

From Aid to Avoidance: The Psychological Impact of AI Tools on Grammar Learning Motivation among College Students

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Abstract

This qualitative study explores the psychological impact of AI grammar tools on college students' motivation to learn grammar, as well as the potential for avoidance behaviors resulting from their use. While prior research has emphasized the functional benefits of AI-assisted writing, limited attention has been given to how such tools affect learners' intrinsic motivation and engagement with grammar. Drawing from in-depth interviews with 25 college students, this study reveals that AI grammar tools—especially those offering real-time feedback and personalized corrections—enhance students' confidence, reduce anxiety, and support short-term motivation. However, findings also point to a concerning trend of avoidance, as several participants admitted to relying on these tools as substitutes rather than supplements to learning. This behavior reflects a diminished critical engagement with grammar rules and a tendency toward passive learning. The study concludes that although AI grammar tools offer significant support in academic writing, their educational value depends on guided and reflective use. Educators are encouraged to foster student awareness of grammar concepts and integrate AI tools into learning environments in a way that supports, rather than replaces, active grammar acquisition....

Keywords Bilingual language development, bilingual parenting, Filipino-English bilingualism

INTRODUCTION

The rapid integration of artificial intelligence (AI) in education has led to a surge in the use of grammar correction tools like Grammarly and AI-powered chatbots such as ChatGPT. These tools provide real-time automated corrective feedback (ACF) and enhance students' ability to produce grammatically accurate texts with minimal effort. Research indicates that AI grammar tools are generally perceived as useful, especially by non-native English speakers, for whom writing in academic contexts poses persistent challenges ^[1]. Students often report increased confidence, enhanced awareness of grammatical structures, and greater writing fluency after prolonged use of such platforms ^[2-3].

Several studies have explored learners' perceptions of these tools, often highlighting positive outcomes. Alotaibi ^[1], for example, conducted qualitative interviews with Saudi undergraduate EFL students and found that Grammarly helped raise grammatical awareness while improving writing clarity. Similarly, Inayah and Apoko ^[2] reported that Indonesian students appreciated Grammarly's ability to point out errors and explain corrections, contributing to self-reported writing improvement. Moreover, Dewi ^[4] found that learners felt empowered by Grammarly's suggestions, describing the tool as effective in facilitating self-editing.

However, these findings, while optimistic, raise concerns regarding the deeper, long-term effects on students' motivation to learn grammar independently. As noted by Rahimi, Fathi, and Zou ^[5], although AI-generated

feedback increases engagement in surface-level corrections, it does not necessarily translate to deep grammatical understanding or internalization. Students may begin to rely on the tool not as a support system, but as a replacement for learning. Ward et al. [6] found that frequent AI tool users reported improved academic performance, yet many admitted they had reduced their study time and efforts in mastering foundational writing skills, including grammar.

This concern is echoed in the study by Hoang and Van [4], who found that while Grammarly was perceived as precise and helpful, several students admitted to skipping grammar review steps entirely, trusting the tool to “fix” everything. A similar behavior was observed by Zuhriah et al. [4] among thesis-writing students who admitted they no longer consulted grammar references once Grammarly became part of their writing process. These behaviors suggest that AI tools might foster grammatical avoidance, wherein students bypass the cognitive effort needed for grammar mastery, relying instead on automation.

Despite these developments, much of the literature on AI grammar tools remains quantitative or perception-based. While studies like Erisyerico et al. [2] and Dewi [4] provide useful insights on student satisfaction and performance improvement, they fall short of exploring the psychological and motivational consequences of tool use. Few studies delve into students’ inner reasoning for continuing or abandoning grammar study, their self-perceptions as grammar learners, or whether using these tools erodes or reinforces their intrinsic motivation. Furthermore, Kim and Tan [8] caution that while AI can promote reflective thinking through scaffolded prompts, such effects vary widely depending on student mindset and prior motivation, which underscores the need for deeper qualitative inquiry.

Equally concerning is the finding by Xu [10] that many academic writers—particularly non-native users—rely on AI tools primarily for grammar correction, often without meaningful engagement with the corrected material. This pattern suggests a surface-level interaction with grammar that is driven more by convenience than by a desire to understand or improve. While such usage may yield grammatically correct outputs, it may also create a false sense of competence or diminish learners’ motivation to develop their own skills.

Thus, while AI grammar tools offer significant advantages in terms of efficiency and accuracy, their impact on students’ learning motivation—especially regarding grammar—is still underexplored. Most existing studies either generalize motivation in terms of writing as a whole or overlook it entirely. A specific qualitative examination into how students psychologically respond to AI feedback and how this shapes their willingness to learn grammar independently or avoid it altogether remains lacking in the literature.

This study seeks to fill that gap by exploring how college students experience and respond to AI grammar tools in the context of grammar learning. It aims to determine whether these tools act as supportive aids that encourage deeper grammatical understanding or whether they foster avoidance behaviors that limit independent grammatical improvement. By focusing on students’ own reflections and motivations, this research hopes to shed light on the nuanced psychological impact of AI grammar tools on grammar learning motivation.

LITERATURE

The integration of Artificial Intelligence (AI) tools in language learning has sparked significant interest among educators and researchers, particularly in the context of grammar acquisition and learner motivation. As AI technologies such as Grammarly, ChatGPT, and other generative tools become increasingly embedded in educational practices, their potential to enhance language learning outcomes, including grammar skills, has been widely acknowledged. However, the psychological effects of these tools on students’ intrinsic motivation, engagement, and learning behaviors remain less explored. This Review of Related Literature (RRL) aims to synthesize existing studies on the role of AI tools in language learning, with a specific focus on their impact on grammar acquisition, motivation, and the potential for over-reliance.

2.1 AI Tools in Language Learning: General Impact on Motivation and Grammar Acquisition

Recent studies have underscored the significant impact AI tools have on language learning, particularly in grammar acquisition, but have also pointed to the emerging challenges of student motivation and over-reliance. A systematic review conducted by Ahmed et al. [11] found that AI tools generally enhance English as a Second Language (ESL) learners’ motivation and academic success. However, the review highlighted a notable gap in qualitative studies exploring how students psychologically experience these motivational dynamics, particularly regarding grammar learning and avoidance behaviors. Similarly, Zheldibayeva et al. [12] conducted a pilot study

that revealed AI-driven feedback was instrumental in supporting iterative writing progress and engagement, but focused on general writing development rather than the specific effects on grammar learning motivation. These findings align with Fan et al. [13], who identified risks associated with AI dependency, such as stagnation in knowledge transfer, which may ultimately undermine deeper learning processes. These studies reveal a need for further exploration of how AI tools psychologically impact grammar learning motivation and whether they promote avoidance behaviors in students.

Furthermore, Xu, Su, and Liu [14] offer insights into how AI-generated feedback improves engagement in translation revision, yet they suggest that inconsistent student reactions point to the need for refined AI feedback mechanisms that better support grammar learning motivation. Xu, Su, and Liu [14] also shed light on the cognitive engagement students exhibit with AI-powered feedback, underscoring the potential of such tools to enhance the revision process, but noting that further research is required to explore their broader implications in language learning. Zamaraeva et al. [15], with their Grammar Assistance Using Syntactic Structures (GAUSS) system, reveal that AI-driven grammar coaching can promote autonomous learning without imposing social pressures, supporting the idea that AI tools can facilitate independent grammar learning in a balanced way. These studies collectively underscore the importance of refining AI tools to avoid over-dependence while enhancing student motivation to engage meaningfully with grammar learning.

2.2 Student Experience and Motivation in Grammar Learning with AI

Recent studies further illuminate the multifaceted role of AI tools in language learning, particularly with respect to grammar acquisition and student motivation. Fang [16] emphasizes the role of AI in enhancing ESL learners' engagement, revealing that personalized feedback from AI tools fosters intrinsic motivation and emotional connections to learning. This aligns with Farhan [17], who highlights the positive impact of AI on grammatical accuracy but cautions about potential over-reliance, which may hinder students' creativity and independent editing abilities.

The influence of AI on student motivation, particularly in relation to grammar learning, is a crucial yet underexplored area. In a comparative study of postgraduate English as a Foreign Language (EFL) students using Grammarly, Mekheimer [18] found improvements in grammatical form and organization, alongside increased confidence. However, there were limitations in content and fluency, as well as concerns from students regarding over-reliance on the tool. This highlights the complex nature of AI's influence on intrinsic motivation to study grammar. Similarly, a study in the Chinese Chinese as a Second Language (CSL) context (2025) confirmed AI-assisted writing tools' positive effects on grammar and vocabulary but did not examine motivation in specific terms.

The integration of AI tools in language learning, particularly in grammar acquisition, can be understood through several theoretical lenses, including Self-Determination Theory (SDT), the Input Hypothesis, and Social Interactionist Theory. These theories collectively provide valuable insights into how AI tools influence student motivation, engagement, and language learning outcomes.

Self-Determination Theory (SDT), developed by Deci and Ryan [19], emphasizes that motivation is most effective when it is intrinsic, stemming from the fulfillment of three basic psychological needs: autonomy, competence, and relatedness. In the context of AI tools, SDT suggests that these tools can enhance learners' intrinsic motivation by providing personalized feedback and adaptive learning experiences. AI tools allow learners to progress at their own pace (fostering autonomy), offer real-time feedback that helps learners experience mastery (competence), and, in some cases, provide opportunities for interaction with peers, which can build a sense of community and relatedness. By supporting these psychological needs, AI tools can foster intrinsic motivation, encouraging learners to engage more deeply and consistently with grammar learning.

The Input Hypothesis, proposed by Krashen [20], highlights the importance of "comprehensible input" in language acquisition, arguing that learners acquire language most effectively when exposed to material that is just beyond their current proficiency level ($i+1$). AI tools like grammar checkers and adaptive learning platforms are well-positioned to provide this type of input. By offering real-time corrections and tailored feedback, AI tools expose learners to grammar and language structures that challenge them but remain understandable with the assistance provided. This form of scaffolding supports language learners by presenting them with grammar material that pushes them to extend their current knowledge, thus facilitating deeper acquisition of grammatical rules and patterns.

Lastly, Social Interactionist Theory, rooted in Vygotsky's socio-cultural framework ^[21], emphasizes the role of social interaction in cognitive development. This theory asserts that language acquisition occurs most effectively through meaningful, interactive communication with others. AI tools can enhance language learning by simulating conversational partners or enabling peer interactions, providing opportunities for real-time practice and immediate feedback. These interactions help learners apply grammar in context, receive corrections, and refine their language skills in authentic communication scenarios. AI tools that promote collaboration and social learning align with this theory by facilitating a socially rich environment that supports both grammar acquisition and the development of language proficiency.

2.3 AI Tools and Teacher Perceptions

From the educator's perspective, concerns regarding AI tools' impact on student learning autonomy, ethical issues, and over-dependence remain prominent. Educators' reflections in the Philippine context Giray et al. ^[22] highlighted the risk of students misusing AI tools, such as paraphrasing software, which leads to complacency in writing skills. Similarly, research by Llausas et al. ^[23] emphasized that while Grammarly reduces grammatical errors and boosts confidence, it did not investigate the tool's impact on students' intrinsic motivation to independently learn grammar. These studies illustrate that while AI tools are seen as efficient and effective, there is an ongoing need to evaluate their effects on fostering independent, motivated learners.

Furthering the focus on practical application, Chavez, Anuddin, Mansul, et al. ^[24] examined how campus journalism impacts students' grammar consciousness and confidence in writing. Their findings highlighted that structured training and mentorship in journalism activities significantly enhanced students' writing competencies, expanding both their linguistic knowledge and literary skills.

2.4 Dependence on AI and Avoidance Behaviors

Dependence on AI tools raises concerns about students' motivation to engage with grammar independently. A study by Bulante et al. ^[25] found that while Grade 10 students in Ipil, Philippines, showed improvements in performance and positive attitudes toward AI, there was a noticeable lack of deep engagement with the writing process. The study did not explore whether such reliance on AI tools was linked to avoidance behaviors, where students deliberately avoid engaging in grammar learning due to the convenience offered by AI. This gap in qualitative data on avoidance behaviors is also noted in the works of Valdez et al. ^[26], who highlighted grammar improvements in academic writing but did not explore the internal motivations of students or their potential for avoiding grammar learning.

2.5 Cultural Context and AI Usage in the Philippines

Philippine-based studies on AI tools in language learning provide important insights into both positive outcomes and gaps in understanding student motivation. Bantoto et al. ^[27] revealed that third-year university students had positive perceptions of AI tools in academic writing, appreciating their ease of use and usefulness in improving writing skills. However, they did not investigate how such tools might influence students' intrinsic motivation toward grammar learning or contribute to dependency. Similarly, studies by Toledo ^[28] and Alieto et al. ^[29] reported improvements in writing proficiency but did not assess whether the use of AI tools led to avoidance behaviors or a decrease in motivation to study grammar independently.

The Philippines-based studies show a growing acceptance of AI tools in education, particularly in academic writing. However, there is still a lack of in-depth, student-centered research on how these tools affect the psychological aspects of learning grammar, such as intrinsic motivation and avoidance behaviors. While tools like Grammarly are helping students improve their grammar, the long-term impacts on autonomous learning remain unclear. These findings underscore the need for more qualitative research focusing on the psychological implications of AI reliance in language learning.

2.5 Ethical Concerns and Long-Term Educational Impacts

Ethical concerns surrounding the use of AI in academic settings have been addressed by various studies. Chavez et al. ^[30] pointed out issues like academic dishonesty, misinformation, and the over-reliance on AI, which could undermine the development of critical thinking skills. Adalia et al. ^[31] also noted that while AI tools are reshaping grammar acquisition through social learning, there is an ongoing need for educators to strike a balance between leveraging technological advancements and preserving academic rigor. Their findings highlight the need for pedagogical strategies that ensure AI tools support, rather than replace, authentic learning experiences.

Further research by Amilsahad ^[32] examined the ethical dilemmas surrounding AI usage in academic contexts, discussing how dependency on AI tools could compromise academic integrity and critical thinking. This adds a layer of complexity to the discussion on AI's role in education, as it calls for careful consideration of how AI tools are integrated into curricula to avoid detrimental effects on student learning behaviors.

The literature collectively illustrates that AI tools have positive effects on grammar acquisition, writing accuracy, and learner confidence. However, there remains a significant gap in understanding how these tools impact students' intrinsic motivation, particularly regarding grammar learning. While many studies focus on the effectiveness of AI in improving writing skills, few investigate the psychological dynamics at play, such as motivation, avoidance behaviors, and long-term dependency on AI tools. To fully leverage the benefits of AI in language learning, future research should explore these aspects through qualitative studies that provide deeper insights into students' internal experiences and motivations. Addressing this gap will be essential for developing effective, balanced pedagogical strategies that encourage autonomous learning while integrating AI tools in ways that foster genuine academic growth specifically in grammar learning.

METHODOLOGY

3.1. Research design

This study utilized a qualitative research design, specifically adopting a phenomenological approach, to deeply explore and understand the psychological impact of AI grammar tools on college students' motivation to learn grammar. Phenomenology focused on describing and interpreting individuals' lived experiences, seeking to uncover the essence and meaning of a particular phenomenon as perceived by those who directly encountered it ^[33]. In the context of this study, the phenomenon involved how students psychologically experienced and responded to the integration of AI tools in their grammar learning process.

Choosing a phenomenological design was particularly fitting because motivation and psychological impact are inherently subjective and complex constructs that could not be adequately quantified through surveys or standardized tests alone. Merriam and Tisdell ^[34] emphasized that qualitative research is best suited for studies aiming to understand participants' perspectives, feelings, and attitudes in rich detail. By exploring students' narratives, the study aimed to reveal nuanced insights into how AI tools either fostered motivation or inadvertently promoted avoidance behaviors in grammar learning.

Furthermore, the phenomenological approach allowed the researcher to bracket preconceived notions and focus purely on participants' descriptions, enabling a more authentic and empathetic understanding of their experiences ^[35]. This method facilitated the uncovering of underlying psychological themes, such as feelings of confidence, anxiety, dependence, or empowerment associated with AI use.

Data were collected through in-depth, semi-structured interviews, which provided flexibility for participants to express their thoughts and emotions freely, while allowing the researcher to probe for further clarification and elaboration on significant points ^[33]. This approach aligned with the study's goal to capture not only what students thought about AI tools but also how these tools affected their motivation to engage actively with grammar learning.

3.2. Population and sampling

The participants of this study consisted of 25 college students enrolled in undergraduate programs at various college universities. These students were selected purposively to ensure that they had relevant experience with AI grammar tools, such as Grammarly, ChatGPT, or other similar applications, which were central to the focus of this research. Purposive sampling was appropriate for this qualitative study, as it allowed the researcher to intentionally select participants who could provide rich, detailed, and meaningful data about the phenomenon being explored ^[33,36]. To ensure that the selected respondents were qualified to provide valuable insights into the psychological impact and motivational effects of AI grammar tools, several criteria were applied. First, participants were required to be active undergraduate students, ensuring that they were currently engaged in academic writing tasks where AI tools might be used ^[34]. Second, they must have used AI grammar tools at least three times in their academic work. This usage frequency criterion ensured that participants had practical experience with these tools, allowing them to reflect meaningfully on how such tools influenced their motivation and grammar learning behaviors ^[34]. Third, participants had to be willing to provide informed consent and

participate in in-depth interviews, as the study required detailed personal reflections that only willing and engaged participants could offer ^[36].

3.3. Instrument

The primary instrument for data collection in this study was a semi-structured interview guide designed to explore the lived experiences of college students regarding their use of AI grammar tools and the impact on their motivation to learn grammar. Semi-structured interviews were particularly well-suited for qualitative phenomenological research because they provided a balance between focused inquiry and flexibility, allowing participants to express their thoughts and feelings in depth while enabling the researcher to probe for further elaboration and clarification ^[37].

The interview guide included open-ended questions aimed at uncovering participants' perceptions, attitudes, and emotional responses toward AI grammar tools, as well as how these tools influenced their engagement with grammar learning and any tendencies toward avoidance behaviors. This format encouraged rich, descriptive data that reflected the complexity of psychological and motivational factors involved ^[38].

Before finalizing the interview guide, a pilot test was conducted with a small group of students similar to the study participants to ensure clarity, relevance, and appropriateness of questions. Feedback from the pilot test was used to refine the instrument, enhancing its reliability and validity in capturing authentic participant experiences ^[37]. Furthermore, the interview guide was reviewed and validated by two experts in the field of language education and qualitative research to ensure the alignment of the items with the research questions and objectives.

Overall, the semi-structured interview guide served as a flexible yet focused tool, essential for gathering nuanced qualitative data on the psychological impact of AI tools on grammar learning motivation. **Table 1** presents the instrument of the study:

Table 1. Instrument of the study.

Objectives	Interview questions	Participants
To explore how the use of AI grammar tools influences the motivation of college students to learn grammar.	To what extent do you use AI grammar tools, and for what specific tasks do you commonly use them? In what ways do these AI tools assist you in understanding or learning grammar concepts? How has your motivation to improve your grammar skills been influenced by your regular use of these AI tools?	College Students in different universities
To examine whether reliance on AI tools fosters avoidance of grammar learning or encourages independent improvement.	Do you find yourself depending on AI tools instead of reviewing grammar rules yourself? Do you find yourself avoiding the effort to understand grammar rules because AI tools already provide quick corrections for you? What do you think are the main reasons you rely on AI grammar tools instead of reviewing or learning grammar concepts on your own?	

Data gathering procedure

The process of data collection began with securing the necessary approvals from the university's ethics review board and obtaining informed consent from all participants. Prior to the interviews, the selected college students were contacted via email or official communication channels to explain the purpose of the study, the voluntary nature of participation, and the confidentiality measures implemented to ensure their privacy and anonymity. Once consent was obtained, the semi-structured interviews were scheduled at times convenient for the participants. Each interview was conducted individually, either face-to-face in a quiet and private location on campus or through secure online platforms (such as Zoom or Google Meet), depending on participant preference and accessibility. The interviews lasted between 45 to 60 minutes, allowing sufficient time for participants to elaborate on their experiences and perceptions regarding AI grammar tools.

During the interviews, the researcher followed the prepared interview guide but remained flexible to probe deeper into emerging themes or seek clarifications as necessary ^[37]. All interviews were audio-recorded with participants'

permission to ensure accuracy in data collection. Field notes were also taken to capture non-verbal cues and contextual information that enriched the data analysis.

After completing the interviews, audio recordings were transcribed verbatim to prepare for a thorough qualitative analysis. Transcripts were carefully reviewed and checked against the recordings to ensure completeness and accuracy^[38]. Participants were given the option to review their transcripts to validate the information they had shared, thereby enhancing the credibility and trustworthiness of the data.

Data collection continued until data saturation was reached, meaning no new themes or insights emerged from additional interviews. This iterative process ensured the depth and richness of the findings while respecting participants' time and effort.

3.5. Data analysis

The qualitative data gathered from the semi-structured interviews were analyzed using thematic analysis, a widely used method for identifying, analyzing, and reporting patterns or themes within qualitative data^[39]. This approach allowed for a rich, detailed, and nuanced understanding of the participants' experiences and perceptions regarding the psychological impact of AI grammar tools on their motivation to learn grammar.

The data analysis process began with the transcription of all audio-recorded interviews. The researcher engaged in familiarization by reading and re-reading the transcripts to immerse themselves fully in the data^[33,39]. Initial codes were then generated, capturing significant features of the data relevant to the research questions.

Following coding, the researcher searched for themes by collating codes into potential themes that represented broader patterns of meaning^[39]. These themes were reviewed and refined in an iterative process to ensure they accurately reflected the data and research objectives. Finally, the themes were clearly defined and named, allowing the researcher to construct a coherent narrative that addressed the research questions^[39].

To enhance the rigor and trustworthiness of the analysis, techniques such as member checking, peer debriefing, and maintaining an audit trail were employed^[40]. Member checking involved returning to participants to validate the findings, ensuring their perspectives had been accurately represented. Peer debriefing provided an external check on the research process, while an audit trail documented all decisions made during the analysis for transparency.

This systematic approach to data analysis enabled the researcher to explore deeply how AI grammar tools influenced college students' motivation and learning behaviors, generating insights that were both credible and meaningful.

3.6. Ethical considerations

This study adhered to the highest ethical standards to ensure the protection and respect of all participants throughout the research process. Prior to data collection, ethical clearance was sought from the university's Institutional Review Board (IRB) or Ethics Committee to ensure compliance with established guidelines for conducting research involving human subjects^[41].

Informed consent was obtained from each participant before their involvement in the study. Participants were fully informed about the purpose of the research, the nature of their participation, and their rights, including the right to withdraw at any time without penalty^[42]. The consent form also explained how data would be collected, stored, and used, assuring participants of confidentiality and anonymity throughout the research^[33].

Confidentiality was maintained by assigning pseudonyms or codes to participants, and any identifying information was removed from transcripts and reports to prevent the tracing of data back to individuals^[43]. Audio recordings and other sensitive materials were securely stored and accessible only to the researcher and authorized personnel. Furthermore, the study respected participants' emotional and psychological well-being by creating a supportive environment during interviews. The researcher remained attentive to signs of discomfort or distress and provided the option to pause or discontinue the interview if needed^[42]. The study aimed to minimize any potential harm and ensure that participation was a positive and empowering experience. This research maintained integrity and trustworthiness, fostering respect for participants and ensuring the validity and credibility of the study findings.

RESULTS

Research Objectives 1. To explore how the use of AI grammar tools influences the motivation of college students to learn grammar.

Question No. 1. To what extent do you use AI grammar tools and for what specific tasks do you commonly use them?

1.1 Frequency of AI Grammar Tool Usage

20 out of 25 students use AI grammar tools in their daily academic tasks. It reflects the degree to which these tools have been integrated into students' learning routines. Many students indicated that they use AI tools regularly, whether for quick grammar checks or as a more integral part of their writing process. The frequent use of these tools highlights their growing role in academic support, providing students with immediate feedback and reinforcing grammar learning in real-time.

Participant 4: "I use Grammarly almost every time I write something for school—whether it's a simple email to a professor or a long research paper. It helps me catch small errors I wouldn't have noticed, like misplaced commas or incorrect verb tenses. I often use it to check my grammar after I've written the initial draft, and it gives me the confidence to submit my work. I also use it when I'm unsure about sentence structure, as it gives me suggestions that improve my writing significantly."

Participant 9: "I tend to use AI tools like Grammarly when I'm preparing essays or assignments. It's not just about fixing mistakes; I often use it to help me structure my sentences better, especially with academic writing where every word has to be precise. I also check for style and tone adjustments to ensure that my work aligns with academic standards. I find it invaluable for longer projects, as it helps me maintain focus on content without getting distracted by small grammar issues along the way."

1.2 Specific Tasks for Which AI Tools Are Used

23 out of 25 students utilize AI tools for a range of activities, from general grammar and spelling checks to more complex tasks like improving sentence structure, ensuring academic tone, and enhancing overall readability. This theme reveals that AI tools are not merely used for correcting errors, but also for refining the style, tone, and structure of academic writing. This level of versatility in task application emphasizes how AI tools have become integral to various stages of writing.

Participant 8: "I primarily use AI tools like Grammarly to check for basic grammar and spelling mistakes, but I also use it for style improvement. When I'm working on assignments, I check for sentence clarity and structure. Sometimes, it helps me to improve my writing tone, especially for more formal essays and research papers. It makes sure that the language is academically appropriate and free from errors."

Participant 14: "For me, AI tools are essential when I'm writing research papers or essays. I don't just use them for grammar; I rely on them to help me with sentence flow and even vocabulary suggestions. For example, I use it to ensure my sentences aren't too long or awkwardly structured. I also rely on AI to check if my citations are correctly formatted, which helps in the final stages of my writing."

Question No. 2. In what ways do these AI tools assist you in understanding or learning grammar concepts?

2.1 Immediate Feedback and Explanation of Grammar Rules

This theme revolves around how AI tools help students learn and understand grammar concepts by providing immediate feedback and explanations. Around 20 out of 25 participants stated that AI tools are particularly beneficial for clarifying grammar rules and helping them understand their mistakes in real-time. The instant feedback they receive allows students to learn from their errors immediately, strengthening their comprehension of grammar rules and helping them apply those rules in future writing tasks. The ability to receive corrections and detailed explanations aids students in internalizing grammar concepts, making them more aware of recurring issues they need to focus on.

Participant 16: "Whenever I make a grammar mistake, the AI tool corrects it right away and gives me an explanation of why the correction is necessary. For example, when I misused a verb tense in a sentence, it explained the difference between past simple and present perfect. This immediate feedback helps me learn the concept behind the mistake, so I don't repeat it in the future."

Participant 21: "AI tools are really helpful for explaining grammar rules. For instance, when I get a sentence correction, the tool often includes a brief explanation. It shows me why a specific tense is needed or how a punctuation mark changes the meaning of a sentence. This step-by-step clarification allows me to understand why the correction was made and internalize the grammar rules I tend to overlook."

2.2 Grammar Learning Reinforced Through Repetition and Practice

Another prevalent theme is the use of AI tools to reinforce grammar concepts through repetitive practice. About 18 out of 25 participants noted that AI tools allow them to practice grammar rules repeatedly until they fully grasp them. This constant reinforcement helps students internalize grammatical structures and recognize common errors. Repeated exposure to corrected sentences and grammar explanations strengthens their retention of grammar concepts. These tools often provide exercises, quizzes, or suggestions that ensure students are consistently engaging with key grammar points, allowing for gradual mastery.

Participant 15: “Using AI tools to practice my writing has been super helpful. The tool doesn’t just fix my mistakes; it often gives me multiple examples of similar errors and how to fix them. This repetition helps me understand the patterns in grammar mistakes, like subject-verb agreement, and gradually I stop making those errors on my own.”

Participant 18: “What I love about these AI tools is the way they give me multiple chances to correct my mistakes. After fixing a mistake, I often see other sentences with similar errors, so I can practice. This repetitive practice has helped me recognize patterns in my writing, and I feel like I’m gradually getting better at using grammar correctly without needing constant feedback.”

2.3 Personalized Learning Experience and Focused Grammar Assistance

The third theme highlights how AI tools provide a personalized learning experience, allowing students to target specific grammar areas where they need improvement. About 17 out of 25 participants indicated that AI tools adapt to their individual learning needs, offering personalized grammar assistance based on the errors they make. AI tools help identify recurring mistakes and focus on these areas in future corrections, tailoring the learning experience to the student’s unique needs. This personalization makes grammar learning more efficient, as students can concentrate on the areas that matter most to their progress.

Participant 8: “One of the biggest advantages of using AI grammar tools is that they focus on the areas I struggle with the most. For example, the tool keeps highlighting my misuse of prepositions and offers suggestions specifically for that. Over time, it feels like the AI is getting to know my writing style and mistakes, which makes me feel like I’m getting personalized help.”

Participant 14: “AI tools are really great because they can target specific issues I have with grammar. For instance, if I consistently make mistakes with articles or punctuation, the tool will suggest corrections and point out those errors every time. It’s like having a tutor who focuses only on the areas I need to improve.”

Question No. 3. 3. How has your motivation to improve your grammar skills been influenced by your regular use of these AI tools?

3.1 Enhanced Motivation Through Immediate Feedback and Progress Tracking

The first theme reflects how students’ motivation to improve their grammar has been influenced by the regular use of AI tools through the provision of immediate feedback and the tracking of their progress. Approximately 20 out of 25 participants reported that AI tools increase their motivation by giving them instant feedback, which helps them see their improvements over time. Knowing that their writing is being continuously evaluated allows students to track their growth, which positively impacts their motivation. This real-time assessment boosts their confidence and encourages them to continue refining their grammar skills.

Participant 2: “Using AI tools regularly has really helped me stay motivated. The immediate feedback gives me a sense of progress every time I make a correction. I can see how my grammar has improved, and that keeps me motivated to continue learning. I’ve become more confident in my writing because I know I’m actively improving.”

Participant 12: “Every time I correct a mistake and understand the reasoning behind it, it motivates me to keep going. With AI tools, I can see that I’m getting better because it tracks my progress. I can look back at older documents and see fewer mistakes, which really encourages me to keep learning and improving.”

3.2 Increased Confidence and Reduced Fear of Making Mistakes

This theme explores how AI tools have reduced students’ fear of making grammar mistakes, which in turn has positively influenced their motivation to improve. About 18 out of 25 participants mentioned that using AI tools regularly made them less anxious about making mistakes. Knowing that AI tools would catch errors and offer corrections in real-time made them feel more secure in experimenting with their writing. This sense of security allowed students to focus more on developing their grammar skills, as they no longer feared making errors that would go unnoticed.

Participant 7: “Before I started using AI tools, I was really afraid of making mistakes, especially in my essays. I would second-guess myself a lot. But now, with AI tools, I feel like I can make mistakes and still learn from them. I’m not scared to write anymore because I know I’ll get feedback and be able to improve, which has made me more motivated to focus on my grammar.”

Participant 19: “I used to avoid writing because I was always worried about grammar mistakes. Now, with AI tools, I’m not afraid to make errors. They help me correct them right away, and this has given me the confidence to push myself further. I feel more motivated to improve because I know I’m not going to be judged for my mistakes but instead helped to get better.”

3.3 Reinforcement of Consistent Grammar Practice and Long-Term Motivation

The third theme emphasizes how regular use of AI tools has fostered consistent grammar practice, leading to long-term motivation. Around 17 out of 25 participants expressed that AI tools encouraged them to practice grammar more consistently. These tools offer suggestions and reminders that keep students engaged, making them more likely to incorporate grammar practice into their daily routines. By offering exercises or highlighting frequent mistakes, AI tools help students continuously engage with grammar learning, which fosters long-term motivation for self-improvement.

Participant 9: “One thing I’ve noticed is that using AI tools has helped me practice grammar every day. The tool catches errors, and after a while, I start to recognize the same patterns in my mistakes. This constant reinforcement makes me want to keep practicing. It’s like a reminder every time I write that I still have room to improve, which motivates me to stay consistent.”

Participant 15: “The AI tool has become part of my daily writing routine. I check my grammar every time I write, and this consistency has made me realize how important it is to practice. It’s not just about correcting mistakes, but about seeing my own progress and continuing to build on it. This constant practice makes me more motivated to keep improving over time.”

Research Objectives 2. To examine whether reliance on AI tools fosters avoidance of grammar learning or encourages independent improvement.

Question No. 1. Do you find yourself depending on AI tools instead of reviewing grammar rules yourself?

1.1 Increasing Dependence on AI Tools for Grammar Correction

This theme examines whether students are becoming increasingly reliant on AI tools rather than independently reviewing grammar rules. About 15 out of 25 participants reported that they do depend on AI tools frequently for grammar correction, sometimes to the point of skipping their own review of grammar rules. These students often turn to AI tools to resolve grammar mistakes, rather than taking the time to revisit the rules they’ve learned. While these tools provide quick fixes, they may inadvertently discourage students from deepening their understanding of grammar concepts, as they become accustomed to relying on the tool for correction rather than self-correction.

Participant 3: “Honestly, I tend to rely on Grammarly most of the time, especially when I’m working on an assignment. It’s just easier to get the quick corrections rather than spend time reviewing the grammar rules myself. I know that I should probably go back and study those rules, but I often don’t have the time, so I let the tool do the work for me.”

Participant 11: “I use AI tools a lot for grammar checks, especially when I’m in a rush. I feel like I don’t need to review the rules myself because the tool catches all my mistakes. Sometimes, I even feel like I’m bypassing the whole learning process, but it’s just so much quicker to fix things with AI.”

1.2 Passive Learning Due to AI Reliance

This theme focuses on the passive learning that can result from over-reliance on AI tools for grammar correction. 21 out of 25 participants reported that while AI tools help them complete tasks efficiently, they sometimes avoid actively engaging with grammar rules and concepts. The convenience of having AI tools correct their mistakes often leads students to accept the corrections without taking the time to understand why the mistake occurred or how to fix it independently. As a result, students may rely on AI tools for feedback without internalizing the grammar rules themselves, leading to a passive approach to learning that could hinder their long-term mastery of grammar.

Participant 6: “I’ve noticed that I often use AI tools just to get my writing done faster. While it corrects all my mistakes, I don’t always take the time to understand why a certain correction was made. It’s like I’m letting the

tool do all the thinking for me. I'm not actively learning the rules, I'm just getting feedback. It feels like passive learning."

Participant 13: "I'm guilty of using AI tools to quickly fix my grammar issues, but I realize that I don't really learn from them. The AI tool fixes my mistakes, but I don't always go back to check the grammar rule behind it. I feel like I'm just relying on the tool to do the work for me, which makes my learning experience less active. I'm not engaging with the grammar as I should."

1.3 *Balancing AI Dependence with Occasional Grammar Rule Review*

This theme highlights students who acknowledge a balance between using AI tools and still reviewing grammar rules themselves. Around 10 out of 25 participants said that while they use AI tools regularly, they also try to go back and review grammar rules independently, especially when they encounter recurring mistakes. These students use AI tools as a supplementary resource rather than a replacement for studying grammar. The tools help them spot errors quickly, but they still recognize the importance of understanding the underlying rules in order to improve their grammar independently.

Participant 3: "I do rely on AI tools, especially for checking my grammar, but I try not to use them as a crutch. If I notice a mistake repeatedly, I'll look up the grammar rule to understand why it happened. I think the AI tool is great for spotting things I might miss, but I still make an effort to review rules when I feel I need to improve my knowledge."

Participant 17: "I'll use AI tools to help me with grammar, but I always make sure to review the grammar rules that the tool points out. If I don't understand why I made the mistake, I'll look it up. I think AI tools are useful, but I don't want to depend on them completely. I want to know the rules for myself and not just rely on the tool to fix everything."

Question No. 2. Have you witnessed any behaviors from your instructors that promote inclusivity or challenge gender stereotypes?

2.1 *Avoidance of Grammar Rules Due to AI Convenience*

This theme reflects how the convenience of AI tools can encourage students to avoid the effort of understanding grammar rules. 17 out of 25 participants reported that they often skip reviewing grammar concepts because AI tools quickly fix their mistakes, which reduces their motivation to engage with the rules behind those corrections. The instant feedback provided by AI tools, while helpful, sometimes results in students bypassing the learning process, choosing convenience over the deeper understanding of grammar rules.

Participant 2: "I know I should probably go back and review the grammar rules after using the AI tool, but honestly, it's so much easier to just let the tool fix everything for me. I don't have to spend time thinking about why I made the mistake. I don't actively learn the rules as much because the tool is just doing all the work for me."

Participant 13: "I've found that I don't feel the need to study grammar rules when I use AI tools because they give me the answers instantly. If I make a mistake, the tool corrects it right away, and I don't feel the urge to go back and figure out why the correction was made. It's like I've become lazy in understanding the rules because the AI handles it all."

2.2 *Over-Reliance on AI Tools Leads to Grammar Complacency*

This theme emphasizes how over-reliance on AI tools leads to complacency in grammar learning. About 15 out of 25 participants expressed that they increasingly rely on AI tools, which has made them complacent about reviewing grammar rules themselves. They feel that as long as the AI catches their mistakes, they don't need to engage with grammar on a deeper level. This reliance on external tools for corrections prevents them from developing their grammar skills independently, fostering a mindset where they believe they don't need to put in the effort to truly understand the rules.

Participant 7: "I don't really go back to review the grammar rules anymore. Since I started using AI tools, it feels like I don't have to put much effort into learning the rules. I'm just happy the tool fixes everything. It's a bit of a bad habit now; I don't feel the urgency to really understand why something is wrong when the AI just tells me what to do."

Participant 16: "I think AI tools have made me a bit complacent. Whenever I make a grammar mistake, the tool fixes it for me, and I don't bother to review the rules. I used to care more about understanding why certain things

are wrong, but now it just feels like I rely on the tool to do all the work. It's an easy way out, but I know it's not the best way to really learn."

2.3 Minimal Effort to Learn Grammar Due to AI-Driven Corrections

This theme discusses the minimal effort students put into learning grammar because of the quick fixes provided by AI tools. 13 out of 25 students still recognize the importance of understanding grammar rules, they admit that the convenience of AI-driven corrections discourages them from investing time and energy into learning the rules themselves. This results in superficial learning, where students are more focused on completing tasks rather than gaining a deeper understanding of the underlying grammar principles.

Participant 5: "I'll be honest, I don't spend a lot of time learning grammar anymore. I feel like with AI tools, I get quick fixes without putting in much effort. The AI just tells me what's wrong and what's right, but I don't always take the time to understand why. It's kind of a shortcut, but I know I should be working harder to understand the rules."

Participant 25: "I do make use of AI tools a lot, especially for assignments that need to be submitted quickly. It's like I let the tool do the hard work for me. I'm less motivated to go back and study grammar rules because the AI makes it easy. I just fix the mistakes the tool shows me and move on. But, looking back, I realize that I should be investing more time in learning the rules instead of just relying on the tool."

Question No. 3. "What do you think are the main reasons you rely on AI grammar tools instead of reviewing or learning grammar concepts on your own?"

3.1 Convenience and Time Efficiency

The primary reason students rely on AI grammar tools is their convenience and ability to save time. 23 out of 25 participants mentioned that using AI tools provides instant grammar corrections, making the process of writing faster and more efficient. For busy students who are managing multiple assignments or deadlines, AI tools offer a quick way to ensure that their work is grammatically correct without having to spend time reviewing rules or doing manual checks. The immediacy of the feedback is a significant factor in their reliance on these tools, as it makes the task of writing feel more manageable and less time-consuming.

Participant 1: "AI tools are so much more convenient than reviewing grammar rules on my own. I don't have to spend time going through a grammar book or Googling rules. I just write, run it through the tool, and get the corrections in seconds. It's faster, and when I have multiple assignments due, I can't afford to spend too much time on grammar review."

Participant 25: "Honestly, I use AI tools because they're quick. I don't have to spend hours trying to remember specific grammar rules or searching for explanations. The tool catches everything in a second, and I'm done. With so much schoolwork, it just seems more efficient to let the AI fix things rather than spending time studying the rules."

3.2 Lack of Confidence in Grammar Knowledge

Another common reason for relying on AI tools is the lack of confidence in grammar knowledge. About 18 out of 25 participants expressed that they don't feel confident in their grammar skills, and they rely on AI tools to provide reassurance. These students often fear making mistakes and prefer the certainty of AI corrections, as it guarantees that their writing is free of errors. AI tools help reduce their anxiety around grammar, making them feel more secure in their writing, even if they haven't fully mastered the underlying concepts.

Participant 8: "I'm not always sure about the grammar rules, especially when it comes to more complex structures. AI tools give me the confidence to write without second-guessing myself. I'd rather have the tool tell me if something's wrong than risk making an error that might affect my grade. It's like a safety net for me."

Participant 17: "I don't trust myself to catch all the mistakes, so I rely on AI to check everything for me. I know the rules, but sometimes I'm just not sure if I'm applying them correctly. The tool helps me feel confident that my work is correct, even if I don't fully understand the rules myself."

3.3 AI Tools as a Response to Academic Burden

This theme highlights how the academic burden and heavy workload often lead students to rely more heavily on AI tools. Many participants reported that the pressure of managing multiple assignments, exams, and deadlines makes it difficult to dedicate time to review grammar rules on their own. The convenience of AI tools helps alleviate some of this academic pressure, as students can quickly correct their grammar without needing to spend additional time learning the rules. This reliance on AI tools is a coping mechanism to manage the overwhelming

academic workload, allowing students to submit grammatically correct work with minimal effort. While it addresses the immediate demands of academic tasks, this approach can also contribute to students bypassing a deeper engagement with grammar learning.

Participant 11: “With all the assignments and exams I have to prepare for, it’s hard to find time to sit down and study grammar rules. AI tools make it easier for me to submit my work without having to spend hours reviewing grammar. It’s a quick fix that helps me manage the stress of all my academic responsibilities. Honestly, I don’t have the time to focus on grammar when I have so many other things to study for.”

Participant 18: “There’s so much academic pressure, especially during finals, that I barely have time to review grammar. Using AI tools takes the load off me because I can get my writing done faster and focus on other subjects. I feel like it’s the only way I can keep up with my workload. Reviewing grammar on my own just feels like another burden on top of everything else I already have to do.”

DISCUSSION

This first objective of the study explored how the use of AI grammar tools influences college students' motivation to learn grammar and the extent to which these tools assist in the learning process. Through qualitative interviews with students, several key themes emerged regarding the frequency and types of tasks AI grammar tools are used for, how these tools assist in understanding grammar concepts, and the broader effects on students' motivation to improve their grammar skills.

The theme of *Frequency of AI Grammar Tool Usage* highlights how often students incorporate AI tools into their academic work. The findings revealed that 20 out of 25 students use AI tools, particularly for grammar checks, sentence structure improvement, and ensuring academic tone. This demonstrates the significant role AI tools have come to play in students' writing processes. Inayah and Apoko^[2] noted that tools like Grammarly are increasingly popular, as they help students with writing accuracy and clarity, much like the findings of this study. Similarly, Alotaibi^[1] found that AI tools such as Grammarly improve grammar awareness and writing fluency. The frequent use of AI tools emphasizes their value as essential aids in academic writing. However, it suggests a need for educators to ensure that students do not over-rely on them, as it could hinder the development of deeper, more independent grammar understanding.

The theme of *Specific Tasks for Which AI Tools Are Used* explores the multifaceted ways in which students rely on AI tools, from basic grammar checks to enhancing sentence structure, tone, and readability. This highlights the tools' expanding role in improving various aspects of writing, beyond mere error correction. Dewi^[4] and Inayah and Apoko^[2] similarly found that students use AI tools not only to correct errors but also to refine writing style, structure, and tone. These tools aid in achieving a more polished, academic style, as students can focus on content rather than worrying about grammatical issues. The use of AI tools for diverse writing tasks shows their potential to enhance writing quality. However, this may reduce students' engagement in manual revision, leading to a possible dependency that undermines the development of autonomous writing skills.

The theme of *Immediate Feedback and Explanation of Grammar Rules* reflects how AI tools provide real-time corrections and explanations, helping students understand their mistakes and internalize grammar rules. This mechanism allows students to learn grammar concepts through immediate correction, making the learning process more interactive and practical. Research by Erisyerico et al.^[3] and Inayah and Apoko^[2] supports these findings, showing that real-time feedback from AI tools enhances students' understanding of grammar rules and reinforces learning by providing clear explanations of mistakes. Immediate feedback aids grammar comprehension and internalization, yet it may limit critical thinking if students become too reliant on instant corrections without fully understanding the reasoning behind the grammar rules.

The theme of *Grammar Learning Reinforced Through Repetition and Practice* indicates that AI tools help reinforce grammar concepts through continuous practice. Students repeatedly engage with corrected examples, allowing them to identify patterns in their errors and internalize grammar rules over time. Xu^[10] and Inayah and Apoko^[2] also highlighted how repeated exposure to corrections through AI tools reinforces grammar learning. These findings support the study's conclusion that repetition aids in retention and mastery of grammar rules. While repetition through AI tools helps in short-term learning, over-reliance on such practices may lead to passive learning, where students memorize corrections without gaining a deeper understanding of the grammatical rules themselves.

The theme of *Personalized Learning Experience and Focused Grammar Assistance* reveals that AI tools adapt to students' individual learning needs by providing feedback based on recurring errors. This targeted support allows students to concentrate on areas where they need the most improvement. Farhan ^[17] and Dewi ^[4] similarly found that personalized feedback from AI tools boosts students' engagement with grammar learning, helping them address specific weaknesses and improve more efficiently. Personalized support through AI tools makes grammar learning more efficient, but it may lead to dependency, preventing students from learning to identify and correct their mistakes independently.

The theme of *Enhanced Motivation Through Immediate Feedback and Progress Tracking* highlights how instant feedback from AI tools motivates students by providing tangible evidence of improvement. As students track their progress, their confidence grows, encouraging continued grammar practice. Alotaibi ^[11] and Erisyerico et al. ^[4] found that immediate corrective feedback helps increase students' confidence and motivation, leading to greater engagement with grammar learning. This finding aligns with the current study's results that AI tools can boost motivation by providing feedback and tracking progress. While immediate feedback and progress tracking foster motivation, this reliance on external validation could reduce intrinsic motivation for learning. Students may focus more on external markers of progress rather than internalizing grammar concepts on their own.

The theme of *Increased Confidence and Reduced Fear of Making Mistakes* explores how AI tools help reduce students' anxiety about making errors. Real-time corrections provide reassurance, allowing students to approach writing with more confidence and less fear of failure. Zuhriah et al. ^[8] and Inayah and Apoko ^[2] also found that AI tools significantly reduce students' fear of making grammar mistakes, fostering greater confidence and a willingness to engage with writing tasks. The reduction in anxiety due to AI tools is essential for motivating students, but it is important to ensure that students do not become overly reliant on these tools for reassurance, as it may hinder the development of independent writing skills.

The theme of *Reinforcement of Consistent Grammar Practice and Long-Term Motivation* shows that regular use of AI tools encourages continuous grammar practice, which is crucial for long-term skill development. This consistent engagement with grammar learning helps maintain students' motivation over time. Inayah and Apoko ^[2] and Erisyerico et al. ^[4] highlighted the role of AI tools in fostering consistent practice, which leads to improved proficiency and sustained motivation. This study's findings reinforce the importance of AI tools in promoting long-term engagement with grammar learning. Consistent practice through AI tools supports long-term motivation, but it is important to ensure that this practice is balanced with opportunities for deeper learning. Without critical reflection, students may rely too heavily on AI tools, undermining their ability to understand grammar at a deeper level.

The second research objective sought to explore whether reliance on AI tools fosters avoidance of grammar learning or encourages independent improvement. The results reveal a nuanced relationship between AI tool usage and students' engagement with grammar learning. While some students rely heavily on AI tools for efficiency and reassurance, others attempt to balance this reliance with independent review of grammar rules. The following themes highlight the varying ways in which AI tool usage influences students' grammar learning behaviors and motivations, as well as the implications for their academic development.

The theme *Increasing Dependence on AI Tools for Grammar Correction* examines how students are increasingly dependent on AI tools for grammar correction, often bypassing their own review of grammar rules. About 15 out of 25 participants admitted that they often rely on AI tools for grammar correction, preferring quick fixes over revisiting the rules themselves. As noted by Chavez et al. ^[24], AI tools are seen as a time-saving resource, but their frequent use can lead students to neglect deeper engagement with grammar. This is further supported by Adalia et al. ^[31], who emphasized the risk of students becoming reliant on AI tools instead of developing their own grammar skills. Similarly, Alieto and Mangila ^[29], observed that students may begin to see AI tools as a replacement for the cognitive effort needed to learn grammar rules independently. The growing dependence on AI tools for grammar correction suggests that students may not be fully developing their grammar skills. It is crucial to encourage students to balance AI assistance with the active review of grammar rules to foster a more comprehensive understanding of grammar.

The theme *Passive Learning Due to AI Reliance* reflects students' lack of motivation to learn grammar deeply. According to them AI tools make tasks more efficient, they often do not take the time to understand the reasoning behind the corrections. Similar concerns were raised by Chavez et al. ^[24], who argued that AI tools facilitate

surface-level learning but can hinder deeper engagement with the material. Kim and Tan ^[9] also emphasized that AI tools can discourage critical thinking by providing immediate fixes without requiring students to understand the underlying grammar principles. Chavez et al. ^[24] also found that the speed and convenience of AI feedback, while useful, might contribute to a more passive approach to learning. Over-reliance on AI tools can lead to passive learning, where students accept corrections without internalizing grammar rules. It is essential to encourage students to engage critically with the feedback provided by AI tools to promote active learning. The theme *Balancing AI Dependence with Occasional Grammar Rule Review* highlights students who balance their use of AI tools with independent grammar rule review. About 10 out of 25 participants stated that while they frequently use AI tools, they make an effort to revisit grammar rules when they encounter recurring mistakes. Research by Dewi ^[4] and Alieto ^[29] shows that students who combine AI tool usage with independent learning tend to retain more grammar knowledge and improve their writing skills over time. Similarly, Farhan ^[17] found that students who actively reviewed grammar rules in addition to using AI tools performed better in grammar tests. Encouraging students to balance AI tool use with self-review of grammar rules can enhance their learning. This approach ensures that students do not become overly dependent on the tools, while still benefiting from the immediate feedback they provide.

The theme *Avoidance of Grammar Rules Due to AI Convenience* explores how AI tools' convenience leads students to skip the effort of reviewing grammar rules. About 17 out of 25 participants admitted that the ease of using AI tools to correct mistakes discouraged them from reviewing grammar concepts independently. Zuhriah et al. ^[8] observed that AI tools can inadvertently encourage avoidance behaviors, where students bypass the cognitive effort required to engage with grammar learning. Similarly, Alieto and Mangila ^[29] found that the ease of using AI tools for corrections could reduce students' motivation to study grammar rules in -depth. Chavez et al. ^[24] also highlighted those students, when offered instant corrections, often lose the incentive to engage in more active, thoughtful learning processes. While AI tools provide valuable convenience, they may encourage avoidance of grammar learning. It is important to balance the use of AI tools with efforts to ensure that students actively engage with the rules and concepts behind their corrections.

The theme *Over-Reliance on AI Tools Leads to Grammar Complacency* examines how excessive reliance on AI tools leads to complacency in grammar learning. Approximately 15 out of 25 participants admitted that they no longer felt the need to independently review grammar rules, as AI tools corrected all their mistakes. Ward et al. ^[6] highlighted similar findings, noting that over-reliance on AI tools leads students to feel that they do not need to engage with the material themselves. This complacency can hinder their ability to learn grammar independently and stifle further development in writing. Chavez et al. ^[24] similarly found that students' increasing dependence on AI for grammar corrections led to a sense of complacency, where learning was no longer seen as necessary. Over-reliance on AI tools can breed complacency, where students no longer feel motivated to engage with grammar rules themselves. Encouraging students to take a more active role in their grammar learning can help mitigate this issue and promote deeper understanding.

The theme *Minimal Effort to Learn Grammar Due to AI-Driven Corrections* discusses how the quick fixes provided by AI tools discourage students from investing effort into learning grammar. About 13 out of 25 students admitted that while they recognize the importance of grammar, the convenience of AI-driven corrections led them to avoid investing the time necessary to understand the underlying rules. Fan et al. ^[13] found that the superficial nature of AI corrections can prevent students from engaging in the more complex aspects of grammar learning. Similarly, Chavez et al. ^[30] noted that while AI tools provide immediate feedback, they often prevent students from truly understanding grammar concepts and rules, leading to a more passive approach to learning. While AI tools offer efficient corrections, they should not replace active learning. Encouraging students to delve deeper into the grammar rules behind AI suggestions is critical for developing a well-rounded understanding of grammar. The theme *Convenience and Time Efficiency* centers on how the convenience and time-saving nature of AI tools make them a popular choice for students. About 23 out of 25 participants highlighted that the immediate feedback provided by AI tools saves them time, allowing them to quickly complete assignments without having to manually check grammar rules. Chavez et al. ^[30] emphasized that students value the time-saving aspects of AI tools, especially during periods of high academic demand. This efficiency is beneficial, particularly when students are juggling multiple assignments and deadlines. While the time efficiency of AI tools is beneficial, it is essential for

students to recognize that convenience should not come at the cost of learning. Educators should encourage students to balance the use of AI tools with time spent actively reviewing grammar concepts.

The theme *Lack of Confidence in Grammar Knowledge* explores the role of AI tools in boosting students' confidence in their grammar skills. About 18 out of 25 participants admitted that they use AI tools because they lack confidence in their grammar knowledge, relying on the tools for reassurance that their writing is grammatically correct. Erisyerico et al. [4] found that students often turn to AI tools for reassurance when they are unsure about grammar rules. Similarly, Chavez et al. [4] noted that AI tools help reduce students' anxiety about making grammar mistakes, providing them with the confidence to write without second-guessing themselves. While AI tools can help boost students' confidence, they may also contribute to an ongoing lack of confidence in students' grammar abilities. Encouraging students to build self-confidence through active grammar study is important to reduce dependence on AI tools.

The theme *AI Tools as a Response to Academic Burden* highlights how the academic workload leads students to rely on AI tools for quick grammar fixes. Many participants reported that the pressure of managing multiple assignments made it difficult to find time to review grammar rules independently, so they turned to AI tools to reduce the burden. Alieto and Mangila [29] found that students often use AI tools as a coping mechanism to deal with the stress of academic demands, allowing them to quickly correct grammar without spending extra time learning the rules. Similarly, Chavez et al. [24] observed that AI tools are seen as essential in helping students meet deadlines, as they provide a quick and easy way to ensure grammatically correct writing. While AI tools help students manage academic pressure, they should not replace meaningful grammar learning. Encouraging students to use AI tools in conjunction with dedicated grammar study can help them balance academic demands with effective learning.

CONCLUSION

This study sought to explore the psychological impact of AI grammar tools on college students' motivation to learn grammar, while also examining whether these tools foster genuine engagement or lead to avoidance of grammar learning. While much of the existing literature emphasizes the performance-based advantages of AI tools, this research aimed to uncover the less visible psychological and behavioral implications, particularly in terms of students' attitudes and long-term learning habits.

Findings showed that AI grammar tools can indeed serve as catalysts for increased motivation, especially through features such as real-time feedback, error explanations, and personalized suggestions. Many students reported that these tools reduced their anxiety over grammatical errors and provided a sense of reassurance and efficiency, thereby increasing their willingness to write and revise. For some, this translated into more confidence and a heightened interest in grammar-related improvements.

However, the study also revealed a critical concern: a pattern of avoidance behavior among students who became overly reliant on AI tools. Rather than using them to understand grammar rules, some participants admitted to bypassing their own learning process, allowing the AI to "fix" their writing without reflection. This behavior suggests a passive learning style, where students gradually disengage from the cognitive task of understanding grammar, seeing it as unnecessary. In these cases, AI tools did not motivate deeper learning but instead facilitated an escape from it.

Therefore, this study concludes that while AI grammar tools have the potential to motivate students and support grammar learning, they also carry the risk of promoting avoidance if not used critically. The psychological impact of these tools is dual: they can either reinforce or reduce the learner's agency, depending on how they are used. In addressing the identified gap, this study contributes to a deeper understanding of how AI grammar tools influence not just writing accuracy, but also the learner's mindset, behavior, and motivation. It calls for a more pedagogically-informed use of AI tools in educational settings, where technological support is aligned with meaningful learning outcomes.

In light of the findings on the psychological impact of AI grammar tools on college students' motivation to learn grammar, this study recommends several actionable steps to ensure that these technologies support, rather than hinder, grammar learning.

First, educators must provide explicit guidance on the proper use of AI grammar tools. Instead of allowing students to rely on these tools as automatic correctors, teachers can integrate them into lessons as learning aids. For

instance, educators can design reflective activities where students explain the corrections suggested by the AI tool, helping reinforce grammar rules. Second, curriculum designers may consider blending traditional grammar instruction with AI-assisted learning, ensuring that grammar concepts are taught first, and then reinforced using AI tools. This hybrid approach promotes active learning while leveraging the benefits of technological support. Most importantly, grammar instruction should not be abandoned, but rather adapted to coexist with AI in a way that encourages critical engagement, not dependence. Acknowledging both the motivational benefits and the avoidance risks posed by AI grammar tools, this study calls for a balanced, reflective, and pedagogically guided integration of these technologies into the learning environment. Only through intentional use can we ensure that AI enhances—not replaces—students' capacity and willingness to learn.

Conflict of interest

The authors declare no conflict of interest..

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