

Comparative Analysis of AI and Human Instructors in Providing Written Corrective Feedback: A Case Study on ChatGPT

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ABSTRACT

Corrective feedback is one of the instructional methods utilised in learning writing. Any indication that a student's expression might contain an error of some sort is referred to as corrective feedback. Obtaining feedback is a component of the process of writing improvement. Traditionally, this feedback has been provided by human instructors, who meticulously review students' work to pinpoint areas of improvement. However, with the advent of AI technology, particularly exemplified by the ChatGPT model, the landscape of feedback provision is undergoing a significant transformation. Thus, this study aims to investigate the differences between AI and human instructors in providing written corrective feedback, focusing on the ChatGPT AI model within the context of ESL writing instruction in a higher learning institution in Malaysia. The study addresses a gap in research by examining the types of corrective feedback offered by ESL instructors and ChatGPT, aiming to uncover potential differences between them. The research objectives include identifying the types of corrective feedback provided by ESL instructors and ChatGPT and exploring any disparities between them. The study's significance lies in its contribution to understanding written corrective feedback in ESL writing, offering insights for researchers, educators, learners, and policymakers. This research seeks to inform pedagogical practices and educational policies by bridging traditional ESL instruction with emerging AI technologies. Overall, this study aims to shed light on the potential of AI-driven tools like ChatGPT to enhance ESL writing instruction while recognising the enduring value of human expertise in language teaching.

Keywords: AI corrective feedback, ChatGPT corrective feedback, ESL writing instruction, teaching writing, written corrective feedback

INTRODUCTION

Corrective feedback is common in language learning classrooms, whether delivered orally, through written means, or via computer-mediated platforms. Traditionally, teachers provided corrective feedback on written papers during class, with students reflecting on their errors in the hopes of learning from them. However, with the advancement of instructional technology, corrective feedback can be delivered through various technological mediums. These include computer-mediated applications, which can analyse and provide feedback on written or spoken language; computer-assisted language learning tools that offer interactive exercises and feedback; automatic writing evaluations that assess written work and provide feedback; and online chatbots like ChatGPT that engage in dialogue and offer language assistance and feedback.

According to Ellis's (2008) typology for written corrective feedback (WCF), there are six primary strategies: direct corrective feedback, indirect corrective feedback, metalinguistic corrective feedback, the focus of feedback, electronic feedback, and reformulation. Direct corrective feedback involves the teacher directly correcting the student's mistake by providing the correct form. Indirect corrective feedback indicates the presence of an error without providing the correct form; for instance, the teacher might underline the mistake or note it in the margin. Metalinguistic corrective feedback involves providing clues such as error codes (e.g., art./prep./conj.) or brief grammatical explanations to help students understand their mistakes. The focus of

feedback can be either focused, targeting specific types of errors, or unfocused, addressing all or most errors in the text. Electronic feedback involves the teacher indicating an error and providing a hyperlink to a concordance file with examples of correct usage, leveraging extensive corpora of written English to aid students. Lastly, reformulation involves a native speaker reworking the student's entire text to make the language as native-like as possible while preserving the original content, effectively combining direct correction with revision. Each of these strategies offers unique advantages for enhancing students' writing skills.

Since its launch in November 2022, ChatGPT 3.5, an AI-powered tool, has created a worldwide buzz, gaining 100 million users within two months (Kim et al., 2023, p. 79). This large language model (LLM) chatbot has a profound grasp of language and can deliver coherent and contextually relevant responses to various questions and prompts (Gans, 2023). These technological mediums have expanded the possibilities for delivering corrective feedback, making it more accessible and convenient for learners. The collaboration between humans and technology has become increasingly prevalent in language classrooms. Technology applications have even replaced some tasks, as they offer time and resource efficiencies.

Despite this rapid technological shift, the integration of AI into writing instruction raises essential questions regarding the quality, type and pedagogical value of AI-generated feedback compared to human-provided feedback. While teachers bring contextual understanding, pedagogical judgement, and effective sensitivity to feedback practices, AI tools offer speed, consistency, and scalability. Knowing whether these feedback sources differ significantly and how such differences impact teaching and learning is crucial as educational systems shift toward digitalised learning environments aligned with Education 5.0.

Furthermore, public discourse and global reports indicate increasing concern about AI potentially replacing human instructors, including in writing instruction. A recent survey by market analysts Ipsos on 22,816 adults under 75 across 31 countries, interviewed from May 26 to June 9, 2023, revealed intriguing insights. The survey found that 81% of Malaysian respondents believe that AI will alter how we approach our jobs, with 62% expressing agreement that AI will eventually replace our current jobs (Global Views on A.I., 2023). This growing apprehension set the urgent need for academia to seriously investigate these predictions. The potential for AI to replace human instructors raises critical questions about the future of education, the role of human expertise, and the impacts on job security in teaching professions. Will the prediction that AI could replace human instructors come true, and what would be the broader implications for the educational landscape? This underscores an urgent need for empirical research that clarifies what AI can and cannot do in comparison to teachers, especially in Malaysian tertiary ESL contexts where such studies remain limited. Currently, very little is known about the types of corrective feedback that ChatGPT provides relative to ESL instructors, and this gap restricts institutions from making informed decisions about integrating AI into writing curricula.

Given these emerging concerns and opportunities, this study investigates and compares the types of written corrective feedback produced by ESL instructors and ChatGPT within a Malaysian public higher learning context. Understanding these differences is essential for determining how AI might complement, enhance, or challenge traditional feedback practices. Ultimately, this study contributes to the growing need for evidence-based integration of AI in ESL writing classrooms, helping ensure that technological adoption strengthens rather than disrupts the quality of language education.

Problem Statement

Numerous research efforts have examined the impact of providing ESL students with written corrective feedback. Some research has highlighted the benefits of corrective feedback delivered orally, in writing, and via technological means. Scholars have identified that furnishing corrective feedback to ESL students constitutes a beneficial practice, particularly in enhancing their writing abilities (Lee & Yoon, 2020; Mikheeva & Petrova, 2021).

Recent studies have focused on the effectiveness and users' experience using A.I. to help them learn. In studies conducted by Mohamed (2023) and Nguyen (2023), interviews were conducted with teachers who expressed positive views towards using ChatGPT as a cost-effective and convenient means of delivering feedback. Furthermore, Han et al. (2023) and Schmidt-Fajlik (2023) have documented favourable student perceptions of

ChatGPT's feedback based on data collected through questionnaires.

However, there is a paucity of research examining the types of corrective feedback given by AI chatbots and ESL educators in a public institution in Malaysia to improve students' writing quality, particularly to ESL learners in Malaysian tertiary education. Miao et al. (2023), in their study investigating the research trends of written corrective feedback in L2 writing, mentioned that the development of comprehensive research on written corrective feedback is still low. Their study also suggested that future research should further explore the feedback providers and seek cooperation and combination to promote the development of written corrective feedback research. This is also supported by Ortega (2009), who advocated for more studies pursuing a direct comparison between synchronous computer-mediated communication (SCMC) and FTF (face-to-face) modes. Hence, additional research is imperative to attain a comprehensive understanding of the role played by different modes of delivery in carrying out written corrective feedback in shaping the learning experiences of ESL learners.

Gaining a profound understanding of these various forms of corrective feedback becomes paramount for ESL practitioners, as it wields a transformative influence on the landscape of writing instruction and significantly shapes the intricate processes of language learning. For instance, according to Berkant et al. (2020), underlined feedback is the most effective type of feedback. Referencing an earlier study, Van Beuningen et al. (2008) highlight that positive short-term effects were noted for both direct and indirect corrective feedback; however, only direct feedback exhibited a significant and enduring impact on their writing skills.

Thus, the primary objective of this study is to investigate the types of corrective feedback provided by both A.I. Chatbots and ESL instructors. By exploring the corrective feedback mechanisms employed by these two sources, the study aims to offer valuable insights into potential collaborative approaches for integrating AI-driven tools and traditional ESL teaching writing methods. The findings of this research aspire to enhance ESL pedagogical practices by identifying the strengths between A.I. technologies and human instructors of a higher learning institution in Malaysia.

This study holds the potential to influence teaching practices and shape the future of language education, offering valuable insights into how AI can be incorporated into the learning process while preserving the indispensable role of human instructors.

Research Questions

This study seeks to answer the following research questions:

RQ1. What are the types of corrective feedback given by ESL instructors?

RQ2: What are the types of corrective feedback given by ChatGPT?

RQ3: How do the types of corrective feedback given by ESL instructors differ from those provided by ChatGPT?

RELATED LITERATURE REVIEW

Research on written corrective feedback (WCF) has long emphasised its role in improving second language (L2) writing accuracy. Early studies primarily examined the effectiveness of different feedback types provided by instructors, particularly direct and indirect corrective feedback. For example, Chandler (2003) found that direct correction and simple underlining significantly improved students' writing accuracy over time. Similarly, Bitchener (2005) reported that explicit written feedback combined with short teacher–student conferences led to improvements in learners' use of grammatical forms such as the past tense and definite articles. These studies suggest that teacher-provided feedback plays a crucial role in guiding learners toward more accurate language production.

Subsequent research has explored the relative effectiveness of different feedback strategies. Van Beuningen et al. (2008) found that both direct and indirect feedback produced short-term improvements in writing accuracy,

although direct feedback demonstrated stronger long-term effects. Meanwhile, Al-Rubai'ey and Nassaji (2013) highlighted that the effectiveness of feedback types may depend on specific linguistic targets, indicating that certain grammatical features may benefit more from direct correction than indirect metalinguistic feedback.

With the advancement of educational technology, the focus of WCF research has expanded to include automated feedback systems and computer-assisted language learning (CALL) environments. Studies within the CALL framework indicate that digital tools can enhance learner autonomy and provide immediate feedback that supports language development (Kessler & Bikowski, 2010; Hao et al., 2019). More recently, AI-powered writing tools have attracted increasing scholarly attention due to their ability to generate detailed feedback on learners' writing. Sanosi (2022), for instance, compared human instructors' feedback with automated suggestions generated by Grammarly and found that automated systems were effective in identifying surface-level errors such as spelling and punctuation, while human instructors were better at identifying structural and grammatical issues.

Similarly, emerging studies on ChatGPT suggest that AI-generated feedback can offer consistent and comprehensive responses to students' writing. Yutong et al. (2024) reported that ChatGPT often produces substantial revisions to sentence structures while maintaining the original meaning, resulting in more natural expressions. However, teacher feedback tends to focus more on pedagogical objectives and assessment standards, reflecting instructors' contextual understanding of learners' needs.

Despite the growing body of research on automated writing evaluation and AI-assisted learning tools, limited studies have directly compared the types of corrective feedback generated by AI systems and human instructors, particularly within ESL contexts in Malaysian tertiary education. Most existing research focuses either on the effectiveness of feedback types or on students' perceptions of AI tools rather than examining the nature and characteristics of feedback produced by different sources. This gap highlights the need for empirical research that systematically analyses and compares the types of written corrective feedback provided by ESL instructors and AI systems such as ChatGPT.

Therefore, this study aims to address this gap by examining the types of written corrective feedback generated by ESL instructors and ChatGPT in a Malaysian higher education context. By identifying similarities and differences between these two sources of feedback, the study contributes to a deeper understanding of how AI technologies may complement traditional writing instruction.

Conceptual Framework

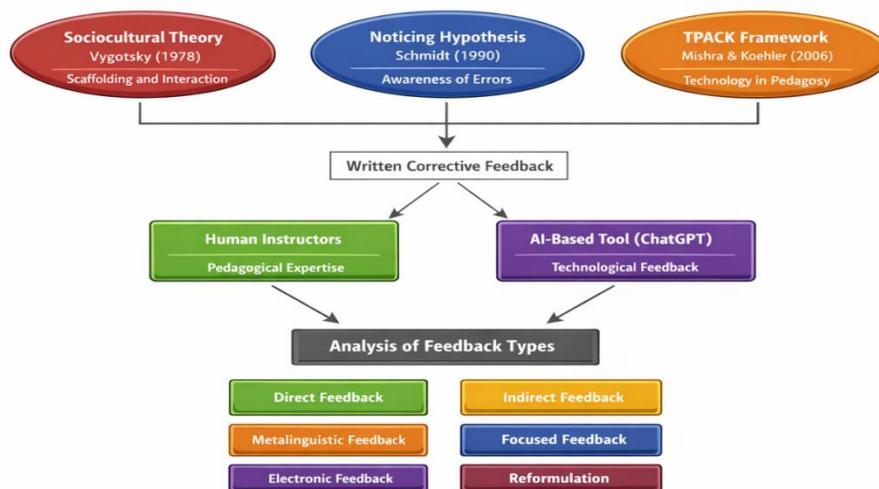


Figure 1: Conceptual Framework of The Study

This study is grounded in sociocultural theory (SCT), the Noticing Hypothesis, and the Technological Pedagogical Content Knowledge (TPACK) framework.

From a sociocultural perspective, learning occurs through interaction with more knowledgeable others who provide guidance and scaffolding within learners' Zone of Proximal Development (Vygotsky, 1978). In the context of writing instruction, corrective feedback provided by instructors functions as a form of scaffolding that helps learners recognise and correct language errors.

The Noticing Hypothesis (Schmidt, 1990) further explains that learners must become aware of the gap between their current language use and the target language form in order for learning to occur. Corrective feedback therefore serves as a mechanism that directs learners' attention to linguistic errors and promotes language development.

Meanwhile, the TPACK framework highlights the integration of technological knowledge, pedagogical knowledge, and content knowledge in teaching practices (Mishra & Koehler, 2006). In this study, ChatGPT represents the technological component of the framework, while ESL instructors embody the pedagogical and content expertise required for effective language instruction.

By combining these theoretical perspectives, the study examines how corrective feedback from both human instructors and AI systems functions as a mediating tool that supports learners' writing development. The framework therefore guides the analysis of feedback types generated by both sources and provides insight into how AI technologies may complement traditional instructional practices.

METHODOLOGY

This study adopts a mixed-methods research design, combining qualitative document analysis with quantitative statistical analysis. The qualitative component focuses on identifying and categorising the types of written corrective feedback provided by ESL instructors and ChatGPT. The quantitative component involves analysing the frequency of each feedback type and comparing them statistically to determine whether differences exist between the two feedback sources.

The data for this study will consist of student essays and the corresponding written feedback provided by ESL instructors and ChatGPT. The essays will be collected from diploma-level students enrolled in the LCC112 English course at Universiti Teknologi MARA (UiTM). These students are required to produce an expository essay as part of their coursework.

A total of approximately 30–50 student essays will be selected for analysis. Each essay will contain approximately 150–200 words. The essays selected for the study will be those that have already received written corrective feedback from instructors as part of normal classroom practice.

This study employs a combination of stratified and convenience sampling. ESL instructors teaching the LCC112 course from three UiTM campuses in the southern region (Johor, Melaka, and Negeri Sembilan) will be included. At least two instructors from each campus will participate in the study. The southern region is selected due to the researcher's accessibility to these campuses and the lack of prior studies examining AI-generated corrective feedback within this regional context.

Instructor feedback will be collected from students' marked essays. Only feedback that explicitly addresses language errors or writing issues will be included in the analysis. General comments unrelated to error correction (e.g., "Good effort" or marks awarded) will be excluded to ensure that the analysis focuses specifically on written corrective feedback.

To address RQ1, which investigates the types of corrective feedback provided by ESL instructors, this study will employ document analysis of reviewed student essays from the LCC112 English course, a requisite for diploma students. Students are tasked with expository essays as part of this course. During the instructional phase, instructors commonly offer feedback aimed at improvement. The researcher will scrutinise the error corrective feedback dispensed by instructors to discern the varieties of feedback administered.

To gain deeper insights into the rationale behind feedback assignments by ESL instructors, the study will utilise

a questionnaire survey adapted from Wei (2020). This survey comprises four key components: (a) gathering respondents' demographic information, (b) identifying prevalent mistakes or weaknesses observed in their students' writing, (c) elucidating the feedback strategies they employ, and (d) incorporating an open-ended question soliciting participants' preferred feedback approaches along with the rationale underlying their choices. Semi-structured interviews also will be conducted to understand the subject matter better. These interviews aim to extract more profound insights into the forms of feedback utilised and the underlying rationale—additionally, pertinent information regarding the instructors' backgrounds to provide context to their teaching methodologies.

For the second research question, document analysis will also be conducted on essays submitted to ChatGPT. Various prompts will ensure that ChatGPT provides optimal feedback on errors. The feedback types will be analysed to identify the types of written corrective feedback provided by this AI tool. The prompts provided to ChatGPT include: (1) *"Please review the following paragraph and provide feedback,"* (2) *"Please provide feedback on language usage, content, and organisation,"* and (3) *"Analyze the writing style of the following passage and provide feedback on language usage and appropriateness."* After extensive discussions with experienced writing instructors, these prompts were selected to ensure they align with the expectations for providing feedback on expository essays. The focus on content, language, and organisation corresponds to the marking rubric of the assessment, ensuring relevance and consistency in evaluating writing proficiency.

The written corrective feedback collected from instructors and ChatGPT will be analysed using Ellis's (2008) typology of written corrective feedback, which includes; direct corrective feedback, indirect corrective feedback, metalinguistic feedback, focused feedback, electronic feedback and reformulation. Each instance of feedback will be coded according to these predefined categories. The coding process will involve identifying the feedback type and recording its occurrence in a coding table for further analysis.

The final research question involves comparing the types of corrective feedback from ESL instructors and ChatGPT. The types and frequencies of each method will be tabulated to facilitate a clear comparison. Additionally, statistical analyses will be conducted to investigate any significant differences between the feedback provided by human instructors and ChatGPT.

To ensure the reliability of the coding process, a second rater with expertise in ESL writing instruction will independently code approximately 25–30% of the feedback data. Inter-rater reliability will be calculated using Cohen's Kappa coefficient. Any discrepancies in coding will be discussed and resolved through consensus to ensure consistent categorisation of feedback types.

Various software tools will be employed to facilitate these analyses. Qualitative data analysis software like ATLAS.ti will be used to code and analyse qualitative data from the feedback. Statistical software such as SPSS will be utilised to analyse the feedback data. These tools will ensure rigorous and systematic analysis, contributing to the reliability and validity of the study's findings.

Significance Of The Proposed Study

The findings of this study hold significant value for exploratory research, particularly within the ESL writing domain. They offer crucial insights into the presentation of linguistic elements, laying a foundation for further exploration and interpretation. The study is hoped to yield substantial data and insights beneficial to researchers, instructors, learners, and policymakers, deepening their understanding of written corrective feedback (WCF) usage.

This study's contributions to second language acquisition (SLA) are noteworthy. The insights from significant data can inform future approaches, research tools, and innovative data sources, enriching theoretical discourse. By bridging traditional and technology-mediated mediums, this research aims to foster a deeper understanding of WCF among scholars and practitioners alike.

Furthermore, this study extends its impact on the education sector. Examining the integration of WCF by both ESL instructors and AI applications like ChatGPT sheds light on effective pedagogical practices and the role of technology in enhancing learning outcomes. These insights can guide higher learning institutions in strategically

incorporating technology into their teaching methods, thereby contributing to the nation's development by nurturing proficient writers among its citizens.

Implication For Research

The implications of this research emphasise the importance of embracing technological advancements in education while recognising the unique capabilities of human teachers. As technology continues to evolve, exploring how to effectively integrate it into language learning environments is essential.

Research should focus on leveraging technology to enhance learning outcomes while preserving the empathetic connection between teachers and students. Moreover, studies should thoroughly examine the potential contributions of AI in education, including its role alongside human instructors. Rather than replacing teachers outright, research should explore how AI can complement and support human educators in delivering personalised and effective instruction. By conducting comprehensive studies on these topics, educators and policymakers can make informed decisions about integrating technology into language learning environments while maintaining the essential human element in education.

Additionally, this research provides valuable insights into the practices of ESL instructors in providing written corrective feedback in tertiary education, highlighting areas for improvement and innovation.

CONCLUSION

In conclusion, to ensure ESL learning remains relevant in the era of AI, it is crucial to explore how AI can be effectively integrated into language teaching. This research aims to shed light on the capabilities of AI compared to human instructors, providing valuable insights into their respective roles. The commonly debated notion of 'AI replacing humans' will be examined to determine AI's contributions to language learning. Can AI truly replace human instructors, or is it better suited as a complementary tool to enhance students' understanding of language complexities? Ultimately, this concept paper will offer the academic community, especially those involved in language teaching, a deeper understanding of the interplay between AI and human instructors in language education. The findings will be instrumental in helping future educators develop curricula and syllabi that effectively incorporate AI into language teaching.

This study explores the integration of AI in ESL teaching by comparing the types of corrective feedback provided by human instructors and ChatGPT. The research identifies and categorises feedback into types such as direct, indirect, and metalinguistic through a mixed-methods approach, including content analysis, comparative analysis, and statistical analysis. The findings reveal significant insights into AI and human instructors' roles in language learning.

The content analysis highlights distinct patterns in the feedback provided by both sources, while the comparative analysis investigates key similarities and differences. Statistical analysis using chi-square tests further confirms the presence of significant differences in the feedback types offered by human instructors and ChatGPT.

The implications of this study are far-reaching, providing valuable information for developing future curricula that effectively integrate AI tools into language teaching. By understanding the strengths and limitations of AI and human feedback, educators can better design teaching strategies that leverage the best of both worlds, enhancing the learning experience for ESL students. This research contributes to the ongoing discourse on AI in education, paving the way for more informed and effective use of technology in language learning.

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