

A Comparative Analysis of Student Awareness, Trust, Usage, and Ethical Concerns Regarding AI Tools Across Academic Levels

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ABSTRACT

The integration of generative Artificial Intelligence (AI) tools into higher education presents a dual challenge: while offering powerful support for academic tasks, it raises significant concerns about academic integrity. This study provides a comparative analysis of students' awareness, trust, usage patterns, and ethical concerns (ATEU) regarding AI tools for assignment completion across different academic levels. Adopting a quantitative approach, this research utilized a structured survey administered to 508 students at Open University Malaysia, encompassing Diploma (D), Undergraduate (UG), and Postgraduate (PG) programs. Data was collected on the four key dimensions—Awareness, Usage, Trust, and Ethical Concerns—and analyzed using non-parametric statistical tests. The findings reveal statistically significant differences across the academic cohorts. Postgraduate students demonstrated markedly higher levels of AI awareness, greater trust in AI-generated outputs, and more pronounced ethical concerns compared to their undergraduate and diploma counterparts ($p < 0.05$). Conversely, AI usage patterns for assignment completion showed no significant variation among the groups, suggesting that while adoption is widespread, the depth of understanding and critical perspective differs. The results indicate that the research-intensive nature of postgraduate studies likely cultivates a more sophisticated engagement with AI, fostering both confidence and critical reflection. This study underscores the necessity for higher education institutions to move beyond uniform policies and develop tailored, level-specific AI literacy programs. Interventions should focus on building foundational awareness at the diploma level while addressing nuanced ethical considerations and critical evaluation skills for advanced learners. Such data-driven insights are crucial for creating institutional guidelines that promote the responsible and ethical integration of AI into academic practice.

General Terms

Artificial Intelligence, Education

Keywords

Artificial Intelligence, Higher Education, Academic Integrity, AI Literacy

1. INTRODUCTION

Artificial Intelligence (AI) has rapidly transformed the landscape of higher education, offering powerful new tools for idea generation, language refinement, and data analysis. Since the public release of ChatGPT in late 2022, a wave of generative AI tools has permeated academic life, creating a palpable tension within institutions. On one hand, these tools are lauded for their potential to enhance learning and productivity. Research indicates that students leverage generative AI for a range of legitimate academic tasks, from

brainstorming and structuring essays to debugging code, which can significantly accelerate assignment completion [6].

On the other hand, this utility is accompanied by significant ethical challenges that threaten the core principles of academic work. A landmark survey by [4] revealed the dual nature of student AI use: while a majority employ AI for assistance, nearly half of the students surveyed admitted that these tools make academic dishonesty easier. These findings fuel widespread concern among educators about the erosion of academic integrity and the difficulty of assessing authentic student competence. Faculty members echo these concerns, grappling with the inadequacy of traditional plagiarism detection software in this new landscape and the challenge of distinguishing AI-generated text from original student work [7].

This tension underscores the urgent need for a nuanced understanding that moves beyond simple dichotomies of use versus misuse. The proliferation of AI is not a trend that can be curbed by prohibitive measures alone. Instead, a growing consensus in educational research advocates for a shift from outright bans toward fostering critical AI literacy [1]. To develop effective pedagogical strategies and institutional policies, we must first understand not only how frequently students use AI, but also their awareness of its capabilities, their trust in its outputs, and their ethical perspectives. As such, this study aims to provide an empirical foundation for this understanding by examining how these crucial dimensions vary across different levels of academic study.

2. OBJECTIVE OF THE STUDY

The objective of the study is to:

- To compare students' awareness, trust, usage patterns, and ethical concerns regarding AI tools used for assignment completion across levels of study—Diploma (D), Undergraduate (UG), and Postgraduate (PG)

This objective is guided by the ATEU framework (Awareness–Trust–Engagement/Usage–Ethics), which positions four core constructs—Awareness (A), Trust (T), Usage (U), and Ethics (E)—as interrelated dimensions for examining students' acceptance and practices of AI tools across study levels. This framework enables consistent comparison of each construct among Diploma, Undergraduate, and Postgraduate learners.

The research question for the above objective is given below:

- How do awareness, trust, usage and ethical concerns about AI tools in assignment completion among students vary across different levels of study, i.e. diploma(D), undergraduate (UG) and postgraduate (PG)?

3. METHODOLOGY

This study adopted a quantitative research approach utilizing a structured survey questionnaire to collect data on learners' awareness, usage, trust, and ethical concerns regarding the use of artificial intelligence (AI) tools in completing their academic assignments at Open University Malaysia (OUM). The survey was administered online via Google Forms during a semester. A total of 508 students responded to the survey, providing a substantial dataset for analysis. The questionnaire comprised 18 questions, divided into two main sections:

Demographic Information (6 Questions): This section collected general participant details, including semester enrollment, level of study, gender, age group, and faculty affiliation.

AI-Related awareness, usage, trust and ethical concerns (12 Questions): These items were measured on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) and were categorized into 4 key areas (Table 1):

AI Awareness: Assessing students' familiarity with AI tools

AI Usage: Investigating how students utilize AI tools in assignment preparation.

Trust in AI: Evaluating the extent to which students trust AI-generated information.

Ethical Concerns: Examining students' perspectives on potential ethical issues associated with AI usage in academic work, including the need for formal guidance from e-tutors and the university to ensure integrity in assignment preparation

The Ethical Concerns items developed (E1–E4) draw directly on [5], which warns that AI outputs may be biased or inaccurate and calls for student and teacher training and institutional policies to uphold academic integrity. The verification practice item (T2) operationalizes [5] caution by requiring learners to cross-check AI outputs against reliable sources.”

Table 1. Constructs, Item Codes, and Sources

Construct	Item	Statement	Adapted from Source
Awareness	A1	I am aware of the existence of AI tools like ChatGPT, Gemini, Bard, etc.	[2] [3]
	A2	My e-tutors have mentioned or recommended AI tools for assignment preparation.	[12]
Usage	U1	I find AI tools useful in understanding topics relevant to my assignment.	[3]
	U2	My course mates use AI tools in preparing their assignments.	[3]
	U3	I have used AI tools for language editing in my assignments.	[3]
	U4	I use AI tools to generate ideas for my assignments	[3]

Trust	T1	I trust the information provided by AI tools in completing my assignments	[10] [11]
	T2	It is essential for me to cross-check the information provided by AI tools with other sources	[5]
Ethical Concern	E1	I am aware of the ethical concerns in using AI tools for assignments.	[5]
	E2	I am confident in my ability to use AI tools ethically for assignments.	[5]
	E3	I would like formal guidance from my e-tutors on using AI tools for assignments.	[5]
	E4	The university should produce guidelines on ethical AI use to maintain integrity in assignments.	[5]

Statistical analysis was conducted using Python to identify overall trends in students' awareness, usage, trust, and ethical concerns across the different levels of study. Mean scores and standard deviations were computed for the Likert-scale responses and standard statistical tests were carried out to determine whether the differences in the mean scores were statistically significant.

4. RESULTS

The demographic profile of the survey respondents revealed a diverse representation across academic levels, age groups, gender, and faculties. The majority of respondents were UG (undergraduate) students, making up 50.00% of the respondents, followed closely by PG (postgraduate) students at 41.93%, while diploma students made up 8.07%. In terms of gender distribution, female students represented 68.7% of the respondents. Age-wise, the largest proportion of respondents fell within the 21-30 age group (48.23%), followed by those aged 31-40 years (33.46%). Smaller segments of the sample included individuals aged 41-50 years (12.01%), 51-60 years (4.72%), and over 60 years (1.57%). Faculty representation indicated that nearly half of the respondents (48.43%) were from the Faculty of Education (FOE). The remaining participants were distributed across the Faculty of Technology and Applied Sciences (FTAS) at 20.87%, the Faculty of Business and Management (FBM) at 16.73%, and the Faculty of Social Sciences and Humanities (FSSH) at 13.98%.

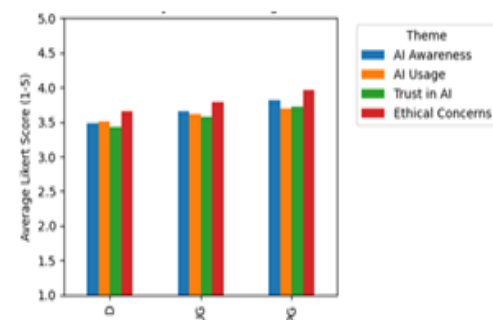


Figure 1: Clustered bar charts of average Likert scores for the four AI related constructs across different academic levels

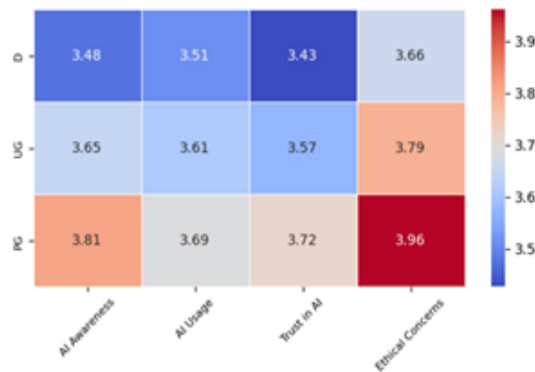


Figure 2: Heatmap of mean construct scores across different academic levels

AI awareness

The data presented in Figure 1 show clustered bar charts of mean Likert scores (1–5) for four AI-related constructs—Awareness, Usage, Trust, and Ethical Concerns—across Diploma (D), Undergraduate (UG), and Postgraduate (PG) cohorts, highlighting between-program differences. Figure 2 shows the same means as a heatmap with in-cell annotations, emphasizing the overall pattern: These figures suggest differences, particularly in AI awareness, with mean scores for each dimension provided across the three educational levels.

From our data, it appears that PG students demonstrate the highest level of AI awareness, followed by UG students, while D students show the least awareness. This trend may be due to the nature of academic experiences associated with each educational level itself. For instance, at the postgraduate level, which is more research-intensive, students are typically required to engage in project work, presentations, and extensive report writing, all of which are rigorously assessed in dissertations and assignments. Besides, related activities like conducting literature reviews and performing data analysis—tasks where AI tools can prove particularly valuable—likely contribute to PG students' greater familiarity with AI. Moreover, students at this level also benefit from the guidance of supervisors, who are also active in research, who likely see the benefit in leveraging AI tools to enhance research efficiency and ensure originality.

In contrast, diploma programmes often underpin basic, practical, job-specific skills with less focus on the integration of AI technologies. This likely restricts diploma students' exposure to AI, resulting in foundational competencies being prioritized over AI tools. Also, our results seem to suggest that undergraduate students appear to occupy an intermediate position. While their programme typically aims to provide a broad knowledge base, including some technological literacy, the extent of AI incorporation varies widely depending on the discipline. Consequently, while some undergraduates regularly utilize AI tools, others have limited exposure, resulting in more variability in awareness within this group.

Statistical analysis appears to support these observations. The Kruskal-Wallis test conducted on AI awareness revealed a statistically significant difference across the groups ($p = 0.0047$), indicating that at least one level of study differs significantly at the 95% confidence interval. Given that the p -value is less than 0.05, a post-hoc Dunn's test with Bonferroni correction was performed. The results confirmed that postgraduate students exhibit significantly higher AI awareness compared to both diploma students ($p = 0.0275$) and undergraduate students ($p = 0.0228$). However, no significant

difference was observed between diploma and undergraduate students ($p = 0.7294$).

AI USAGE

According to Figure 1, PG students use AI tools slightly more frequently than UG and D students in assignment completion. The increase in usage is not uncommon; assignment papers at the postgraduate level to be more challenging, requiring independent research and originality. Consequently, PG students are more likely to use AI tools to generate ideas and to use it as a sounding board to complete their assignments, while UG and D students may primarily use AI for coursework assistance, language editing, and less for idea generation.

However, the Kruskal-Wallis test for AI Usage showed no statistically significant differences among the three levels of study ($p = 0.2060$). Since $p > 0.05$, post-hoc tests were not conducted, confirming that AI usage levels are relatively similar across academic programs.

AI Trust

Based on the data from Figure 2, we observe a progressive increase in mean trust scores across different levels of study: 3.4 for D, 3.6 for UG, and 3.7 for PG. This trend seems to suggest a general rise in trust in AI in assignment completion as students advance to higher levels of study. Statistical analysis using the Kruskal-Wallis H test confirmed significant differences in trust levels across the groups, with a p -value of 0.0068, less than the 0.05 threshold for the p value. Further analysis with post-hoc Dunn's tests revealed that these differences were significant between PG students and both D students ($p = 0.0383$) and UG students ($p = 0.0283$), while no significant difference was observed between D and UG students ($p = 0.8271$).

The absence of a statistically significant difference in trust levels between D and UG students is to be expected. One reason could be that both D and UG groups may have similarly limited exposure to AI tools, resulting in comparable uncertainty about the reliability of AI-generated content. In contrast, PG students, through their research-intensive programs and advanced coursework, are more likely to develop the skills needed to critically assess and verify AI-generated information, which may contribute to their higher levels of trust.

Ethical Concerns

Ethical concerns about AI usage in assignment completion are highest among PG students, followed by UG students, and lowest among Diploma students. The data suggest that PG students are more mindful of issues related to ethical concerns. These concerns may arise from emphasis on originality and ethical research practices at PG level.

In contrast, the nature of the Diploma and UG programmes are such that they do not require much exposure to rigorous research requirements. As such, students in these levels of study would not be prioritize ethical concerns. The Kruskal-Wallis H test confirmed that PG students had significantly higher ethical concern scores ($p = 0.0001$). Post-hoc analyses showed that PG students' ethical concerns differed significantly from those of Diploma ($p = 0.0013$) and UG students ($p = 0.0024$). However, no significant differences were found between Diploma and UG students ($p = 0.2631$).

5. DISCUSSION

The findings from this study highlight the need for higher education institutions to embed AI literacy alongside core

curricula [8]—especially within diploma programs, where awareness and trust are weakest. Introducing concise, hands-on modules on ethical AI use (covering tasks such as proofreading, data summarization, and targeted literature searches) early in coursework can build a strong foundation before students tackle more complex assignments. Undergraduates, who demonstrate moderate awareness but variable trust, would further benefit from structured mentoring—pairing them with AI-savvy peers or faculty “AI ambassadors” to observe real-time tool use, critically evaluate outputs, and develop healthy skepticism alongside enthusiasm.

Every faculty should also host regular ethical dialogues—case-study debriefs, scenario workshops, or “AI cafés”—to cultivate a shared vocabulary around issues like plagiarism, bias, and data privacy. Faculties with heightened ethical concerns can take the lead by publishing discipline-specific guidelines and curated examples of acceptable versus problematic AI use, reinforcing both standards and best practices. As AI alleviates routine teaching and administrative tasks [9], educators can reinvest their time and attention in these reflective and community-building activities, thereby deepening the institution’s culture of ethical AI engagement. Online e-tutors are pivotal in translating these strategies into practice. Furthermore, their roles have evolved in the AI era (Martin, n.d.). By modeling best practices in online classes—demonstrating how to craft effective prompts, critically assess AI-generated content, and properly attribute AI assistance—they set clear expectations for ethical use. Online e-tutors can curate tailored resources (step-by-step tutorials, annotated exemplar assignments, common-pitfall checklists) and integrate brief reflective checkpoints where students identify and justify their AI contributions. Leveraging LMS analytics and moderated discussion forums, online e-tutors can spot misconceptions or misuse patterns and offer targeted feedback or mini-labs. Through regular “AI office hours” and collaborative online communities, e-tutors create safe spaces for learners to ask questions, share successes, and troubleshoot challenges, transforming AI from a black-box tool into a transparent, pedagogically integrated component of the learning journey.

Finally, these interventions should be iterative and data-driven. It is recommended that the ATEU survey be repeated each semester—augmented by small-group focus sessions—to monitor shifts in awareness, trust, usage, and ethical sensitivity. This continuous feedback loop will enable institutions and e-tutors alike to refine AI-literacy seminars, trust-calibration workshops, advanced usage labs, and ethics modules in step with evolving AI capabilities and adult learners’ needs.

6. CONCLUSION

Our study shows that postgraduate (PG) students report markedly higher awareness of AI tools than undergraduates (UG) and diploma (D) students. They also indicate slightly greater use of these tools for assignments, though usage differences across groups are not statistically significant. Notably, PG students display both higher trust in AI and stronger ethical concern about its use. This pattern suggests that the analytical and reflective demands of postgraduate study cultivate a more nuanced understanding of AI, encouraging confidence in its benefits while sharpening sensitivity to its risks. Given these findings, further research is warranted to clarify the mechanisms behind these group differences and to test interventions that could narrow them. Longitudinal and mixed-methods designs could examine how factors such as prior technical exposure, disciplinary norms, supervision/teaching practices, access to tools, and institutional

policies shape AI awareness, trust, and ethics over time. Experimental or quasi-experimental studies should also evaluate targeted AI-literacy and ethics modules to determine whether they improve responsible adoption without unintentionally creating blind trust.

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