A Comparison of Automated Corrective Feedback and Traditional Corrective Feedback: A Review Study

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Abstract
Corrective feedback (CF) is often used to help language learners identify and correct errors in their spoken or written language. Traditional CF in this paper refers to teacher feedback, peer feedback, and self-feedback. Automated corrective feedback (ACF) indicates the use of technology, specifically artificial intelligence (AI) systems, to provide feedback to learners on their performance or work. This paper compared ACF and traditional CF through a review based on these four aspects: response time of feedback, potential risks, interpersonal interaction, and personalized learning, aiming to assist teachers in comprehending the use of technical tools and enhancing learners' English proficiency. ACF has the benefits of instant response time, minimal emotional damage, and individualized feedback. Whereas traditional CF has the benefits of real-time interpersonal interaction and no concerns about privacy exposure. It is recommended to combine the two modes of feedback so as to enhance the effectiveness and efficiency of language learning.

Keywords
Automated corrective feedback (ACF), Traditional corrective feedback, English language teaching and learning, Review

1. Introduction
As technology advances, more and more learners are using technology to assist English learning. In the field of second language acquisition, corrective feedback (CF) is often employed to assist language learners in identifying and correcting errors in their spoken or written language, which in turn enhances their capacity to learn the language (Sheen, 2011). Automated corrective feedback (ACF) refers to the use of technology, specifically artificial intelligence (AI) systems, to provide feedback to learners on their performance or work (Shadiev & Feng, 2023). This type of feedback is typically utilized in language learning contexts, where learners submit their written or spoken texts to an automated system that analyzes their language usage and identifies errors in areas such as grammar, vocabulary, collocation, or pronunciation (Shang, 2022). Traditional corrective feedback encompasses three primary types: teacher feedback, peer feedback, and self-feedback. Teacher feedback is the most common form of traditional corrective feedback. It involves teachers reviewing and providing guidance on learners' language errors (Sheen, 2011). Peer feedback involves learners providing feedback to their fellow classmates (Shang, 2022). Self-feedback requires learners to reflect on their language usage, compare it with the target language norms, and make necessary corrections (Sheen, 2011).

This paper mainly focuses on the comparisons in these four facets: response time of feedback, potential risks,
interpersonal interaction, and personalized learning, aiming to provide scientific support for educational practice, assist teachers in making better use of technical tools and resources, and enhance learners’ learning outcomes.

2. A comparison of response time

CF can be divided into immediate and delayed feedback according to the response timing. In conventional classroom settings, CF is typically provided by teachers or peers. The Transfer Appropriate Processing Hypothesis supports immediate feedback by claiming that learning languages is context-dependent, therefore, if students pick up rules and forms in a communicative setting, they will be able to remember them more easily. However, in a classroom with a large number of students, teachers provide immediate feedback to each student, which may bring a huge teaching burden to teachers. This becomes a time-consuming process and can distract teachers’ focus from classroom teaching (Shadiev & Feng, 2023). Teachers may postpone CF so they have more time to evaluate and correct mistakes (Quinn & Nakata, 2017). Peer correction and self-correction focus more on immediate correction, but the limitation is mutual distrust and limited abilities among students.

Compared to feedback provided by teachers and peers, automated correction systems can immediately correct the text after detecting students’ vocabulary, collocation, and frequent grammar errors, which allows students to take immediate action to enhance their learning (Shang, 2022). Immediate feedback is crucial for learning since it makes students more aware of their errors (Fu et al., 2022). By receiving timely corrections, students can better understand their mistakes and make the necessary adjustments to their language usage. Additionally, another merit of automated correction systems is their availability anytime and anywhere. Students can access the system whenever they need assistance with their language learning, regardless of their location or the time of day. This flexibility allows for temporal arbitrariness, meaning that learners can receive feedback and make corrections at their own convenience. This convenience aspect sets automated correction apart from traditional corrective feedback methods, which often rely on the availability of teachers or peers within specific time frames.

3. A comparison of potential risks

3.1 Potential risks on learning motivation

The issue of whether teachers should correct learners' errors in traditional corrective feedback has been a subject of ongoing controversy. Krashen (1982) believes that correcting errors has a negative impact on the learners’ confidence and motivation, even in the most ideal teaching environment. Placing excessive emphasis on students' mistakes can result in feelings of anxiety, embarrassment, and a fear of making further errors when speaking (Sheen, 2011). This anxiety, in turn, can significantly hinder the learning process, particularly in speaking tasks. Additionally, feedback may be perceived as intimidating by students if they do not fully grasp its meaning within the classroom context (X. V. Ha et al., 2021).

Furthermore, correcting errors in front of the entire class can be particularly detrimental to shy or timid students. The public exposure of their mistakes can further heighten their anxiety and negatively impact their self-esteem. In some cases, teachers’ inappropriate tone and gestures when addressing errors can inadvertently offend sensitive learners, exacerbating their emotional discomfort and hindering their learning experience.

On the other hand, the automated corrective feedback system appears to address these concerns. The use of an automated feedback system is an autonomous behavior, where learners consciously seek guidance from AI tools. As a result, learners are more inclined to perceive the system as a non-threatening entity that provides objective and impartial feedback. The absence of personal judgment or public exposure in the automated feedback process can contribute to a more positive and less anxiety-inducing learning environment.

3.2 Potential risks on privacy concerns

In today's digital era, automated feedback systems have become readily available and can be installed on a wide range of devices, including computers, iPads, and mobile phones. The rapid advancement of information technology has brought about concerns regarding information privacy. While automated feedback offers numerous benefits, it also raises substantial concerns regarding the routine collection and storage of user data. When learners engage with automated feedback systems, they are required to accept specific terms during the registration and login process, granting permission for the platform to collect information such as the user’s profile, name, and basic details. Despite the fact that most learners input learning-related information, which typically does not include highly sensitive personal data, there remains a potential risk of privacy breaches (Q.-A. Ha et al., 2021). For example, the platform may utilize the collected data to recommend and customize content and interfaces based on user input. However, there is a possibility that user information could be
sold to other platforms or learning websites, resulting in users receiving unsolicited phone calls or spam advertisements for various learning courses. From this perspective, traditional feedback methods are often considered to be a safer option in terms of protecting personal privacy.

4. A comparison of interpersonal interaction

In conventional face-to-face learning setting, real-time teachers can engage with students in direct contact and activate different sensory and cognitive areas of learners' brains to learn language by triggering, inspiring, guiding, and managing classroom and extracurricular activities (Heift & Hegelheimer, 2017). In addition to teacher interaction, peer corrective feedback is also a dynamic interactive behavior with built-in emotional and social characteristics (Sato, 2017). Peer engagement gives students a context in which to explore freely with the language they have learnt. Interactionist research has shown that peer assistance is more conducive to language learning, and there is a reciprocal relationship between the interlocutors (Hamed Mahvelati, 2021). In this procedure, learners play the roles of both providers and recipients of corrective feedback.

Social connections provide adequate emotional communication, identity, and empathy for language learning, which machines were previously unable to provide (El Shazly, 2021). Technology is continually attempting to get better. Some systems have created brand-new chatbots in an effort to stimulate students' interest in language study (Fryer et al., 2017). These Chatbot can not only respond to the text, but also make corrective feedback in oral discourse. However, since they are preset responses, there is still a distance between them and real human connection. As a result, learners prefer a mix of automated corrective feedback and teacher-led feedback or peer feedback because there would be interactive explanations provided when there were confusions (Shang, 2022).

The interpersonal interaction in traditional classrooms may have many advantages, but the interaction mode has evolved over time, and communication through technology has become an indispensable part of our lives. Balancing face-to-face interaction and digital communication is crucial for maintaining meaningful connections in today's interconnected world.

5. A comparison of personalized demand

In typical classroom settings, teachers often find it challenging to allocate their attention individually to each student and design instructional plans that cater to their specific needs. This limitation results in a lack of personalized education and hampers the ability to maximize each student's learning potential. However, with the introduction of automated feedback systems, a remarkable transformation takes place.

One significant advantage of employing automated feedback systems is their ability to support customized learning. These systems can adapt to the unique learning requirements of each student, offering tailored materials and resources that align with their individual strengths and weaknesses (Golonka et al., 2014). By analyzing student performance and providing targeted feedback, these systems enhance the learning experience by addressing specific areas for improvement, reinforcing strengths, and catering to individual learning styles.

Moreover, the implementation of automated feedback systems promotes the provision of individualized feedback. Traditional classroom settings often struggle to provide timely and detailed feedback to every student due to time constraints and the sheer number of learners. However, with the help of technology, these systems can instantly assess student work, identify areas of improvement, and deliver personalized feedback (Golonka et al., 2014). This timely feedback loop allows students to understand their progress, identify their strengths, and address any misconceptions or errors promptly.

In addition to personalized learning and feedback, AI-based systems have the potential to revolutionize the way we approach language instruction. Rather than solely focusing on a student's English proficiency level, these systems take into account their unique learning styles and preferences. By tailoring instruction to match individual preferences, such as visual, auditory, or kinesthetic learning, these AI systems enhance student engagement and optimize the learning experience for each learner (Tafazoli & Gómez-Parra, 2017).

Tafazoli and Gómez-Parra (2017) argue that the utilization of AI systems paves the way for learner-centered strategies, moving away from the traditional teacher-led approaches. By leveraging the power of AI, educators can facilitate an environment where students actively participate in their own learning, take ownership of their progress, and develop critical thinking skills. Through adaptive technologies and intelligent algorithms, these systems empower students to become independent learners, exploring concepts at their own pace and fostering a deeper understanding of the subject matter.
6. Conclusions

This paper compares ACF and traditional CF based on four aspects: response time of feedback, potential risks, interpersonal interaction, and personalized learning. Automated feedback offers several benefits. Firstly, the automated feedback system can provide instant responses, enabling students to take immediate action to enhance their learning, improve errors, and thereby reduce the burden of teacher feedback. Secondly, it minimizes the negative impact on confidence and motivation that can be associated with corrective feedback. Thirdly, it supports personalized learning and feedback, allowing learners to engage in self-directed learning at any time.

On the other hand, traditional feedback has its own advantages. Firstly, face-to-face interaction fosters interpersonal relationships and emphasizes emotional care. Secondly, there are no concerns regarding privacy breaches in traditional feedback.

ACF can be integrated into the classroom environment to help alleviate teachers’ workload and facilitate the learning process. It is hoped that learners can combine both modes of feedback when studying a language, and teachers can utilize ACF to enhance their teaching methods.

References


