
Investigating the impacts of ChatGPT on students motivation in learning English grammar

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A B S T R A C T

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Nowadays, technology has developed and greatly influenced the world of education, one of which is an AI called ChatGPT. This AI is very widely used today, but its influence certainly raises the pros and cons of its users. Therefore, this study aims to explore students' perceptions of the impact of ChatGPT on their motivation to learn grammar. This study used a mixed-methods research design, combining quantitative and qualitative approaches through questionnaires and interviews. The objects of the study were 25 students majoring in English from 5 different universities in Central Java, Indonesia. The data obtained will be statistically analyzed using the average system of each sub-theme. The findings of the study revealed that students generally have a positive perception of ChatGPT's role in increasing their motivation to learn grammar. However, the study also identified two main issues: the sometimes-inaccurate feedback from ChatGPT and students' tendency to become overly dependent on the tool.

1. INTRODUCTION

In the digital era, the development of information and communication technology (ICT) has had a profound impact on various aspects of life, particularly in the fields of education and language learning. One of the most significant technological advances in the past decade has been the development of artificial intelligence (AI). According to Ahmadi (2018), technology has been shown to enhance English language education by enabling more interactive learning experiences. Educators use technology to create engaging activities and incorporate multimedia resources, which fosters a dynamic learning environment and enhances students' ability to absorb knowledge. Moreover, technology offers a wide range of benefits for both teachers and learners. It serves as a valuable tool for learners to address their educational challenges and apply what they have learned in a meaningful and effective way (Solikhah, 2023).

The use of technology plays a crucial role in language learning by enabling learners to study at their own pace, fostering self-awareness, and maintaining opportunities for teacher interaction. Additionally, technology serves as a powerful motivator, contributing to more effective language acquisition (Yuniar, 2021). Technology can have both positive and negative impacts on its users, it all depends on one important thing, psychology. A critical factor influencing language learning is the psychological aspect, particularly motivation. According to Robbins (2017), motivation is a process that determines an individual's intensity, direction, and persistence in pursuing a goal. Internal motivation refers to a driving force from within the learner that encourages active engagement in learning activities. It sustains these activities, provides

direction, and supports the achievement of desired learning outcomes (Aritonang, 2008; Thaib, 2013; Istifadah, 2023). This intrinsic motivation is closely tied to academic success, as evidenced by performance on tests and evaluations. Identifying and addressing low motivation is vital because it can negatively affect learning outcomes and achievements (Harianti & Amin, 2016). Teachers play an essential role in recognizing and remedying motivational deficiencies to enhance student performance. External motivation, by contrast, is driven by external rewards such as money, rankings, grades, or praise (Bourgeois, et al., 2016). Unlike internal motivation, it originates outside the individual. Externally motivated individuals may continue to perform tasks even if the activities are not intrinsically rewarding (Lepper, 1975). While internal motivation stems from personal fulfillment and interest, external motivation focuses on achieving tangible rewards. Both types of motivation are essential for understanding and influencing learning outcomes.

Technology has also transformed how English is taught and learned. According to Rudnicka (2023) technology is revolutionizing grammar instruction by providing innovative tools and resources that engage learners, enhance learning experiences, and improve language proficiency. However, for technology to be most effective, it is often best integrated into the classroom under teacher guidance. One notable technological tool is ChatGPT, an AI-powered chatbot launched in 2022 (Rudnicka, 2023). ChatGPT offers a range of benefits for language learners, including quick and practical access to information. As a result, it serves as a valuable resource for enhancing language skills and fostering more effective and engaging learning experiences.

ChatGPT is one of the AI tools that has gained widespread use in the field of education. ChatGPT (Generative Pre-Trained Transformer) is an AI chatbot powered by deep learning algorithms, making it a valuable tool for language learning. The ChatGPT model has the capacity to provide students with assistance in the form of help with complex problems, answering questions, composing essays, and comprehending specific subjects, thereby facilitating an accelerated learning process (Farhi et al., 2023). It enables interactive dialogue and natural writing, which enhances the learning experience (Shaikh, 2023). The technology is supported by a vast repository of information, including books, articles, and online sources. The introduction of ChatGPT has sparked various discussions about its advantages and disadvantages, particularly regarding how it affects students' ability to learn English independently. Before the advent of ChatGPT, AI technology had already been used in language learning and teaching for a variety of purposes. However, ChatGPT offers a new approach to learning, providing real-time opportunities for students to practice and learn English. Through interactive conversations, learners can acquire vocabulary and grammar in context, making the learning process more dynamic and engaging.

Grammar plays a crucial role in the process of learning English. It is often described as the "system" or "rules" of a language (Fitria, 2021). In the study of language, grammar occupies a central position (Fitria, 2021). According to Young (2018), the term "grammar" refers to the system of rules that govern a language. When discussing English grammar, we are referring to the set of rules that organize words to form meaningful sentences. Grammar determines how words are arranged to convey meaning. Each language has its own unique grammar system (Coghill & Magedanz, 2003). Grammar governs the sounds, words, sentences, and other linguistic elements, as well as their combinations and interpretations. In a narrower sense, grammar refers specifically to the study of sentence structure (syntax) and word formation (morphology),

excluding vocabulary and pronunciation. However, grammar is generally understood as the entire system of a language.

There were several researches studied about Chat GPT use and implementation in EFL study((Al-Alami, 2024; Banimelhem & Amayreh, 2023; Mahapatra, 2024; Wang, 2025). According to those studies, ChatGPT really helps students by providing interactive and responsive learning, creating practice questions, quizzes and after students answer the questions ChatGPT will provide immediate feedback where the mistakes and correct answers are, able to create gamification of learning such as guessing words or completing sentences and simulating conversations. This of course can increase learning motivation, indirectly ChatGPT as an AI tool has changed students' English learning methods and provides new possibilities to change the mindset of students to be motivated to do learning independently.

Researchers aim to investigate the impact of advancements in artificial intelligence technology, particularly ChatGPT, on various aspects of education, including its role in motivating language learning. While numerous studies have explored this topic internationally, research in Indonesia remains relatively limited. Among the few notable studies is one by Yusfi & Asmara (2023). This study employed a mixed-methods approach, combining quantitative and qualitative analysis. The quantitative analysis compared the motivation scores and GPAs of ChatGPT users and non-users at the university level. The study involved a sample of 35 seventh-semester students from Muhammadiyah University of Gresik, comprising 25 ChatGPT users and 10 non-users. In addition, the qualitative component examined participants' experiences and understanding of using ChatGPT. Notably, previous research in this area primarily focused on grammar learning, where this study explored broader aspects of motivation and academic performance on ChatGPT users.

Ali et al. (2023) conducted a study which aimed to examine whether ChatGPT enhances students' interest in learning English, independence, self-confidence, ambition for future employment, interpersonal interaction, and enjoyment in learning English. The study involved 80 participants, comprising students and teachers from various locations. Data were collected using a questionnaire distributed via email and WhatsApp. The findings revealed that ChatGPT had both positive and negative impacts on the participants. However, the study emphasized the importance of teacher guidance in using ChatGPT. Teachers play a critical role in ensuring that students use ChatGPT wisely, not merely as a problem-solving tool but as a resource to support learning and encourage review and deeper understanding. This study differs from the current research in several aspects. Ali et al. (2023) used a quantitative approach with a Likert scale questionnaire to gather participants' views on whether ChatGPT motivates students to learn both micro and macro language skills. In contrast, the present study employs a mixed-method approach, combining quantitative and qualitative methods to provide a more comprehensive understanding of the impact of ChatGPT on language learning motivation.

In the research that has been done before, there is a shortcoming that there is no research that examines the impact of using ChatGPT on motivation, so in this study research is carried out on this matter to create a research update. Researchers aim to investigate the impact of advancements in artificial intelligence technology, particularly ChatGPT, on various aspects of education, including its role in motivating language learning. This study also aims to examine the impact and benefits of ChatGPT on students' motivation in learning grammar. The main objectives were to analyze the effects of ChatGPT on students' motivation, assess the level of

motivation before and after using ChatGPT, and identify the factors that contributed to the change in learner motivation.

Research Question:

1. How does ChatGPT impact students motivation in learning grammar?
2. How accurate is ChatGPT in helping students to learn grammar?
3. What are the factors that influence the effectiveness of ChatGPT in increasing students motivation?

2. METHOD

The research methods that will be used in this study will be discussed through the following explanation.

2.1. Research design

This study employs a Mixed Method Research, utilizing a questionnaire to explore the perspectives and experiences of 25 English major students from five different universities in Central Java. According to Sugiyono (2011), this approach is suitable for examining the conditions of both natural and artificial objects. In this context, researchers serve as instruments for measurement, employing data collection techniques such as tests and interviews. Data analysis is conducted using both inductive (qualitative) and deductive (quantitative) methods, enabling the integration of findings to derive meaningful insights and generalizations.

2.2. Participant

This study was participated by 25 students majoring in English from 5 different universities in Central Java. There were 25 participants who filled out the questionnaire, and the interview will be followed by 5 selected people from 25 people who filled out the questionnaire.

2.3. Data Collection

To obtain quantitative research data, a questionnaire will be used which will be distributed to 25 students majoring in English at 5 universities in Central Java. Meanwhile, to obtain qualitative research data, interviews will be conducted from 5 selected people who filled out the questionnaire.

The author adapted a questionnaire from Purnama, et al. (2019) which has been tested for validity and reliability, because it adopts from Clement (1994). The respondents for this study were 25 English major students from five different universities in Central Java. The questionnaire, administered via Google Forms, consisted of 19 items designed to measure students' opinions and feelings. Students were asked to respond to each question using a four-point Likert scale: Strongly Agree, Agree, Disagree, and Strongly Disagree. Additionally, for the interview portion of the study, the author selected five respondents. The interview consisted of six questions, all conducted in English, to gain deeper insights into the participants' perspectives. In this study, data collection was to assess the impact of ChatGPT on student motivation in learning grammar. The objectives

are to analyze ChatGPT's effect on motivation, determine students' motivation levels before and after its use, and identify factors contributing to changes in motivation.

2.4. Data Analysis

In this study, the questionnaire consisted of 19 items of questions. The questions in this questionnaire can be grouped into 5 sections of question themes. The analysis that will be carried out on the questionnaire is by grouping into 5 themes first, then the average of each response will be calculated. Meanwhile, the interview consists of 6 questions with different themes. The interview data obtained will be compared with the responses of each interview participant and will be presented in the form of a description.

3. RESULTS AND DISCUSSION

The research data is divided into two sections: the first presents findings from the questionnaire, while the second includes data from the interviews. This is followed by a discussion that analyzes and integrates the insights gained from both instruments used in the study.

3.1 Students' perceptions of ChatGPT's impact on their motivation to learn grammar.

The result of the questionnaire is summarized in table 1. It presents an overview of the detail responses to the points being asked to the research participants. The table presents the responses in quantitative data. Each statement covers the area of their experience that is being investigated in relation to the impact of using ChatGPT on English language students' motivation in learning grammar.

Table 1. Students' perceptions of the use of ChatGPT on the impact of using ChatGPT on motivation to learn grammar.

No	Statements	Strongly Agree	Agree	Disagree	Strongly Disagree
1	Interest in learning grammar and the importance of learning grammar	33,5%	52,04%	13,66%	0,8%
2	The use of Artificial Intelligence ChatGPT affects learning styles	20,71%	59,12%	19,5%	0,67%
3	Students' Over-Reliance on ChatGPT	14,6%	70,86%	14,54%	0%
4	The impact of ChatGPT in Increasing Motivation to Learn Grammar	16%	54%	30%	0%
5	The Effectiveness of ChatGPT in the Grammar Learning Process	20%	64%	16%	0%

Based on the data presented in table 1, there are several points to be elaborated which contain their experience in using ChatGPT in learning grammar and its impact on motivation to learn grammar, and will be discussed below.

3.1.1. Interest in Learning Grammar and The Importance of Learning Grammar.

Based on the questionnaires that have been filled out by the respondents, the results show that the interest in learning grammar tends to have a positive value, which means that these respondents are aware that learning grammar is important. However, there are a few respondents who feel uninterested in learning grammar, and the awareness to know the importance of grammar for the future is still lacking. So it can be concluded that maybe most of the respondents already have an interest in learning grammar, but there are still a few respondents who lack awareness of the importance of learning grammar.

3.1.2. The Use of Artificial Intelligence ChatGPT Affects Learning Styles

Based on the results of the questionnaire, the presence of AI, especially in this study, namely ChatGPT, greatly affects the learning style of respondents. The existence of ChatGPT certainly has a big influence, because of its advantages. ChatGPT is able to provide a response in seconds with fairly accurate feedback content. This makes the learning style of most people today change, since the existence of ChatGPT everything has become easier and seems instant, but all returns to the stance of each user who views ChatGPT as just an instant tool or a tool to speed up the process of seeking knowledge. This is evidenced by 80% of the respondents felt ChatGPT affected their learning style by changing to a learning style by using ChatGPT more often to help their learning process.

3.1.3 Students' over-reliance on ChatGPT

AI technology in this day and age has an impact on human habits that become more lazy because they think AI can solve everything. This is evidenced by the questionnaire results showing that 85% of respondents tend to rely on ChatGPT to help them complete their tasks. This dependence on AI can be bad for students who are still at a young age because the use of ChatGPT should still be supervised to reduce the bad risks that can be caused.

3.1.4. The impact of ChatGPT in increasing motivation to learn grammar

In learning grammar, of course, ChatGPT can help a lot of things from the theories that must be understood, to providing examples of proper grammar usage. With these advantages, ChatGPT users will feel more comfortable in using ChatGPT during the grammar learning process. With this happening, a person's motivation to learn grammar will increase because of the convenience offered by ChatGPT. This is evidenced by 70% of respondents who feel more motivated when learning grammar using ChatGPT.

3.1.5. The effectiveness of ChatGPT in the grammar learning process

The effectiveness of ChatGPT in helping grammar learning process is significant, as the technology is able to provide immediate feedback and correct errors automatically. With ChatGPT users can improve their grammar, spelling and writing style, making the learning process more interactive and efficient. ChatGPT can also explain grammar rules in a simple and easy-to-understand way, making complex concepts more accessible. In addition, it can customize exercises according to individual needs, allowing users to focus on the areas that are most

challenging for them. With ChatGPT, learning grammar not only becomes more fun, but also more effective, as users can practice anytime and anywhere without fear of judgment. This is evident from the questionnaire results where 84% of the respondents felt that ChatGPT is very effective to help learn grammar.

3.2. The use of ChatGPT in increasing motivation to learn grammar

This section presents data from the structured interview session, which aimed to explore participants' motivation for learning English, their preferred learning methods, challenges in learning grammar, experiences using ChatGPT for grammar learning, its impact on their motivation, and the factors influencing ChatGPT's effectiveness in enhancing motivation. The interview provided deeper insights beyond the questionnaire results. Data were collected from five participants who voluntarily proceeded to the interview stage, while the remaining participants opted not to continue in the study.

3.2.1. Motivation for learning English

Based on the interview results, participant A stated that "*learning English because of its status as an international language and its usefulness in various aspects of life.*" Participant C stated that "*to improve communication skills and expand career opportunities in various fields such as tourism, business and technology.*" Participant D stated that "*love for movies, having experience living abroad and aspiring to become an English teacher.*" Similarly, participants B and E stated that "*learning English to be able to communicate fluently when traveling abroad and learning English is very interesting.*".

3.2.2. The type of learning process that makes learning English comfortable

Based on the interview regarding what kind of learning process makes comfortable learning English. most stated that "prefer to learn grammar by listening to songs and watching movies." there are also those who stated "*prefer a learning process that combines theoretical and practical instruction rather than relying only on theoretical instruction.*" so it can be concluded that participants are more likely to feel comfortable learning English by using a direct practical learning process such as through virtual audio.

3.2.3. Learner barriers in learning grammar

Based on the results of the interview regarding the obstacles according to the experience as a student in learning grammar. Participant A stated "*feeling difficulty in understanding complicated grammar formulas and structures*" and participant D stated "*the number of rules that need to be learned and memorized, as well as understanding the concept of grammar as a whole.*" So it can be concluded that 5 participants felt difficulty in understanding and memorizing grammar formulas and structures.

3.2.4. ChatGPT's accuracy in helping learners learn grammar

based on interview questions based on their experience about the accuracy of ChatGPT in helping to learn grammar. Participant A stated that "*Chatgpt does not always provide grammatically accurate answers*" while participant C stated that "*they feel ChatGPT is very accurate in*

providing explanations and quick corrections about grammar formulas." Similar things were also felt by participants B, D, E about the accuracy of ChatGPT.

3.2.5. The effect of using ChatGPT on grammar learning motivation

Based on the interview regarding the influence of using ChatGPT on motivation to learn grammar, participant A stated that "*does not feel that ChatGPT significantly motivates to learn grammar*". while participant D stated that "*ChatGPT is very motivating in learning grammar, especially when detailed or complicated formulas are needed. ChatGPT is very helpful*". Likewise with participants B, C, E, they also stated similar things, feeling motivated to learn grammar with ChatGPT.

3.3 Factors that influence the use of ChatGPT in increasing student learning motivation

Based on interviews regarding the factors that influence the effectiveness of ChatGPT in increasing student motivation, several participants shared positive experiences. Participant B stated that "*ChatGPT is an effective tool for learning grammar.*" Similarly, Participant D highlighted that "*ChatGPT highly values time efficiency, allowing for quick and accurate completion of tasks. It is especially helpful when dealing with detailed or complicated grammar formulas, which significantly boosts motivation to complete tasks effectively.*" Other participants also expressed similar opinions, reinforcing the idea that ChatGPT plays a positive role in enhancing motivation. Additionally, Participant C mentioned that "learning with ChatGPT is interesting and stress-free, as it provides instant answers, eliminates frustration, and offers a smoother learning experience." This suggests that the presence of ChatGPT greatly contributes to increasing learning motivation by creating a more efficient and enjoyable study process

3.3 Discussion

Based on the data that has been obtained from the questionnaires and interviews that have been conducted, it will be discussed through the explanation below.

3.3.1. Impact of ChatGPT on Students Motivation in Learning Grammar

Based on the qualitative and quantitative data from questionnaires and interviews, ChatGPT has shown a positive impact on students' motivation in learning grammar. Participants reported that ChatGPT was highly effective in helping them learn, with many feeling more engaged in the process. This finding aligns with the findings of Sinaga (2024), who stated that "the use of ChatGPT as a tool in the learning process has great potential to increase student motivation." The study highlighted that ChatGPT aids students in better understanding the material, provides instant feedback, and enhances interaction during the learning process. Additionally, ChatGPT strengthens both intrinsic motivation by fostering curiosity and exploration and extrinsic motivation by offering the support necessary to achieve academic goals. Similarly, Yildiz (2023) in the study "The Impact of ChatGPT on Language Learners Motivation" found that students using ChatGPT for post-learning activities showed significant improvements in both their achievement test scores and motivation levels. This suggests that AI-powered tools like ChatGPT

can be as effective as traditional methods in promoting knowledge acquisition, with many students preferring them over conventional teaching approaches. Furthermore, Nufus (2024) observed that ChatGPT had a strong influence on increasing learning motivation among STMIK Antarbangsa students, who found the tool extremely helpful in the learning process. Respondents agreed that ChatGPT provided relevant information, and its use was seen as both effective and motivating. Collectively, these studies highlight that integrating AI-assisted tools like ChatGPT into language learning environments can positively impact students' academic performance and motivation.

3.3.2. Accuration of ChatGPT in Helping Students to Learn Grammar

Based on qualitative and quantitative data collected from questionnaires and interviews, ChatGPT has demonstrated a relatively high level of accuracy in answering grammar-related queries, with participants expressing that the model is effective in addressing both simple and complex grammar topics. This positive perception aligns with findings in recent research, where AI language models like ChatGPT were shown to provide accurate feedback in grammar correction, particularly for common grammatical structures. The ability of ChatGPT to handle more complex grammatical issues also supports the model's strength in facilitating advanced language learning. However, research by Yan, et al., (2023) suggests that while the model performs well with structured grammar rules, it can sometimes falter in context-specific situations, such as when dealing with idiomatic expressions or nuanced sentence constructions. This is also conveyed by Susanto et al. (2025) that the challenge faced by students when using ChatGPT lies in inaccuracies. ChatGPT does not always produce accurate responses, therefore students must have the personal awareness to double-check the answers provided by ChatGPT. Additionally, Godwin-Jones (2018) emphasizes that, while ChatGPT can offer a high degree of accuracy in structured grammar correction, it may not fully grasp subtleties in meaning, which could impact its effectiveness in certain teaching contexts. Therefore, while the results of the questionnaires and interviews suggest that ChatGPT is fairly accurate, its limitations in understanding contextual nuances should be considered when using it as a tool for grammar learning.

3.3.3. Factors That Influence The use of ChatGPT in Increasing Students Motivation

Based on qualitative and quantitative data from questionnaires and interviews, ChatGPT has been shown to be highly effective in improving the grammar learning process. Several factors contribute to its effectiveness. First, the model's ability to provide immediate, personalized feedback is crucial in reinforcing learning. ChatGPT offers this instant feedback by highlighting errors and providing corrected examples, which allows learners to quickly grasp and internalize proper grammar usage. Additionally, ChatGPT's adaptive nature allows it to cater to learners at various proficiency levels, offering simpler explanations for beginners while tackling more complex grammatical topics for advanced learners. This adaptability aligns with Vygotsky (1978) concept of the zone of proximal development, which emphasizes that effective learning occurs when learners are challenged just beyond their current capabilities. Moreover, Godwin-Jones (2018) states that "AI-driven platforms, like ChatGPT, provide an interactive environment where learners can practice grammar in a conversational context, enhancing their practical application of rules in real-world situations." This interaction helps learners connect theoretical grammar concepts to their usage in daily language. However, despite these strengths, ChatGPT's inability

to track long-term progress or provide deep contextual understanding especially for idiomatic and culturally nuanced expressions—remains a limitation, as noted by Yan et al. (2023), who caution that "AI models, though effective for structured tasks, can struggle with deeper contextual comprehension." Nonetheless, overall, the combination of personalized feedback, adaptability, and real-time interaction makes ChatGPT a highly effective tool in grammar learning.

4. CONCLUSION

The findings from the questionnaire and interviews indicate that ChatGPT is a valuable tool for learning grammar, significantly influencing students' learning styles, efficiency, and motivation. The majority of respondents acknowledged that ChatGPT improves their understanding of grammar, provides easily accessible and simplified explanations, and supports independent learning. A considerable percentage of students found that ChatGPT enhances their motivation to study grammar, making learning more efficient and engaging.

However, the effectiveness of ChatGPT varies among individuals. While many participants highlighted its usefulness in clarifying complex grammar rules, correcting mistakes, and promoting a stress-free learning experience, others raised concerns about its accuracy, noting that it does not always generate grammatically correct answers. Some students preferred combining AI-assisted learning with traditional methods to gain a more comprehensive understanding of grammar. Overall, the results show that ChatGPT can be a powerful tool for grammar learning, improving learning efficiency, comprehension and motivation. However, students should use it critically and in combination with other learning resources to ensure accuracy and thorough grammar understanding.

In this study, there are still shortcomings, namely not obtaining data on the effectiveness of ChatGPT and the accuracy of ChatGPT, so in this study, ChatGPT is considered to have perfect effectiveness and accuracy, and also not discussed. Future research should focus on evaluating ChatGPT's accuracy in grammar explanation, comparing its effectiveness with other AI-based learning tools, and analysing its long-term impact on students' grammar proficiency. In addition, research could explore how AI can be integrated with traditional teaching methods, assess its role in personalized learning, and examine its effect on student motivation and engagement. Research should also investigate the effectiveness of ChatGPT across different proficiency levels to determine its suitability for various learners. These insights will help refine AI-based educational tools and enhance their role in language learning.

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