

ChatGPT Integration in EFL Advanced Grammar Instruction: A Pedagogical Framework

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Abstract

This study addresses the growing integration of artificial intelligence in English as a Foreign Language (EFL) education, particularly in advanced grammar instruction where learners often face difficulties in mastering complex structures. It aims to examine how ChatGPT can support grammar learning based on established second language acquisition (SLA) theories and learners' perceptions. The study employs a qualitative descriptive design supported by a small-scale survey involving undergraduate students. Data were collected through questionnaires and a systematic literature review and analyzed thematically. The findings reveal that ChatGPT provides significant pedagogical affordances, including immediate corrective feedback, promotion of learner autonomy, and contextualized language use. Students also reported positive perceptions regarding its usefulness and ease of use. These findings align with key frameworks such as the Interaction Hypothesis, Sociocultural Theory, and Focus on Form. The study concludes that ChatGPT can effectively enhance grammar instruction when integrated within a structured pedagogical framework. This research contributes to the development of AI-assisted language learning models and offers practical implications for EFL practitioners and curriculum designers.

Keywords: ChatGPT; EFL Instruction; Grammar Learning; Language Pedagogy; Second Language Acquisition

1. Introduction

The integration of digital technology into education has significantly transformed teaching and learning practices, particularly in English as a Foreign Language (EFL) contexts. In recent years, the rapid development of artificial intelligence (AI) has contextually

appropriate language, and capacity to provide immediate feedback make it particularly promising for supporting language learning processes (Wang and Zhou 2026). In the context of EFL instruction, grammar remains one of the most challenging aspects for learners, especially at the advanced level. Students are expected not only to understand grammatical rules but also to apply them accurately and appropriately in diverse communicative situations. Advanced

grammar instruction involves complex structures such as inversion, reduced clauses, and conditional sentences, which require a high level of metalinguistic awareness (Ellis, 2006). However, traditional instructional approaches—often dominated by teacher-centered explanations and decontextualized exercises—frequently fail to provide sufficient opportunities for meaningful practice and immediate feedback. As a result, learners may struggle to achieve both grammatical accuracy and communicative competence. Recent developments in second language acquisition (SLA) research have emphasized the importance of interaction, scaffolding, and contextualized learning in grammar acquisition. The Interaction Hypothesis highlights the role of feedback and negotiation of meaning in facilitating language development, while Sociocultural Theory underscores the importance of guided learning within the Zone of Proximal Development. Similarly, the Focus on Form approach advocates integrating attention to grammatical structures within meaningful communication rather than teaching grammar in isolation. These theoretical perspectives suggest that effective

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grammar instruction should combine explicit knowledge with opportunities for interaction and real-time feedback. In this regard, AI-powered tools such as ChatGPT offer significant pedagogical potential. Unlike traditional grammar learning resources, ChatGPT allows learners to engage in dynamic interaction, receive immediate corrective feedback, and explore grammatical structures in context. It can function as a form of digital scaffolding, supporting learners' independent exploration while adapting to their individual needs. Previous studies have highlighted the potential of AI in language learning, particularly in enhancing learner autonomy and engagement (Godwin-Jones, 2022). However, most existing research focuses on general language skills such as writing or vocabulary development, with limited attention given to its role in advanced grammar instruction. Despite the growing interest in AI-assisted language learning, empirical studies specifically examining the integration of ChatGPT in EFL advanced grammar instruction remain limited, particularly in the Indonesian higher education context. Furthermore, there is still a lack of a structured pedagogical framework that guides the effective use of ChatGPT in grammar teaching. Without such a framework, the use of AI tools risks being superficial or supplementary rather than pedagogically

meaningful. Based on these considerations, this study aims to explore the integration of ChatGPT in EFL advanced grammar instruction from both theoretical and practical perspectives. Specifically, this study seeks to: (1) examine how ChatGPT supports advanced grammar learning; (2) analyze its alignment with established SLA theories; and (3) investigate students' perceptions of its effectiveness in supporting grammar instruction in higher education.

2. Literature Review

2.1 Theoretical Frameworks

The integration of ChatGPT in grammar instruction can be understood through several key frameworks in second language acquisition (SLA), which emphasize the roles of interaction, scaffolding, and meaningful communication in language learning. First, the Interaction Hypothesis (Long, 1996) posits that second language acquisition is facilitated through negotiation of meaning during interaction. In this process, learners benefit from opportunities to request clarification, receive modified input, and engage in feedback exchanges. ChatGPT's conversational interface enables learners to participate in extended dialogue, ask

questions, and receive immediate responses, thereby simulating interactional conditions that are considered optimal for language acquisition (Mackey & Goo, 2007). Second, Vygotsky's (1978) Sociocultural Theory highlights the importance of social interaction and scaffolding in cognitive development, particularly within the Zone of Proximal Development (ZPD). Learning occurs most effectively when learners receive guided support from a more knowledgeable other. In this context, ChatGPT can function as a form of digital scaffolding by providing explanations, examples, and corrective feedback tailored to learners' needs. This allows learners to gradually develop their grammatical competence through mediated interaction (Lantolf & Thorne, 2006; Warschauer & Meskill, 2000). Third, the Focus on Form approach (Long, 1991) emphasizes the importance of drawing learners' attention to linguistic forms within meaningful communicative contexts rather than through isolated rule-based instruction. This approach suggests that grammar learning is more effective when embedded in authentic language use. ChatGPT naturally supports this principle by integrating grammatical feedback within contextually rich and responsive dialogue, enabling learners to notice, reflect on, and correct their errors in real time (Doughty & Williams, 1998; Ellis et al., 2002). Together,

these theoretical frameworks provide a strong foundation for understanding the pedagogical potential of ChatGPT in EFL grammar instruction, highlighting its capacity to facilitate interaction, support scaffolding, and promote form-focused learning within meaningful communication.

2.2 Artificial Intelligence in Education

The increasing integration of artificial intelligence (AI) in educational settings has created new opportunities for language learning that were previously difficult to achieve. AI-assisted tools have been shown to enhance learner engagement, provide personalized feedback, and enable flexible access to learning resources beyond the limitations of traditional classroom environments (Godwin-Jones, 2022; Shadiev & Yang, 2020). These affordances are particularly valuable in EFL contexts, where learners often have limited exposure to authentic language use outside formal instruction. Within this evolving landscape, ChatGPT has emerged as a highly versatile tool for language learning. Unlike earlier rule-based systems, ChatGPT is capable of generating grammatically accurate and contextually appropriate responses, making it suitable for both conversational

practice and grammar exploration (Zheng et al., 2023; Kohnke et al., 2023). Its adaptive nature allows it to respond dynamically to learner input by rephrasing explanations, providing varied examples, and addressing follow-up questions. As such, ChatGPT functions more like an interactive language tutor than a static instructional tool (Fitria, 2023). However, the integration of ChatGPT in language education also raises important pedagogical concerns. Several studies have highlighted issues related to the reliability of AI-generated content, noting that ChatGPT may produce responses that appear plausible but are inaccurate, particularly when addressing complex linguistic structures (Baidoo-Anu & Owusu Ansah, 2023; Farrokhnia et al., 2023). In addition, without careful instructional design, learners may engage with the tool passively, relying on it for answers rather than actively constructing knowledge (Memarian & Doleck, 2023). Another critical concern is the potential for overdependence, where excessive reliance on AI may reduce the cognitive effort necessary for effective language acquisition (Baidoo-Anu & Owusu Ansah, 2023). These limitations highlight the need for a principled and guided integration of ChatGPT in EFL grammar instruction.

3. Methods

This study employed a qualitative descriptive design to explore the pedagogical

integration of ChatGPT in EFL advanced grammar instruction, allowing for an in-depth understanding of learners' experiences (Creswell & Creswell, 2018). A small-scale survey was conducted involving 42 undergraduate EFL students at Universitas Bale Bandung, Indonesia. Participants were purposively selected from Advanced Grammar courses and were required to have prior experience using ChatGPT for academic purposes to ensure informed responses (Patton, 2015). Data were collected through a structured questionnaire consisting of Likert-scale items and open-ended questions addressing three dimensions: perceived usefulness, ease of use, and the impact of ChatGPT on grammar learning. The Likert-scale items provided an overview of general trends, while the open-ended responses offered deeper insights into learners' experiences (Dornyei & Taguchi, 2010). In addition, a systematic literature review was conducted to support the theoretical analysis. Relevant peer-reviewed articles published between 2018 and 2024 were identified through databases such as ERIC, Google Scholar, and Scopus using keywords related to AI in language learning, ChatGPT, EFL instruction, and

SLA theory (Petticrew & Roberts, 2006). Data were analyzed using thematic analysis to identify recurring patterns in qualitative responses (Braun & Clarke, 2006), while descriptive statistics were used to summarize the Likert-scale data.

4. Results and Discussions

4.1 Students' Perceptions of ChatGPT in Grammar Learning

The findings suggest that students generally have positive perceptions of using ChatGPT in advanced grammar instruction. The descriptive statistics of their responses are presented in Table 1.

Table 1. Students' Perceptions of ChatGPT

N o.	Item	Mean	Category
1	ChatGPT helps me understand grammar better	4.4	High
2.	ChatGPT provides clear explanations	4.3	high
3.	ChatGPT provides clear explanations	4.6	Very high
4.	ChatGPT is easy to use	4.5	Very high
5.	ChatGPT increases my confidence	4,2	high
6.	ChatGPT supports independent learning	4.5	Very high
7.	ChatGPT makes	4.4	High

learning enjoyable

When students were asked about their experiences using ChatGPT in advanced grammar learning, the findings showed a generally positive perception. Most participants rated the tool highly in terms of usefulness and ease of use, with mean scores ranging from approximately 4.2 to 4.6 on a five-point scale. Among the features evaluated, immediate feedback received the highest rating, suggesting that timely correction plays a key role in supporting grammar learning (John Hattie & Helen Timperley, 2007). Beyond these numerical results, students also highlighted the clarity of ChatGPT's explanations, particularly when dealing with complex grammatical structures. Many reported that the tool helped them understand grammar more effectively and increased their confidence in using English. This indicates that the impact of ChatGPT extends beyond cognitive understanding to the affective domain of language learning, including confidence and willingness to communicate (Stephen Krashen, 1982; Jean-Marc Dewaele & Peter MacIntyre, 2014). In addition, its ease of use encouraged students to

engage with the tool more frequently, especially for independent learning outside the classroom. This pattern reflects the importance of learner autonomy in language development, particularly at advanced levels where sustained self-directed practice is essential (Phil Benson, 2011; Hayo Reinders & Phil Benson, 2017). These findings are consistent with the Technology Acceptance Model (TAM), which emphasizes perceived usefulness and ease of use as key factors influencing technology adoption (Fred Davis, 1989; Viswanath Venkatesh & Hillol Bala, 2008). The consistently high ratings across these dimensions suggest that ChatGPT is not only accepted by learners but also valued as a meaningful support in grammar learning.

4.2 Qualitative Insights: Learners' Experiences

To gain deeper insights, qualitative responses from open-ended questions were analyzed. Thematic analysis revealed three major themes, as summarized in Table 2.

Table 2. Emerging Themes from Open-Ended Responses

Theme	Description
Immediate Feedback	Students valued instant correction and explanations
Independent Learning	ChatGPT enabled self-paced learning outside class

Engagement	Students found learning more interesting and interactive
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The qualitative findings suggest that ChatGPT plays an important role in supporting learner autonomy and engagement. Many students pointed out that receiving immediate feedback helped them recognize and correct their own errors without having to rely on the teacher. This process seemed to encourage more active involvement in learning and contributed to a deeper understanding of grammatical concepts. These results can be explained through established second language acquisition theories. In line with the Interaction Hypothesis (Long, 1996), learners benefit from feedback and modified input during interaction, which ChatGPT is able to provide in real time. Similarly, from a sociocultural perspective, ChatGPT can be seen as a form of scaffolding that supports learners as they work through tasks within their Zone of Proximal Development.

4.3 Pedagogical Implications for Grammar Instruction

One of the key findings of this study is how ChatGPT supports grammar

learning through meaningful and contextualized interaction. Instead of relying on isolated drills, which are still common in many grammar classrooms, ChatGPT allows learners to engage with grammar as part of real communication. Students can ask questions, clarify their understanding, and receive responses that demonstrate how grammatical structures are used in context. This type of interaction reflects the principles of the Focus on Form approach, which emphasizes that attention to grammar is most effective when it occurs within communicative activities rather than in isolation (Long, 1991; Doughty & Williams, 1998). What is particularly interesting is that students themselves described their experiences in ways that align with this perspective. They reported that working with ChatGPT helped them understand grammar more naturally, suggesting that learning becomes more meaningful when it is connected to actual language use rather than abstract rules (Ellis et al., 2002; Nassaji & Fotos, 2011). Another important implication relates to learner autonomy. Many students expressed that using ChatGPT gave them greater control over their own learning. They could decide when to practice, what to focus on, and how deeply to explore specific grammatical structures. This kind of self-directed learning is especially important for advanced learners, who need to

move beyond simply recognizing rules toward using them independently (Benson, 2011; Little, 2007). From a sociocultural perspective, this can be understood as learners working within their own Zone of Proximal Development. By interacting with ChatGPT, they receive ongoing support in the form of explanations, examples, and feedback, which helps them gradually extend their grammatical competence (Vygotsky, 1978; Lantolf & Thorne, 2006). For EFL practitioners, this suggests that ChatGPT can be more than just a supplementary tool. When used appropriately, it can serve as a form of scaffolding that encourages independent, reflective, and sustained engagement with grammar learning (Reinders & Benson, 2017; Godwin-Jones, 2022).

4.4 Challenges and Limitations

No pedagogical tool comes without its limitations, and ChatGPT is no exception. Although the overall findings of this study were largely positive, students were quite open about the moments when the tool did not perform as expected. A recurring concern involved the quality of explanations for more complex grammatical structures—such as inversion, embedded clauses, and

advanced conditionals—where ChatGPT occasionally produced responses that were imprecise, overly simplified, or at times slightly misleading. This is not a minor issue. In advanced grammar learning, where subtle differences in explanation can shape how rules are internalized, even small inaccuracies can have meaningful consequences (Baidoo-Anu & Owusu Ansah, 2023; Farrokhnia et al., 2023). These observations reflect broader concerns in the literature regarding the reliability of AI-generated content, particularly in areas that require careful linguistic judgment (Memarian & Doleck, 2023; Kasneci et al., 2023). A more subtle, but equally important concern relates not to what ChatGPT gets wrong, but to how its convenience may influence learning behavior. Several students admitted that they tended to turn to ChatGPT immediately when facing difficulty, rather than attempting to work through the problem themselves. This tendency risks reducing the kind of productive struggle that has long been associated with deeper learning and more durable knowledge construction (Kapur, 2016; Bjork & Bjork, 2011). When a tool is constantly available and quick to provide answers, it can become tempting to rely on it too heavily. This issue of cognitive offloading is not unique to ChatGPT, but it may be intensified by how easily the tool fits into students' everyday learning practices

(Warschauer & Meskill, 2000; Reinders & Benson, 2017). These challenges do not suggest that ChatGPT should be excluded from grammar instruction. Rather, they highlight the need for thoughtful and guided integration. Without clear direction, students may use the tool in ways that appear helpful on the surface but do not necessarily support deeper analytical learning. What is needed, therefore, is not less access, but more intentional pedagogical framing—guidance on how, when, and why ChatGPT should be used. Such an approach ensures that learners remain actively engaged in the learning process, with critical thinking and reflection taking precedence over simply obtaining answers (Memarian & Doleck, 2023; Godwin-Jones, 2022; Doughty & Williams, 1998).

5. Conclusion

This study investigated the integration of ChatGPT as a pedagogical tool in advanced grammar instruction within EFL higher education, addressing the challenges learners face in mastering complex grammatical structures and the need for more interactive and effective instructional approaches. Based on the findings, ChatGPT was shown to support

grammar learning by providing immediate feedback, enhancing learners' understanding of complex structures, and promoting confidence as well as autonomous learning. Students' positive perceptions of its usefulness and ease of use indicate that the tool is well accepted and can meaningfully support the learning process. These results also demonstrate that ChatGPT aligns with key second language acquisition theories, including the Interaction Hypothesis, Sociocultural Theory, and Focus on Form, which emphasize interaction, scaffolding, and contextualized learning. However, the study also highlights the importance of guided implementation due to potential limitations such as inaccuracies in AI-generated responses and the risk of learner over-dependence. This study contributes to the field of language education by providing empirical and theoretical insights into the integration of artificial intelligence in grammar instruction and by proposing a structured framework that can inform future teaching practices and research in EFL contexts.

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