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Artificial Intelligence and Research: Attitudes Across Educational Disciplines and Levels in the Philippines

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ABSTRACT

The rapid integration of Artificial Intelligence (AI) into society requires understanding its acceptance, especially within academic settings that shape future innovators. This mixed-methods study, applying the Theory of Planned Behavior, examined whether AI acceptance among undergraduate and graduate students in the Philippines could be predicted by their attitudes toward research and individual factors. Data, collected across Luzon, Visayas, and Mindanao using the General Attitudes Towards Artificial Intelligence Scale (GAAIS) and the Attitude Towards Research (ATR) scale, revealed that students held a neutral-to-positive attitude towards research and a mixed positive-to-negative attitude towards AI. Crucially, the analysis found no significant relationship between individual correlates and attitude towards AI, nor between attitude towards research and AI. Qualitative themes highlighted 'The Know and the How,' 'The Digital DISconnect,' and 'The Copy-and-Paste Dependence World,' leading to the conclusion that demographic characteristics are not primary drivers of AI attitudes in this context, and recommending the development of responsible AI-enhanced research activities.

RESUMO

A rápida integração da Inteligência Artificial (IA) na sociedade exige a compreensão de sua aceitação, especialmente em ambientes acadêmicos que moldam futuros inovadores. Este estudo de métodos mistos, fundamentado na Teoria do Comportamento Planejado, examinou se a aceitação da IA entre estudantes de graduação e pós-graduação nas Filipinas poderia ser prevista por suas atitudes em relação à pesquisa e por fatores individuais. Os dados, coletados nas regiões de Luzon, Visayas e Mindanao utilizando a Escala de Atitudes Gerais em Relação à Inteligência Artificial (GAAIS) e a escala de Atitude em Relação à Pesquisa (ATR), revelaram que os estudantes apresentavam uma atitude de neutra a positiva em relação à pesquisa e uma atitude mista — variando de positiva a negativa — em relação à IA. Fundamentalmente, a análise não encontrou relação significativa entre variáveis individuais correlatas e a atitude em relação à IA, nem entre a atitude em relação à pesquisa e a atitude em relação à IA. Temas qualitativos destacaram "O Que e o Como" (The Know and the How), "A Desconexão Digital" (The Digital DISconnect) e "O Mundo da Dependência do Copiar e Colar" (The Copy-and-Paste Dependence World), levando à conclusão de que características demográficas não são os principais determinantes das atitudes em relação à IA neste contexto, e recomendando o desenvolvimento de atividades de pesquisa responsáveis que incorporem a IA.

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Introduction

The rapid integration of artificial intelligence (AI) into various sectors has profound implications for education and academic research. As AI tools such as large language models become more accessible, understanding the attitudes of students toward their use in research is crucial. This study aims to investigate the perceptions, acceptance, and ethical concerns of Filipino students regarding AI's role in academic inquiry. By exploring student attitudes, this research seeks to uncover the drivers and inhibitors of AI adoption, providing a foundational understanding of the human-AI interface in the academic environment. This topic is particularly salient given the need to prepare future graduates for a workforce where AI literacy is becoming an essential skill.

Recent literature highlights a growing global interest in AI's role in education, yet a notable gap exists in context-specific studies. Research by Engida et al. (2024) and Suphasri and Chinokul (2021) emphasizes the importance of teaching quality and reflective practice in teacher education, but these studies often do not directly address the influence of AI on these areas. This body of work underscores a need for research that specifically links student attitudes towards AI with its practical application in research across diverse educational settings.

A significant gap in the literature is the lack of a comprehensive, multi-disciplinary study on Filipino students' attitudes toward AI and its use in research. Existing studies often focus on a single discipline or are conducted in Western contexts (Woodcock et al., 2022; Islam et al., 2023). There is a dearth of research that provides a nuanced understanding of how attitudes differ across various educational disciplines (e.g., STEM vs. Humanities) and academic levels (e.g., undergraduate vs. graduate) within the unique cultural and educational landscape of the Philippines. Furthermore, most studies focus on the technical aspects of AI, neglecting the psychological and ethical dimensions of student attitudes, which are vital for developing effective and responsible AI-integrated educational policies.

Despite these insights, the intersection of AI and research attitudes remains underexplored in the Philippine context—especially in terms of how attitudes differ across disciplines (e.g., arts, sciences, engineering, health) and across educational levels (senior high school, undergraduate, graduate). Existing studies tend to examine either AI or research attitudes in isolation, focus on singular groups (e.g., nursing or engineering students), or highlight gaps in AI literacy despite favorable attitudes. There is a lack of comprehensive, comparative analysis that examines how disciplinary background and educational stage interact to shape students' perspectives on AI as a research tool.

Addressing this gap, the proposed study will adopt a mixed-methods design to investigate attitudes toward AI and research across various disciplines and educational levels in the Philippines. Quantitative surveys will assess both attitude components and AI literacy,

while qualitative interviews will explore underlying beliefs and contextual factors. By comparing patterns across cohorts, the study aims to inform tailored pedagogical strategies and institutional supports—such as discipline-specific AI modules or research-integrated AI learning—that strengthen both research engagement and AI competency among students nationwide. Ultimately, the research aims to contribute to the national discourse on AI in education, ensuring that the Philippines can strategically and ethically integrate this technology to prepare future-ready graduates.

Theoretical and Conceptual Framework

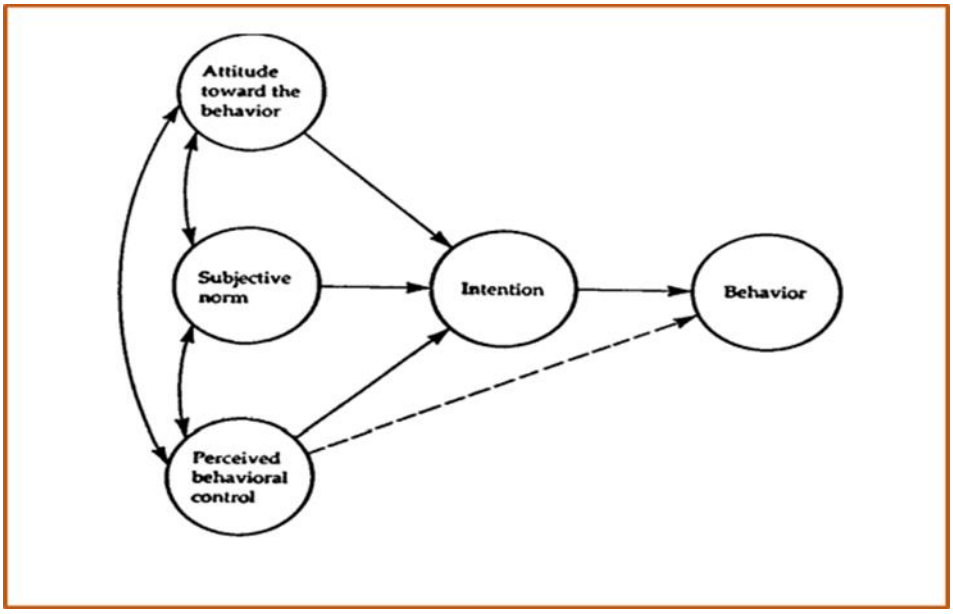
The study is anchored on the Theory of Planned Behavior (TPB), developed by Icek Ajzen (2005), which offers a powerful framework for understanding how individuals' beliefs translate into their actions. The model posits that the most immediate predictor of a person's behavior is their behavioral intention, or their conscious plan to perform a specific action. This intention, however, is not formed in a vacuum. Instead, it is shaped by three interconnected cognitive components. The first is a person's attitude toward the behavior, which reflects their personal evaluation of the action—whether they believe it to be favorable or unfavorable. The second component, subjective norms, captures the social pressure an individual feels to perform or not perform a behavior, based on what they perceive as the expectations of important people in their lives. The final component, perceived behavioral control, represents a person's self-efficacy, or their belief in their ability to successfully execute the behavior.

A person’s attitude toward a behavior is formed by their beliefs about the potential outcomes of that behavior. For example, a student might form a positive attitude toward using AI for research if they believe it will significantly improve the quality of their paper and they highly value academic excellence. Similarly, subjective norms are a function of a person’s perceived social environment. If the student believes their professor and peers value AI literacy and actively use these tools, and they feel a desire to conform, they will be more likely to develop an intention to use AI themselves. Finally, perceived behavioral control is a critical variable that distinguishes TPB from earlier models. It acknowledges that a person’s intention to act is moot if they feel they lack the necessary skills, resources, or opportunities to do so. If the same student feels they have the technical skills and reliable internet access to effectively use an AI tool, their perceived behavioral control will be high, strengthening their intention.

The Theory of Planned Behavior is highly valued for its ability to integrate individual and social factors into a cohesive predictive model. By going beyond a simple attitude-to-behavior link, the TPB provides a more nuanced understanding of why people act the way they do. It has been successfully applied across numerous fields, including health, marketing, and education, to predict a wide range of behaviors, from adopting healthy habits to utilizing new technology. Its structured and adaptable nature allows researchers to dissect the complex motivations behind human action, providing a robust tool for designing effective interventions aimed at encouraging specific behaviors.

Figure 1.

The Theory of Planned Behavior model adapted from Ajzen 2005



Note: Accelerating Systemic Change in STEM Higher Education, 2021.

The Theory of Planned Behavior (TPB) provides an excellent framework for understanding the relationship between students' attitudes toward research and their attitudes toward AI. While a study might directly measure a student's attitude toward AI, the TPB helps to explain the cognitive processes that lead to the formation of this attitude and, ultimately, the intention to use AI in their research.

A student's overall attitude towards research can be seen as a foundational element that indirectly influences their intention to use AI. According to the TPB, a person's intention is not based on a single belief but on a combination of factors. A student with a very positive attitude towards research is more likely to value its outcomes, such as discovering new knowledge and contributing to their field. This positive disposition makes them more receptive to tools that promise to enhance those outcomes, such as AI. In this way, a student's attitude toward research serves as a precursor to their attitude toward using AI, as they are more likely to view AI as a valuable and helpful tool rather than a threat or an unnecessary complexity.

Furthermore, the TPB highlights the importance of other factors that a study on AI acceptance must consider. The perceived behavioral control is crucial; it relates to a student's belief in their ability to use AI successfully. This is where variables like computer expertise and access to technology come into play. A student with strong computer skills and reliable internet access will have high perceived behavioral control, which strengthens their intention to use AI. Conversely, a student with a positive attitude towards AI but low perceived behavioral control due to a lack of skills or resources will be less likely to actually use it. The TPB, therefore, provides a comprehensive lens through which to interpret the study's findings, suggesting that

the path from a positive attitude toward research to the actual use of AI is mediated by both personal beliefs and the practical resources available to the student.

The rapid advancement of artificial intelligence (AI) has positioned it as a transformative tool in higher education, impacting both teaching methodologies and the conduct of academic research. Recent literature has explored how AI tools, such as large language models and data analysis platforms, are being adopted to enhance research productivity and teacher research competence (Comon & Corpuz, 2024). The importance of this integration is underscored by national and global discussions on "future-proofing" education, emphasizing the need for robust infrastructures and pedagogical approaches that prepare students for an AI-driven world. This shift necessitates a deeper understanding of the factors that govern the acceptance of these technologies within the academic community.

A core aspect of AI integration is a user's attitude toward the technology. The literature consistently suggests that a person's general attitude towards a methodology can be a strong predictor of their acceptance of its implementation. For instance, the benefits of collaborative learning strategies are often tied to fostering a positive attitude, which in turn enhances academic productivity (Aporbo, 2023; Deysolong, 2023). This suggests that a positive attitude toward research itself may predispose an individual to be more accepting of AI as a tool to aid the research process. Beyond general attitude, various studies have investigated the role of individual correlates in predicting technology acceptance. For example, research on professional development has highlighted the importance of teacher performance, which can be influenced by professional development activities (Padillo et al., 2021). These studies suggest that a one-size-fits-all approach to AI implementation may be ineffective, as different demographic groups may have unique perceptions and levels of readiness.

Despite the potential benefits, the implementation of AI in the research learning process is not without its challenges. A primary concern revolves around the ethical implications and academic integrity. The literature notes various challenges in implementing pedagogical strategies, such as cooperative learning, which can be extended to the implementation of new technologies like AI in education (Chakyarkandiyil & Prakasha, 2023). These challenges underscore the need for responsible AI use and the development of clear institutional policies. Furthermore, a lack of sufficient training and a digital divide can create barriers to access and effective use, particularly for students with lower levels of computer expertise. The literature points to a critical need for institutions to not only provide access to AI tools but also to develop a supportive infrastructure that includes robust training and clear ethical guidelines to mitigate these risks.

The academic community is actively working on developing frameworks for responsible AI-enhanced research. The literature advocates for the development of "AI literacy" programs that go beyond technical skills to include a critical understanding of AI's capabilities, limitations, and ethical dimensions. Studies suggest that pedagogical strategies,

such as reflective practice and differentiated instruction, can be adapted to foster a more nuanced and critical approach to AI-assisted research (Langelaan et al., 2024; Suphasri & Chinokul, 2021; Stingo, 2024). These strategies are crucial for ensuring that students use AI as a collaborator rather than a replacement for critical thinking. The development of responsible AI activities, such as those that require human oversight and validation of AI-generated content, is essential for maintaining the integrity of academic research while harnessing the efficiency and innovation that AI offers. This requires a proactive approach from academic institutions to move beyond simple policy creation towards the active cultivation of a responsible AI culture.

This study examined whether the acceptance of Artificial Intelligence (AI) can be predicted by the attitude towards research and individual correlates as well.

Specifically, it sought answers to the following questions: What is the demographic profile of the participants as regards their age; gender; educational level; type of school; and computer expertise? What are the participants' attitudes towards: research; and Artificial Intelligence? Do the participants' attitudes towards Al significantly differ when they are grouped according to their demographics? Do demographic profile and attitude towards research significantly relate to their attitude towards Al? What are the challenges faced by the respondents when implementing AI technologies in the research learning process? What responsible AI-enhanced research activities can be developed?

The following null hypotheses were tested at a 0.05 level of significance:

There is no significant difference in the students' attitude towards AI when grouped according to their demographics.

There is no significant relationship between the profile and attitude towards research and their attitude towards Al.

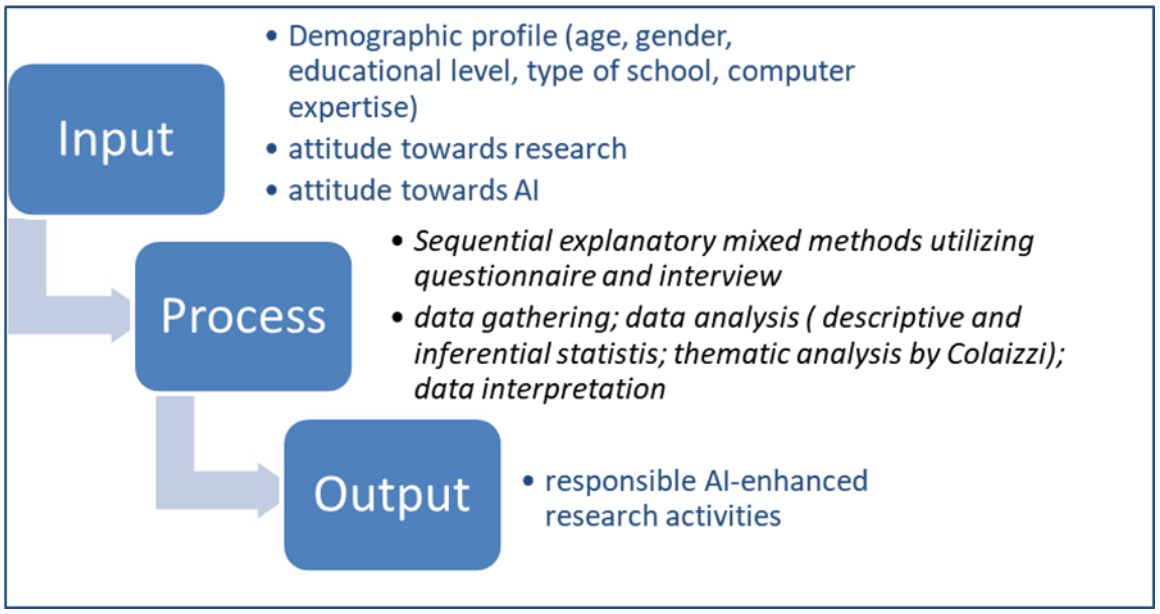
Research Method

Research Design

The explanatory sequential mixed methods design by Creswell and Plano (2016) was used in the study. This consists of quantitative descriptive survey research to gather data on the students' demographic profile, the attitude towards research, and artificial intelligence. For the qualitative data, challenges or barriers faced by the respondents when implementing AI technologies in the research learning process were gathered.

The Input-Process-Output (I-P-O) schematic diagram of the research process is given in Figure 2. The demographic profile of the graduate students served as the input together with their attitude towards research and their attitude towards AI

Figure 2.



The process involved the sequential explanatory mixed methods design beginning with the quantitative phase on the profile of the graduate students, their attitude towards research and Artificial intelligence, and the qualitative phase on their challenges faced by the respondents when implementing AI technologies in the research learning process. Research tools used to gather data were validated survey questionnaire and interviews. The data analysis for the quantitative phase employed both descriptive and inferential statistics on the significance of the relationship between the profile of the graduate students and their perceived degree of importance of research advising. Based on the results of the research, responsible AI-enhanced research activities are proposed.

Research Environment

The study was conducted in the graduate schools of two state universities and one private higher education institution in Cebu and Palawan, Philippines.

Cebu City, Philippines—a major urban, economic, and educational center in the Visayas—offers a dynamic environment for advancing research and artificial intelligence (AI) education. Home to numerous universities and research institutions, the city benefits from strong academic networks, a growing tech industry, and access to skilled professionals. Its thriving business process outsourcing (BPO) sector, emerging startup ecosystem, and active innovation hubs provide fertile ground for AI applications in business analytics, automation, healthcare, and smart city initiatives. While challenges remain in ensuring equitable access to cutting-edge AI tools and specialized training, Cebu's robust infrastructure, strategic location, and culture of collaboration position it as a key regional driver for research excellence and AI integration, with the potential to produce graduates and innovations that directly contribute to both national competitiveness and sustainable development.

Palawan, Philippines—known for its rich biodiversity and cultural heritage—is an emerging hub for educational development, yet it faces both opportunities and challenges in advancing research and artificial intelligence (AI) education. While its higher education institutions are increasingly integrating research into academic programs, access to advanced AI resources, specialized faculty, and cutting-edge infrastructure remains limited compared to urban centers. Nonetheless, the province's growing digital connectivity, government-led initiatives, and interest in sustainable development create fertile ground for AI applications in fields like environmental conservation, marine science, and eco-tourism. By strengthening research culture, fostering industry-academe partnerships, and providing targeted capacity-building programs, Palawan has the potential to position itself as a leader in applying AI-driven solutions to local and global challenges while nurturing a new generation of researchers attuned to both technological innovation and environmental stewardship.

Research Participants

The population for this study consisted of both undergraduate and graduate students enrolled in research and technology courses within the provinces of Cebu and Palawan, Philippines. For the quantitative phase, a target total of 115 students participated in the study. The participants were purposively selected based on their enrollment in the specified courses, research, and technology in education. In the qualitative phase, in-depth interviews were conducted with a subset of ten graduate students. This specific sample size is determined by the principle of data saturation, where the collection of new data ceased when no new categories, properties, or relationships emerged from the participants' accounts. This ensures that the gathered information was rich and comprehensive enough to thoroughly explore the developing themes.

Research Procedure

Data Gathering

Prior to data collection, formal permission will be secured from the three participating Higher Education Institutions (HEIs) to ensure institutional approval and compliance with ethical and academic protocols. Endorsements from the respective deans provided official authorization to proceed. Following approval, the research team will develop the survey instruments designed to measure students' attitudes toward research and artificial intelligence. These questionnaires will undergo a rigorous validation process to ensure content relevance, reliability, and construct validity. This step guarantees that the instruments were capable of capturing accurate and meaningful data aligned with the study objectives. Informed consent was then obtained from all participants. Each student will be provided with clear information regarding the study's purpose, procedures, voluntary nature, and their rights, including confidentiality and withdrawal without penalty. The validated questionnaires will be

administered online using Google Forms. Links will be disseminated electronically, enabling participants to conveniently complete and submit their responses. The use of an online platform facilitates efficient data retrieval and organization while broadening the study's reach. To enhance validity and depth, the study employs data triangulation by integrating quantitative survey results with qualitative insights from interviews. This mixed-methods approach allows for a richer, more nuanced understanding of students' attitudes, ensuring that findings were both robust and reflective of multiple perspectives.

Data Analysis

The quantitative data from the survey will be analyzed using both descriptive and inferential statistics. The demographic profile of the graduate students will be summarized using descriptive statistics, including frequencies and percentages for categorical data, and means, medians, and standard deviations for continuous variables. To assess the attitudes towards research and artificial intelligence, weighted means, standard deviations and medians will be computed.

To determine the difference between the students' attitudes when grouped according to their profile, the Analysis of Variance (ANOVA) will be used. Likewise, to examine the relationship between the participants' demographic profiles and their attitude towards artificial intelligence, a multiple regression analysis will be employed. This inferential statistical technique will be used to determine the predictive influence of the demographic variables on the students' perceived attitude towards artificial intelligence.

For the qualitative data, which explored the challenges faced by the students when implementing AI technologies in the research learning process, thematic analysis will be employed. This systematic approach, based on the method outlined by Colaizzi (1978), is crucial for extracting and interpreting the rich, narrative data. The process involves several key stages: Familiarization: thoroughly reading and re-reading the interview transcripts to gain a deep understanding of the content; Identifying Significant Statements: highlighting verbatim phrases from the participants that were directly relevant to the research questions; Formulating Meanings: translating these significant statements into their underlying meanings; Clustering Themes: grouping the formulated meanings into a set of overarching themes; and Developing Comprehensive Themes: synthesizing these clustered themes into a cohesive and comprehensive narrative that accurately reflects the participants' experiences and insights.

Ethical Considerations

Ethical approval will be secured from the university's Institutional Ethics Review Board prior to the commencement of the study. All participants and partner institutions will be provided with full disclosure regarding the nature and purpose of the research, as well as their rights and responsibilities. To ensure the integrity of the study, the researcher maintains a professional distance from all participants; there should no pre-existing familial or financial

relationships. The involvement of any research sponsors will also be strictly prohibited to prevent potential conflicts of interest. The well-being of the participants will be prioritized throughout the study. Measures will be taken to ensure that no individual was exposed to any form of physical, mental, emotional, or psychological harm. To protect the participants' identities and uphold their right to privacy, anonymity will be strictly enforced. This includes the non-disclosure of their names and any identifying information in the final report. The principle of confidentiality will be a primary concern.

Participants' personal information and data, including their survey responses and scores, will be treated with the utmost confidentiality. All collected data will be stored securely, accessible only to the researcher. Furthermore, participants will not be allowed to provide personal identifying information in their survey responses to further safeguard their anonymity and the integrity of the data. All assurances of confidentiality and ethical conduct will be consistently provided to the participants and institutions throughout the entire process of survey administration, data collection, and analysis.

Results and Discussion

The graduate students' demographic profile, their attitude towards research, and Artificial Intelligence are discussed herein.

Graduate Students' Demographic Profile

This section presents the findings of the first objective of the study, which is to describe the graduate students in terms of age, gender, educational level, type of higher education institution, and their computer expertise.

In this study, 100 graduate students participated, coming from HEIs in Cebu and Palawan, Philippines. Their demographic profile is presented in Table 1.

Table 1.

Demographic Profile of the Respondents (n= 115)

Profile	f	%
Age		
Below 30 years	72	62.61
31 – 40 years	24	20.87
Above 40 years	19	16.52
Mean = 31.34		
SD = 8.23		
Gender		
Male	19	16.50
Female	96	83.50
Educational Level		
Undergraduate	51	44.30
Graduate	64	55.70
Type of HEI		
Public	95	82.60
Private	20	17.40
Computer Expertise		
Basic	40	34.80
Intermediate	67	58.30
Advanced	8	6.90
Total	115	100.00 %

Demographic Profile of Participants

The demographic profile of the research participants reveals a diverse group with varying characteristics, as shown in Table 1. The study had a total of 115 participants.

The participants in this study on attitudes toward research and AI had an age range from 22 to 54 years. This wide range indicates a diverse group of participants, including both early-career individuals and more experienced professionals or academics. The mean age was 31.34 years, with a median age of 28 years. The difference between the mean and the median suggests that the data may be skewed, with a few older participants pulling the mean upward. The standard deviation was 8.23, indicating a relatively high degree of variability in the participants' ages. This diversity in age is a significant factor to consider when analyzing the results of the study, as attitudes toward technology and research may vary considerably across different age groups and levels of professional experience.

The majority of participants were female, comprising 83.50% (n=96) of the sample. Male participants made up 16.50% (n=19), with no participants preferring not to say.

The participants were drawn from both public and private institutions. The overwhelming majority, 82.60% (n=95), were from public schools, while 17.40% (n=20) were from private schools. In terms of educational level, the sample was fairly balanced, with 55.70% (n=64) being graduate students and 44.30% (n=51) being undergraduate students.

Regarding computer expertise, the largest group, 58.30% (n=67), reported an intermediate level of skill. Participants with a basic level of expertise accounted for 34.80% (n=40), while those with an advanced level of expertise were the smallest group, at 6.90% (n=8). This distribution of skills suggests that most participants were familiar with technology but not necessarily advanced users, a factor that could significantly influence their attitudes toward AI in research.

The increasing integration of artificial intelligence (AI) into academic and professional spheres has prompted a growing need to understand its impact on education. Recent literature emphasizes that the effectiveness of educational programs is deeply connected to teaching quality, as highlighted by Engida et al. (2024). Furthermore, studies on teacher development underscore the importance of reflective practice and professional growth in preparing educators for evolving classrooms (Suphasri & Chinokul, 2021). This academic discourse is mirrored in national educational initiatives, as demonstrated by the 2025 SUCTEA National Research Conference theme, "Future-Proofing Teacher Education in the 21st Century," which signals a widespread concern for adapting pedagogical practices to modern demands.

While the literature provides a foundation for modern pedagogical approaches, a notable research gap exists in understanding how students' attitudes, particularly toward AI, influence these educational shifts. For instance, studies on the implementation of differentiated instruction in teacher preparation and development have been conducted (Langelaan et al., 2024), but they do not explicitly address the role of student attitudes toward

AI in the success of such strategies. Similarly, research exploring teacher self-efficacy and its connection to inclusive education practices (Woodcock et al., 2022) provides valuable insight into professional confidence, but a direct link to student perceptions of AI as a tool for inclusion remains under-explored. Research on health promotion using social cognitive theory (Islam et al., 2023) further illustrates the importance of understanding cognitive factors in behavior, a framework that could be applied to analyze student attitudes toward AI in research. The current body of literature, therefore, highlights a pressing need for a focused investigation into how students, across various disciplines and educational levels, perceive and engage with AI as a tool for academic research.

Attitude Towards Research and Artificial Intelligence

This section presents the key findings for the second objective of the study which is to identify the specific attributes that graduate students prioritize when selecting their thesis or dissertation advisers. The results provide insights into the qualities students deem most important, such as field of specialization, research reputation, coaching and mentoring abilities, availability, interest in your research, and attitude. By examining these results, a deeper understanding of how students navigate the advising process and the characteristics that contribute to a productive and positive advising relationship is gained.

The data in Figure 2 on attitudes toward research reveals a highly positive sentiment among the 115 respondents. A substantial 78.38% reported a very positive attitude, while another 20.72% held a positive view. In contrast, only a small fraction of respondents (0.90%) expressed a negative attitude. This overwhelming endorsement of research is a critical finding, suggesting that the participants are generally receptive to engaging in academic inquiry and its associated processes.

These findings resonate with existing literature that highlights the importance of a conducive environment for learning and professional development. For example, the theme of the 2025 SUCTEA National Research Conference, "Future-Proofing Teacher Education in the 21st Century", underscores the educational community's focus on innovation and preparing students for the future, which inherently involves a positive disposition towards research. A strong positive attitude is a fundamental prerequisite for effective engagement with the rigorous demands of academic work. This is supported by studies on teacher development and quality, which emphasize that a positive disposition can enhance the impact of teaching and professional growth (Engida et al., 2024; Suphasri & Chinokul, 2021). The high percentage of positive attitudes found in this study provides a strong base for integrating advanced tools and methodologies, such as AI, into research practices without significant attitudinal resistance.

Figure 2.

Attitude Towards Research (n= 115)

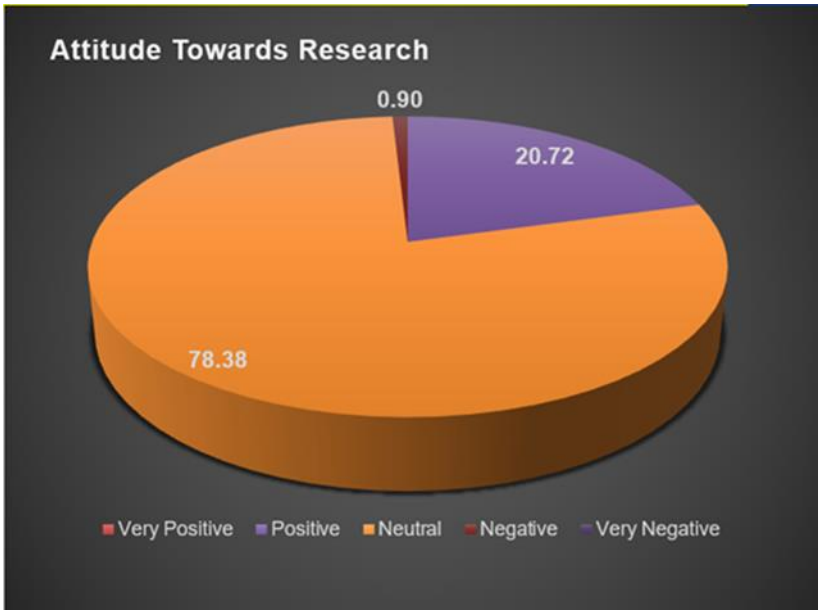
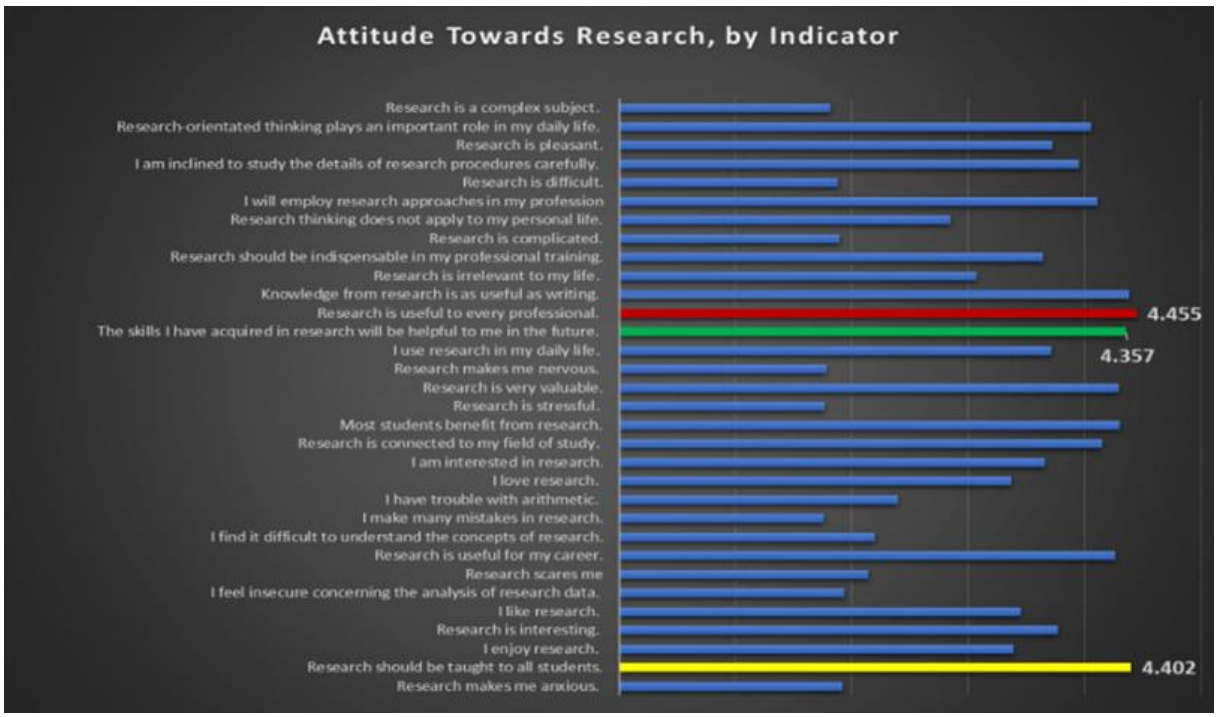


Figure 3.

Attitude Towards Research, by Indicator (n= 115)

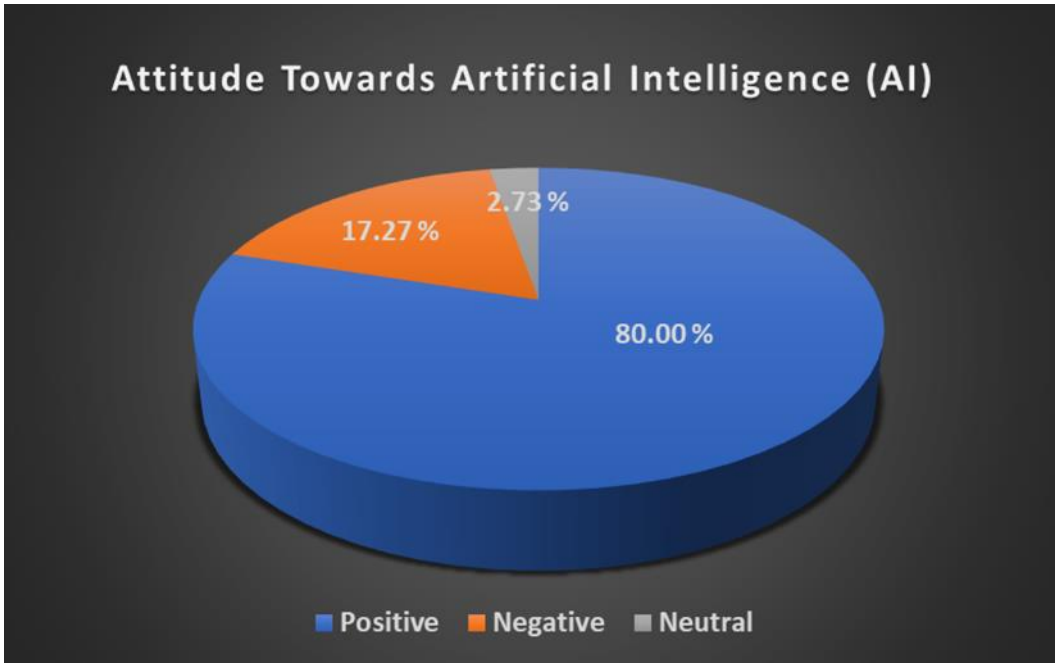


The results in Figure 4 on the attitude towards artificial intelligence indicate that a significant majority of respondents (80%) hold a positive attitude toward artificial intelligence (AI), suggesting strong openness to adopting and engaging with AI tools in academic and professional contexts. This reflects a general awareness of AI's potential to improve efficiency, enhance learning experiences, and support research and innovation. The widespread positivity may be attributed to increasing familiarity with AI-driven applications in everyday life, such as

virtual assistants, automated translations, and intelligent search systems, as well as to the perception of AI as an essential skill area in the modern workforce. This favorable climate creates an advantageous foundation for integrating AI into educational curricula and research practices in the Philippines.

Figure 4.

Attitude Towards Artificial Intelligence (n= 115)



On the other hand, 17.27% of respondents expressed a negative attitude, which, though a minority, is still a substantial segment that cannot be overlooked. These views may stem from concerns about ethical risks, data privacy issues, loss of human control, or potential job displacement caused by automation. Meanwhile, 2.73% of respondents reported a neutral stance, possibly indicating a lack of sufficient exposure, understanding, or direct experience with AI to form a strong opinion. Addressing the concerns of the negative group and engaging the neutral group through targeted AI literacy programs, hands-on training, and awareness campaigns will be essential to fostering more informed and balanced perspectives. Overall, the findings highlight both a strong readiness for AI integration and the need for inclusive strategies that ensure all learners are equipped, confident, and ethically aware in using AI technologies.

The fact that 80% of respondents hold a positive attitude toward AI aligns with similar findings in various educational contexts. For example, university students in Sweden demonstrated an overwhelmingly positive stance toward AI tools in education, with 89% indicating favorable attitudes, though they raised reservations about AI's effectiveness in improving grades and language abilities (University students' attitudes study, 2023)

Likewise, STEM undergraduates in the Philippines exhibited high readiness to integrate AI into their research activities, particularly when such use supported the

development of skills, dispositions, and self-efficacy—factors that indirectly enhance research productivity (Buniel et al., 2025). These parallels suggest that positive attitudes are often grounded in perceived benefits: enhanced learning efficiency, improved confidence, and support for academic tasks.

Still, the 17.27% of respondents with negative attitudes cannot be ignored. Concerns echo those found in broader literature: students worry that AI may compromise critical thinking, encourage overreliance, and challenge academic integrity (Gonzales & Nabua, 2025). Additionally, qualitative student feedback emphasizes fears that AI use often substitutes thinking rather than supplementing it, and that unchecked reliance can degrade one's learning habits. These insights underscore the importance of ethical guidance and AI literacy to mitigate negative perceptions.

A very small portion—2.73%—hold neutral attitudes, indicating neither strong positivity nor negativity. This mirrors earlier studies where neutrality often stemmed from limited exposure, unclear understanding, or ambivalence toward AI's educational role. For instance, in a K–12 context, nearly half of the students adopted neutral stances about AI's educational purposes, reflecting uncertainty or unfamiliarity (Walton, 2023).

Significance of the Difference in Attitude Towards Artificial Intelligence when Grouped by Demographic Profile and Attitude Towards Research

This section presents the findings from the one-way ANOVA conducted to determine if there were significant differences in participants' attitudes toward AI when grouped by their demographic characteristics. The demographic variables examined were age, gender, educational level, type of school, and computer expertise. The ANOVA tests were performed to explore whether these distinct groups held significantly different attitudes toward AI, a common practice in research on technology acceptance. The results, as detailed in the following tables, indicate a lack of statistically significant variation across all these demographic categories, challenging the assumption that personal background and skill level are key predictors of AI perception.

Based on the provided ANOVA results, in Table 2, the study found no statistically significant difference in attitudes toward AI when participants were grouped by any of the demographic variables.

The findings from the one-way ANOVA reveal that the participants' attitudes toward AI do not significantly differ based on their demographic profile. For all variables tested—age, gender, educational level, type of school, and computer expertise—the p-values were consistently above the standard alpha level of 0.05. The p-value for age was 0.671, for gender was 0.783, for educational level was 0.340, for type of school was 0.783, and for computer expertise was 0.951. This indicates that differences in age, gender, educational level, school

type (public or private), or self-reported computer skills did not result in a statistically significant difference in how participants viewed AI.

Table 2.

Significance of the Difference in Attitude towards AI when grouped by Demographic Profile (n=115)

Source of Variation	SS	df	MS	F	P-value	F crit
AGE						
Between Groups	0.037872	2	0.018936	0.400	0.671	3.0988697
Within Groups	4.210389	89	0.047308			
GENDER						
Between Groups	0.003589	1	0.003589	0.076	0.783	3.9468757
Within Groups	4.244672	90	0.047163			
EDUCATIONAL LEVEL						
Between Groups	0.101304	2	0.050652	1.092	0.340	3.1000686
Within Groups	4.081553	88	0.046381			
TYPE OF SCHOOL						
Between Groups	0.003589	1	0.003589	0.076	0.783	3.9468757
Within Groups	4.244672	90	0.047163			
COMPUTER EXPERTISE						
Between Groups	0.004739	2	0.002369	0.049	0.951	3.0988697
Within Groups	4.243522	89	0.04768			

These results challenge the common assumption that demographic factors are key predictors of technology acceptance, as often explored in technology adoption models (Aporbo, 2023). While some literature suggests that variables like age and computer expertise can influence technology acceptance, this study's findings indicate that for this particular sample, these variables do not play a significant role in shaping attitudes towards AI. This aligns with recent research that is moving beyond simple demographic predictors to explore more nuanced, contextual factors. For instance, studies on the benefits of cooperative learning and academic productivity (Deysolong, 2023) suggest that pedagogical approaches and a collaborative environment might be more influential than individual characteristics in shaping attitudes.

The lack of a significant difference across these demographic groups suggests that attitudes toward AI may be driven by factors that transcend individual characteristics. The findings imply that unmeasured variables—such as exposure to AI in specific courses, the quality of AI literacy training, or personal ethical beliefs—could be more significant predictors. This highlights a need for future research to delve into these deeper psychological and contextual factors rather than relying on broad demographic categorizations.

Significance of the Relationship between Demographic Profile and Attitude Towards Al

The analysis of the relationship between participants' demographic profiles and their attitudes toward AI is a crucial step in understanding the factors that drive technology acceptance. This section explores whether variables such as age, gender, educational level, school type, computer expertise, and a general attitude toward research significantly predict a person's attitude toward AI. Examining these relationships moves beyond simple descriptive statistics to identify potential predictors, providing deeper insights into the underlying dynamics of AI adoption. The findings presented here, derived from multiple regression analysis, will either confirm or challenge common assumptions about technology acceptance and inform the development of targeted strategies to promote responsible AI integration in academic environments.

Table 3.

Significance of the Relationship between Profile and Attitude towards AI (n=115)

Variable	T	(p-value) Significance
Age	-0.931106	(0.354436) Not Significant
Gender	-0.325281	(0.745768) Not Significant
Educational Level	0.624456	(0.534001) Not Significant
Type of School	0.167758	(0.867172) Not Significant
Computer Expertise	0.024592	0.980438 Not Significant
ATR	0.864577	0.389704 Not Significant

Based on the provided results, in Table 3, the study found no statistically significant relationship between any of the profile variables and the participants' attitudes toward AI.

The findings from the analysis indicate that none of the demographic variables—age, gender, educational level, type of school, or computer expertise—had a significant predictive relationship with the participants' attitudes toward AI. The p-values for all these variables were greater than the conventional significance level of 0.05, ranging from 0.354 for age to 0.980 for computer expertise. This suggests that a participant's age, gender, academic standing, or technological skill level did not play a significant role in shaping their attitudes toward AI.

Furthermore, the study found no significant relationship between a participant's attitude toward research (ATR) and their attitude toward AI, with a p-value of 0.389. This

particular finding is noteworthy as it challenges the common assumption that a positive disposition towards academic inquiry would logically extend to a positive attitude toward modern research tools, such as AI.

Collectively, these results suggest that the factors influencing participants' attitudes toward AI are likely more nuanced and not captured by these demographic and attitudinal variables. The findings imply that other, unmeasured variables—such as specific training experiences, personal ethical beliefs, or the perceived utility of AI in a specific field of study—may be the true drivers of AI acceptance. This highlights a need for future research to explore these deeper psychological and contextual factors rather than relying on broad demographic predictors.

Challenges Faced by the Students in the Implementation of Al in Research Activities

Generated themes employing Colaizzi's thematic analysis included The Know and the How; The Digital DISconnect; and The Copy-and-Paste Dependence World.

The first theme, "The Know and the How," captures participants' struggle not only with understanding AI concepts but also with applying them effectively in the research process. While some students possessed basic awareness of AI tools, they often lacked the technical proficiency and methodological know-how to integrate these tools meaningfully into literature reviews, data analysis, or research writing. This reflects a skills gap noted in recent studies, where AI literacy—comprising both conceptual understanding and practical competence—is essential for productive and ethical use of AI in academic contexts (Buniel et al., 2025). Without targeted training, students risk either underutilizing AI's capabilities or misapplying them, resulting in superficial research outputs.

The second theme, "The Digital DISconnect," highlights the infrastructural and access-related barriers that impede effective AI adoption. These challenges range from unreliable internet connectivity and outdated devices to limited access to premium AI software features. Such issues exacerbate the digital divide, especially between urban and rural learners, leading to unequal opportunities for skill development and AI integration. This finding echoes broader literature on the persistent technology gap in Philippine higher education, where infrastructure limitations often hinder the scaling of AI-driven educational innovations (Gonzales & Nabua, 2025). The disconnect not only limits students' ability to explore advanced AI functions but also affects their confidence and motivation in using the technology.

The third theme, "The Copy-and-Paste Dependence World," reflects a growing concern about academic integrity and overreliance on AI-generated content. Some participants reported that peers tended to use AI for quick answers, paraphrasing, or even full paper generation, bypassing critical thinking and original analysis. This mirrors global debates about the risks of "automation complacency" in education, where ease of access to AI-generated outputs can diminish deep engagement with research problems (Walton, 2023). Without clear

ethical guidelines and structured scaffolding for AI use, there is a danger that AI becomes a shortcut rather than a support tool, potentially eroding academic rigor.

Together, these themes suggest that for AI implementation in research to be effective and sustainable, interventions must address both skill-building ("The Know and the How") and infrastructure ("The Digital DISconnect") while promoting ethical, critical engagement to counteract overdependence ("The Copy-and-Paste Dependence World"). This holistic approach ensures that AI serves as an enabler of innovation rather than a replacement for human intellectual effort.

Proposed Responsible Al-enhanced Research Activities

The proposed Responsible AI-enhanced Research Activities aim to integrate artificial intelligence tools into the research process while upholding ethical, transparent, and accountable practices. Guided by principles of fairness, inclusivity, data privacy, and academic integrity, these activities are designed to enhance efficiency and innovation without compromising research quality. AI can be used in the planning and design stages for literature reviews, research gap identification, and data sourcing, with human oversight ensuring the accuracy and relevance of outputs. In data collection, AI-assisted surveys, computer vision for field observations, and natural language processing for interviews can streamline processes and improve data richness. For data analysis, AI tools can support predictive modeling, statistical testing, and thematic interpretation of qualitative data, allowing researchers to focus on higher-level synthesis and interpretation. The dissemination phase can also benefit from AI-powered writing assistance, multilingual translation, and the creation of accessible visualizations, ensuring that research findings reach diverse audiences effectively.

To ensure responsible implementation, safeguards such as human-in-the-loop verification, bias detection, and transparent documentation of AI processes will be embedded in all stages of research. These measures will prevent over-reliance on AI, address potential biases, and maintain accountability in the use of emerging technologies. Training programs for students and faculty will strengthen AI literacy and ethical awareness, while a phased rollout—starting with pilot applications in selected projects—will allow for careful monitoring and refinement. By combining technological innovation with strong ethical standards, the initiative is expected to boost research productivity, foster interdisciplinary collaboration, and create outputs with tangible academic, social, and economic value, ultimately positioning Philippine education and research communities to thrive in an AI-driven future.

Conclusion and Recommendations

The absence of significant relationships suggests that individuals' attitudes towards Al may not be strongly influenced by demographic characteristics such as age, gender, educational program, or type of school. Similarly, computer expertise does not appear to play a significant role in shaping attitudes towards AI in this study.

These findings have important implications for understanding the factors that influence attitudes towards AI. While demographic characteristics and computer expertise are commonly considered factors in shaping attitudes towards technology, they may not be the primary drivers of attitudes towards AI in this context. While research literacy and understanding may be important for informed decision-making and the critical evaluation of AI, other factors may play a more prominent role in shaping attitudes towards AI.

Further research is needed to explore other potential factors that may influence attitudes towards AI, such as cultural factors, personal experiences, and perceptions of AI's impact on society. Qualitative research methods could provide insights into the underlying beliefs, values, and experiences that shape attitudes towards both research and AI, contributing to a deeper understanding of the factors driving attitudes in this domain.

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