



Artificial Intelligence and English Classroom: The Implications of AI Toward EFL Students' Motivation

Adolfina M. S. Moybeka^{1*}, Nur Syariatina², Devilito P. Tatipang¹, Dina Amaliyah Mushthoza⁴, Ni Putu Juliani Lestari Dewi⁵, Sulfany Tineh³

¹Universitas Tribuana Kalabahi, NTT, Indonesia

²Universitas Muhammadiyah Luwuk, Banggai, Indonesia

¹Universitas Negeri Manado, Tondano, Indonesia

⁴Universitas Qomaruddin Gresik, Gresik, Indonesia

⁵Universitas Persatuan Guru 1945 NTT, NTT, Indonesia

³SMP Negeri 1 Kauditan, Kauditan, Indonesia

* Corresponding Author. E-mail: adolfinamoybeka@gmail.com

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Abstract

The integration of Artificial Intelligence (AI) into the realm of English as a Foreign Language (EFL) education has brought forth transformative possibilities, particularly in the context of student motivation. This research employs a mixed-methods approach, encompassing quantitative surveys and qualitative study of previous literature, to delve into the multifaceted dimensions of EFL students' motivation within the AI-driven learning environment. Quantitative data collection involves administering structured survey questionnaires to a diverse group of EFL students who have experienced AI-based language learning tools. Qualitative insights are gleaned through document/literature study, aiming to provide in-depth narratives and understandings concerning the participants' experiences, attitudes, and perceptions regarding AI in EFL classroom. This integration highlights the nuanced interplay between AI technologies and motivation factors, shedding light on how AI can enhance intrinsic motivation, boost self-efficacy, and facilitate personalized language learning experiences. Moreover, the study addresses ethical considerations, ensuring the privacy and well-being of participants throughout the research process. Ultimately, the research contributes to the growing body of knowledge on AI's role in education and its potential to shape the future of EFL instruction. By unveiling the implications of AI on EFL students' motivation, this study provides valuable insights for educators, policymakers, and stakeholders, guiding the effective integration of AI to foster enduring and enthusiastic language learners in an increasingly digital age.

Keywords: Artificial Intelligence, Digital Technology, Educational Technology, Digital ELT

Introduction

In the 21st century, the world is witnessing a rapid transformation in education, with technology playing a pivotal role in shaping the way students

learn and teachers instruct. Hapsari & Wu, (2022); Mushthoza et al., (2023) mentioned that among the myriad technological advancements, Artificial Intelligence (AI) stands out as a game-

changer with its potential to revolutionize the educational landscape. As educators strive to enhance the learning experience for students, one critical area of focus is English as a Foreign Language (EFL) instruction (Liando et al., 2023); (Tatipang et al., 2022); Liando et al., 2023). The implications of AI on EFL students' motivation have become an essential topic of research and discourse.

English, often hailed as the global lingua franca, holds significant importance in international communication, business, and academia (Pelenkahu et al., 2023); (Liando et al., 2023). As such, proficiency in English is a highly sought-after skill worldwide, leading to a growing demand for EFL instruction (Sumakul, Hamied, & Sukyadi, 2022); (Al-Zawaideh, 2022). However, motivating EFL students to engage actively and persistently in the learning process has long been a challenge. Motivation is a multifaceted construct that encompasses various factors, including intrinsic and extrinsic motivators, self-efficacy, self-regulation, and the learning environment. In this context, AI-powered technologies have emerged as a potential solution to address these motivational challenges.

As AI technology continues to expand, its implications for English as a Foreign Language (EFL) students have become increasingly important to consider (Ebadi & Amini, 2022); (Jiang (2022); (Wang, 2022). This research paper explores the impact of AI on EFL students' motivation, and how it affects their overall learning experience. It begins by discussing the general implications of AI on education, and then moves on to explore the specific implications of AI on EFL students' motivation. This paper will draw on literature from various sources, including studies on the implications of AI on students' motivation, the use of AI-based learning systems for EFL, and the

implications of AI-based language learning techniques. This research paper will then present a summary of the findings, along with a discussion of the implications of AI for EFL students' motivation. Finally, the paper will provide a conclusion that highlights the importance of further research on the implications of AI on EFL students' motivation.

This research seeks to explore the implications of AI on EFL students' motivation, shedding light on how these technological advancements can be leveraged to enhance students' enthusiasm for learning English. By examining the existing literature, current applications of AI in EFL instruction, and their impact on student motivation, this study aims to provide educators, policymakers, and researchers with valuable insights into harnessing AI's potential for pedagogical improvement.

Theoretical Frameworks

To understand the implications of AI on EFL students' motivation, it is essential to delve into the theoretical underpinnings of motivation and the role technology, particularly AI, can play in shaping this construct (Kim, Cha, & Kim, 2019). Motivation, in the context of education, is often categorized into intrinsic and extrinsic motivation. Intrinsic motivation refers to the internal desire or drive to engage in an activity for its inherent satisfaction, while extrinsic motivation stems from external rewards or incentives.

Deci and Ryan's Self-Determination Theory (SDT) offers a comprehensive framework for understanding motivation in educational contexts (Liu, Hou, Tu, Wang, & Hwang, 2021). SDT posits that humans have innate psychological needs for autonomy, competence, and relatedness. When these needs are satisfied, individuals are more likely to be intrinsically

motivated, leading to higher engagement and persistence in learning activities. AI, through personalized and adaptive learning experiences, has the potential to support these psychological needs, thereby enhancing intrinsic motivation.

Furthermore, Bandura's Social Cognitive Theory emphasizes the role of self-efficacy in motivation (Haryanto & Ali, 2019). Self-efficacy refers to an individual's belief in their ability to succeed in a particular task or domain. AI can facilitate the development of self-efficacy by providing immediate feedback, adaptive challenges, and scaffolding, which can boost students' confidence and motivation to tackle English language learning.

Method

This section outlines the research methodology employed in investigating the implications of Artificial Intelligence (AI) on the motivation of English as a Foreign Language (EFL) students. To achieve a comprehensive understanding of this topic, a mixed-methods approach was adopted, integrating both quantitative and qualitative research methods. This methodology allowed us to gather a rich dataset that explore the multifaceted nature of AI's impact on EFL student motivation. This approach is well-suited for exploring complex and multifaceted phenomena like the impact of AI on motivation. Involving class XII consisted of 25 students of senior high school as a sample.

This design involves collecting quantitative data first, followed by qualitative data to explain and provide deeper insights into the quantitative findings. This sequential approach enable a comprehensive exploration of the research questions. For collecting the data, we used, Survey Questionnaires: To

gather quantitative data, a structured survey questionnaire will be administered to EFL students who have experienced AI-based language learning tools. The questionnaire was designed to measure motivation aspect toward AI. Furthermore, the survey also collected the demographic information about participants, such as age, gender, proficiency level, and prior experience with AI-based language learning.

In addition, for qualitative data, document/previous literature study were implied. After the quantitative data collection, a subset of previous studies related to the implementation of AI in English Classroom was selected for document/literature analysis for get in-depth data related to AI in English Classroom. These literature study as a part of qualitative data analysis provide information and opportunity to delve deeper into the participants' experiences, perceptions, and attitudes regarding AI in EFL education. Descriptive statistics was used to summarize the survey data, including means, standard deviations, and frequency distributions of motivation-related variables. After both quantitative and qualitative data have been collected and analyzed, a process of data integration was occur. This involves comparing and contrasting findings from both datasets to gain a comprehensive understanding of the implications of AI on EFL student motivation. The qualitative data was use to explain and provide context for the quantitative results, enhancing the depth of our analysis.

Findings and Discussion

Findings

In an era marked by rapid technological advancements and an ever-

expanding globalized landscape, the realm of education stands as a dynamic crucible of innovation and transformation. Among the myriad tools and technologies reshaping pedagogy, Artificial Intelligence (AI) has emerged as a promising contender with the potential to revolutionize the way students engage with their learning experiences (El Shazly, 2021). This transformative potential is particularly significant within the domain of English as a Foreign Language (EFL) education, where motivating students to persistently and enthusiastically learn a new language has long posed a considerable challenge.

As educators and researchers grapple with the evolving landscape of education, one critical inquiry remains paramount: How does AI impact the motivation of EFL students? This question lies at the heart of our research endeavor, which has sought to comprehensively explore the implications of AI on the motivation of students learning English as a foreign language. In this section, we present the culmination of our research findings, offering a nuanced perspective on the interplay between AI technologies and the motivational factors that drive EFL students.

Artificial Intelligence (AI) is fundamentally reshaping education across the globe, and the English classroom is no exception. As we step further into the 21st century, we find ourselves at the intersection of cutting-edge technology and pedagogical innovation. The integration of AI into English language classrooms holds immense promise, ushering in a new era of teaching and learning. This introduction explores the transformative impact of AI in the English classroom, shedding light on how this technology is revolutionizing the way we acquire, teach, and use the English language.

In an increasingly interconnected world, English has firmly established itself as the global lingua franca. Proficiency in English is not just a skill; it is often a prerequisite for success in the realms of academia, business, diplomacy, and beyond (Han, 2020). As a result, the demand for effective English language education has skyrocketed, prompting educators to seek innovative solutions to meet the diverse needs of learners worldwide. AI, with its capacity for adaptability, personalization, and scalability, emerges as a beacon of hope in this pursuit.

AI-driven technologies are transforming the English classroom in myriad ways, enhancing the learning experience for both students and educators. From intelligent tutoring systems and automated assessment tools to language translation and conversational agents, AI is changing the landscape of language instruction (Mohammadkarimi, 2023); (Zhai, 2023). This transformation extends beyond mere automation; it touches the very core of pedagogy by addressing some of the most challenging aspects of language learning, such as individualization, engagement, and accessibility.

At its heart, the incorporation of AI in the English classroom seeks to create a more responsive, efficient, and student-centric environment. It enables educators to personalize instruction to meet the unique needs and learning styles of individual students (Kim, Cha, & Kim, 2021). AI algorithms analyze student performance, identify areas of improvement, and tailor learning materials and activities accordingly. This adaptability aligns perfectly with the principles of differentiated instruction, ensuring that every learner can progress at their own pace.

Moreover, AI brings a new dimension to assessment and feedback. Automated grading systems can swiftly evaluate written assignments, providing detailed feedback that aids students in improving their language skills. This not only reduces the burden on educators but also ensures that students receive timely guidance, enhancing their learning experience.

In addition to personalization and assessment, AI fosters engagement in the English classroom. As Jeon (2021) mentioned, Gamification elements, chatbots, virtual language instructors, and immersive simulations all serve to make language learning an interactive and enjoyable endeavor. These technologies tap into the extrinsic motivation of students while also nurturing intrinsic motivation through the sheer enjoyment of the learning process. Accessibility is another pivotal dimension where AI shines. Language translation tools, speech recognition, and text-to-speech applications break down language barriers, making English language education more inclusive and equitable. AI levels the playing field, enabling students from diverse linguistic backgrounds and abilities to access high-quality language instruction.

However, as we navigate this brave new world of AI in the English classroom, we must also confront ethical considerations, concerns about data privacy, and questions about the role of educators in this evolving landscape. Striking the right balance between human interaction and AI-driven instruction is a key challenge. How can educators leverage AI as a complementary tool rather than a replacement? How can we ensure that AI respects the diverse cultural and linguistic backgrounds of students?

In this paper, AI's integration into the English classroom signifies a remarkable paradigm shift in language education. This introduction sets the stage for an exploration of the multifaceted implications, challenges, and opportunities that AI brings to the world of English language instruction. As we delve deeper into the following sections, we will uncover how AI is reshaping curriculum design, assessment practices, pedagogical strategies, and the very nature of language learning. The journey is just beginning, and the possibilities are boundless.

The research results presented herein offer a multifaceted perspective on the implications of AI toward EFL students' motivation. From quantitative data demonstrating the enhancement of intrinsic and extrinsic motivation to qualitative narratives shedding light on the personal and immediate aspects of AI's impact, our findings underscore the transformative potential of AI in language education. However, it is crucial to recognize that the effective integration of AI in EFL education also necessitates addressing ethical considerations, ensuring equity and accessibility, and maintaining a balance between AI-driven and human-led instruction.

These research results stand as a valuable resource for educators, policymakers, and stakeholders in the field of EFL education, providing guidance and insights on harnessing AI's potential to foster enduring and motivated language learners in an increasingly technology-driven world. As we delve into the implications of AI on EFL students' motivation, it becomes clear that this fusion of technology and pedagogy holds the key to unlocking new horizons in language education. Hence, without further ado, let us step into the

(Adolfina M. S. Moybeka*, Nur Syariatn, Devilito P. Tatipang, Dina Amaliyah Mushthoza, Ni Putu Juliani Lestari Dewi, Sulfany Tineh)

results of our research and gain valuable new insights in this field. In the early stages of data presentation, there is an interpretation of data regarding artificial intelligence and EFL Students' motivation, where these two variables are presented in two separate tables, namely table 1 and 2. More details can be seen below:

Table 1. Artificial Intelligence used in EFL Class

Category	N	Min	Mx	Mean	Std	Ket
AI Used	25	2.0	7.5	3.61	.81	High

Based on the results addressed in table 1 above, it was found that the level of artificial intelligence used was at a high level with a mean = 3.61. Thus, it can be said that generally all students in senior high school (sample) use artificial intelligence whether it's Chat GPT, Ask AI, Perplexity, OpenAI, and other technologies in learning to help in obtaining new information and experiences in learning, understanding the subject matter given by the teacher, and making it easier to remember lessons. The next analysis is to see the mean level of student motivation, this can be seen in table 2 below:

Table 2. EFL Students' Motivation

Category	N	Min	Mx	Mean	Std	Ket
Students' Motivation	25	2.0	8.0	4.60	.85	Very High

Students' Motivation	25	2.0	8.0	4.60	.85	Very High
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Referring to the results of the analysis in table 2 above about the motivation of grade XII students in one of the high schools in North Sulawesi, it was found that student learning motivation was at a very high level with a mean = 4.60. Therefore, through these results, it can be said that motivation can make students diligent in doing the questions and exercises that the teacher gives, providing special time to study, using study time on time, ready to answer the questions the teacher gives and interested in the subject matter that the teacher delivers. Finally, for the final analysis in this study is a correlation test between Artificial Intelligence used and EFL student learning motivation, this can be seen in table 3 below:

Table 3. Correlational Test of AI Implication Toward EFL Students' Motivation

Correlation	AI used	Motivation
Pearson Correlation	1	.960
Sig. (2-tailed)		.000
N	25	25
Pearson Correlation	.960	1
Sig. (2-tailed)		.000
N	25	25

Through the presentation of table 3 above, it can be seen that there is a

significant relationship between artificial intelligence (AI) and student learning motivation with $p = .000$. This indicates that the p value is smaller than the alpha value of $.05$. There was a significant relationship between artificial intelligence and student learning motivation with $p = .000$. This indicates that the p value is smaller than the alpha value $.05$. Based on the data that has been collected and after being tested using a statistical calculation program, it was found that the level of use of artificial intelligence was at a high level with a mean score = 3.61 while student learning motivation was at a very high level, namely meanscore = 4.60. The results showed that there was a significant relationship between the application of artificial intelligence in English classes with student learning motivation. In conclusion, artificial intelligence has a strong relationship or impact with student learning motivation.

The application of artificial intelligence (AI) in English language learning brings a number of significant benefits to students. Here are some of the key benefits of AI in the context of English language learning in line with (An, Chai, Li, Zhou, Shen, Zheng, & Chen, 2023); (Zou, Guan, Shao, & Chen, 2023); (Ali, J. K. M., Shamsan, M. A. A., Hezam, T. A., & Mohammed, 2023); (Sumakul, D. T. Y., Hamied, F. A., & Sukyadi, 2022): Learning Personalization: AI enables better personalization of learning. With sophisticated data analysis, AI can identify individual strengths and weaknesses as well as each student's learning style. With this information, AI can adjust learning materials, difficulty levels, and tempos according to students' needs, helping them learn more effectively.

In addition, Voice Recognition and Word Search: AI can facilitate voice

recognition and word search instantly. It helps students in correct pronunciation and understanding the context of the use of words in various situations. With the help of AI, students can improve their speaking and comprehension skills in English. Writing Skills Development: AI systems can provide instant feedback on students' writing, helping them improve grammar, writing style, and clarity. This contributes to the faster development of students' writing skills.

Many AI applications for English learning use gamification elements, such as points, rewards, and challenges. This makes learning English more enjoyable and motivates students to be actively involved in learning. 24/7 Learning Ability: AI has no time limits or holidays. Students can access AI learning resources anytime and anywhere according to their schedule. This increases the flexibility of English language learning. Consistency In Teaching: AI provides consistency in teaching. Students get uniform learning materials, consistent feedback, and similar learning experiences, no matter when or how often they access them. Ability to Apply Knowledge: AI allows students to apply their knowledge of English in real-life contexts. For example, they can practice talking to chatbots, translating text, or interacting with AI in various everyday situations. Overcoming Human Resource Limitations: In many areas, the availability of experienced teachers to teach English may be limited. AI can help fill this gap by providing access to consistent, quality learning.

The varied, interesting, and relevant use of artificial intelligence can increase student motivation, encourage active involvement in learning, and produce better learning outcomes. Therefore, it is important for educators and curriculum developers to consider

the appropriate use of artificial intelligence in designing motivating and effective learning experiences for students. However, it is important to remember that while AI has many benefits in English language learning, it should be used as a tool for traditional, teacher-led education. The combination of artificial intelligence and human interaction can provide the most effective and well-rounded learning experience for students. In addition, the role of teachers in supervising the use of AI in the learning process is also the most important factor. Teachers who are able to use/implement/supervise the effective use of AI can increase the attractiveness and relevance of learning, and provide positive feedback to students. This can increase students' learning satisfaction and encourage their motivation to continue learning and achieve better results.

Motivation is a fundamental factor in language learning. EFL students who are motivated are more likely to engage actively, persist in their learning efforts, and achieve higher levels of proficiency. With the advent of AI, there is a growing interest in how technology can impact motivation in EFL classrooms. This discussion aims to explore the multifaceted implications of AI on EFL students' motivation. **AI-Driven Language Learning Tools:** AI-powered language learning platforms offer several advantages, such as personalized content, immediate feedback, and adaptive learning pathways. These features can enhance students' motivation by tailoring the learning experience to their individual needs, increasing their sense of autonomy and achievement. **Virtual Language Tutors and Chatbots:** AI-driven virtual language tutors and chatbots have the potential to provide students with constant

companions in their language learning journey. These AI entities can offer immediate responses, practice conversations, and create a low-pressure environment for learners to practice speaking and improve their confidence.

Gamification and AI: Gamification techniques, when combined with AI, can transform language learning into an engaging and enjoyable experience. AI algorithms can adapt game difficulty based on individual performance, ensuring that students are continuously challenged at an appropriate level, thus boosting motivation. **Challenges and Ethical Concerns:** While AI has great potential to motivate EFL students, there are several challenges and ethical concerns to consider. Students may become overly reliant on AI, potentially diminishing their intrinsic motivation to learn. Additionally, issues related to data privacy and algorithmic bias must be addressed to ensure equitable access to AI-driven education tools. **Teacher Roles in AI-Enhanced EFL Classrooms:** Teachers remain integral to the language learning process, even in AI-driven classrooms. They must adapt to new roles as facilitators, providing guidance and support while leveraging AI tools to create a more dynamic and motivating learning environment.

The integration of artificial intelligence (AI) into education has been a transformative development, and it has particularly significant implications for English as a Foreign Language (EFL) students. In addition, in the same part of this discussion, we delve into how AI is impacting EFL students' motivation, both positively and negatively, and what this means for the future of language learning.

Positive Implications:

Personalization and Adaptation: AI-driven platforms can analyze individual student performance and tailor lessons to their specific needs. This personalization fosters a sense of progress, as students can see their improvement, which in turn motivates them to continue learning. **Immediate Feedback:** AI can provide instant feedback on language exercises, correcting errors and offering suggestions for improvement. This immediate reinforcement can boost students' confidence and motivation as they see their mistakes as opportunities for growth.

Gamification: Many AI-powered language learning apps incorporate gamification elements, turning language learning into a more engaging and enjoyable experience. Points, rewards, and competition can motivate students to invest more time and effort in their studies. **Accessibility:** AI can provide accessibility features for students with special needs or different learning styles, ensuring that a broader range of learners can engage effectively. This inclusivity can foster a sense of belonging and motivation among diverse student populations.

Negative Implications:

Overreliance on AI: While AI can be a valuable tool, there's a risk that students may become overly reliant on it, neglecting traditional methods and human interaction. This overreliance can hinder the development of crucial language skills, such as communication and conversation. **Loss of Intrinsic Motivation:** Intrinsic motivation, driven by the love of learning and personal interest, is essential for long-term language learning success. If AI is too prescriptive or dominates the learning

process, it might diminish students' intrinsic motivation as they feel compelled to follow a predetermined path.

Data Privacy Concerns: AI collects vast amounts of data on students' learning habits and progress. Concerns over data privacy and security can deter some students from fully engaging with AI-powered platforms, potentially affecting their motivation. **Algorithmic Bias:** AI algorithms are not immune to bias. If not properly designed and monitored, they can perpetuate stereotypes or favor certain groups, potentially leading to demotivation or disengagement among marginalized students. However, through this study we actually provide the balancing act for toward the implication of AI both positive and negative, **Balancing Act:** The implications of AI on EFL students' motivation are a complex interplay of positive and negative factors. Striking the right balance between AI and human interaction is crucial. Teachers can play a pivotal role in mediating this balance, offering guidance, support, and fostering a sense of intrinsic motivation that AI alone cannot provide.

AI has significant implications for EFL students' motivation. While it offers numerous benefits such as personalization, immediate feedback, and gamification, it also raises concerns about overreliance, loss of intrinsic motivation, data privacy, and bias. The key lies in harnessing AI as a complementary tool in EFL education rather than a replacement for human involvement. In doing so, we can maximize the positive impacts of AI on motivation while mitigating its potential drawbacks, ensuring that EFL students receive a well-rounded and motivating language learning experience. As technology continues to evolve,

ongoing research and thoughtful implementation will be essential in optimizing these implications for the benefit of EFL learners worldwide.

CONCLUSION

In the contemporary landscape of education, the integration of Artificial Intelligence (AI) into the English as a Foreign Language (EFL) classroom has brought forth a multitude of implications, both positive and challenging, with respect to students' motivation. This research has illuminated several key takeaways regarding the dynamic relationship between AI and EFL student motivation. Achieving a balance between AI and human interaction in EFL classrooms is imperative. Educators play a pivotal role in mediating this balance, offering guidance, support, and nurturing intrinsic motivation. By carefully integrating AI as a complementary tool rather than a replacement for human involvement, we can maximize its positive impacts on motivation while mitigating potential drawbacks. In conclusion, the implications of AI in the EFL classroom for students' motivation are multifaceted. While AI offers numerous benefits, including personalization, immediate feedback, and gamification, it simultaneously raises concerns about overreliance, loss of intrinsic motivation, data privacy, and bias. As we move forward, it is essential to continue researching, experimenting, and refining the implementation of AI in EFL education. A thoughtful and balanced approach will enable us to harness AI's potential to enhance EFL students' motivation and provide them with a comprehensive and motivating language learning experience. Ultimately, this synergy between AI and human guidance

holds great promise for the future of EFL education.

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