THE INFLUENCE OF AI-POWERED LEARNING TOOLS ON EFL STUDENTS' ACADEMIC MOTIVATION IN HYBRID LEARNING ENVIRONMENTS

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ABSTRACT

This study aims to investigate the impact of Artificial Intelligence (AI)-enabled instructional instruments on the academic motivation of EFL learners in a blended learning context. Amidst the ongoing digital metamorphosis of tertiary education, comprehending the effects of AI assimilation on students' motivational psychology is imperative for advancing pedagogical practices. The investigation adopted a quantitative methodology featuring a causal-associative paradigm. Data were gathered from 33 EFL students at Universitas Islam Ahmad Dahlan Sinjai through a 20-item Likert-type scale instrument. The dataset underwent scrutiny via simple linear regression analysis employing SPSS 26. Principal results demonstrated a statistically significant positive effect of AI instruments on academic motivation (Sig. .000 < .05). The R-Square coefficient of .719 signifies that AI-enabled instructional instruments account for 71.9% of the variability in students' academic motivation, with the residual 28.1% attributable to extraneous variables beyond the scope of this inquiry. In summation, the incorporation of AI instruments exerts a crucial influence in augmenting student involvement and self-efficacy within hybrid milieus. These outcomes advocate that instructors ought to judiciously integrate AI technologies to perpetuate and elevate learner motivation amid dynamic educational paradigms.

Keywords: Artificial Intelligence, EFL Students, Academic Motivation, Hybrid Learning, Quantitative Study.

1) INTRODUCTION

The development of globalization and digital technology has brought significant changes to various sectors, including higher education. Universities are required to adapt learning strategies to social dynamics and the increasingly rapid technological advancements. One important change in the world of education is the emergence of the hybrid

or blended learning model, which integrates face-to-face learning with digital platforms to create a more flexible and student-centered learning environment (Mulenga & Shilongo, 2024). This learning model is increasingly developing and becoming an essential part of modern educational practices. According to (Niyozov et al., 2023), hybrid learning can enhance learning effectiveness through the use of technology, including automation and simulations that mimic human interactions.

Along with these developments, Artificial Intelligence (AI) has also accelerated transformation in learning, particularly in the context of English as a Foreign Language (EFL). (Xiaolan Wen, 2026) states that AI has brought fundamental changes to EFL learning and shows great potential in improving learning outcomes. This is reinforced by (Dinh, 2025), who emphasizes that rapid AI advancements have transformed various aspects of education, especially in language learning and translation. In practice, AI not only changes the way students access information but also affects how lecturers deliver learning materials (Hanayanti et al., 2025). The presence of AI-based technology has also shifted conventional learning systems toward more interactive and technology-based approaches (Afkarin & Asmara, 2024).

In the context of language learning, various AI-based tools such as ChatGPT, Gemini, and Perplexity have become important components in supporting students' learning processes (Soge & Mbato, 2025). Generative AI is increasingly recognized as an effective assistive tool due to its ability to generate text, answer questions, and perform automatic translations (Alawida et al., 2023; (Liu et al., 2025). In addition, this technology also supports learning in informal digital environments by encouraging students to be more creative and productive in completing language tasks (Liu et al., 2025). Thus, AI is no longer just an additional assistive tool but has become an integral part of the learning process.

However, the use of technology in learning also requires student readiness, particularly in terms of academic motivation. Motivation is an important factor that influences student learning success. According to (Dwi Kurniasih et al., 2025), academic motivation plays a significant role in improving academic achievement. Conceptually, motivation refers to internal or external drives that encourage individuals to initiate and sustain an action (How et

al., 2024 in (Laghrour & Laghrour, 2025). In the EFL learning context, motivation is a primary factor because students often face challenges such as lack of confidence and limited use of the language in daily life.

In addition, active student engagement in the learning process also contributes to increased motivation. Students tend to be more motivated when involved in exploratory and discovery-based learning activities (Zare & Aghajani Delavar, 2024 in (Zare et al., 2025). Motivation not only functions as a driver but also plays a role in directing and sustaining long-term learning goals. Students with high levels of motivation tend to be more active, have greater learning interest, and are able to develop critical thinking skills through engagement in interactive learning activities (Laghrour & Laghrour, 2025)

To understand the dynamics of motivation in technology-based learning, Self-Determination Theory (SDT) serves as a relevant theoretical framework. Roca and Gagné (2008) were pioneers in applying SDT in the e-learning context. This theory explains that individual motivation is influenced by the fulfillment of three basic psychological needs: competence, relatedness, and autonomy (Deci & Ryan, 2013 (Yang et al., 2025). SDT, developed by Ryan and Deci, also explains various types of motivation and how that motivation affects behavior, learning processes, and individual well-being (Ryan & Deci, 2017 (Liu et al., 2025). In the context of foreign language learning, SDT has been widely used to explain how motivation is formed and its influence on learning processes and outcomes (Ryan & Deci, 2017 in (Liu et al., 2025).

In relation to AI use, this technology has the potential to support the fulfillment of those psychological needs. AI can enhance competence through rapid and personalized feedback (Zhou & Ma, 2025 in (Mekheimer, 2024) and support autonomy through flexible self-directed learning (Liu et al., 2025 in Mekheimer, 2024). In addition, the use of AI has also been shown to increase students' self-efficacy, which is their belief in their ability to complete academic tasks (Mohamed et al., 2024 in (Soge & Mbato, 2025). However, on the other hand, excessive use of AI also has the potential to cause dependency and reduce students' critical thinking abilities (Du & Alm, 2024 in (Soge & Mbato, 2025).

In the context of learning at regional universities, including Ahmad Dahlan Islamic University of Sinjai, the use of AI shows significant growth. Students not only use AI as an assistive tool but also as a primary source in completing academic tasks. However, this situation has not yet been fully matched with optimal pedagogical readiness and supervision, resulting in variations in how students utilize the technology. Some students show increased confidence and learning engagement, while others tend to rely on technology without optimally developing critical thinking skills.

Although research on AI use in education has developed rapidly, most studies still focus on improving learning outcomes or language skills. Research that specifically examines the influence of AI on students' academic motivation, particularly in the EFL context and hybrid learning at regional universities, remains limited. This indicates a research gap that needs further investigation.

Based on the above, this study aims to analyze the influence of AI use on EFL students' academic motivation in a hybrid learning environment. The research problem in this study is: to what extent does AI use affect EFL students' academic motivation? This research is expected to contribute to the development of technology-based learning and serve as a reference for educators in integrating AI effectively and balanced in the learning process.

2) METHODS

This investigation adopts a quantitative approach underpinned by a causal-associative design to empirically scrutinize the causal linkages between the utilization of artificial intelligence (AI)-powered tools and EFL students' academic motivation. The study was conducted during the even semester of the 2025/2026 academic year within a hybrid learning framework, which amalgamates synchronous online sessions with asynchronous digital resources. The target population comprised all students enrolled in the English Language Education (EFL) program participating in this blended instructional modality.

A purposive sampling strategy was employed to select participants, with inclusion criteria specifying students who had substantial exposure to hybrid learning environments and routinely integrated AI assistive technologies such as ChatGPT, Gemini, or Perplexity into

their academic tasks, including writing, research, and language practice. This deliberate selection yielded a cohort of 33 respondents, deemed representative for eliciting primary data while ensuring relevance to the research objectives.

Primary data were garnered via an online questionnaire disseminated through Google Forms, facilitating efficient and anonymous responses. The research instrument comprised 20 statements meticulously crafted to operationalize key indicators of AI tool usage alongside dimensions of academic motivation, assessed on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Prior to main analyses, the instrument underwent rigorous validation and reliability testing via Cronbach's Alpha coefficient, confirming internal consistency and data integrity across all items.

All collected data were processed using SPSS version 26, a robust statistical software package. Analytical procedures encompassed descriptive statistics to delineate response patterns and univariate linear regression to quantify the predictive strength of the independent variable (AI tool usage) on the dependent variable (academic motivation). Hypothesis testing proceeded at a significance level of $\alpha = 0.05$, evaluating p-values to derive scientifically grounded inferences regarding AI's substantive role in modulating student motivation within digital-hybrid pedagogies. This methodological framework ensures methodological robustness, enabling precise measurement of AI's motivational impacts.

3) RESULTS

Statistical analyses were conducted to evaluate the impact of AI tool usage on EFL students' academic motivation. As presented in Table 1, the simple linear regression analysis revealed a correlation coefficient (R) of 0.848, signifying a very strong positive relationship between the two variables.

Table 1. Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	PENGGUNAAN AI TOOLS(X1)[b]	.	Enter

a. Dependent Variable: MOTIVASI AKADEMIK(Y1)

b. All requested variables entered.

Table 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.848[a]	.719	.710	4.00180

a. Predictors: (Constant), PENGGUNAAN AI TOOLS(X1)

The R Square value of 0.719 indicates that the use of AI tools accounts for 71.9% of the variance in students' academic motivation. The remaining 28.1% is influenced by other factors outside the scope of this study.

Table 3. Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1269.736	1	1269.736	79.287	.000[b]
	Residual	496.446	31	16.014		
	Total	1766.182	32			

a. Dependent Variable: MOTIVASI AKADEMIK(Y1)

b. Predictors: (Constant), PENGGUNAAN AI TOOLS(X1)

The ANOVA test results in Table 2 show an F-value of 79.287 with a significance level of 0.000. Since the significance value is much smaller than 0.05 ($p < 0.05$), the null hypothesis is rejected, and the alternative hypothesis is accepted, confirming a statistically significant effect of AI tool usage on students' academic motivation.

Table 4. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	11.865	4.168		2.847	.008
	PENGGUNAAN AI TOOLS(X1)	1.140	.128	.848	8.904	.000

a. Dependent Variable: MOTIVASI AKADEMIK(Y1)

Table 3 reveals a regression coefficient (B) of 1.140. This suggests that for every one-unit increase in AI usage, academic motivation increases by 1.140 units.

4) DISCUSSION

The findings of this study underscore that the incorporation of AI assistive tools, such as ChatGPT and Gemini, exerts a predominantly positive and substantial influence on EFL students' academic motivation within hybrid learning environments. These results align seamlessly with Self-Determination Theory (SDT), which asserts that intrinsic motivation flourishes when needs for competence and autonomy are met (Deci & Ryan, 1985, as cited in (Mekheimer, 2024). In this vein, AI functions as an intelligent system that processes human inputs and delivers instantaneous feedback, thereby enhancing students' sense of competence in constructing academic arguments (Edeltrudis Patrisia Soge, 2025).

Furthermore, the scaffolding provided by AI demonstrably elevates students' self-efficacy (Mohamed et al., 2024, as cited in (Edeltrudis Patrisia Soge, 2025). The personalization capabilities of generative AI enable self-regulated pacing, directly reinforcing the autonomy pillar of SDT (Liu et al., 2025, as cited in (Mekheimer, 2024). The 71.9% explanatory power affirms AI's status as a pivotal inflection point in academic writing and research by 2026, revolutionizing how students manage workloads in hybrid systems.

Notwithstanding these insights, the study is constrained by its modest sample size (33 respondents) and singular focus on one academic program. Overreliance on AI warrants caution, as it may erode genuine autonomy if students prioritize algorithmic metrics over

authentic cognitive engagement (Du & Alm, 2024, as cited in (Edeltrudis Patrisia Soge, 2025). Future research should thus employ larger, more diverse samples and incorporate qualitative methods to probe student perceptions in greater depth, ensuring AI integration sustains human cognitive development sustainably.

5) CONCLUSION

This study empirically demonstrates that the integration of Artificial Intelligence (AI)-based learning tools, such as ChatGPT, Gemini, and Perplexity, has a significant and positive impact on EFL students' academic motivation in a hybrid learning environment. Based on the statistical analysis results, AI usage contributes 71.9% to the variation in students' academic motivation. This confirms that in 2026, AI is no longer merely a supplementary tool but a crucial element supporting students' psychological needs for autonomy and competence, as outlined in Self-Determination Theory (SDT). AI's capacity to provide instant feedback and personalized support has proven effective in enhancing students' self-efficacy when tackling complex academic tasks.

These findings carry important implications for educators in the digital era. Lecturers are advised not to restrict AI usage but to strategically integrate it into the curriculum to foster student independence. An "AI-assisted autonomy" approach can be implemented to ensure technology serves as cognitive scaffolding that strengthens critical thinking processes, rather than replacing students' original intellectual efforts. Robust hybrid learning setups require a balance between instructor guidance and the use of intelligent tools to maintain high psychological motivation among students.

Although the study reveals a very strong effect, it is limited by the small sample size of only 33 respondents from a single academic program. Therefore, future research is recommended to expand the population and sample scope to enhance the generalizability of findings. Additionally, the use of qualitative or mixed-methods approaches is suggested to more deeply explore students' subjective perceptions and the potential long-term risks of AI dependency, which could erode their genuine autonomy.

REFERENCES

Afkarin, M. Y., & Asmara, C. H. (2024). Investigating the Implementation of ChatGPT in English Language Education. Journey: Journal of English Language and Pedagogy, 7(1), 57–66. https://doi.org/10.33503/journey.v7i1.865

Dinh, C. T. (2025). EFL Students' Perspectives on ChatGPT in Translation: Exploring AI Assistance, Motivation, and Learning Outcomes. Electronic Journal of E-Learning, 23(2), 99–116. https://doi.org/10.34190/ejel.23.2.4006

Dwi Kurniasih, D., Hur Rahman, M. Z., Arifa Ayunisa, D., & Mustofa, K. (2025). Analysis of awareness and confidence in learning outcomes with students' academic motivation: SEM approach. Jurnal Inovasi Teknologi Pendidikan, 12(1), 58–67. https://doi.org/10.21831/jitp.v12i1.76652

Edeltrudis Patrisia Soge, C. L. M. (2025). The Perceived Impacts of Generative AI on Indonesian EFL Master' S Students' Motivation In. Jurnal Ilmiah Kependidikan, 6(4), 692–704.

Hanayanti, C. S., Ibrahim, M. M., Alief, L., Asmarany, A. I., Rais, R., & Syofya, H. (2025). The Influence of Intrinsic Motivation, Adoption of AI in Learning and Self-Efficacy on Academic Achievement. Edu Cendikia: Jurnal Ilmiah Kependidikan, 5(02), 350–356. https://doi.org/10.47709/educendikia.v5i02.5847

Laghrour, A., & Laghrour, A. (2025). Motivation, Autonomy, and AI: Exploring Student' Attitudes of Intelligent Tools in the Learning Process Motivation 14(01), 396–416.

Liu, H., Wang, Y., & Wang, H. (2025). Exploring the mediating roles of motivation and boredom in basic psychological needs and behavioural engagement in English learning: a self-determination theory perspective. BMC Psychology, 13(1). https://doi.org/10.1186/s40359-025-02524-3

Mekheimer, M. (2024). Motivation, Ethics, and Trust: A Data-Informed Analysis of Generative AI' s Impact on EFL Students. Journal of Teaching and Learning with Technology, 14, 104–121. https://doi.org/10.14434/jotlt.v12i1.41807

Mulenga, R., & Shilongo, H. (2024). Hybrid and Blended Learning Models: Innovations, Challenges, and Future Directions in Education. Acta Pedagogia Asiana, 4(1), 1–13. https://doi.org/10.53623/apga.v4i1.495

Niyozov, N., Bijanov, A., Ganiyev, S., & Kurbonova, R. (2023). The pedagogical principles and effectiveness of utilizing ChatGPT for language learning. E3S Web of Conferences, 461. https://doi.org/10.1051/e3sconf/202346101093

Soge, E. P., & Mbato, C. L. (2025). the Perceived Impacts of Generative Ai on Indonesian Efl Master'S Students' Motivation in Academic Writing. Prima Magistra: Jurnal Ilmiah Kependidikan, 6(4), 692–704. https://doi.org/10.37478/jpm.v6i4.6120

Xiaolan Wen, D. J. (2026). Humanities and Social Sciences Communications Article in Press AI-transforming EFL learning: investigating the interplay of academic buoyancy, motivation, performance and AI readiness among Chinese college students TI ES TI IN ES. Humanities and Social Sciences Communications.

Yang, Y., Chen, J., & Zhuang, X. (2025). Self-determination theory and the influence of social support, self-regulated learning, and flow experience on student learning engagement in self-directed e-learning. Frontiers in Psychology, 16. https://doi.org/10.3389/fpsyg.2025.1545980

Zare, J., Al-Issa, A., & Madiseh, F. R. (2025). Interacting with ChatGPT in Essay writing: A study of L2 Learners' Task Motivation. ReCALL, 37(3), 385–402. https://doi.org/10.1017/S0958344025000035