

Frequency and Motivation of ChatGPT Use as Predictors of Academic Performance: The Mediating Role of Perceived Academic Dishonesty

Original Article

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Received: 28 Januari 2026

Accepted: 19 February 2026

Published online: 21 February 2026

Abstract

ChatGPT is one of the AI tools widely used among students. There is debate about whether its use can improve learning outcomes or actually lead to a dependency that declines students' thinking skills. Objective. This study examines the influence of frequency of use and motivation on academic performance, with perceived academic dishonesty as a mediating variable. The hypothesis was evaluated using Partial Least Squares (PLS) modelling. The results indicated that both the frequency and motivation of ChatGPT use influence academic performance. The structural equation model revealed that perceived academic dishonesty mediated the correlation between the frequency of use and motivation to use ChatGPT, as well as academic performance. The study involved 218 undergraduate students from Indonesian universities (39,9% males and 60,1% females; mean age = 20,4, SD = 1,00). The results showed that perceived academic dishonesty partially reduced the positive effect of frequency of use on academic performance, while strengthening the influence of motivation on academic performance. Perceived academic dishonesty played a significant role in determining whether ChatGPT use would have a positive or negative impact on students' academic performance. Motivation to use ChatGPT proves to be an important factor in determining the direction of this technology's usage.

Keywords: Frequency, Motivation, Perceived Academic Dishonesty, Academic Performance, ChatGPT.

1. Introduction

Rapid technological developments require education to be open to various discoveries, one of which is artificial intelligence (AI). In 2022, OpenAI released a chatbot technology called ChatGPT (OpenAI, 2023), which provides detailed answers to user questions by recycling phrases or repeating responses given to other users (Gordijn, 2023). This technology can also generate responses to natural language prompts and process a wide variety of topics, has made it widely used in business, finance, coding, marketing, consulting, and education (Ogurlu & Mossholder, 2023; Welsby & Cheung, 2023). In Indonesia, ChatGPT is the most widely used AI tool among undergraduate students in public universities, followed by Canva AI, Perplexity AI, and others (Luthfi et al., 2025). However, the use of ChatGPT in education is controversial. Concerns arise from the easiness which users can transfer their assignments to ChatGPT as a result, the user's role is replaced. For example, when students use ChatGPT to complete assignments, the answers obtained are often entirely used without further review. In the short term, assignment results may appear better, but the question remains whether these grades truly represent the student's true abilities.



Furthermore, another concerns also have arisen regarding the potential for incorrect information and threats to academic integrity (Lo, 2023; Kazley, et.al, 2025), the possibility of plagiarism (Zhou, et.al, 2023; Oravec, 2023) often referred to as AI-giarism, as well as the misuse of information that could be detrimental or even dangerous to certain groups (Huallpa, 2023). The high potential for misuse of ChatGPT has led to the need to measure how students actually view dishonesty and how these opinions affect their academic performance.

Scientific studies involving students from various countries, including the United Arab Emirates (Alneyadi & Wardat, 2023; Youssef et al., 2024), Pakistan (Ashraf et al., 2025), Croatia (Bajs, 2025), Morocco (Kanan, 2024; Largou & Mrah, 2023), the Philippines (Caratiquit & Caratiquit, 2023), and Oman (Elbaz et al., 2024), have proved that ChatGPT usage has a positive effect on student achievement. In contrast, different results were observed among students in Spain (Galindo-Dominguez et al., 2024), where students with good academic performance interacted less with ChatGPT, and in Malaysia (Ying De & Yee, 2025) where the convenience of ChatGPT did not always lead to student academic improvements. Given these varying study results, this study aims to determine the effect of frequency and motivation of ChatGPT use on academic performance through perceived academic dishonesty of Indonesian students.

2. Literature Review

2.1. Learning Theory

Cognitive learning theory emphasizes that learning is a thought process characterized by changes in logical reasoning, critical thinking, and problem-solving abilities, acquired through learning experiences (Shahzeb et al., 2025). Learners' problem-solving abilities can be developed through scaffolding, a learning strategy that helps students understand problems more easily. This perspective emphasizes the development of knowledge that involves individual participation, where the higher the students' curiosity and engagement with information, the more complete the concept of knowledge will be. Furthermore, constructivist theory emphasizes the importance of student involvement in the process of seeking knowledge, asking questions, and assessing knowledge to build a complete understanding. From a behaviorist perspective, individual learning outcomes can be influenced by reinforcement (Dilshad, 2017). If the reinforcement meets students' expectations, they will repeat the same behavior. Conversely, if the results do not meet expectations, students will abandon the behavior. This theory serves as the basis that individual perspectives are one of the determinants of actions that can change their behavior. In addition, environmental factors also influence the student learning process. Through interaction, students can transfer knowledge, develop and understand concepts, and even make decisions (Locklear, 2020).

2.2. Motivation to Use ChatGPT

The integration of generative artificial intelligence tools in education has transformed how students search, process, and organize information. Various motives underlie this utilization, stemming from intrinsic factors such as interest and curiosity, or external influences such as convenience or novelty (D et al., 2023). Intrinsic motivation refers to the drive behind behavior related to the satisfaction derived from performing a particular activity (Ryan & Deci, 2023); extrinsic motivation refers to the drive for actions that are triggered by the environment (Ryan & Deci, 2000). Students with higher motivation are driven to learn more due to their curiosity, interest, and personal satisfaction, which significantly contributes to better academic achievement (Hanayanti et al., 2025). Furthermore, social influence, perceived usefulness, perceived ease of use, and the need for recognition of achievement play a role in understanding the motives for using ChatGPT (Tummalapenta et al., 2024).

2.3. Perceived Academic Dishonesty

Perceived academic dishonesty is a student's perspective on cheating and misconduct, such as cheating and plagiarism. The development of the digital era has led to the emergence of new forms of cheating, making it easier for students to adopt them (Gallant&Pani, 2024). Students' perceptions of cheating need to be taken into account when using tools such as ChatGPT, because the awareness of academic dishonesty plays an important role in shaping students' learning behavior. Students who faced the blurred lines between using AI as a tool to support academic writing and as a potential enabler of fraud tend to misapply ChatGPT due to uncertainty about the boundaries (Chan, 2025). Those who perceive assistance from ChatGPT as "not cheating" are more likely to use it intensively to improve their grades with minimal effort (Elbaz et al., 2024). Conversely, when students have a negative attitude toward using ChatGPT for academic dishonesty, they are less likely to use it for cheating (Ofem et al., 2025). Based on this opinion, perceived academic dishonesty can influence students' learning behavior, thereby affecting their learning outcomes.

2.4. Previous Research

Recent scientific studies prove that the use of ChatGPT has a positive effect on student achievement, where the more frequent use of ChatGPT, the better their academic performance (Alneyadi & Wardat, 2023; Youssef et al., 2024). Utilizing ChatGPT on a routine basis indicates the assimilation of conventional learning techniques that improve student educational experiences. Active utilization of ChatGPT helps student on compiling information and improving problem solving skill (Ashraf et al., 2025; Bajs, 2025), and encourages students' critical thinking (Kanan, 2024; Largou & Mrah, 2023). Furthermore, ChatGPT usage influences academic performance through immediate feedback, engaging features, and providing helpful tools (Caratiquit & Caratiquit, 2023). Elbaz et al (2024) showed that students' learning outcomes increased due to adaptive learning experiences provided by ChatGPT.

Farhi et al (2023) stated that the use of ChatGPT influences students' ethical perceptions about ChatGPT usage in learning. Kwak et al (2022) found that students who understand ethics have better behavioral intentions when using AI tools. Based on the results of previous research, the hypothesis formulation between the variables Frequency of Use (FU), Motivation to Use ChatGPT (MU), Perception of Academic Fraud (PAD), and Academic Achievement (AP) are:

- H1: FU (X1) has a significant effect on AP (Y).
- H2: FU (X1) has a significant effect on PAD (Z).
- H3: MU (X1) has a significant effect on AP (Y).
- H4: MU (X2) has a significant effect on PAD (Z).
- H5: PAD (Z) has a significant effect on AP (Y).
- H6: PAD (Z) mediates the relationship between FU (X1) and AP (Y).
- H7: PAD (Z) mediates the relationship between MU (X2) and AP (Y).

3. Methods

This study employs a quantitative approach with an explanatory research design to clarify the causal relationship among the variables: Frequency of Use or FU (X1), Motivation to Use ChatGPT or MU (X2), Perceived Academic Dishonesty or PAD (Z), and Academic Performance or AP (Y) through a structural model. Data analysis is conducted using Structural Equation Modeling (SEM), carried out in two stages. First, the outer model testing includes convergent validity assessment (with AVE ≥ 0.5), discriminant validity evaluation using cross-loading, the Fornell-Larcker Criterion, and the HTMT test (with values < 0.90), as well as

construct reliability determined by a Composite Reliability (CR) value ≥ 0.7 (Hair et al., 2022). Second, the inner model testing includes R-Square and f-Square values to evaluate the effect, and VIF values < 5 to detect multicollinearity (Chin, 1998). For path significance testing, the Bootstrapping Technique (Hair, et.al, 2017) employs the t-statistic value (>1.96), p-value (<0.05), and path coefficient analysis.

The population for this study consist of students from universities in Indonesia with samples from Universitas Negeri Surabaya and Universitas Jember. Data collection utilized purposive sampling with two criteria: 1) active students enrolled in Indonesian universities, and 2) students who are users of the ChatGPT application. Sample size determination was based on the recommendations of Hair et al. (2022), leading to a sample of 218 to ensure more reliable results. Data collection was conducted using an online questionnaire design with a Likert scale of 1-5. The design and hypotheses of this study are outlined below:

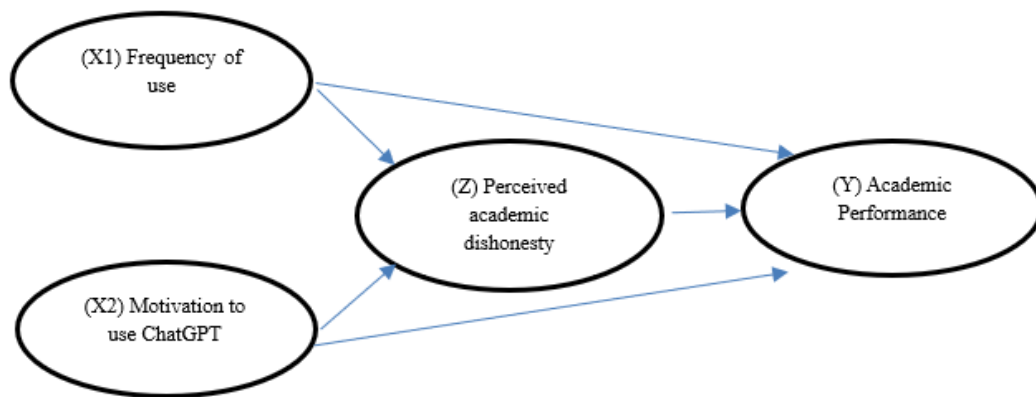


Figure 1. Research Design

4. Results and Discussion

Based on the results shown in table 1, it was found that female respondents accounted for the majority of participants (131 people, 60.1%), while male respondents totalled 87 (39.9%). This composition illustrates that females have a greater level of involvement in technology-based academic processes. The majority of respondents were active students from Universitas Negeri Surabaya, with 112 people (51.4%), while the remaining 106 people (48.6%) came from Jember University. Meanwhile, across age groups, the majority of respondents were middle-level students actively studying and experienced in using digital platforms to support academic activities. Therefore, these respondent characteristics represent a relevant student population and are appropriate for the research context.

Table 1. Respondent characteristics according to student distribution

| No | Respondent Characteristics | Category | Frequency (n) | Percentage (%) |
|--------------|----------------------------|-----------------------------|---------------|----------------|
| 1 | University origin | Universitas Negeri Surabaya | 112 | 51,4 |
| | | Jember University | 106 | 48,6 |
| 2 | Gender | Male | 87 | 39,9 |
| | | Female | 131 | 60,1 |
| 3 | Age (Years) | 18–19 years | 42 | 19,3 |
| | | 20–21 years | 128 | 58,7 |
| | | 22 years and above | 48 | 22,0 |
| Total | | | 218 | 100 |

4.1. Outer Model

Based on the results of the Construct Reliability and Validity analysis shown in Table 2, all constructs in this study demonstrated good reliability and validity. Proven by the values of Cronbach's Alpha (≥ 0.7), rho_A (≥ 0.7), CR (≥ 0.7) and AVE (≥ 0.5) that are far above the minimum limits. It can be concluded that the indicators are very consistent and able to explain the variables well.

Table 2. Outer Loading, Cronbach's Alpha, rho_A, Composite Reliability, and AVE Result

| Variable & Indicator | Outer Loading | Cronbach's Alpha | ρ_A (rho_A) | Composite Reliability (CR) | Average Variance Extracted (AVE) |
|--|---------------|------------------|------------------|----------------------------|----------------------------------|
| Frequency of Use (X1) | | 0,990 | 0,990 | 0,993 | 0,980 |
| FU01 | 0,995 | | | | |
| FU02 | 0,981 | | | | |
| FU03 | 0,993 | | | | |
| Motivation to use ChatGPT (X2) | | 0,914 | 0,916 | 0,934 | 0,705 |
| MU01 | 0,756 | | | | |
| MU02 | 0,923 | | | | |
| MU03 | 0,919 | | | | |
| MU04 | 0,920 | | | | |
| MU05 | 0,744 | | | | |
| MU06 | 0,748 | | | | |
| Academic Performance (Y) | | 0,787 | 0,800 | 0,869 | 0,690 |
| AP01 | 0,863 | | | | |
| AP02 | 0,862 | | | | |
| AP03 | 0,762 | | | | |
| Perceived Academic Dishonesty (Z) | | 0,806 | 0,813 | 0,911 | 0,837 |
| PAD01 | 0,905 | | | | |
| PAD02 | 0,925 | | | | |

Based on Table 3, the data indicate that the outer loading indicator for the construct itself is the highest compared to the loadings on other constructs, except for MU01. The results in Table 4 show that the square root of the AVE is higher than the correlations between the other constructs. Additionally, the HTMT value in the same table indicates a good HTMT value, as it is below 0.90. Overall, it can be concluded that all the constructs in this study have met the criteria for discriminant validity.

Table 3. Result of Cross Loadings Test

| | FU (X1) | MU (X2) | AP (Y) | PAD (Z) |
|-------------|--------------|--------------|--------|---------|
| FU01 | 0,995 | 0,780 | 0,620 | 0,460 |
| FU02 | 0,981 | 0,748 | 0,598 | 0,441 |
| FU03 | 0,993 | 0,785 | 0,624 | 0,466 |
| MU01 | 0,815 | 0,756 | 0,617 | 0,399 |
| MU02 | 0,803 | 0,923 | 0,710 | 0,522 |
| MU03 | 0,802 | 0,919 | 0,707 | 0,518 |

| | | | | |
|--------------|-------|--------------|--------------|--------------|
| MU04 | 0,797 | 0,920 | 0,709 | 0,528 |
| MU05 | 0,375 | 0,744 | 0,533 | 0,782 |
| MU06 | 0,376 | 0,748 | 0,534 | 0,786 |
| AP01 | 0,558 | 0,596 | 0,863 | 0,360 |
| AP02 | 0,561 | 0,602 | 0,862 | 0,361 |
| AP03 | 0,442 | 0,648 | 0,762 | 0,924 |
| PAD01 | 0,394 | 0,662 | 0,583 | 0,905 |
| PAD02 | 0,446 | 0,649 | 0,764 | 0,925 |

Table 4. Fornell-Larcker Criterion & HTMT Result

| | Fornell-Larcker Criterion | | | | HTMT | | | |
|----------------|---------------------------|--------------|--------------|--------------|---------|---------|--------|---------|
| | FU (X1) | MU (X2) | AP (Y) | PAD (Z) | FU (X1) | MU (X2) | AP (Y) | PAD (Z) |
| FU (X1) | 0,990 | | | | | | | |
| MU (X2) | 0,779 | 0,840 | | | 0,832 | | | |
| AP (Y) | 0,621 | 0,758 | 0,831 | | 0,704 | 0,870 | | |
| PAD (Z) | 0,461 | 0,716 | 0,741 | 0,915 | 0,514 | 0,822 | 0,817 | |

4.2. Inner Model

The R-Square results (Table 5) classify AP variable as strong ($R^2 = 0.668$), indicating that the model has a good ability to explain the influence on academic performance. Meanwhile, the PAD ($R^2 = 0.537$) variable is classified as medium to strong. Overall, the R-Square value suggests that the research model possesses fairly good explanatory power and can be used to draw conclusions about the influence between the studied variables.

Table 5. f-Square and R-Square Result

| | f-Square | | R Square | R Square Adjusted |
|----------------|----------|---------|----------|-------------------|
| | AP (Y) | PAD (Z) | | |
| FU (X1) | 0,040 | 0,052 | | |
| MU (X2) | 0,060 | 0,700 | | |
| AP (Y) | | | 0,668 | 0,664 |
| PAD (Z) | 0,276 | | 0,537 | 0,532 |

Based on the results of the f-square analysis (Table 5), the influence of FU on AP and PAD are categorized as small ($f^2 = 0.040$; $f^2 = 0.052$), indicating that the frequency of use has only a relatively weak influence on both academic performance and perceived academic dishonesty. Meanwhile the effect of MU on AP and PAD are considered high ($f^2 = 0.060$; $f^2 = 0.700$), confirming that the motivation for using ChatGPT is a very dominant factor in influencing perceived academic dishonesty. Furthermore, the PAD on AP has an f^2 value of 0.276, which is classified as medium, allowing us to conclude that perceived academic dishonesty also makes a significant contribution to shaping academic performance.

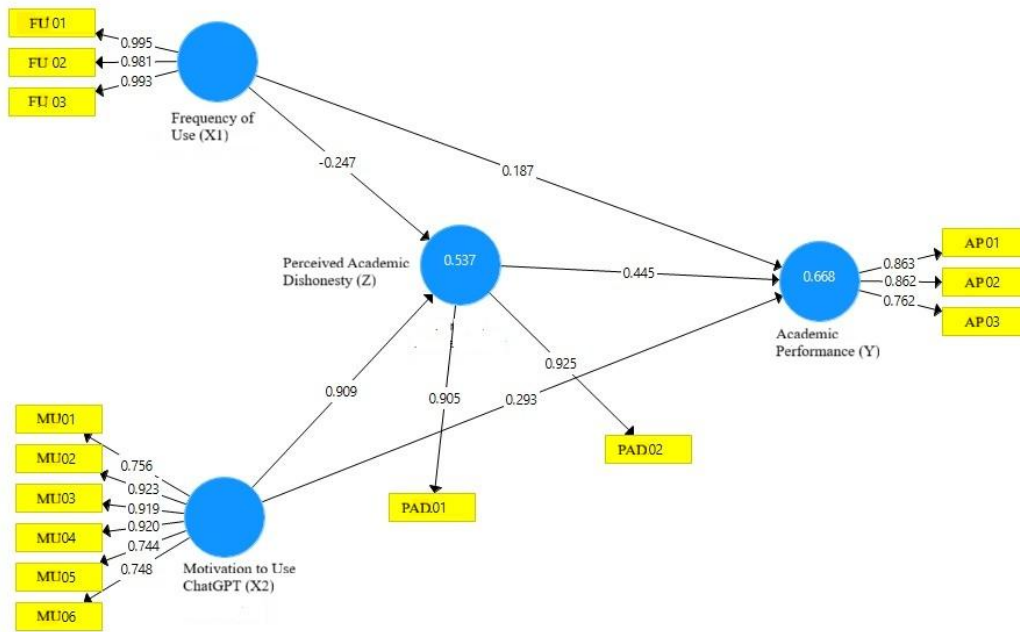


Figure 2. Path Diagram of the Theoretical Research Model

Table 8. STDEV, T-Values, P-Values

| | Original Sample (O) | T Statistics (O/STDEV) | P Values |
|----------------------------|---------------------|--------------------------|----------|
| FU (X1) → AP (Y) | 0,187 | 2,730 | 0,007 |
| FU (X1) → PAD (Z) | -0,247 | 2,944 | 0,003 |
| MU (X2) → AP (Y) | 0,293 | 3,337 | 0,001 |
| MU (X2) → PAD (Z) | 0,909 | 13,513 | 0,000 |
| PAD (Z) → AP (Y) | 0,445 | 6,154 | 0,000 |
| FU (X1) → PAD (Z) → AP (Y) | -0,110 | 2,690 | 0,007 |
| MU (X2) → PAD (Z) → AP (Y) | 0,404 | 5,640 | 0,000 |

Based on the results of the path coefficients analysis through the mean, STDEV, T-values, and P-values tests in Table 8 and Fig.2, it is found that all relationships between variables in the research model were significant. Thus, conclusions were obtained: H1 confirmed, FU has positive effect on AP ($\beta = 0.187$, $t = 2.730$, $p = 0.007$). This finding align with the principles of The Cognitive Theory of Multimedia Learning that states generative AI usage significantly improves learning effectiveness through instant feedback and dynamic learning experiences (Garcia, et.al., 2024). Tasnima et al. (2025) also noted that repeated interactions with AI-based systems encourage the understanding level, as AI responds to students' preferences, including their interest and abilities. Therefore, the repetitive use of ChatGPT may enhance problem-solving skills. However, it should be noted that frequent use without appropriate learning strategies can lead to dependency that can suppress active reasoning (Tian&Zhang, 2025). Consequently, these results suggest that a balanced use of ChatGPT, taking into account intensity and academic goals, can improve student performance, provided it is accompanied by academic supervision.

H2 confirmed, FU has a negative effect on PAD ($\beta = -0.247$, $t = 2.944$, $p = 0.003$). Generally, the more regularly students use ChatGPT without digital ethics guidance, the more likely they are to view AI as a form of "reasonable assistance" rather than cheating. This finding aligns with a study by Lund et al. (2023), which found that the intensity of AI use among

students was inversely related to sensitivity to academic ethics. The normalisation of ChatGPT use in coursework often blurs the line between creativity and plagiarism. Students who frequently used ChatGPT to compose essays or assignments tended to perceive the process as academically acceptable because “they still checked the results”. Therefore, this study's findings emphasise that the frequency of ChatGPT use needs to be balanced with academic moral development so that students can distinguish between the use of AI as a tool and acts of cheating.

H3 confirmed, MU positively impact the AP ($\beta = 0.293$, $t = 3.337$, $p = 0.001$). Student motivation in using ChatGPT positively impacts academic performance. Students who utilise ChatGPT to understand material, broaden their horizons, and enhance the quality of their assignments demonstrate higher academic achievement than those who use it merely to complete tasks quickly. It proves that intrinsic motivation for using AI learning tools encourages active participation and leads to improved learning outcomes. This aligns with research by Alsa et al. (2021), which stated that motivation encourages students to achieve specific goals, thereby increasing effort, initiation, and persistence, ultimately leading to greater academic achievement. Thus, these findings emphasise the importance of motivation oriented towards the learning process, rather than just the outcome, so that the use of ChatGPT truly enhances students' academic competencies.

H4 confirmed, MU has a positive effect on PAD ($\beta = 0.909$, $t = 13.513$, $p = 0.000$). In contrast, the present of extrinsic motivation, such as the desire to complete assignments quickly, can hinder in-depth understanding. Wrong motives can also encourage students to look for shortcuts to get good grades. The finding shows that students with low learning motivation tend to use ChatGPT impulsively, without considering academic ethics, whereas those with high motivation are more discerning. Nashwan et al. (2023) highlighted that the higher the students' perception of integrity, the lower their views on chatgpt's efficiency. The results of this study support the notion that motivation not only drives action but also determines the extent to which students value and adhere to the principles of academic honesty in the ChatGPT era.

H5 confirmed, PAD has a positive influence on AP ($\beta = 0.445$, $t = 6.154$, $p = 0.000$). This study discovered that perceived academic dishonesty significantly influences students' academic performance. Students who perceive academic dishonesty negatively—that is, those who consider the use of ChatGPT without critical thinking to be unethical—tend to perform better academically. This is because they use ChatGPT as a learning tool rather than as a substitute for intellectual effort. Kasneci et al. (2023) emphasised that moral perceptions of AI usage significantly influence how students utilise it in academic activities. Tang and Hu (2024) also found that students with high ethical awareness possess better critical thinking skills, as they strive to understand AI output before using it. Furthermore, Lund et al. (2023) caution that tolerance of “cheating by AI” can reduce the quality of long-term learning. Hence, universities need to strengthen academic integrity policies, particularly regarding the use of generative AI, by implementing digital ethics in the curriculum.

H6 confirmed, PAD mediating the FU and AP ($\beta = -0.110$, $t = 2.690$, $p = 0.007$). This study demonstrates that perceived academic dishonesty mediates the effect of ChatGPT usage frequency on academic performance. This means that excessive use of ChatGPT can improve academic performance only if accompanied by strong ethical perceptions. Yusuf (2024) noted that student engagement with AI usage increases academic performance due to the efficiency, accessibility, and flexibility of learning. Nevertheless, excessive use of AI without moral awareness leads to cognitive dependency, which, in the long term can hinder the development of critical thinking skills. Uppal and Hajian (2024) support this view, stating that heavy

reliance on ChatGPT for learning tasks can reduce students' engagement in problem-solving activities. Dwivedi et al. (2023) found that ethical perceptions can function as an internal control for AI-based academic behaviour. Students who were taught to distinguish between the use of assistance and misconduct tended to demonstrate better academic performance. Isiaku et al. (2024) also emphasised the importance of institutional norms and digital ethics literacy in guiding student behaviour regarding technology use. Thus, this study reinforces the notion that increasing the frequency of ChatGPT use will only be beneficial if accompanied by ethical awareness and academic oversight.

H7 confirmed, PAD mediating MU and AP ($\beta = 0.404$, $t = 5.640$, $p = 0.000$). This research indicates that perceived academic dishonesty also mediates the relationship between motivation to use ChatGPT and academic performance. Students with high learning motivation will use ChatGPT constructively; thus, their ethical perceptions of academic dishonesty strengthen the positive effect on learning achievement. Swidan et al. (2025) explained that ethical issues associated with the potential misuse of AI tools. These findings also portray that student's perception of cheating functions as a moral mechanism that keeps students on the right academic path. Students who use ChatGPT to understand concepts—rather than copying results—show better academic outcomes and a deeper understanding of the course material. Thus, merging personal motivation with a deep understanding of ethical standards can facilitate reaching the best possible learning outcomes. In addition, Qureshi (2023) emphasised the need for ethical literacy training that balances motivational and moral aspects. Thus, this study confirms that strong motivation and positive ethical perceptions work synergistically to improve students' academic performance in the era of ChatGPT, transforming AI from a cheating tool into a means of reflection and independent learning.

5. Conclusion

This study shows that students' use of ChatGPT has a complex impact on academic performance and perceptions of academic ethics. First, the frequency of ChatGPT use has a positive effect on academic performance; nevertheless, it has negative potential as it can weaken perceptions of academic dishonesty. Second, motivation proved to be an important factor in determining the direction of this technology's use. Third, perceptions of dishonesty proved to be a significant mediating variable in the relationship between frequency and motivation for ChatGPT use and academic performance. This suggests that digital morality and ethics significantly determine whether ChatGPT use will have a positive or negative impact on students' academic achievement. Overall, the results of this study confirm that ChatGPT can be an effective learning tool when used ethically, reflectively, and oriented towards meaningful learning.

The use of ChatGPT in education has been proven to impact student learning performance. However, it's important to consider whether its use is appropriate. Besides that, preventing the use of similar tools is certainly not possible, especially in the current digital era. To prevent misuse, students need to be equipped with proper ethics code so they can distinguish between good and bad. Thus, the use of ChatGPT or similar AI can optimally and properly support the learning process.

This study has several limitations. First, data collection was conducted using a perception-based questionnaire, meaning the results depend entirely on the respondents' honesty and understanding of the research instrument. This can lead to self-report bias, potentially affecting data accuracy. Second, the scope of respondents was limited to a specific regional context and academic group, so the findings cannot be broadly generalised to different populations or educational levels. Therefore, further research is recommended to

expand the sample size, employ mixed or longitudinal methods, and consider actual behavioural measures in assessing learning outcomes.

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