them stay motivated in their learning.

Acknowledgement

This study was supported by the Deanship of Scientific Research at Prince Sattam bin Abdulaziz University under the research project (PSAU/2026/R/1448).

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