

The Analysis of ChatGPT Usage Impact on Learning Motivation Among Graduate in Johor

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ABSTRACT

The widespread integration of artificial intelligence (AI) in education has significantly reshaped how university students interact with learning materials and complete academic tasks. Among AI tools, ChatGPT has become one of the most frequently used platforms, particularly due to its ability to generate explanations, summarise content, and provide writing assistance. This study examines the impact of ChatGPT usage on learning motivation among university students in Johor. A quantitative survey involving 209 students from public university was conducted to analyse how frequently students use ChatGPT and how such usage influences their learning motivation. Data were collected through online questionnaires using adapted instruments measuring ChatGPT usage (10 items) and learning motivation (9 items) on a 5-point Likert scale. The findings reveal a significant positive correlation between ChatGPT usage and learning motivation ($r = 0.676$, $p < .001$), indicating that students who frequently utilise ChatGPT tend to demonstrate higher academic motivation. The mean score for ChatGPT usage was 3.77, while learning motivation scored 3.68, suggesting moderately high engagement levels. Reliability analysis confirmed the internal consistency of both constructs ($\alpha = 0.868$ for ChatGPT usage; $\alpha = 0.887$ for learning motivation). Despite these positive outcomes, the study acknowledges potential risks of excessive reliance on AI tools, which may compromise independent learning skills. The study's implications suggest that ChatGPT should be positioned as a supportive learning tool rather than a primary source of academic output. Recommendations include establishing guidelines for responsible AI use and strengthening digital literacy programmes within Malaysian universities.

Keywords: ChatGPT; artificial intelligence in education; learning motivation; university students; higher education; Malaysia

INTRODUCTION

The recent explosion of artificial intelligence (AI) in higher education has presented new opportunities to enhance the engagement of students, their learning performance and their access to academic support. AI-based platforms allow learners to access their information instantly, find explanations to the complicated concepts, and other feedback elements that were unavailable in traditional learning techniques last before (Adıgüzel et al., 2023). ChatGPT is the most popular AI tool that exists today as it offers a conversational interface and contextspecific responses (Zakaria, 2025; Siregar et al., 2023; Ali et al., 2023).

The use of ChatGPT by university students in several academic fields continues to grow among students in Malaysia. They consist of making ideas, organising essays, doing assignments, summarising readings and studying exams (Zakaria, 2025; Siregar et al., 2023; Daud et al., 2024). The ease and comfort that ChatGPT offers have changed the behavioural patterns and demands of the learners, especially in a setting where students have high academic loads in addition to undertaking part-time jobs or extra-curricular activities. That being the learning motivation case, ChatGPT can be utilized as both an auxiliary learning tool and an academic support agent that serves as an additional source of in students (Ausat et al., 2023; Ali et al., 2023).

Academic success is a major factor which is influenced by motivation. Highly motivated students both intrinsically and extrinsically have increased chances of staying active, tenacious, and reassured in their learning

undertakings (Liu, 2024). The earlier research has discovered that educational technologies may be thoroughly integrated to increase student motivation as they may make student activities more significant and more open (Daud et al., 2024; Pallivathukal et al., 2024). Nevertheless, although ChatGPT can be considered as a motivational tool, there is still a worry about over-dependence and the influence on student autonomy (Fuchs, 2023; Anders, 2023). Although there has been an increased adoption of ChatGPT by students of universities in Malaysia, there is still insufficient research on whether ChatGPT actually stimulates learning motivation or leads to dependency. This paper will fill this knowledge gap by discussing the connection between ChatGPT use and learning motivation within the Malaysian higher education setting.

The use of artificial intelligence has become widespread in educational institutions, where they have been used to facilitate educational activities by both the educators and learners in terms of content delivery, evaluation and solving problems. ChatGPT, being a generative AI platform created by OpenAI, has proven that it can imitate natural language communication, which is why the platform has become most accessible to students in need of help during the hours other than school hours (Adıgüzel et al., 2023). The technology is based on large language model that is used on massive amounts of data, which allows it to provide answers to academic questions like the students seek and develop better academic writing (Xu, 2024). Previous research outlined above indicates that students tend to use ChatGPT to clarify academic problems and write better (Windasari et al., 2023). A survey of Malaysian healthcare students showed that the most common uses of ChatGPT are completion of assignments, preping tests, and learning complicated medical concepts (Pallivathukal et al., 2024). Likewise, it was also revealed by Daud et al. (2024) that the technical university students in Malaysia viewed AI as a useful application to work on the task in the Bahasa Melayu context, which proved the universal applicability of the technology to other language settings.

The AI tools have been found to minimise the learning barrier by providing alternative definitions of intricate issues, interactive feedback options, and learning processes (Xu, 2024). Such affordances render ChatGPT a useful tool especially to students at various levels of proficiency. Zhou (2024) says that due to ChatGPT, learners can get answers right away and can help minimize frustration and understand the topic better. The fact that the tool allows them to present complex information in digestible parts promotes the idea of scaffolding in educational psychology because the adequate assistance should be offered to the learners according to their level of understanding at the moment (Fan et al., 2024).

Nevertheless, integrating ChatGPT in education is not an easy task. The research conducted by Zakaria (2025) enumerated some of the challenges associated with the Malaysian students of the private university such as the lack of trust in the information found, the ethical aspect of the use of AI-generated material, and the possible loss of critical thinking ability. Fuchs (2023) highlights the fact that ChatGPT presents a prospective of superior learning along with the danger that can be associated with academic dishonesty and acquiring critical analytical skills.

Learning motivation can be described as processes inside that guide, stimulate, and maintain learning behaviours (Liu, 2024). Students who are motivated have greater persistence, concentration and enjoyment of the academic activities. Based on the concept of educational psychology, motivation includes the intrinsic and the external parts (graded, recognized, external reward) (Liu, 2024; Huang, 2012).

Introduced by Deci and Ryan, Self-Determination Theory (SDT) is an ultimate model that allows one to approach motivation in the educational process. According to the theory, the intrinsic motivation thrives in a situation where three fundamental psychological needs are met: autonomy (ability to feel in control of what one does), competence (becoming capable and productive), and relatedness (feeling connected with others) (Hmoud et al., 2024). When interviewed in relation to AI-assisted learning, the ChatGPT can help competence as it can offer direct-feedback and explain the process, which can give students more confidence in their skills.

Intrinsic motivation involves doing things due to inherent pleasure also known as not because of the rewards. Intrinsically motivated students show a higher level of thought, more memories and are innovative at solving their problems (Liu, 2024). On the other hand, extrinsic motivation refers to carrying out of activities in order to receive separable rewards including grades, approval, or punishment prevention. Whereas the two types of motivation may both initiate learning behaviours, the literature indicates that the use of intrinsic motivation can produce more lasting and significant learning results (Huang, 2012).

It has been demonstrated that the use of technology in learning affects the two forms of motivation. Prameswari (2025) discovered that the use of ChatGPT had a beneficial impact on learning motivation in students of social studies education, as it helped in increasing the engagement of learning, as well as their accessibility. ChatGPT can fill the competence requirement of students by offering immediate feedback and personalized responses, and, consequently, increase intrinsic motivation (Xu, 2024).

Another example of the significant interaction between intrinsic and extrinsic motivation and ChatGPT use is the connection between academic performance and its improvement. Replenishing the complicated task with the simplified version, and providing custom assistance, ChatGPT can help students perform better, thus, meeting the external expectations and rewards, including grades or awards (Yakin et al., 2023; Fan et al., 2024; Hmoud et al., 2024). That helps to confirm the hypothesis according to which extrinsic motivation can be strengthened by the higher level of proficiency and performance, as students are more committed to the academic activities when they see that their efforts already lead to positive results (Caratiquit & Caratiquit, 2023; Hmoud et al., 2024).

Digitalization and application of AI software, in particular, ChatGPT, can have a tremendous effect on different aspects of learning motivation. It has been shown that the application of ChatGPT can lower frustration levels among the students and improve their understanding by updating their results with instant feedback and an individualized level of assistance (Xu, 2024). Such an ability creates a condition of learning and students are likely to develop a higher level of intrinsic motivation which is the interest to the learning process, and this results in a deeper interaction to the learning content (Caratiquit, 2023; Caratiquit, 2025).

The power of ChatGPT to achieve rich discussions and constructive feedback has been demonstrated to create a strong feeling of community and collaboration among students who can become more heavily motivated to engage in active learning processes (Yakin et al., 2023; Hmoud et al., 2024; Dewi et al., 2025). Moreover, the feedback loop established due to the positive effect of better performance will persist in motivating students to use AI tools, thus building a performance-motivation loop (Caratiquit & Caratiquit, 2023; Al-Mughairi and Bhaskar, 2024; Alneyadi and Wardat, 2023).

Empirical research in various educational environments proves that there are substantial levels of motivation in the interaction with ChatGPT. Hmoud et al. (2024) studied the effect of generative AI on the task motivation of higher education students and discovered that ChatGPT had a positive impact on the value that students attach to learning tasks and their success expectation. On the same note, Alneyadi and Wardat (2023) showed, using ChatGPT, that student performance in physics education at the eleventh-grade level in the UAE improved significantly, especially in the achievement levels in physics courses and the degree of motivation in the learners.

Ali et al. (2023) study examined not only the views of teachers but students regarding the effect of ChatGPT on learning motivation and found out that the tool had encouraging effects, including the ability to elicit instant clarification and lessen the anxiety around difficult events and encourage self-paced learning. According to Dewi et al. (2025), the correlation between motivation and engagement of students in learning activities was significant using ChatGPT, which implies that the tool can potentially be used as a motivational stimulus.

Nonetheless, other researchers also stress that when students become over-dependent on AI, their abilities to think, and make decisions according to critical reasoning become less developed (Fuchs, 2023; Fan et al., 2024).

Fan et al. (2024) pioneered the notion of generative AI tools causing what they name as metacognitive laziness by advising that an overdependence on such tools may lead to the deep processing and self-regulation of learning methods in students. Consequently, it is difficult to find a balance between the benefits of AI use and the ability of students to stay autonomous and have the critical thinking skills.

Although research conducted internationally has defined interrelations between the application of AI and student motivation, there is limited research that has considered context-based studies in the Malaysian higher education context. Among the local factors that require local research, there are peculiarities of the cultural, language, and educational aspects of Malaysian universities. In this study, the interrelationship between ChatGPT frequency of use and motivation to learn is to be addressed by analyzing the relationship between the frequency of chatGPT

usage and motivation among university students in Johor with empirical support that can be used in development of the policy and pedagogy of learning in an AI-based learning system.

METHODOLOGIES

Research Design

The nature of the study was a quantitative survey conducted to determine the effect of ChatGPT use on the learning motivation of Malaysian university learners. This method has been chosen because it is good at measuring the relationship between variables and its reflection of other related studies in the interest (Caratiquit and Caratiquit, 2023; Siregar et al., 2023). The sample was made of 209 students of one of the public universities in Johor. Convenience sampling was used to sample out participants across various sets of academic study and subjects in sufficient diversity and representation. The demographic profile consisted of the students of different levels of study (Certificate, Diploma, Bachelor Degree and Master Degree) with the age ranged and over 18 years and below 25 years as the major range.

The research design was quantitative, and it has applied numerical data and statistical analysis. The code of the research instrument had two large components, which are ChatGPT Usage Scale. It comprised of 10 questions on the tone and nature of ChatGPT use as applied in the academic set up. Learning Motivation Scale containing 9 questions that evaluate both the intrinsic and extrinsic motivation variables follows next. The respondents gave the answers in 5 level likert scale which consisted of such items as Strongly Disagree, Disagree, Neutral, agreement, Strongly agree. The given scaling approach is aligned with the preferences in motivation research (Huang, 2012; Liu, 2024).

Data Collection Procedure

The data were collected by online distribution of the questionnaire with the help of Google Forms. The inclusion was voluntary and they provided anonymity to ensure that people gave their honest answers and the confidentiality of the participants would remain.

The analysis of data was done in SPSS (Statistical Package of the Social Sciences). The analysis involved four steps, including the descriptive statistics to summarize the demographic profile of the participants and their response patterns, reliability analysis based on Cronbach alpha in the evaluation of the internal consistency of the instruments, normality, which is carried out based on the non-normality distribution of the data, and correlation analysis, which is based on Spearman rho, to analyze the relationship between ChatGPT usage and learning motivation.

RESULT AND DISCUSSION

This section reports the statistical findings derived from the analysis of data collected from 209 university students. The results include descriptive statistics, reliability analysis, normality tests, and correlation analysis conducted to address the research objectives of the study.

The demographic profile of the respondents indicates that the majority were female (75.8%, n=163), while 21.4% (n=46) were male. This gender distribution reflects the typical enrollment patterns in Malaysian public universities, where female students often constitute the majority (Malaysian Ministry of Higher Education, 2023).

Table 1. Demographic characteristics of university students

Demographic	Respondent category	Frequency	Percentage
Gender	Male	46	21.4
	Female	163	75.8

Age	18-21	186	86.5
	22-25	22	10.2
	31-35	1	0.5
Level of Study	Certificate	15	7.0
	Diploma	157	73
	Bachelor's Degree	36	16.7
	Master's	1	.5

Most of the respondents age was 18- 21 years (86.5% n=186), 22-25 age group constituted 10.2% (n=22) and only 0.5 years (n=1) respondents belonged to 31-35. The specified age distribution corresponds to the average population of the undergraduate students in the Malaysian institutions of higher learning.

In terms of the level of study, most of the respondents were Diploma students (73.0%, n=157) which were then followed by students with a degree in Bachelor (16.7% n=36). In the meantime, 7.0 per cent. (n=15) were Certificate students, and, only, 0.5 per cent. (n=1) had participated in a Master's programme. Generally, the sample was of mostly young diploma level students which would be representative of the target population in public universities in Malaysia.

Table 2. Students' responses to ChatGPT usage survey items

		Frequency	Percent
Valid	Rarely	5	2.3
	Sometimes	71	33.0
	Often	105	48.8
	Very Often	28	13.0

According to the frequency analysis, the vast majority of the respondents use ChatGPT on a regular basis, which is aligned with the past research results regarding AI usage among college students (Pallivathukul et al., 2024; Zakaria, 2025). The breakdown of the respondents that use ChatGPT was as follows: 105 (48.8) respondents frequently use it, 71 (33.0) use it occasionally. In the meantime, 28 respondents (13.0%) expressed that they use chat GPT very frequently, and only five respondents (2.3%) said that they rarely use it.

In general, this distribution shows that many of the respondents use ChatGPT with high frequency (61.8 percent use it often or very often), indicating that ChatGPT has already become a part of the academic activity of students. This observation is consistent with the results of Daud et al. (2024) about the extensive use of AI among the students of the Malaysian technical universities.

Table 3. Mean scores of ChatGPT usage and learning motivation

Variable	Std. Deviation	Mean
ChatGPT Usage	0.51763	3.7735
Learning Motivation	0.58021	3.6842

Mean, calculated according to a 5-point Likert scale, was, averaging the scores of students regarding the usage of ChatGPT, 3.77 and Std. Deviation of 0.517; the average of the same according to learning motivation was 3.68 and Std. Deviation of 0.58. These findings show that students are using ChatGPT daily in their learning

activities with the usage rates nearing the often definition. The score in the domain of learning motivation indicates rather good results, indicating that students have a positive attitude to their learning process (Liu, 2024).

The possibility of using ChatGPT to positively aid the students interest and engagement in learning is indicated by the fairly high mean scores of both variables, although the scores had not reached the maximum level. Such moderate to high level of engagement aligns with the results obtained by Hmoud et al. (2024), who also found that the levels of motivation of students who use generative AI tools are the same. Standard deviations imply that the answers vary to a reasonable extent, implying that various rates and patterns of usage, and the level of motivation among the sample are varied (Caratiquit and Caratiquit, 2023).

Table 4. Reliability analysis of ChatGPT usage and learning motivation

Variable	Cronbach's Alpha
ChatGPT Usage	.868
Learning Motivation	.887

The reliability test reveals that ChatGPT Usage (0.868) and Learning Motivation (0.887) attain the value of Cronbach = 0.70 which is the recommended value (Nunnally and Bernstein, 1994). This implies excellent or good internal consistency reliability. These values imply that the items in any of the constructs are gauging the same conceptual framework the same way.

The large reliability coefficients indicate the reliability of all the items of both constructs as well as their appropriateness in the analysis. As George and Mallery (2003) note, alpha coefficients of more than 0.80 can be viewed as good, and this fact shows that the adapted instruments used by Shoufan (2023) and Lubis (2017) can be used in the Malaysian context. These are reliable pieces of evidence that allow one to trust the study findings and to proclaim the validity of the instruments of measurements.

Table 5. Tests of normality for ChatGPT usage and learning motivation

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ChatGPT Usage	.081	209	.002	.981	209	.006
Learning Motivation	.092	209	.000	.965	209	.000

The Shapiro-Wilk test showed that both ChatGPT Usage ($p = 0.006$) and Learning Motivation ($p = 0.000$) deviated from normal distribution, as indicated by p-values below the conventional threshold of 0.05. Similarly, the Kolmogorov-Smirnov test confirmed non-normality for both variables with $p = 0.002$ and $p < 0.001$ respectively.

Based on these results, the assumption of normality was violated, necessitating the use of non-parametric statistical tests for subsequent analyses (Field, 2013). Therefore, Spearman's rho correlation coefficient was employed instead of Pearson's correlation to examine the relationship between variables. This decision aligns with established statistical practices when dealing with non-normally distributed data (Pallant, 2020).

Table 6. Spearman's rho correlation between ChatGPT usage and learning motivation

Spearman's rho		ChatGPT Usage	Learning Motivation
ChatGPT Usage	Correlation Coefficient	1.000	.676**

	Sig. (2-tailed)	.	<.001
Learning Motivation	Correlation Coefficient	.676**	1.000
	Sig. (2-tailed)	<.001	.

**Correlation is significant at the 0.01 level (2-tailed)

To study the association between the use of ChatGPT and the motivation to learn, a Spearman correlation was performed to reveal the rho coefficient. Those findings indicated that there was a considerable positive relationship between the use of ChatGPT and learning motivation with correlation coefficient 0.676 and a pvalue of less than 0.001. This is an excellent positive correlation as per the guidelines laid down by Cohen (1988) when reading the implications of correlation coefficients, which imply that the greater the level of ChatGPT application is, the greater the learning motivation exhibited by university students.

The results prove the existence of strong links between the use of ChatGPT and learning motivation in students, which proves the hypothesis that AI-based learning tools can increase the engagement and motivation of students (Xu, 2024; Caratiquit and Caratiquit, 2023). The outcome can be correlated with the prior research that indicates that learning technologies based on AI improve student engagement, autonomy, and motivation (Ali et al., 2023; Hmoud et al., 2024; Prameswari, 2025).

The high positive correlation $R^2 = 0.457$ indicates that ChatGPT is not only a convenient tool to use in the learning process, but it seems that it may actually be a real motivational stimulus during the learning process. Zhou (2024) study about the effects of ChatGPT on motivation in English learning also aligns with this finding and supports the theoretical perspective suggesting that AI-based tools can address the needs of students of competence and autonomy and boost their intrinsic motivation (Dewi et al., 2025).

The substantial connection suggests that the ChatGPT can be effectively incorporated in instruction and learning processes to enable the motivation of students. Nevertheless, as Fan et al. (2024) highlight that, the respectability of this connection also puts the emphasis on the fact that the use of AI should not replace but rather support the conventional learning procedures and make sure that people do not develop the over-dependence that may ruin their independence in learning (Fuchs, 2023).

CONCLUSION

This paper concludes that learning motivation in Malaysian university students has a significant and positive relationship with the use of ChatGPT. The significant correlation score of 0.676, $p < .001$ proves that the instrument is effective in the increase of interest, confidence, and overall enthusiasm regarding academic engagement. Students who actively engage with ChatGPT claim to experience increased motivation to learn, which is indicative of the fact that AI tools can be fruitful methods of catalyzing the learning process when implemented in the learning routine accordingly.

This is proven by the adoption rate of ChatGPT by the sampled students who 61.8 percent used it on a regular or frequent basis which implies that AI tools have found their way into the modern learning experiences. The medium scores of both AI support usage and learning motivation indicate that students are receiving AI support without having negative perception towards learning.

It is however necessary to achieve balance in usage to avoid over dependence and to provide that, the students still need to practice independent skills in learning and critical thinking. Possibly the prospect of metacognitive laziness and a lack of analytical abilities, should be resolved through the institutional policies, pedagogical practices, and education programmes.

Educational institutions must create more detailed models of responsible AI integration, including ensuring that guidelines on the possibilities and limitations of the ethical and appropriate use of the ChatGPT are created, designing digital literacy programmes educating learners on the importance of critically evaluating AI-generated content, conception of assessment that teaches learners to think autonomously, not due to AI, and fostering

metacognitive awareness on the use and limitations of AI tools, and ensuring that there should be a balance between the motivational value of AI and the need to foster independent educational thinking.

Future studies may focus on enduring outcomes of a continuous use of ChatGPT, such as the possibility of sustained use to affect academic achievement, level of critical thinking, and/or self-regulated learning strategies. Longitudinal studies that would follow students across several semesters would also be useful in showing how the patterns of AI use develop and how it has long-term effects on the learning results. Furthermore, the combination of quantitative results with qualitative studies of the views and experiences of students using ChatGPT may help to better understand the mechanics of how AI tools affect motivation.

The comparison of studies in various fields, grades of education, and institutional settings would also be beneficial in establishing the factors moderating the relationship between AI usage and learning outcomes. Lastly, the study of ideal integration policies to help avert the most out of the motivational advantages of AI and reduce the effects of excessive reliance on AI would offer scientists and policymakers a guide to the AI-enhanced education environment.

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