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Exploring the Impact of Artificial Intelligence (AI) Tools in Providing Writing Feedback for EFL Learners

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ABSTRACT

This study explores the perceptions of EFL students regarding the use of AI-powered tools, such as Grammarly and ChatGPT, in enhancing their academic writing skills. Employing Davis's Technology Acceptance Model (TAM) as a theoretical framework, the research examines three primary dimensions: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and AI vs Human Feedback. Six undergraduate students from a university in Indonesia participated in semi-structured interviews, which were analysed using thematic analysis. Findings indicate that students value AI tools for their real-time, grammar-focused feedback, which improves coherence, clarity, and writing efficiency. However, students often preferred human feedback for its contextual depth and personalized nature, especially for complex tasks. While AI tools were praised for their accessibility and timesaving features, their inability to fully capture individual writing styles and contexts highlighted the need for a hybrid feedback approach. This study suggests combining AI and human feedback to provide comprehensive support, balancing technical accuracy with nuanced developmental guidance, thus fostering enhanced learning experiences for EFL learners

1 INTRODUCTION

Learning English, particularly writing, poses significant challenges for EFL students (Maharani, 2018). Effective writing requires structured planning, drafting, revising, and editing, yet many EFL learners struggle with revising and self-assessment. Providing timely feedback during the writing process is crucial for helping students improve their writing skills (Brown, 2001). Feedback serves as a roadmap, guiding students in understanding their mistakes and making necessary revisions (Wihastyanang et al., 2020). However, traditional feedback methods often lack immediacy and personalization, limiting their effectiveness in enhancing students' writing proficiency.

AI-powered feedback tools, such as *Grammarly* and *QuillBot*, offer a promising solution by leveraging natural language processing to analyse writing in real-time, identify grammatical errors, suggest stylistic improvements, and enhance overall text structure (Fauzan et al., 2022; Mohseni & Samadian, 2019). Unlike conventional feedback, which can be delayed due to the time required for assessment, AI tools provide instant and personalized responses, allowing students to make immediate improvements (Hadiyanto, 2019). Research indicates that students who receive computer-mediated corrective feedback perform better than those relying solely on traditional explicit feedback (Nurmayanti & Suryadi, 2023). Moreover, AI-powered tools foster self-directed learning by enabling students to take greater control over their writing development (Chen et al., 2016).

The integration of AI in education is reshaping learning experiences, enhancing efficiency while also raising concerns regarding ethical implications, privacy, and potential job displacement for educators (Bostrom, 2014; Floridi et al., 2018; Sumakul et al., 2022a). While AI offers valuable support in English language learning, its success largely depends on students' acceptance and perception of its usefulness (Ebadi & Amini, 2022). The Technology Acceptance Model (TAM) (Davis, 1989) explains that students' willingness to adopt AI feedback tools is influenced by their perceived usefulness and ease of use. Research shows that AI-driven adaptive learning systems can tailor instruction to individual learners' needs, but their impact depends on how students perceive these tools in their writing development (Zheng & Xing, 2020). Despite existing studies comparing AI and traditional feedback methods, limited attention has been given to how EFL students in Indonesia perceive AI tools in their writing process (Abidoye & Seldon, 2018; Sumakul et al., 2022b). This study seeks to address this gap by investigating: "How do EFL students perceive the use of AI feedback tools on their writing skills?"

By examining students' perceptions, this research will provide insights into the benefits and limitations of AI feedback tools in an Indonesian university context. Understanding students' attitudes toward AI is essential for ensuring its effective integration into writing instruction. The findings will contribute to the ongoing discourse on technology-enhanced education, emphasizing the role of AI in supporting EFL students' writing development while ensuring that feedback remains meaningful, accessible, and pedagogically sound.

2 METHODS

This study employed a qualitative research design to explore EFL students' perceptions of AI feedback tools and their impact on writing skills. Six undergraduate students at a university in Indonesia who had experience using AI feedback tools in their proposal writing courses participated in the study. Convenience sampling was used to select participants based on their availability and willingness to take part in the research (Sedgwick, 2013).

Data were collected through semi-structured, in-person interviews, allowing for a deeper understanding of students' experiences, attitudes, and comparisons between AI and traditional feedback. The interviews typically lasted 20-30 minutes each. All interviews were audio-recorded and then transcribed verbatim by the researcher to ensure accuracy for thematic analysis. The interview questions focused on the AI writing tools students used, their experiences with these tools, and how AI feedback influenced their writing process. To analyse the data, the study employed thematic analysis, identifying patterns related to students' perceived usefulness and ease of use of AI feedback tools. TAM (Davis, 1989) was used as a framework to assess how students' beliefs about AI's effectiveness and usability influenced their acceptance of these tools. Ethical considerations were strictly followed, ensuring voluntary participation, informed consent, confidentiality, and the right to withdraw at any time.

However, this study had some limitations, including a small sample size, which may limit the generalizability of the findings, and potential bias, as participants were selected based on convenience. Despite these limitations, the study provides valuable insights into how EFL students perceive and utilize AI feedback tools in academic writing.

3 RESULTS AND DISCUSSION

The findings are presented based on data gathered from interviews with six undergraduate students (pseudonym names: Sabrina, Bruno, Ariana, Olivia, Niki, Taylor) from a university in Indonesia, each discussing their use of AI-powered writing tools such as *Grammarly*, *ChatGPT*, and *Quillbot*. Table 1 presents the estimated percentage of AI writing tool usage by each participant in the study. These values reflect the participants' self-reported engagement with AI tools such as *Grammarly* and *ChatGPT* during their academic writing tasks.

Table 1
Estimations of AI Tool Usage by Participants

Pseudonym Name	Estimated of Usage (%)
Sabrina	60%
Bruno	40%
Ariana	70%
Olivia	50-85%
Niki	30%
Taylor	50-80%

The data in Table 1 highlights variations in AI tool usage among the participants. Ariana reported the highest consistent use at 70%, suggesting a strong reliance on AI feedback. In contrast, Olivia reported the lowest at 30%, indicating minimal integration of such tools into her writing process. Notably, Niki and Taylor provided usage ranges (50–85% and 50–80%, respectively), implying conditional or task-specific use. These differences reveal how students engage with AI tools based on individual preferences, task complexity, and perceived tool effectiveness.

The researcher utilized thematic analysis to extract significant themes from the data, guided by TAM (Davis, 1989). TAM serves as a framework to explore users' acceptance of technology through two primary variables: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). This study examines these variables to understand students' attitudes towards using AI tools to enhance their writing skills. Additionally, a new theme emerged from the interviews, exploring the contrast between AI and human feedback, and shedding light on students' preferences and perceptions. The discussion will be structured around these key themes, with direct quotes from participants illustrating their views and experiences.

3.1 Results

The results section of scientific articles is considered the most significant and informative part of the research paper, as it presents the outcome of the study without delving into the data analysis process. To enhance the clarity and comprehensibility of the results, researchers are encouraged to present them using tables, graphs or charts, which can effectively illustrate the main findings of the study in a more visually appealing and coherent manner. In addition to these visual aids, verbal descriptions should also be provided to further clarify and explain the results, thereby making the findings more easily understandable for the readers.

Table 2
Themes and Subthemes Identified in Interviews

Themes	Subthemes
Perceived Usefulness (PU)	a. Grammar and structure Improvement
	b. Coherence and Clarity
	c. Efficiency and Timesaving.
Perceived Ease of Use (EOU)	a. User-Friendliness and Simplicity
	b. Understanding Feedback
AI vs Human Feedback	a. Preference for Human Feedback
	b. Balancing AI and Human Feedback

3.1.1 Perceived Usefulness (PU)

In the in-depth interviews conducted, the researcher explored the participants' perceptions of the usefulness of AI-powered writing tools. Based on the data collected, several key themes emerged, reflecting how participants evaluate the utility of these tools in enhancing their writing skills. The concept of PU, as defined in Davis' (1989) TAM, refers to the extent to which a person believes that using a particular system will improve their job performance.

In the context of this study, this theme explores how participants viewed the value of AI tools in improving their writing. The sub-themes that emerged include Grammar Improvement, Coherence and Clarity, and Efficiency and Timesaving. From the interviews, the participants identified various ways in which these tools contributed to their writing performance.

3.1.1.1 Grammar and Structure Improvement

Participants consistently emphasized the pivotal role AI tools, particularly *Grammarly*, played in improving their grammatical accuracy. This sub-theme explores participants' reflections on how these tools not only identified grammar errors but also provided actionable suggestions for improvement. These tools enabled users to recognize recurring grammar mistakes that might have otherwise been overlooked, such as verb tense inconsistencies, subject-verb agreement errors, and punctuation issues. The immediacy of the feedback was a recurring point of praise, as it allowed participants to make real-time corrections and refine their language use. Sabrina, for instance, valued *Grammarly*'s capacity to provide "an objective analysis of grammar, spelling, and style, helping to catch errors that may be overlooked." This highlights how AI tools serve as impartial editors, ensuring accuracy and consistency in ways participants might not achieve independently. Consequently, participants reported that their writing became more polished, clear, and professional—an essential outcome for academic and professional success.

A key advantage participants noted was the detailed explanations offered by *Grammarly*, which went beyond mere corrections. By elucidating the rules underlying specific grammar issues, the tool fostered a deeper understanding of English grammar. For many, this enhanced awareness translated into greater control over their writing, encouraging self-correction and gradual mastery of complex grammatical structures. This educational aspect was particularly valued by participants who felt uncertain about their grammar skills. Bruno, for example, stated, "It's useful because it can be better in grammar," emphasizing the reliability of the tool in handling challenging grammatical structures. His reflection underscores how AI tools provide a dependable framework for users to address and correct errors, ultimately boosting confidence and encouraging independent learning.

Specific reflections shared during interviews highlighted the diverse ways participants benefited from these tools. Ariana found *Grammarly* indispensable for identifying errors, explaining, "*Grammarly*... can show the correct grammar." Her comment draws attention to the tool's ability to simplify complex grammatical issues by presenting direct and actionable solutions. For users like Ariana, this functionality bridged the gap between recognizing a problem and understanding how to resolve it. By providing these clear and immediate solutions, *Grammarly* empowered users to make meaningful improvements in their writing without requiring extensive prior knowledge of grammar.

Finally, participants often emphasized the emotional reassurance provided by AI tools, especially for those lacking confidence in their grammar skills. Olivia captured this sentiment, sharing, "The way [*Grammarly*]

corrects my grammar, it's very useful because sometimes I still lack in writing grammar." Her observation highlights how the tool alleviated anxiety by offering a reliable safety net, ensuring her work met professional standards. For Olivia and others, the tools not only corrected errors but also provided a sense of guidance and support, making the writing process less intimidating and more manageable.

This sub-theme underscores that grammar correction is a core feature valued by participants. The reliable, immediate, and objective assistance provided by AI tools significantly enhanced their confidence in writing. By addressing common grammar errors and offering clear explanations, these tools served as an accessible and effective resource for achieving higher levels of grammatical accuracy and professionalism. Furthermore, the educational benefits of AI feedback suggest that these tools are not only a means to an end but also a pathway for continuous learning and self-improvement in language use.

3.1.1.2 Coherence and Clarity

Many participants expressed that AI tools, particularly through their rephrasing and sentence restructuring suggestions, significantly enhanced the coherence and clarity of their writing. This sub-theme explores how AI tools helped participants organize their ideas and present them more clearly, making their writing more accessible and effective. Participants noted that these tools allowed them to create text that flowed more logically, helping them convey their intended message with greater precision and ease. For instance, Sabrina highlighted that *Grammarly*'s suggestions were instrumental in improving both clarity and coherence. She explained, "*Grammarly* can enhance clarity and coherence by suggesting rephrasing, simplifying complex sentences, and ensuring grammatical accuracy." Sabrina's comment underscores the dual function of AI tools: not only do they correct grammatical errors, but they also provide valuable insights into improving the overall structure and flow of the writing. By offering rephrasing options and simplifying sentences, AI tools helped participants present their ideas more clearly and logically.

Some participants shared how these tools were particularly helpful when they struggled to articulate complex ideas. AI tools provided alternative wording or rearranged sentences in a way that made the content easier to follow. Taylor, for example, noted that *ChatGPT* was particularly effective for organizing her thoughts and ideas, stating, "It helps me make my writing more coherent and organize my ideas." This suggests that AI tools can support the early stages of writing by helping users clarify their thoughts before translating them into a well-structured narrative. Taylor's reflection highlights the tool's role in transforming a rough draft into a more organized and coherent piece of writing, emphasizing how AI assists with both content development and structure.

Additionally, several participants mentioned that AI's rephrasing features helped them avoid repetitive language or overly complex sentence structures, which could make their writing cumbersome and difficult to read. Bruno shared, "AI is useful in improving the coherence of the flow of my writing," indicating that the ability to rephrase and restructure sentences helped smooth out awkward or disjointed phrasing. This also ties into the larger theme of accessibility, as rephrasing enables writers to express ideas more simply and effectively, making their work more engaging for readers. In doing so, AI tools assist in breaking down barriers that might hinder comprehension, particularly when addressing a diverse audience.

Participants also appreciated how these tools improved transitions between sentences and paragraphs, helping them connect ideas more seamlessly. Olivia expressed how *Grammarly* improved her sentence structure and clarity, noting, "[*Grammarly*] makes my grammar and clarity better." Olivia's reflection emphasizes how AI tools not only support grammatical accuracy but also play a crucial role in refining the readability of the text. The smooth transitions between sentences and paragraphs helped maintain a cohesive flow of ideas, ensuring that the writing appeared unified and well-structured.

Overall, participants felt that AI tools were instrumental in producing writing that was not only grammatically correct but also well-organized, clear, and reflective of their intended meaning. These tools facilitated smoother, more coherent communication by improving sentence structure, enhancing clarity, and helping writers better convey their ideas. By offering a variety of phrasing options and improving transitions, AI tools contributed to a more polished and readable final product, proving invaluable for participants striving to create clear and engaging written work.

3.1.1.3 Efficiency and Timesaving

Participants appreciated how AI tools significantly expedited both the writing and revision processes, enabling them to produce high-quality work in less time. This theme reflects participants' perspectives on how these tools streamlined their workflow by automating many aspects of the revision process. Instead of manually searching for and correcting errors, participants could rely on AI tools to identify issues swiftly and provide corrections. Sabrina captured this sentiment, explaining, "*Grammarly* offers consistent, immediate feedback that can encourage quick improvements." Her comment highlights the tool's real-time functionality, which not only accelerates error correction but also fosters an efficient writing rhythm, allowing users to focus on developing ideas rather than being bogged down by technicalities. This immediacy was particularly valued for its ability to integrate seamlessly into participants' writing processes, reducing interruptions and enhancing productivity.

Another advantage of AI tools was their ability to minimize the need for multiple rounds of revisions. The tools provided immediate feedback on grammar, style, and vocabulary, enabling participants to address errors early in the writing process. Olivia emphasized this efficiency, stating, "Using AI, especially *Grammarly*, it took a really short time to revise and double-check my work." Her reflection underscores how these tools reduced the iterative nature of revision, allowing users to confidently finalize their work sooner. For participants like Olivia, this timesaving quality was invaluable, especially when facing tight deadlines. By eliminating the need for extensive manual proofreading, AI tools freed up time that could be better spent on refining content and developing arguments.

Participants also noted that the tools' suggestions enhanced the clarity and readability of their writing, often with just a few clicks. For Ariana, the convenience of AI tools was a game-changer in managing academic workloads. She shared, "The role of AI really helps me to work on my homework... it's easier." This insight illustrates how AI tools simplify complex tasks, making the writing process more approachable for students juggling multiple responsibilities. Ariana's experience points to the broader accessibility of AI tools, which enable users to achieve professional standards in their work without requiring advanced technical or linguistic expertise.

Additionally, some participants recognized the organizational benefits brought by AI tools. Niki, for example, reflected on how these tools contributed to structuring her ideas more effectively, noting, "AI makes my writing more organized, so that helps." Her perspective highlights an often-overlooked advantage of AI: its capacity to improve the logical flow and coherence of written work. By suggesting structural adjustments and vocabulary improvements, AI tools supported users in creating documents that were not only error-free but also well-organized and impactful.

Overall, the efficiency and timesaving qualities of AI tools allowed participants to focus more on content creation and less on technical error correction. This streamlined writing experience empowered users to meet academic and professional expectations with confidence, particularly under time constraints. Through features like real-time feedback, automated revisions, and organizational support, AI tools proved to be indispensable resources for participants striving to produce high-quality written work efficiently and effectively.

3.1.2 Perceived Ease of Use (PEOU)

The concept of PEOU, as defined in TAM (Davis, 1989), refers to the degree to which an individual believes that using a particular system will be free of effort. In this study, PEOU centres on how seamlessly students can incorporate AI-powered writing tools, such as *Grammarly* and *ChatGPT*, into their writing process to enhance productivity and ease. This theme explores participants' experiences with the usability of these AI tools, examining how simple or complex they found the tools to use and how effectively they understood the feedback provided.

During the interviews, participants shared detailed accounts of their experiences with these AI tools, revealing essential sub-themes, such as User-Friendliness and Simplicity and Understanding Feedback. Most participants highlighted the intuitive design of tools like *Grammarly* and *ChatGPT*, describing them as user-friendly and easy to navigate even without prior training. They expressed that the straightforward layouts, clear instructions, and interactive features allowed them to quickly adapt to using these tools as part of their writing routine. Participants particularly valued the simplicity of functions like grammar checks, spelling corrections, and rephrasing suggestions, which required minimal effort to apply, thereby streamlining their writing process.

However, some participants noted minor challenges, especially when navigating premium features or interpreting complex feedback on advanced language issues. These users found that certain suggestions could be overly technical or ambiguous, requiring extra effort to comprehend fully. Despite these occasional difficulties, the overall response was positive; participants generally expressed confidence in their ability to use these tools to simplify and improve their writing tasks. They appreciated the minimal learning curve required to get started and found the tools to be reliable companions for error correction and language enhancement, ultimately making the writing process feel more accessible and manageable.

3.1.2.1 User-Friendliness and Simplicity

Participants generally found AI tools to be user-friendly, with many emphasizing that the intuitive interfaces and straightforward features made it easy to navigate and use them effectively. This sub-theme explores participants' perspectives on the simplicity of using AI tools for writing. Most participants noted they could access key functions—such as grammar checks and rephrasing suggestions—without difficulty. Niki, for instance, highlighted the ease of using *Grammarly*, stating, "AI features are easy; we just enter the text and it will immediately be corrected by *Grammarly*." This reflects the simplicity and efficiency of AI tools, where users can quickly input their writing and receive instant feedback. The straightforwardness of these tools helped participants focus on improving their writing rather than getting distracted by complex interfaces or convoluted processes.

Participants appreciated how suggestions were clearly highlighted and easy to apply, which allowed them to make quick improvements to their writing. Even those less familiar with digital tools found the design accessible and intuitive, requiring minimal effort to learn. For example, Olivia appreciated the built-in tutorials that helped

her navigate the tools, explaining, “It’s kind of easy because there’s a tutorial in it, and I know *Grammarly* and *Quillbot* from my lecturer.” Her experience emphasizes the role of tutorials in making these tools even more approachable, guiding users through the learning process and ensuring they feel confident in using the tool's features. This type of user support made the transition to using AI tools smoother, especially for those new to them.

While a few participants mentioned needing time to explore more advanced options, the overall response indicated that the basic functionalities were simple to use and understand. Ariana, for example, found the initial use of AI tools intuitive, sharing, “For the first time it’s easy; I didn’t find difficulties because we just open the web and then write what we want.” Ariana’s comment highlights how the basic actions—such as opening a web page and inputting text—were simple enough for her to navigate without any significant challenges. This ease of use played a crucial role in helping participants feel comfortable using the tools consistently.

Taylor also emphasized how easy it was to use AI tools immediately, stating, “They’re easy to use, especially to use... I just knew how it worked right away.” Taylor’s experience reflects the immediate accessibility of the tools, suggesting that once introduced, users could quickly understand and implement the tools in their workflow. Her comment shows that AI tools, with their user-friendly designs, do not require a steep learning curve, making them highly accessible for a wide range of users.

This sub-theme illustrates that participants perceived AI tools as accessible and simple, enhancing their willingness to use these tools frequently. The ease of use, clear functions, and supportive tutorials contributed to making AI tools an appealing resource for participants looking to improve their writing efficiently. Overall, participants valued how the intuitive design and simplicity of AI tools empowered them to use these tools confidently and effectively, encouraging more frequent and engaged use.

3.1.2.2 Understanding Feedback

Participants highlighted the importance of how feedback from AI tools was presented and how it helped them improve their writing. Two key findings emerged: feedback that was easy to understand and feedback that was difficult to understand. On one hand, many participants appreciated how AI tools provided feedback in a clear and structured way, often pinpointing errors and offering suggestions, such as grammar corrections or rephrasing sentences. This clarity made it easier for them to identify mistakes and take corrective actions. On the other hand, some participants found that understanding feedback required interpreting the suggestions in the context of their own writing goals. They had to connect the AI's feedback with the meaning they intended to convey, a process that sometimes made it challenging to apply the suggestions effectively.

This idea was reflected by Ariana, who stated, "AI tools like *Grammarly* give straightforward feedback on grammar and structure, which is easy to interpret. But when the feedback conflicts with what my lecturer suggests, I sometimes get confused about which one to follow." Ariana noted that while *Grammarly*'s feedback on grammar and structure was easy to interpret, conflicts between AI suggestions and her lecturer's advice created confusion. The challenge of deciding which feedback to follow, particularly when both presented different approaches, added a layer of complexity to the writing process.

Evaluating the relevance of feedback was another important aspect in understanding AI-generated suggestions. Not all suggestions aligned with the writer’s intent, which required participants to assess whether the advice fit their specific writing context. This encouraged critical thinking and careful decision-making, as users needed to decide which feedback was useful for their work and which could be ignored.

Several participants found that AI tools provided feedback that was straightforward, specific, and actionable, making it easy to address issues like grammar errors or awkward phrasing without confusion. The clarity of the feedback helped them make immediate improvements, which boosted their confidence and reduced the time spent revising their work. For these participants, the simplicity and clarity of the feedback were key benefits that made the writing process more efficient and less overwhelming.

Sabrina, for example, said, "*Grammarly* provides clear explanations of errors and improvement suggestions. It helps me understand my mistakes in writing by offering objective feedback on grammar, spelling, and style." Sabrina appreciated how *Grammarly*'s clear explanations helped her recognize and understand her mistakes, making it easier to correct them. The objective feedback on various aspects of her writing, such as grammar, spelling, and style, allowed her to improve her overall writing quality.

Bruno shared, "When I use *Grammarly*, it’s easy to understand the feedback because it automates error-checking and provides immediate suggestions for improvements. However, I sometimes struggle with nuanced suggestions that require additional thought." He found the automated error-checking feature of *Grammarly* helpful for quick feedback but occasionally struggled with more nuanced suggestions. These feedback points required him to spend additional time and effort to fully comprehend and apply them, which slowed down his editing process.

Taylor’s experience with *ChatGPT* was a bit different. She said, "*ChatGPT* often provides general feedback, which I find helpful for identifying broad issues in my writing. However, it doesn’t always match my expectations, and I have to spend time rephrasing my prompts to get clearer, more specific suggestions." Taylor found the general feedback from *ChatGPT* helpful for identifying overarching issues in her writing but often had

to rephrase her prompts to receive more specific and relevant advice. This extra effort helped her get the clarity she needed but also showed some limitations in the tool's initial feedback.

While some participants found the feedback provided by AI tools to be clear and helpful, others expressed frustration when the suggestions lacked contextual understanding or were difficult to interpret. Olivia's experience with AI feedback was less straightforward. She said, "Sometimes the feedback is confusing because it's a robot; it cannot understand what I wanna say." Olivia felt that AI struggled to grasp the meaning behind her writing, which made it challenging to apply feedback in a way that reflected her intended message. Ariana echoed this concern, noting, "Sometimes feedback from AI is not clear, and then the language is too high, and unfamiliar to me." For Ariana, the language used in the feedback was sometimes too technical or abstract, making it difficult to act on the suggestions effectively.

Taylor also found that AI feedback wasn't always practical. She pointed out, "I find that some solutions given by *ChatGPT* may not be logical, requiring me to ask for alternative suggestions." This showed that while AI feedback could identify issues, it didn't always offer practical solutions. As a result, Taylor had to rely on her own judgment to find alternatives, which indicated that AI feedback was sometimes insufficient for her specific needs.

In conclusion, while half of the participants found AI-generated feedback to be clear and easy to apply, enhancing their grammar, and writing style, others faced challenges with the AI's ability to understand context or match their unique writing styles. This aligns with the PEOU aspect of TAM, which suggests that while AI tools offer valuable support, they also have limitations. These findings suggest that while AI tools can enhance the technical aspects of writing, they still lack the nuanced understanding that human feedback can offer.

The data further suggests that, although AI tools are generally accessible and straightforward, some participants struggled to interpret AI feedback or felt that certain nuances were missed. This brings attention to the complementary roles of AI and human feedback in the writing process. While AI can provide technical corrections and suggestions, human input remains crucial for offering personalized, context-aware feedback that aligns more closely with the writer's intentions.

3.1.3 AI vs Human Feedback

In this research, the in-depth interviews revealed a new theme in addition to the TAM framework. Participants discussed the value of both AI and human feedback, recognizing that each source had its own strengths and limitations. AI feedback was highly appreciated for its convenience, speed, and objectivity, offering quick suggestions on grammar, spelling, and sentence structure. Participants valued how AI tools could instantly identify errors, providing a clear and unbiased review of their writing. However, while AI feedback was effective for surface-level corrections, many participants pointed out that it lacked the depth and nuance that human feedback could offer. In contrast, human feedback was often preferred for its relevance and insight, especially in areas like content development, tone, and overall coherence. Participants noted that human reviewers could provide personalized advice, taking into account the context, audience, and purpose of the writing—elements that AI tools sometimes overlooked. Overall, while AI was seen as a valuable tool for quick, objective corrections, human feedback was favoured for its ability to deliver more thoughtful, in-depth guidance that contributed to the overall quality of the writing.

3.1.3.1 Preference for Human Feedback

Despite the numerous benefits of AI, many participants expressed a strong preference for human feedback due to its ability to provide valuable context, detailed critique, and more personalized, constructive feedback—qualities that AI tools sometimes lacked. Participants highlighted that while AI was effective in pointing out grammatical errors, spelling mistakes, and basic sentence structure issues, it often lacked an understanding of the broader context in which the writing was produced. Human feedback, on the other hand, was seen as essential for providing insights into the purpose, tone, and overall coherence of the writing. Human reviewers were able to offer specific suggestions that took into account the writer's intentions, the target audience, and the nuances of the topic, which AI tools struggled to grasp fully. Additionally, participants appreciated how human feedback often included more detailed explanations and examples, helping them to understand not only what needed to be improved but also why the changes were necessary. This level of detail and personalization made human feedback more useful in fostering long-term improvement in writing skills. In contrast, AI feedback, while efficient and objective, was often seen as more superficial, focusing primarily on technical aspects of writing without considering the deeper elements of expression and argumentation. As a result, many participants felt that the combination of AI and human feedback offered the most comprehensive support, with AI providing quick, efficient corrections and human feedback contributing thoughtful, in-depth guidance for improvement.

Sabrina expressed a clear preference for peer feedback, emphasizing its meaningfulness and the effort that peers put into reviewing her work. She explained, "Peer feedback is more meaningful because they give their time to check my writing, and it's more effortful." Sabrina found that the personal connection and investment in

the feedback process made it more authentic and valuable to her, as peers were able to offer insights that felt more tailored and thoughtful than those from AI.

Ariana also favoured human feedback over AI, particularly for tasks that required nuanced understanding. She explained, "Human feedback is more valuable because AI is not always accurate in understanding what we want." Ariana felt that AI tools could sometimes misinterpret her intentions or the subtleties of her writing, whereas human reviewers, whether peers or instructors, were better able to grasp the context and intent behind her work. For her, the ability of humans to provide more precise and contextually aware feedback made it more reliable.

Niki shared a similar preference for human feedback, particularly when it came to important tasks. She noted, "For important tasks, I rely on my friends more because they give direct feedback that immediately makes sense." Niki found that peer feedback was often more immediately actionable, allowing her to understand and apply suggestions quickly. Unlike AI-generated suggestions, which sometimes felt impersonal or unclear, the feedback from her friends was direct and aligned with her expectations.

Olivia, on the other hand, emphasized the value of expert feedback from teachers. She remarked, "My teacher is more helpful because they are experts in this field and give specific, relevant feedback." Olivia appreciated the depth of understanding that her teacher's expertise brought to the feedback process, which she felt AI could not replicate. The ability to provide feedback that was not only accurate but also contextually rich and relevant to the subject matter made teachers' feedback more useful in her opinion.

3.1.3.2 Balancing AI and Human Feedback

Several participants noted that combining AI and human feedback created a balanced approach, allowing them to benefit from the strengths of each source for a more comprehensive writing improvement process. They appreciated how AI feedback provided instant, objective corrections, helping them quickly address grammatical errors and streamline sentence structure. At the same time, human feedback offered a deeper, more contextual perspective, focusing on aspects like clarity, tone, and argument flow that AI tools often overlook. By using both AI and human feedback, participants felt they could make immediate technical improvements while also gaining insights that helped them refine the overall quality and coherence of their writing. This combination was seen as especially effective for those aiming to develop both accuracy and depth in their writing, as it allowed them to approach revisions with a broader, well-rounded understanding.

Sabrina explained how she combines both AI and human feedback to improve her writing, saying, "After AI gives feedback, I often ask peers for help to balance between AI tools and human resources." This indicates that Sabrina values the complementary strengths of both sources. By integrating AI's quick feedback with her peers' insights, she was able to achieve a more comprehensive revision, ensuring that the final result was well-rounded and thorough.

Ariana shared a similar approach, describing her process of blending multiple feedback sources. She said, "I summarize feedback from AI, peers, and lecturers to develop my writing further." Ariana's strategy involves consolidating input from AI, peers, and instructors to enhance her writing. This approach allows her to refine her work by drawing from a variety of perspectives, ultimately helping her produce more polished and well-considered writing.

Niki also mentioned integrating AI and human feedback, explaining, "Sometimes I combine AI and friend feedback to decide what makes the most sense for my writing." Niki's process involves merging the technical insights provided by AI tools with the more nuanced, context-aware suggestions from her friends. This combination enables her to make more informed decisions about what revisions best align with her writing goals.

Taylor highlighted the practice of validating AI feedback with human input. She shared, "I use general comments from *ChatGPT* but clarify them with a real person to ensure accuracy." For Taylor, while she finds value in the general suggestions offered by *ChatGPT*, she seeks confirmation from human reviewers to ensure the feedback is accurate and applicable to her writing. This strategy helps her ensure the reliability of the feedback before making revisions.

These findings reveal that participants valued AI tools primarily for their immediate usefulness, ease of use, and efficiency in improving aspects of their writing, such as grammar, coherence, and clarity. Participants appreciated how AI tools could provide quick, automated feedback, enabling them to make immediate adjustments that enhanced the technical accuracy and readability of their work. However, they also recognized the distinct benefits of human feedback, particularly for its ability to offer nuanced, contextually relevant insights that AI tools might overlook. Human feedback was valued for its depth, personalized critique, and its capacity to address broader writing concerns, such as tone, argument development, and audience engagement. As a result, many participants adopted a blended approach, integrating both AI and human feedback to leverage the strengths of each method. This combined approach allowed them to achieve their writing goals more effectively by balancing rapid, automated corrections with thoughtful, in-depth guidance. Overall, participants felt that using both AI and human feedback provided a more comprehensive path to improving their writing skills, helping them produce work that was both polished and thoughtfully constructed.

3.2 Discussion

This study explores the research question, "How do EFL students perceive the use of AI feedback tools on their writing skills?" The findings reveal three key themes that align with TAM, which posits that PU and PEOU are critical factors in the acceptance of new technologies, especially in improving skills such as grammar, coherence, clarity, and efficiency.

The participants, aged 20 to 22, had varied academic backgrounds, with experience in taking 3 to 5 writing courses at their university. These courses included Writing for the Media, Creative Writing, Academic Writing, and Introduction to Research, which contributed to their familiarity with different types of writing tasks and tools.

The participants expressed a positive perspective on the perceived usefulness of AI tools, particularly in their ability to assist with error detection and provide instant feedback. AI tools were valued for enhancing coherence and clarity, which is consistent with Zheng & Xing's (2020) findings that AI-powered adaptive learning systems offer personalized guidance that improves language organization. The real-time feedback provided by AI tools helped create a structured learning environment, allowing students to reflect on their language use and make continuous improvements. This supports Hadiyanto (2019) observation that immediate feedback is a key driver of writing development. Thus, participants found AI tools particularly effective in improving their writing skills, as they provided timely, accessible corrections that helped them address various language issues more efficiently.

Regarding the perceived ease of use, most participants found AI tools like *Grammarly* and *ChatGPT* to be user-friendly, citing their clear interfaces and interactive features. This aligns with TAM's construct of perceived ease of use, which suggests that tools that are easy to navigate promote frequent and effective use (Davis, 1989). The participants appreciated the straightforward nature of AI feedback, as it made the writing process more manageable. These findings echo the work of Sumakul et al. (2022b), who found that AI tools help reduce anxiety and effort in EFL classrooms by offering structured, accessible feedback. The ease of use of these AI tools allowed students to focus more on the content of their writing and less on the technicalities of using the tool itself, promoting a smoother and more productive writing experience.

While participants recognized the advantages of AI tools, they expressed a preference for human feedback, especially for more complex or context-dependent writing tasks. This aligns with Ebadi & Amini's (2022) argument that while AI can provide valuable corrective feedback, human feedback remains crucial for addressing tone, audience considerations, and content depth. Participants appreciated the objectivity and speed of AI tools but valued the nuanced, personalized insights that human feedback can offer—insights that AI often lacks (Sumakul et al., 2022a). One key observation was that AI tools were particularly effective in improving grammar and structural accuracy. Previous studies by Chen et al. (2016) and Nurmayanti and Suryadi (2023) have shown that automated corrective feedback (ACF) aids self-directed learning by providing immediate grammar corrections, a finding echoed in this study. The timely feedback from AI allowed participants to correct errors they might have otherwise missed, supporting Wihastyanang et al. (2020) assertion that immediate feedback is crucial for enhancing learning.

Based on these findings, this study advocates for a hybrid feedback approach that combines the strengths of both AI and human feedback. This approach, as suggested by Marzuki et al. (2023), capitalizes on the advantages of AI's immediate grammar and structural corrections while also incorporating the nuanced, developmental guidance provided by human feedback. By integrating AI and human input, students can benefit from the technical accuracy AI tools offer while enhancing the overall quality of their content through personalized human feedback. This balanced approach can ultimately foster more comprehensive improvements in students' writing skills. These insights offer important pedagogical implications: Educators can incorporate AI tools as supplementary aids in writing instructions while continuing to provide human feedback for deeper learning. Integrating both approaches may also help instructors manage workload while ensuring students receive comprehensive support.

4 CONCLUSIONS AND SUGGESTIONS

The study reveals several important insights about how EFL students perceive and utilize AI-powered writing tools in their academic work. Through the lens of Davis' (1989) TAM, the research identified key themes in both PU and PEOU. In terms of PU, students found AI tools particularly valuable for grammar and structure improvement, enhancing coherence and clarity in writing, and increasing efficiency while saving time in the writing process. Regarding PEOU, the findings showed that most students found AI tools user-friendly and simple to navigate, with feedback that was generally clear and easy to understand, although some students struggled with complex suggestions.

Challenges also existed in AI's ability to fully grasp context and match individual writing styles. However, an important pattern emerged across participants: while they viewed AI tools as valuable aids for writing improvement, they consistently emphasized that these tools should complement rather than replace human feedback. Students maintained that teacher and peer feedback remained crucial for more nuanced and contextual writing development.

The study suggests that AI writing tools have become increasingly integrated into EFL students' writing processes, serving as helpful assistants for basic writing improvements while highlighting the continued importance of human guidance in the learning process. This balanced approach to utilizing AI tools alongside traditional feedback methods appears to be the most effective strategy for enhancing EFL students' writing skills. These findings have important implications for educational practices and the future development of AI writing tools, suggesting a need to focus on creating tools that better understand context and individual writing styles while maintaining their user-friendly nature.

However, this study has certain limitations. The small sample size of only six participants limits the generalizability of the findings. Furthermore, the study collected data exclusively through interviews, which might not capture the full range of participant behaviours and interactions with AI tools. A more diverse methodological approach, such as including classroom observations or task-based studies, could provide richer insights into how students use AI tools in real-time and their direct impact on writing performance.

Future studies should address these limitations by expanding the participant pool to include a larger and more diverse sample and employing mixed methods such as observations and writing assessments. This approach could offer a more comprehensive understanding of the relationship between AI feedback tools and EFL writing development. Furthermore, exploring the integration of AI feedback tools in different educational contexts and disciplines would provide valuable insights into their broader applicability and effectiveness.

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