

Awareness, Perceptions, and Readiness for Artificial Intelligence (AI) Among Graduate Students

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Abstract. Artificial intelligence (AI) has made significant contributions to various fields, including education, healthcare, business, and industry. By utilizing machine learning, data analysis, and automation, AI enhances processes and fosters innovations. This study explored graduate students' awareness, perceptions, readiness, and challenges regarding the use of AI in academic settings. Employing a quantitative descriptive-correlational research design, data were gathered from 25 graduate students through a structured questionnaire using a four-point Likert scale. Descriptive statistics, Pearson's correlation, and multiple regression analyses were used to analyze the data. The findings indicated that graduate students exhibited very high levels of awareness ($M = 3.73$), perception ($M = 3.54$), and readiness ($M = 3.38$), suggesting that they were well-informed, held positive attitudes, and were prepared to incorporate AI into academic tasks. However, a notable level of challenges ($M = 2.92$) was also identified, particularly regarding data privacy, ethical considerations, limited institutional support, and technical constraints. Correlation analysis revealed significant relationships among awareness, perceptions, and readiness, with awareness showing a strong positive relationship with readiness ($r = 0.760, p < 0.05$). Furthermore, regression analysis suggested that awareness significantly predicted readiness, whereas perceptions did not have a statistically significant effect. The study concludes that awareness is a crucial factor in enhancing students' readiness to use AI, highlighting the importance of strengthening AI literacy in higher education institutions. The findings suggest that institutions should consider implementing training programs, integrating AI into the curriculum, and establishing clear ethical guidelines to support responsible AI use. Additionally, enhancing institutional support and infrastructure would be beneficial in addressing the existing challenges and ensuring effective AI integration.

Introduction

Artificial intelligence (AI) is shaking things up in fields like education, healthcare, business, and industry. By using machine learning, data analysis, and automation, AI is making processes more efficient and sparking new ideas (Menzies et al., 2024). In higher education, AI is a game changer, enhancing learning experiences, streamlining grading, and supporting research efforts. Universities are tapping into AI tools, such as smart tutoring systems, writing assistants, and data analysis platforms, to drive innovation and improve educational outcomes (Li & Rohayati, 2024). AI is also reshaping the skills required in today's job market, emphasizing digital skills, critical thinking, and adaptability to recent technologies. Schools are revamping their courses to align with the demands of modern industries and sustainable goals (Abulibdeh et al., 2024; Sun and Pratt, 2024). However, the widespread adoption of AI raises important ethical concerns, such as academic integrity, data privacy, and potential job displacement. This underscores the need for robust regulations and a strong focus on the ethical use of AI in both education and industry (Chuang et al., 2022).

In developing countries, such as the Philippines, the integration of artificial intelligence (AI) in education is still in its nascent stages and exhibits significant variability. This situation is primarily influenced by infrastructural constraints, differing levels of institutional support, and socioeconomic disparities that hinder equitable access to AI technology (Iftikhar et al., 2023). Numerous higher education institutions have yet to fully integrate AI into their curricula and instructional methodologies, thereby perpetuating a digital divide among students (Aziz & Hossain, 2024; Mirazchiyski, 2024). This divide is further intensified by unequal access to reliable Internet connectivity, digital devices, and opportunities for digital literacy training, disproportionately impacting students from rural and economically disadvantaged backgrounds (Barra et al., 2024; Bell et al., 2022). Consequently, while there is a growing demand to cultivate AI-related competencies to ensure global competitiveness, disparities in access and training continue to pose challenges to the inclusive and effective implementation of AI in education (Aziz and Hossain, 2024; Iftikhar et al., 2023). Graduate students are required to perform complex tasks such as research, data analysis, and writing. AI tools can facilitate these tasks by assisting with idea generation, enhancing productivity, and providing personalized learning experiences (Rababah et al., 2024; Sarwanti et al., 2024). However, not all students are aware of or prepared to use these tools. Some students express enthusiasm for AI but harbor concerns regarding data privacy, ethics, and academic integrity (Duan et al., 2025; Hammoudi Halat et al., 2024). Additional challenges include a lack of technological knowledge, low confidence, and insufficient training (Abuzaid et al., 2022; Sarwanti et al., 2024). Educational institutions must address these issues to develop more effective programs and adequately prepare students for technology-driven environments (Elshaiekh et al., 2024; Eltahir and Mohd Elmagzoub Babiker, 2024).

Although there is a substantial body of research on artificial intelligence (AI) in education, certain areas remain insufficiently explored. Most studies have focused on undergraduate students or specific geographic regions, with limited focus on graduate students. Few studies have addressed the interconnections between awareness, perceptions, and readiness for AI. There is a notable gap in understanding the relationships among these factors, particularly concerning graduate students' engagement in advanced academic work. Furthermore, there is a scarcity of evidence regarding the impact of age, gender, academic program, and academic level on students' utilization of AI. These factors are significant because they can influence access to and preparedness for AI. In the absence of specific data, formulating effective strategies for integrating AI into graduate education is challenging. Addressing these gaps is essential for facilitating students' adaptation to innovative technologies and enhancing education through the responsible use of AI. This study aimed to examine graduate students' awareness, perceptions, and readiness for AI, and how these aspects vary based on demographic factors.

Research Questions

1. What is the demographic profile of graduate students in terms of age, gender, academic program, and year level?
2. What are graduate students' levels of awareness, perceptions, readiness, and challenges regarding artificial intelligence?
3. Is there a significant relationship between awareness, perceptions, and readiness for artificial intelligence?
4. Is there a significant difference in the levels of awareness, perceptions, and readiness when grouped by gender?
5. Do awareness and perceptions significantly predict graduate students' readiness to use artificial intelligence?

Integrated Conceptual and Theoretical Mapping

The integrated conceptual and theoretical mapping delineates the connections between awareness, perception, and readiness for artificial intelligence (AI) among graduate students based on established theoretical models. This framework is rooted in the Technology Acceptance Model (TAM), which elucidates how perceived usefulness and ease of use influence individuals' views on technology, and the Diffusion of Innovation Theory, which highlights the importance of awareness and knowledge in the adoption process. In this context, perceptions refer to students' attitudes toward AI, while awareness denotes their level of knowledge and familiarity with AI tools and applications. The mapping indicates that both awareness and perceptions affect students' readiness to engage with AI; however, the results suggest that awareness is the more crucial predictor. Regression analysis showed that awareness significantly impacted readiness, whereas perceptions did not have a notable effect, implying that positive attitudes alone are insufficient without proper knowledge and understanding. The model also considered demographic factors, particularly gender, to explore differences in awareness, perceptions, and readiness; however, no significant differences were observed, indicating uniformity across groups. Additionally, challenges such as ethical concerns, data privacy issues, and technical obstacles are acknowledged as contextual factors that may influence AI use. Overall, the mapping underscores that awareness is the primary driver of readiness, emphasizing the need to enhance AI literacy and educational support to foster effective and responsible AI integration in higher education.

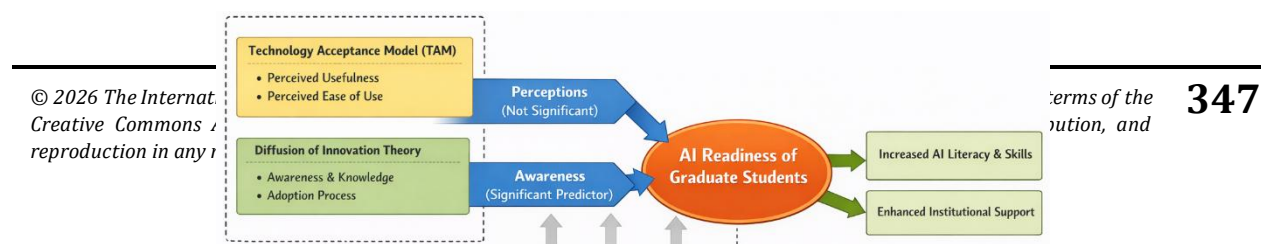


Figure 1 Integrated Conceptual and Theoretical Mapping of AI Readiness Among Graduate Students

Methodology

Research Design

This study employed a quantitative descriptive-correlational research design to examine graduate students' awareness, perceptions, readiness, and challenges related to artificial intelligence (AI). The descriptive component was used to determine the levels of these variables, while the correlational approach was used to analyze the relationships among awareness, perceptions, and readiness. In addition, a comparative aspect was incorporated to assess whether significant differences existed when the variables were grouped according to demographic characteristics, particularly gender. This design is appropriate because it enables systematic data collection and statistical analysis, allowing for the objective interpretation and identification of patterns and relationships among variables.

Respondents of the Study

The respondents of this study consisted of 25 graduate students enrolled in a master's degree program at Northeastern University. These participants were selected because they were engaged in advanced academic tasks, such as research, data analysis, and scholarly writing, where the application of AI tools is highly relevant. The respondents varied in terms of age and gender; however, they shared similar academic characteristics, including program level, field of study, and year of study. Convenience sampling was employed because of the accessibility and availability of participants. Although this approach allowed for efficient data collection, it may limit the generalizability of the findings to a broader population.

Research Instrument

The study utilized a structured questionnaire divided into five sections: demographic profile, awareness, perceptions, readiness, and challenges related to artificial intelligence. Each of the four main variables consisted of eight statements, ensuring adequate coverage and measurement consistency. A four-point Likert scale (1 = Strongly Disagree to 4 = Strongly Agree) was used to capture respondents' level of agreement while avoiding neutral responses. The instrument was adapted from existing studies on AI in education and modified to align with the objectives of the present study, particularly focusing on graduate-level academic tasks. Content validity was established through expert review, and reliability testing yielded a Cronbach's alpha coefficient of at least 0.70, indicating an acceptable internal consistency.

Data Collection Procedure

Data collection began after obtaining permission from the appropriate academic authorities. The questionnaire was then distributed to the selected respondents through online platforms and/or printed copies, depending on their accessibility. Participants were informed of the purpose of the study and assured of the confidentiality and anonymity of their responses. Participation was voluntary, and informed consent was obtained prior to the data collection. After completion, the questionnaires were collected, checked for completeness, and systematically organized in preparation for data analysis.

Statistical Treatment of Data

The collected data were analyzed using descriptive and inferential statistical techniques. Frequencies and percentages were used to describe the respondents' demographic profiles. The mean and standard deviation were computed to determine the levels of awareness, perception, readiness, and challenges. The Pearson product-moment correlation coefficient (Pearson's *r*) was employed to examine the relationships among the variables. An independent samples t-test was used to determine significant differences in awareness, perceptions, and readiness when grouped by gender. Furthermore, multiple linear regression analysis was conducted to identify the predictive influence of awareness and perceptions on readiness to use AI. All statistical analyses were performed at a 0.05 significance level, ensuring the reliability and validity of the findings.

Results and Discussion

Research Question: What is the demographic profile of graduate students in terms of age, gender, academic program, and year level?

Variable	Category	Frequency	Percentage (%)
Age	30–39	13	52 %
	20–29	12	48 %
Gender	Male	13	52 %
	Female	12	48 %
Program Level	Master's Degree	25	100 %
Field of Study	Master of Arts in Education	25	100 %
Year in Graduate Program	2nd Year	25	100 %

Table 1. Demographic Profile of Respondents

The demographic data of the respondents revealed that most graduate students were between the ages of 30 and 39 (52%), with a close second being those aged 20 to 29 (48%), indicating a relatively mature cohort engaged in higher-level academic pursuits. The distribution of gender was nearly equal, with 52% male and 48% female participants, demonstrating a balanced representation of both sexes. All participants (100%) were enrolled in a Master's degree program, specifically the Master of Arts in Education, and were in their second year of study. This uniformity in academic programs and year levels suggests that the participants have similar academic experiences and exposure to research-related activities, which could affect their awareness, perceptions, and readiness to incorporate artificial intelligence in educational settings.

Research Question: What are the levels of awareness, perceptions, readiness, and challenges regarding artificial intelligence among graduate students?

Variable	Composite Mean	SD	Interpretation
Awareness	3.73	0.45	Very High
Perceptions	3.54	0.52	Very High
Readiness	3.38	0.49	Very High
Challenges	2.92	0.82	High

Table 2. Levels of Awareness, Perceptions, Readiness, and Challenges

The results indicate that graduate students possess a strong understanding of artificial intelligence, as reflected by the high composite mean of 3.73, demonstrating their substantial familiarity with AI concepts, tools and applications in academic settings. Similarly, the participants exhibited very positive perceptions of AI (*M* = 3.54), suggesting that they generally viewed it as beneficial for enhancing learning, improving efficiency, and supporting research activities. In terms of readiness, students also demonstrated a high level (*M* = 3.38), indicating their eagerness, confidence, and preparedness to integrate AI into their academic work, a finding that aligns with Anselmo et al. (2025), who emphasized that students' readiness is shaped by their learning experiences and exposure to effective instructional approaches. Despite these positive outcomes, the level of challenges encountered by students was also rated as high (*M* = 2.92), indicating the presence of notable barriers to AI utilization, including concerns related to data privacy, ethical issues, limited institutional support, inadequate training opportunities, and technical constraints. Overall, while graduate students demonstrated high levels of awareness, positive perceptions, and readiness to use AI, these findings highlight the need for institutions to address existing challenges to ensure the effective, ethical, and sustainable integration of artificial intelligence in higher education.

Research Question: Is there a significant relationship between awareness, perceptions, and readiness toward artificial intelligence?

Variables	r-value	Interpretation	p-value	Decision
Awareness vs Perceptions	0.496	Moderate Positive	0.0117	Significant
Awareness vs Readiness	0.760	Strong Positive	0.00001	Significant
Perceptions vs Readiness	0.605	Strong Positive	0.00137	Significant

Table 3. Correlation between Awareness, Perceptions, and Readiness

The findings revealed statistically significant relationships among awareness, perception, and readiness for AI use of artificial intelligence. A moderate positive correlation was observed between awareness and perceptions ($r = 0.496, p < 0.05$), indicating that higher awareness levels were associated with more favorable attitudes toward AI. Moreover, a strong positive correlation was found between awareness and readiness ($r = 0.760, p < 0.05$), suggesting that students with greater knowledge and understanding of AI are more likely to be prepared to utilize it in academic contexts. Similarly, perceptions and readiness demonstrated a strong positive correlation ($r = 0.605, p < 0.05$), implying that positive attitudes toward AI contribute to increased readiness for application. These findings are consistent with Anselmo et al. (2026), who emphasized that students' perceptions and acceptance of artificial intelligence significantly influence their engagement with and utilization of AI in educational settings. Furthermore, Anselmo et al. (2025) highlighted that the integration of AI in education enhances critical thinking while presenting challenges related to implementation and readiness, reinforcing the interconnected nature of these variables. Overall, the results suggest that both awareness and perceptions play essential roles in shaping students' readiness to adopt artificial intelligence; however, awareness appears to exert a stronger influence, underscoring the importance of enhancing students' knowledge and understanding of AI technology. The statistical significance of these relationships confirms that awareness and perceptions are key determinants of students' preparedness for AI integration in higher education.

Research Question: Is significant difference in the levels of awareness, perceptions, and readiness when grouped according to gender?

Variable	t-value	p-value	Interpretation	Decision
Awareness	0.45	0.65	Not Significant	Accept H_0
Perceptions	0.52	0.60	Not Significant	Accept H_0
Readiness	0.48	0.63	Not Significant	Accept H_0

Table 4. Difference in Awareness, Perceptions, and Readiness by Gender

The findings revealed no statistically significant variations in awareness, perceptions, and readiness regarding artificial intelligence when respondents were categorized by gender. Specifically, the calculated p-values for awareness ($p = 0.65$), perceptions ($p = 0.60$), and readiness ($p = 0.63$) exceeded the 0.05 significance threshold, resulting in the acceptance of the null hypothesis. These results indicate that both male and female graduate students exhibit similar levels of knowledge, attitudes, and preparedness regarding AI. This suggests that gender does not significantly influence students' interactions with artificial intelligence in academic settings. The consistency in responses might be due to comparable academic exposure, access to AI tools, and shared educational environments among participants.

Research Question: Do awareness and perceptions significantly predict graduate students' readiness to use artificial intelligence among graduate students?

Predictor	Unstandardized Coefficient (B)	t-value	p-value	Interpretation
Constant	-1.43	-1.89	0.073	Not Significant
Awareness	0.93	4.17	0.000	Significant
Perceptions	0.38	2.07	0.051	Not Significant

Model Summary	Value
R^2	0.646
Adjusted R^2	0.614
F-value	20.05

p-value (Model)

0.00001

Table 5. Regression Analysis: Influence of Awareness and Perceptions on Readiness

The regression analysis demonstrated that the model was statistically significant ($F = 20.05$, $p < 0.05$), signifying that both awareness and perceptions play a role in predicting graduate students' readiness to adopt artificial intelligence. The model accounted for 64.6% of the variance in readiness ($R^2 = 0.646$), indicating a strong explanatory capacity. Among the variables, awareness was identified as a significant predictor of readiness ($B = 0.93$, $p < 0.05$), suggesting that greater awareness correlates with higher readiness to engage with AI in academic settings. This underscores the vital importance of knowledge and familiarity with AI technologies in preparing students for practical applications. Conversely, perceptions did not have a statistically significant impact ($p = 0.051$), although they were close to the significance levels. This implies that while students may have favorable attitudes toward AI, such perceptions alone may not be enough to affect their readiness without sufficient awareness and understanding of the technology. Overall, the findings indicate that awareness is the most crucial factor in determining readiness, highlighting the need to enhance AI literacy and educational initiatives to improve students' ability to use artificial intelligence effectively and responsibly.

Conclusion and Recommendations

The research concludes that graduate students exhibit a strong awareness, perception, and readiness regarding artificial intelligence, suggesting that they are well-informed, have positive attitudes, and are prepared to incorporate AI into their academic pursuits. However, they face significant challenges, particularly concerning data privacy, ethical issues, institutional backing, and technical constraints. The study also shows that awareness and perceptions are closely linked to readiness, with awareness being the sole significant predictor, emphasizing that knowledge and comprehension of AI are more crucial than attitudes alone. Furthermore, no notable differences were observed when the variables were categorized by gender, indicating consistent AI engagement among male and female students. These results suggest that higher education institutions should focus on AI literacy programs, training, and curriculum integration to enhance students' awareness and practical skills. Additionally, institutions must address existing challenges by establishing clear ethical guidelines, improving access to AI tools, and offering sufficient technical and instructional support. Overall, boosting awareness and institutional readiness is vital for the effective, responsible, and equitable integration of artificial intelligence into graduate education.

Limitations of the Study

Several limitations should be considered when interpreting the findings of this study. First, the study involved a relatively small group of graduate students, which might restrict the applicability of the results to a wider audience. Moreover, all participants were from the same academic program and year level, leading to limited diversity in their demographic characteristics. This lack of variation could have affected the absence of notable differences between the groups, especially regarding sex. Additionally, the use of convenience sampling could introduce bias, as participants were chosen based on their ease of access rather than through random selection. The study also depended on self-reported data gathered via a questionnaire, which might be prone to response bias, including social desirability and subjective interpretation of the questions. Finally, while this study focused on awareness, perceptions, and readiness, it did not consider other potentially influential factors such as previous experience with AI, levels of digital literacy, institutional policies, and faculty support. Future research should address these limitations by using larger and more varied samples, incorporating additional variables, and employing mixed-method approaches to gain a deeper understanding of AI integration in higher education.

Recommendations

Based on the study's results, several suggestions are made to improve the successful incorporation of artificial intelligence (AI) in graduate education. First, higher education institutions should enhance AI literacy by embedding AI-related subjects, tools, and applications into their curricula to boost students' awareness, which emerged as the most crucial factor for readiness. Second, universities should offer regular training sessions, workshops, and practical activities to build students' hands-on skills in utilizing AI tools, especially in research, data analysis, and academic writing. Third, institutions must establish explicit ethical guidelines and policies for the responsible use of AI to address issues concerning academic integrity, data privacy, and technology misuse. Fourth, there is a need to bolster institutional support and infrastructure, including access to dependable Internet, digital devices, and licensed AI tools, to reduce the technical obstacles faced by students. Fifth, educators should be motivated to meaningfully incorporate AI into teaching and learning practices, fostering critical thinking while avoiding excessive dependence on AI technologies. Lastly, future researchers are encouraged to broaden the study's scope by including a larger and more varied sample and investigating additional factors such as faculty readiness, institutional policies, and the long-term effects of AI integration in education.

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Competing Interests Statement

The authors declare that they have no competing financial interests or personal relationships that could have influenced the work reported in this article.

Data Availability Statement

Data sharing is not applicable to this article, as no new data were created or analyzed in this study; all data used were obtained from previously published sources, as cited in the reference list.

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Appendices

No Appendix included in this study