p-ISSN : 2721-5393, e-ISSN : 2721-5385
www.jurnalp3k.com/index.php/J-P3K/index

Jurnal Penelitian Pendidikan, Psikologi Dan Kesehatan (J-P3K) 2024, Vol. 5 (No. 3) : 831-840

Pengaruh ChatGPT dan Literasi Digital terhadap Motivasi Belajar Mahasiswa

Study of ChatGPT and Digital Literacy Influence on Learning Motivation Among College Student

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Disubmit: 16 September 2024; Direview: 27 September 2024; Diaccept: 20 November 2024; Dipublish: 09 Desember 2024
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Abstrak

Meningkatnya kemudahan belajar bagi mahasiswa di era kemajuan teknologi membuat adanya pergeseran motivasi belajar mahasiswa. Berbagai *platform* dan aplikasi dapat digunakan untuk membantu kemandirian belajar, salah satunya adalah dengan adanya ChatGPT. Hanya saja, kemudahan terhadap berbagai teknologi perlu diiringi dengan kemampuan literasi digital yang baik. Tujuan penelitian ini adalah mengetahui pengaruh penggunaan ChatGPT terhadap motivasi belajar mahasiswa. Penelitian ini dilakukan dengan desain kuantitatif korelasional, dengan menyebarkan *online form* di antara mahasiswa. Skala yang digunakan dikembangkan oleh peneliti berdasarkan indikator dari teori-teori yang ada dan dijawab menggunakan *rating* 5 skala Likert. Analisis dilakukan dengan metode regresi berganda. Didapatkan 127 partisipan dari berbagai tingkat perkuliahan. Hasil penelitian menunjukkan bahwa keduanya bersama-sama mempengaruhi motivasi belajar mahasiswa. Lebih jauh, chatGPT sendiri tidak memberikan pengaruh, namun perlu bersama-sama dengan literasi digital. Hasil tersebut menggarisbawahi pentingnya pemahaman dan penguasaan terhadap teknologi yang ada sebelum memanfaatkan kemajuan teknologi untuk memberikan manfaat pada sikap belajar mahasiswa. Pihak universitas dapat mempertimbangkan untuk memberikan pelatihan dan arahan terkait penggunaan ChatGPT selama proses belajar untuk membantu meningkatkan motivasi mahasiswa.
Kata Kunci: ChatGPT; Motivasi Belajar; Literasi Digital; Mahasiswa.

Abstract

The increasing ease of learning for students in the era of technological advancement has led to a shift in students' learning motivation. Various platforms and applications can be utilized to support self-directed learning, one of which is through the existence of ChatGPT. However, the convenience offered by various technologies needs to be accompanied by good digital literacy skills. The aim of this study is to determine the impact of ChatGPT usage on student learning motivation. This research was conducted using a quantitative correlational design, by distributing an online form among students. The scale used was developed by the researchers based on indicators from existing theories and answered using a 5-point Likert scale rating. The analysis was performed using multiple regression methods. A total of 127 participants from various academic levels were obtained. The results of the study indicate that both ChatGPT usage and digital literacy together influence student learning motivation. Furthermore, ChatGPT alone does not have a significant impact, but it needs to be accompanied by digital literacy. These results emphasize the importance of understanding and mastering existing technologies before utilizing technological advancements to benefit student learning attitudes. Universities may consider providing training and guidance on the use of ChatGPT during the learning process to help enhance student motivation.
Keywords: *ChatGPT; Learning Motivation; Digital Literacy; College Students.*

DOI: https://doi.org/10.51849/j-p3k.v5i3.486

Rekomendasi mensitasi :
Eunike, P., Wardhani, P. A. P. & Wulansari, O. D. (2024), Study of ChatGPT and Digital Literacy influence on Learning Motivation among College Student. *Jurnal Penelitian Pendidikan, Psikologi dan Kesehatan (J-P3K)*, 5 (3): 831-840.

INTRODUCTION

When it comes to the learning tasks, college students are required to take initiative and manage their studies independently. While the freedom for students to develop themselves is beneficial, students in Indonesia often feel pressured by the responsibility of learning without much prior support and guidance (Budiarti & Appulembang, 2021). This pressure can subsequently hinder students in meeting academic demands. Eventually, their enthusiasm for learning may decline, and in the long term, this can lead to negative attitudes toward learning activities (Maslach & Leiter, 2016). Several studies at an Indonesian university revealed that this sense of pressure resulted in academic burnout for 77.1% of students (Yudhistira et al., 2023) and inability to maintain motivation for learning (Mawaddah et al., 2022).

Learning motivation is the underlying drive that propels an individual's eagerness to participate in educational activities. It encompasses the psychological and emotional aspects that determine a person's readiness to engage in learning, process information, and utilize acquired knowledge (Fang, 2020). Individuals with high learning motivation show a keen interest, enjoyment, and focus on the subjects they study (Farisi et al., 2023). Contextually, the efforts made by individuals in specific behaviors aimed at achieving goals are influenced by their motivation, which, in this scenario, pertains to their intent to learn (Setiawan et al., 2021). According to the Theory of Reasoned Action, an individual's attitude towards learning, combined with the social environment, plays a crucial role in shaping their intention to engage in certain behaviors. This theory suggests that both personal attitudes and social influences significantly affect one's motivation and interest in learning. By understanding these dynamics, educators and researchers can better address the factors that enhance or hinder students' motivation to learn, ultimately fostering a more supportive and effective educational environment.

It is undeniable that our lives have been significantly transformed by technological advancements. The COVID-19 pandemic has further emphasized the importance of these technologies, particularly those related to remote activities such as working and learning (Klootwijk et al., 2021). The integration of technology into education has created numerous opportunities for enhanced learning experiences. Students now have access to a vast array of resources that were previously unavailable, fostering a more dynamic and flexible approach to education. Digital tools have become increasingly prevalent in educational contexts. Conference platforms commonly replace in-person classroom activities, Moodle is employed for lesson planning, and various websites provide answers to emerging questions. These technologies promote independent learning. For instance, YouTube tutorials and access to ebooks enable individuals to explore educational content with engaging features, unrestricted by physical limitations. This not only enhances comfort but also diversifies the types of learning resources available, thereby supporting self-directed learning (Komariah et al., 2020).

In the context of higher education, the ease of access to resources can significantly enhance learning motivation. Students are given the freedom and opportunity to explore subjects they are interested in, thereby increasing their motivation to learn (Stone et al., 2009). Curiosity also serves as an internal driver, prompting individuals to deepen their engagement with the learning process (Singh & Manjaly, 2022). When students are encouraged to ask questions, explore new ideas, and seek answers independently, they are more likely to feel engaged and motivated to learn. This curiosity can be facilitated through the use of technology. Technological tools can support and enhance students' intrinsic motivation by providing diverse and interactive learning resources. Online platforms, digital libraries, and interactive educational tools make it easier for students to pursue their interests and satisfy their curiosity. Consequently, integrating technology into the educational environment not only supports independent learning but also fosters a deeper, more engaged learning experience.

One platform frequently used to assist in learning and finding answers is ChatGPT. Segall (2023) defines ChatGPT as a large language model developed by OpenAI. ChatGPT features advanced natural language processing capabilities, enabling it to understand and generate human-like text based on the input it receives. This makes it a valuable tool for students, as it can provide detailed explanations, answer complex questions, and offer insights on a wide range of topics, thereby fueling students' curiosity and enhancing their engagement in the learning process.

ChatGPT helps increase students' interest in participating in educational activities and their overall learning process (Zhou & Li, 2023). By offering instant access to information and personalized learning experiences, ChatGPT can make learning more interactive and enjoyable. For instance, students can use ChatGPT to clarify doubts, explore new subjects, and receive tailored feedback, which can motivate them to delve deeper into their studies. However, there are potential negative impacts associated with the use of ChatGPT. One major concern is the possibility of over-reliance on AI, which may hinder the development of critical thinking skills and independent problem-solving abilities (Pawar et al., 2023). Students might become accustomed to seeking easy answers from AI rather than engaging in deep thinking and analysis. This over-dependence could negatively affect their ability to critically evaluate information and develop essential cognitive skills necessary for academic and professional success.

Therefore, to mitigate the negative effects, students need to understand how digital tools work. This competency, known as digital literacy, encompasses a broad range of skills and abilities necessary to effectively navigate and interact with digital technologies (Bieza, 2020). Digital literacy includes not only the ability to use digital tools but also the critical thinking skills required to evaluate and synthesize information from these sources (Arsyad et al., 2023). Digital literacy can add the impact of ChatGPT on learning motivation by helping students use the tool effectively and responsibly. When students are digitally literate, they

can better balance using ChatGPT for assistance with engaging in independent problem-solving. This balanced approach enhances learning by combining the convenience of AI-generated answers with the deep cognitive engagement required for critical thinking. Thus, digital literacy is crucial in ensuring that the use of ChatGPT and similar technologies supports rather than hinders the educational process.

Previous studies in Indonesia have examined digital interaction and its impact on education. For instance, Soraya et al. (2023) discuss the impact of digital textbooks and interactive e-learning on student motivation in economics subjects, while Arsyad et al. (2023) highlight the positive effects of digital literacy on students' motivation to learn religious subjects. However, the specific impact of ChatGPT on Indonesian education, particularly among college students, remains unexplored. Most existing research focuses on perceptions of ChatGPT (Nugroho & Wuryani, 2023) and its role (Viorennita et al., 2023), without delving into its actual influence on student motivation. Additionally, there is a lack of studies investigating how digital literacy might add the effects of ChatGPT on learning motivation. This gap indicates a need for further research to understand how ChatGPT and digital literacy, can influence educational motives outcomes among college students in Indonesia.

Therefore, this research is needed to understand the potential of ChatGPT use and digital literacy among college students and its impact on their learning motivation. This research can provide valuable insights for universities and policymakers. By understanding how ChatGPT influences learning motivation and the role of digital literacy in this process, universities can develop strategies to integrate AI tools effectively into their curricula. This can enhance teaching methods, provide better support for independent learning, and improve overall educational outcomes. Policymakers can use the findings to create guidelines and training programs that promote digital literacy among students, ensuring they can use AI tools responsibly and effectively.

RESEARCH METHOD

This study utilizes a quantitative design employing multiple regression analysis. The independent variables are ChatGPT usage and digital literacy, while the dependent variable is learning motivation among college students. The study was conducted online, employing convenience sampling by sharing the survey link on social media platforms and student online groups. The sampling size was determined using Green's technique in Memon et al. (2020), where $N > 104+m$, with m representing the predictors. Hence, the study required a minimum of 106 participants. Informed consent was obtained from participants at the beginning of the form. Rewards were given for some participants in the study.

The scales used in this study were developed and modified by the researchers based on indicators from previous studies. The Learning Motivation Scale consists of six unidimensional items with 5-point Likert scale responses, adapted from indicators mentioned in Farisi et al. (2023). The ChatGPT usage Scale comprises five unidimensional items, also with 5-point Likert scale responses, derived from

indicators in Sallam et al. (2023). The digital literacy scale, consisting of five unidimensional items with 5-point Likert scale responses, was derived from indicators in Amin et al. (2022). All items were checked for item-rest correlation, and the Cronbach's alpha reliability coefficient was computed for each scale. The Learning Motivation Scale yielded an item-rest correlation ranging from 0.346 to 0.551 and a Cronbach's alpha coefficient of 0.741. The ChatGPT usage Scale, demonstrated an item-rest correlation of 0.600 to 0.795 and a Cronbach's alpha coefficient of 0.889. Similarly, the digital literacy scale yielded an item-rest correlation of 0.623 to 0.741 and a Cronbach's alpha coefficient of 0.863. All items were checked for item-rest correlation, and the Cronbach's alpha reliability coefficient was computed for each scale, yielding satisfactory results with alpha cronbach more than 0.7 and item-rest correlation > 0.3 (Zijlmans et al., 2017).

Following data collection, cleaning, and coding, statistical analysis was conducted using multiple regression analysis facilitated by JASP software version 0.16.4.0.

RESULTS AND DISCUSSION

Data was collected over a full-week period. Out of 130 responses, 3 were excluded due to being outliers, leaving 127 participants.

Table 1. Demographic of Participants

Demography	Groups	Count	Percentage
Gender	Male Students	53	41,7%
	Female Students	74	58,3%
Age	15 - 17 years old	1	0,8%
	18 - 20 years old	58	45,7%
	21 - 23 years old	55	43,3%
	23 - 25 years old	11	8,7%
	More than 25 years old	2	1,6%
Year of study	1st year	22	17,3%
	2nd year	33	26,0%
	3rd year	46	36,2%
	4th year	20	15,7%
	more than 4th year	6	4,7%
Aboard students	Yes, abroad student	102	80,3%
	No	25	19,7%

From Table 1, it is shown that the majority of participants are female students (58.3%). Most participants are in the age range of 18 to 20 years old (45.7%) and 21 to 23 years old (43.3%). Participants are distributed across various years of study: first year (17.3%), second year (26%), third year (36.2%), fourth year (15.7%), and more than the fourth year (4.7%). Interestingly, most college students in this study are international students (80.3%) within Indonesia.

Before the regression analysis, researchers check the assumptions tests. Normality test, multicollinearity test, auto-correlation test, and heteroskedasticity test. Below show the score from assumptions check.

Table 2. Assumptions Check

Assumptions	Analysis Used	Value	Threshold
Normality	Shapiro-Wilk	p-value < 0.001	p-value > 0.05
Multicollunearity	Tolerance	0.832	Tolerance > 0.1
	VIF	1.202	VIF < 10.00
Autocorrelation	Durbin-watsons	2.104	1.5 to 2.5

Based on Table 2, it can be concluded that the data does not follow a normal distribution. However, for the regression analysis, it is crucial that there is no multicollinearity or autocorrelation. The VIF and tolerance scores indicate that the data does not exhibit multicollinearity. Additionally, the Durbin-Watson score, which is near 2, shows that there is no autocorrelation.

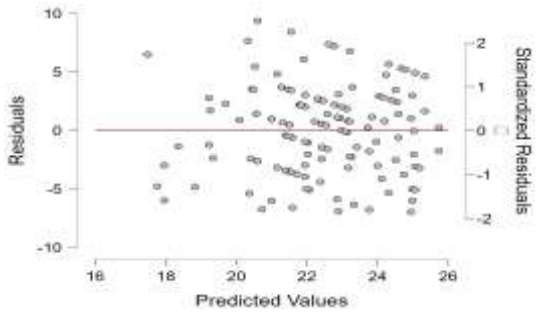

Figure 1. Heteroskedasticity Residual Plot

Figure 1 shows the linear line within the residuals-predicted values plot, indicating that the data exhibits homoskedasticity. With all necessary assumptions for regression analysis met, the analysis can proceed. The results are presented below.

Table 3. Model Summary of Regression Analysis

Model	R-Square	Sum of Squares	df	Mean square	F	P-value
H1	0.197	Regression 434.713	Regression 2	217.356	15.170	< .001
		Residual 1776.705	Residual 124	14.328		
		Total 2211.417	Total 126			

Table 3 presents the p-value of the regression model with two independent variables, which is < 0.001, with an F-score of 15.170. This indicates that the hypothesis is accepted. It can be concluded that, simultaneously, ChatGPT usage and digital literacy can predict the outcomes of learning motivation among college students. The R-squared value of 0.197 signifies that 19.7% of the variance in learning motivation among college students is influenced by both digital literacy and ChatGPT usage. Table 4 displays the coefficients of each variable.

Table 4. Coefficient Tables

Model		Unstandardized	Std. Error	Standardized	t	p-value
H1	(intercept)	14.087	1.666	-	8.456	-
	Total LD*	0.474	0.091	0.461	5.226	< .001
	Total GP*	- 0.039	0.071	- 0.049	- 0.556	0.579

*total LD is total value of Digital Literacy
*total GP is total value of ChatGPT

Examining each independent variable individually reveals that the significance value of the contribution is only significant for digital literacy in influencing learning motivation (p-value 0.001). This implies that digital literacy alone can predict learning motivation. Meanwhile, the p-value for the contribution of ChatGPT usage is 0.579, indicating that the hypothesis is rejected. ChatGPT usage alone cannot predict learning motivation. The beta value of digital literacy is 0.474, showing that higher digital literacy correlates with higher learning motivation. Interestingly, the beta value for ChatGPT use is -0.039, suggesting that higher ChatGPT use actually lowers the score of learning motivation, although this relationship is considered insignificant.

Table 5. Independent Sample t-test

Variables	Group	Mean	statistic t-test	p-value
Total MM*	Male	21.358	- 2.535	0.012
	Female	23.230		

*total MM is total value of Learning Motivation

This research also uncovered interesting findings. When comparing the scores of learning motivation between male and female student groups, the p-value of the t-test is 0.012. Since this is less than 0.05, the hypothesis is accepted, indicating a difference in learning motivation between male and female students. Female students present a higher mean value (23.230) compared to male students (21.358).

Purpose of this study is to understand the influence of ChatGPT use and digital literacy among college students on their learning motivation. Both variables, chatGPT use and digital literacy, simultaneously predict the learning motivation. It is indeed aligned with Arsyad et al. (2023). The previous study was conducted on MTS (Islamic Junior High School) students in a certain region and aimed to examine the influence of digital literacy skills on students' learning motivation. Specifically, through online learning, the results showed an impact of digital literacy on students' interest and motivation to learn. When combined with online learning methods, digital literacy helps motivate students to learn. Soraya et al. (2023) also stated that digital literacy has a positive and significant impact on high school students for economics subjects. This study implies that digital literacy still needs to be enhanced to aid students' learning outcomes, both for students with high learning interest and those with low learning interest. Lee et al. (2019) also revealed that digital literacy significantly and positively predicts learning motivation. The results indicate that digital literacy plays a crucial role in students' learning processes through digital textbooks. With good digital literacy skills, students can more easily participate in the learning process and feel more positive emotionally, thus increasing their interest in learning.

On the other hand, the use of ChatGPT to predict learning motivation aligns with the previous study by Ali et al. (2023), which demonstrates that ChatGPT inspires students to learn and engage more with English literature. Consequently, it enhances their intention to study English. In Medan, the findings by Siregar et al. (2023) indicate that the use of ChatGPT among students is fairly common, with male students being more dominant users. Additionally, younger students tend to use ChatGPT more frequently than older students. This usage has a positive, albeit weak, impact on their motivation to learn.

However, when examined individually, only digital literacy significantly predicts learning motivation. The use of ChatGPT does not show any significant impact on predicting learning motivation. This can be understood in light of the fact that the effective use of ChatGPT requires instructors who are also proficient in its use. Each university needs to facilitate students' use of ChatGPT to bridge the gap between ChatGPT usage and students' learning motivation. This is explained by Zhou and Li (2023), who emphasize that students with experienced instructors using ChatGPT, benefit significantly in terms of their learning interest. In the study by Ali et al. (2023), respondents actually exhibited a neutral reaction to the impact of ChatGPT on their listening and speaking skills in English. This implies that ChatGPT functions merely as a neutral learning tool stimulus and does not directly enhance students' motivation to learn.

These findings indicate a negative influence, albeit not statistically significant, highlighting that without good digital literacy, a stimulus that initially remains neutral may be improperly used by students and lead to a decline in learning motivation. Therefore, continued guidance and training regarding attitudes towards technology and other digital aspects need

to be emphasized by universities. While technology does indeed help students diversify their learning sources, without adequate digital literacy, it can decrease their learning motivation and subsequently impact their academic performance.

An interesting finding from this study is that females exhibit significantly higher learning motivation compared to males. In terms of English learning motivation, females tend to have a higher tendency to practice what they have learned in the real world, for example, by speaking to friends using English. This leads to their motivation to learn appearing higher than that of males (As sabiq et al., 2021). Additionally, extrinsic motivation is more pronounced in male students compared to female students, thus demonstrating lower quality of learning motivation when compared to females (Oga-Baldwin & Fryer, 2020), even though, findings from this study shows that male students have use ChatGPT more often than female students. It may indicate that male students might have a higher curiosity of using the newest technology. Yet the insignificancy in statistics might need to be considered.

CONCLUSION

This study reveals several significant conclusions regarding the predictors of learning motivation among college students. Firstly, digital literacy and the use of ChatGPT collectively predict learning motivation. However, when examined separately, only digital literacy demonstrates a positive correlation with learning motivation, whereas the use of ChatGPT is found to be insignificant and negatively predicts learning motivation. Moreover, female students exhibit higher learning motivation compared to their male counterparts.

This research contributes new insights into the use of ChatGPT and digital literacy in educational contexts. Unlike previous studies, which often focus solely on the efficacy of digital tools, this study emphasizes the critical role of digital literacy in effectively using tools like ChatGPT. Universities are encouraged to integrate AI and other digital learning tools into their educational activities. To optimize their benefits, it is essential for both instructors and students to receive adequate training in digital literacy. This training will equip students with the necessary skills to use digital learning tools proficiently, thereby enhancing their learning experiences.

Several limitations should be considered when interpreting the findings of this study. Firstly, the study did not take into account students' majors, which could influence their familiarity and proficiency with ChatGPT and other digital tools. Future research should explore how students in different academic disciplines interact with various digital technologies. Secondly, this study focused exclusively on ChatGPT. Future research could broaden its scope by examining other AI models and digital technologies used for learning, such as AI-based problem-solving systems, digital books, and educational YouTube channels. While this study offers valuable insights into the predictors of learning motivation among college students, further research is warranted to explore the broader implications of digital literacy and different digital learning tools across

diverse academic disciplines. Such investigations will help to elucidate how universities can effectively integrate these technologies into their educational practices to enhance student learning outcomes.

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