Teachers in the Age of Artificial Intelligence: Attitudes, Behaviors, and Demographic Influences in Research Innovation

John Michael T. Talingting, LPT, MA-FIL[1], Steven A. Eguin, LPT, MAED[2], Marry Ann M. Aclao, LPT, MAED[3], Nina Louren Rosales, LPT[4], Dr. Evita Jane Ngo[5], Dr. Janet A. Arcana, LPT[6]

[1,2,3,4,5]College of Teacher Education, Arts and Sciences, University of Southern Philippines Foundation, Cebu City, Please Choose State, Philippines

[6]Research Adviser, University of Southern Philippines Foundation

DOI: https://doi.org/10.51244/IJRSI.2026.1307000059

Received: 04 July 2026; Accepted: 10 July 2026; Published: 27 July 2026

ABSTRACT

The rapid advancement of Artificial Intelligence (AI) has significantly reshaped higher education, particularly in enhancing research innovation and academic productivity. This study assessed the attitudes and behaviors of College of Teacher Education Arts and Sciences teachers toward innovative research using AI and examined the relationship between these variables and their demographic profiles. Employing a descriptive-comparative-correlational survey design, the study involved 22 faculty members who responded to a structured questionnaire measuring demographic characteristics, attitudes, and behavioral engagement with AI-based research tools.

Findings revealed that teachers generally exhibit a favorable attitude and active behavioral engagement toward AI-supported research, with mean scores of 2.92 for attitude and 2.94 for behavior. However, statistical analysis showed no significant relationship between attitude and behavior ($p = 0.60$), indicating that positive perceptions do not necessarily translate into consistent behavioral application. Furthermore, results indicated no significant differences in attitude and behavior when grouped according to demographic variables such as age, gender, and educational attainment, as all p-values exceeded the 0.05 threshold. These outcomes suggest a relatively uniform acceptance of AI across demographic groups within the institution.

The study concludes that while AI is generally embraced in academic research practices, its integration remains more practice-driven than attitude-driven. The lack of a significant attitude-behavior link highlights the need for targeted interventions that strengthen the alignment between perception and actual use. It is recommended that continuous professional development, institutional AI support systems, and curriculum-based AI literacy programs be implemented. Future research should further explore the relationship between AI adoption, research productivity, and pedagogical impact in higher education contexts.

Keywords: Academic Research, Artificial Intelligence, AI Integration, Teacher Attitudes, Research Behavior,

INTRODUCTION

The emergence of Artificial Intelligence has significantly transformed the landscape of higher education, particularly in the conduct of innovative research. In recent years, Artificial Intelligence-powered tools such as machine learning, natural language processing, and data analytics have enhanced the efficiency, accuracy, and scope of academic research. Following the digital acceleration brought about by the COVID-19 pandemic, educators have increasingly turned to AI technologies to support research productivity and knowledge creation. According to UNESCO (2023), Artificial Intelligence has the potential to revolutionize education and research by enabling personalized learning, automating data analysis, and fostering innovation. However, the successful

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

integration of Artificial Intelligence in research depends largely on teachers' readiness, particularly their attitudes and behaviors toward these emerging technologies.

Attitude toward Artificial Intelligence plays a crucial role in shaping educators' willingness to adopt and utilize AI tools for innovative research. Positive attitudes are often associated with perceived usefulness, ease of use, and the potential for improving research outputs (Chatterjee & Bhattacharjee, 2020). On the other hand, concerns about ethical issues, data privacy, and lack of technical competence may lead to resistance or hesitation. Behavior, in this context, reflects the actual use of Artificial Intelligence tools in research activities, such as literature review automation, data analysis, and academic writing assistance. A study by Zawacki-Richter et al. (2021) highlights that while many educators acknowledge the benefits of Artificial Intelligence, their practical application remains limited due to insufficient training and institutional support. This gap between attitude and behavior underscores the need for a comprehensive assessment of both variables.

Demographic characteristics such as gender, age, educational qualifications, civil status, length of service, and familiarity with Artificial Intelligence tools significantly influence teachers' attitudes and behaviors toward innovative research using Artificial Intelligence. Research indicates that younger educators and those with advanced degrees or prior exposure to digital technologies tend to demonstrate higher acceptance and utilization of Artificial Intelligence tools (OECD, 2023). Conversely, experienced educators may face challenges in adapting to rapidly evolving technologies due to limited digital literacy or resistance to change. Additionally, access to Artificial Intelligence tools and institutional support plays a critical role in shaping these behaviors. Understanding how demographic factors interact with attitude and behavior is essential for developing targeted strategies to enhance Artificial Intelligence integration in research practices.

This study is anchored on Sustainable Development Goal 4 and Sustainable Development Goal 9, which emphasize the importance of quality education, innovation, and technological advancement. Artificial Intelligence -driven research aligns with SDG 4 by improving the quality of education through evidence-based practices and enhanced knowledge production. At the same time, it supports SDG 9 by fostering innovation and strengthening research infrastructure in higher education institutions. The integration of Artificial Intelligence in research not only enhances academic productivity but also prepares educators and students to thrive in a technology-driven global environment, making it a critical component of sustainable development.

From a socio-economic perspective, the adoption of Artificial Intelligence in research addresses key challenges such as limited research capacity, unequal access to resources, and the need for innovation in developing countries like the Philippines. Many higher education institutions face constraints in funding, infrastructure, and access to advanced research tools, which can hinder the production of high-quality research outputs (World Bank, 2022). Artificial Intelligence has the potential to democratize research by providing accessible tools for data analysis, content generation, and collaboration. However, disparities in digital access and skills may widen the gap between well-resourced and under-resourced institutions. Therefore, examining teachers' attitudes and behaviors toward Artificial Intelligence is essential for identifying barriers and opportunities in leveraging technology for socio-economic development.

This study aims to assess the attitude and behavior of College of Teacher Education Arts and Sciences teachers toward innovative research using artificial intelligence and to examine the relationship between these variables and their demographic profiles. It also seeks to determine whether significant relationships and differences exist in terms of attitude and behavior across demographic groups. The findings will serve as a basis for proposing an Innovative Research Using Artificial Intelligence program tailored to educators' needs. By addressing both educational and socio-economic challenges and aligning with SDGs 4 and 9, this research contributes to the advancement of technology-driven education and the promotion of inclusive and sustainable innovation in the academic community.

Statement of the Problem/Research Questions

This study aims to assess the attitude and behavior of College of Teacher Education Arts and Sciences Teachers towards Innovative Research Using Artificial Intelligence and examine the relationship between their demographic profile and these variables.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

Specifically, the study aims to address the following questions:

1. What is the demographic profile of the College of Teacher Education Arts and Sciences Teachers in terms of:

1.1. Gender

1.2. Age

1.3. Educational Qualifications

1.4. Civil Status

1.5. Length of service

1.6 Artificial Intelligence Tools

2. What is the attitude level of College of Teacher Education Arts and Sciences Teachers on Innovative Research Using Artificial Intelligence?

3. What is the behavior level of College of Teacher Education Arts and Sciences Teachers on Innovative Research Using Artificial Intelligence?

4. Is there a significant relationship between the College of Teacher Education Arts and Sciences Teachers' level of attitude and their behavior toward Innovative Research Using Artificial Intelligence ?

5. Is there a significant difference in the level of attitude of College of Teacher Education Arts and Sciences Teachers regarding Innovative Research Using Artificial Intelligence when grouped according to their demographic profile?

6. Is there a significant difference in the level of behavior of College of Teacher Education Arts and Sciences Teachers regarding Innovative Research Using Artificial Intelligence when grouped according to their demographic profile?

7. Based on the findings of the study, what Innovative Research Using Artificial Intelligence program can be proposed?

Hypothesis

Ho1: There is no significant relationship between the level of attitude and the behavior toward Innovative Research Using Artificial Intelligence among College of Teacher Education Arts and Sciences Teachers.

Ho2: There is no significant difference in the level of attitude regarding Innovative Research Using Artificial Intelligence among College of Teacher Education Arts and Sciences Teachers. when grouped according to their demographic profile.

Ho3: There is no significant difference in the behavior toward Innovative Research Using Artificial Intelligence among College of Teacher Education Arts and Sciences Teachers. when grouped according to their demographic profile.

REVIEW OF RELATED LITERATURE

Recent developments in artificial intelligence (AI) have significantly influenced educational research practices, particularly in higher education. According to Zawacki-Richter et al. (2020), AI applications in education have expanded to include data analytics, automated feedback, and research assistance, thereby transforming how educators design and conduct scholarly work. Their study emphasized that teachers' acceptance of AI is largely

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

dependent on their attitudes toward technology and their perceived usefulness of such tools in academic tasks. This aligns with the present study's focus on understanding teachers' attitudes toward innovative research using AI.

In examining teachers' attitudes toward AI, Holmes et al. (2021) highlighted that educators generally exhibit a cautiously optimistic perspective. While many recognize AI's potential to enhance research productivity and innovation, concerns regarding ethical implications, data privacy, and lack of technical competence persist. These findings suggest that demographic factors such as age, educational qualification, and length of service may influence attitudes, which supports the current study's investigation into demographic differences.

Behavioral engagement with AI tools is another critical dimension explored in recent studies. Luckin et al. (2022) found that teachers who demonstrate positive attitudes toward AI are more likely to integrate AI tools into their research practices. Their study confirmed a strong relationship between attitude and behavior, indicating that favorable perceptions often translate into actual usage. This supports the present research question examining the significant relationship between teachers' attitudes and behaviors toward AI-based research.

Furthermore, Chiu (2023) investigated the adoption of AI technologies among educators and found that behavioral intention is strongly influenced by both internal factors (e.g., motivation, confidence) and external factors (e.g., institutional support, access to AI tools). The study revealed that teachers with more exposure to AI technologies tend to exhibit more proactive research behaviors, reinforcing the inclusion of "AI tools" as part of the demographic profile in the current study.

In the context of higher education, Crompton and Burke (2024) emphasized that AI integration in research is becoming increasingly essential for academic competitiveness. Their findings suggest that teachers' behaviors in utilizing AI are shaped by their readiness to adapt to technological innovations. Additionally, differences in behavior were observed across demographic groups, particularly in terms of experience and training, which directly supports the present study's inquiry into differences in behavior based on demographic variables.

Similarly, Ng et al. (2024) explored digital competence and AI literacy among teachers and found that educators with higher levels of AI literacy demonstrate more effective and ethical use of AI in research. Their study highlights that educational qualification and professional development significantly influence both attitude and behavior, further justifying the inclusion of these variables in the current research framework.

Finally, a recent study by UNESCO (2025) underscored the importance of responsible AI integration in education, noting that teachers' attitudes and behaviors are crucial in ensuring ethical and effective use of AI in research. The report emphasized the need for structured programs and interventions to enhance teachers' competencies in AI-driven research, which aligns with the present study's goal of proposing an innovative AI-based research program based on findings.

Overall, the reviewed literature demonstrates that teachers' attitudes and behaviors toward AI are interconnected and influenced by demographic factors such as age, gender, educational background, and professional experience. Moreover, the integration of AI tools in research is shaped by both individual perceptions and institutional support. These studies collectively provide a strong foundation for examining the relationship between attitude and behavior, as well as the differences across demographic profiles, thereby supporting the objectives of the present study.

Theoretical Framework

This study is anchored on the **Theory of Planned Behavior (TPB)** developed by Icek Ajzen 1985, which explains that human behavior is determined by behavioral intention, and this intention is influenced by attitude toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 1991; Ajzen, 2020). In the context of innovative research using Artificial Intelligence (AI), TPB provides a strong theoretical foundation

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

for understanding how College of Teacher Education Arts and Sciences teachers develop attitudes, form intentions, and ultimately engage in AI-related research behaviors. The theory is highly relevant because the integration of AI in academic research requires not only technical competence but also positive attitudes and perceived capability to adopt emerging technologies.

Recent literature supports the applicability of TPB in explaining technology and AI adoption in education. For instance, Tahiru (2021) found that perceived usefulness, ease of use, and attitude significantly influence educators' intention to adopt AI-based systems in teaching and research, emphasizing that attitude remains a strong predictor of behavioral intention. Similarly, Zhang and Aslan (2021) reported that AI literacy and institutional support significantly affect teachers' readiness to integrate AI tools in educational practices, aligning with the TPB construct of perceived behavioral control.

In addition, Chen et al. (2021) highlighted that faculty members' attitudes toward AI-driven research tools significantly influence their willingness to adopt data analytics and machine learning applications in academic work. Likewise, Nguyen and Habok (2022) found that positive attitudes toward digital innovation strongly predict teachers' engagement in research activities supported by artificial intelligence technologies.

Furthermore, Dwivedi et al. (2021) emphasized that behavioral intention to adopt AI technologies is shaped by trust, perceived risk, and facilitating conditions, which extend the TPB framework in the context of advanced digital systems. Similarly, Long and Magerko (2020) stressed that AI literacy is a key determinant of behavioral confidence and usage intention, reinforcing the importance of perceived behavioral control in AI adoption.

More recent studies also confirm these relationships. Kohnke (2023) found that educators' acceptance of AI tools in higher education is significantly influenced by attitude, institutional readiness, and digital competence. In the same way, Holmes et al. (2022) argued that AI integration in education depends heavily on teachers' beliefs about usefulness, ethical concerns, and perceived control over technology use.

Additionally, Nazaretsky et al. (2022) revealed that educators' attitudes toward AI-assisted learning and research strongly affect their willingness to experiment with AI tools, while demographic factors such as age and experience influence their level of confidence and adoption behavior. Similarly, Ulla and Perales (2021) found that teachers with higher exposure to digital tools demonstrate more positive attitudes and stronger behavioral intentions toward research innovation and technology integration.

Lastly, Chiu (2023) confirmed that subjective norms, institutional encouragement, and professional development opportunities significantly influence teachers' adoption of AI technologies in academic research settings, reinforcing TPB's explanation of how social and organizational factors shape behavior.

Collectively, these studies confirm that the Theory of Planned Behavior is highly applicable to understanding teachers' engagement in innovative research using Artificial Intelligence. Across different contexts, attitude consistently emerges as a critical determinant of behavioral intention, while perceived behavioral control such as AI literacy, access to tools, and training strongly influences actual research engagement. Subjective norms, including institutional support and peer influence, also shape teachers' willingness to adopt AI-driven research practices. Furthermore, demographic variables such as age, length of service, and digital exposure indirectly affect behavior by influencing attitudes and perceived capability.

In relation to this study, TPB provides a clear framework for examining how College of Teacher Education Arts and Sciences teachers form attitudes toward AI-based research, how these attitudes translate into actual research behavior, and how demographic factors create differences in adoption levels. This theoretical grounding supports the development of an Innovative Research Using Artificial Intelligence Program, ensuring that interventions address not only behavioral outcomes but also underlying psychological, technological, and institutional factors. Ultimately, this contributes to achieving SDG 4 (Quality Education) and SDG 9 (Industry, Innovation, and Infrastructure) by promoting inclusive, ethical, and sustainable integration of AI in academic research.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

Conceptual Framework

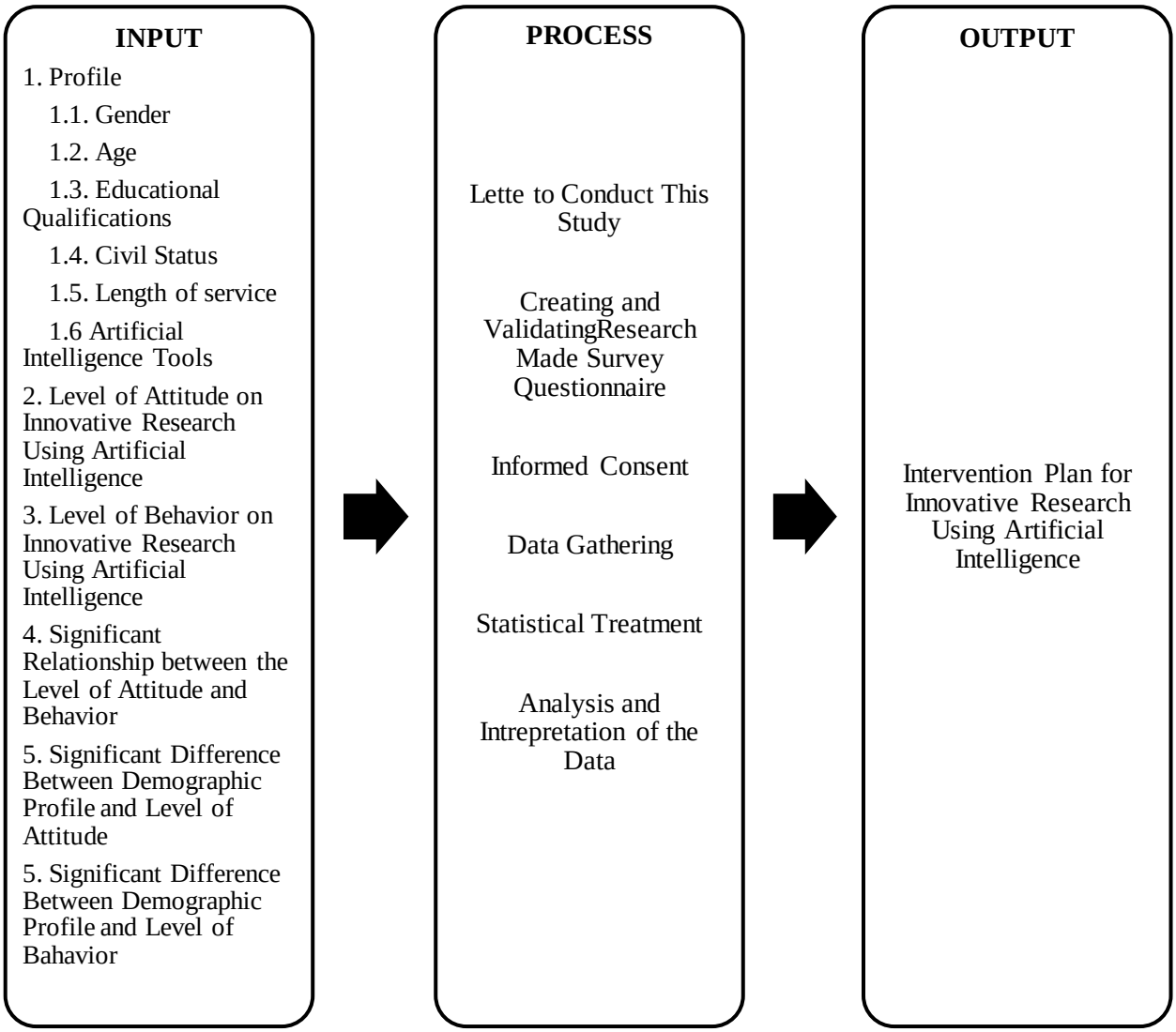

Figure 1: *Conceptual Paradigm*

The conceptual framework grounded in the Input–Process–Output (IPO) model but is now more focused on innovative research using artificial intelligence (AI), making it more aligned with current educational and technological trends. The input component includes the demographic profile of College of Teacher Education, Arts and Sciences teachers specifically gender, age, educational qualifications, civil status, length of service, and use of artificial intelligence tools. These variables are significant because they may influence teachers' readiness, competence, and willingness to adopt AI in research practices. Alongside these are the key variables of the study: the level of attitude and level of behavior toward innovative research using AI. Attitude refers to teachers' perceptions, acceptance, and openness to integrating AI in research, while behavior reflects their actual utilization and engagement with AI tools in conducting innovative research. The framework also considers the potential relationship between attitude and behavior, as well as the significant differences in these variables when respondents are grouped according to their demographic characteristics, thereby allowing for a deeper analysis of factors affecting AI adoption in research.

The process component outlines the systematic procedures undertaken in the conduct of the study. It begins with securing formal permission through a letter to conduct the study, followed by the development and validation of a research-made survey questionnaire to ensure reliability and validity of the instrument. Ethical considerations are addressed through the administration of informed consent. Subsequently, data gathering is conducted among the identified respondents, and the collected data are subjected to appropriate statistical treatment to determine levels, relationships, and differences among variables. The process concludes with the analysis and interpretation of data, ensuring that findings are evidence-based and directly responsive to the

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

research questions. This structured process guarantees methodological rigor and strengthens the credibility of the study's results.

Finally, the output of the framework is the development of an intervention plan for innovative research using artificial intelligence. This output is designed based on the results of the data analysis, particularly the identified needs, gaps, and strengths in teachers' attitudes and behaviors. The intervention plan may include capacity-building programs, training workshops, policy recommendations, or support mechanisms aimed at enhancing teachers' competence and confidence in using AI for research. Overall, the conceptual framework presents a clear and logical progression from identifying influencing variables (input), implementing systematic research procedures (process), to generating practical and research-based solutions (output), thereby contributing to the advancement of AI-driven innovation in educational research.

Significance of the Study

This study is highly significant in advancing the integration of artificial intelligence (AI) in educational research, particularly within the context of teacher education. By assessing the attitudes and behaviors of College of Teacher Education Arts and Sciences teachers toward innovative research using AI, the study provides critical insights into how educators perceive and utilize emerging technologies in scholarly work. As AI continues to reshape knowledge production and academic practices, understanding these human dimensions becomes essential for fostering effective and ethical adoption.

For Educators. This study offers an opportunity to reflect on their readiness, acceptance, and actual use of AI tools in conducting research. By identifying how demographic factors such as age, gender, educational qualifications, length of service, and exposure to AI tools influence their attitudes and behaviors, teachers can better understand their strengths and areas for development. This may encourage more informed, responsible, and innovative engagement with AI technologies in research activities.

For Higher Education Institutions and Administrators. the findings provide an empirical foundation for designing responsive and targeted professional development programs. The proposed Innovative Research Using Artificial Intelligence Program, grounded in the results of this study, can help institutions enhance faculty competencies in AI-driven research, promote digital literacy, and ensure that educators are equipped to meet the demands of modern academic environments.

For Curriculum Developers and Policymakers. This research highlights the importance of integrating AI-related competencies into teacher education curricula. It underscores the need for structured guidelines and ethical frameworks to govern the use of AI in research, ensuring that innovation is balanced with academic integrity. The study's outcomes can inform policies that support sustainable and equitable access to AI technologies in education.

For The Academic Community and Future Researchers. this study contributes to the growing body of literature on AI in education and research practices. It provides a basis for further investigations into technology adoption, innovation behavior, and the evolving role of educators in a digitally driven research landscape.

RESEARCH METHODOLOGY

This chapter presents the method used in this study. Specifically, the following are included: research design, research environment, respondents, research instrument, ethical consideration, the data gathering procedures and statistical treatment.

Research Design

This study employed a **Descriptive-Comparative-Correlational Survey Design**. The descriptive component was used to systematically describe the demographic profile, as well as the levels of attitude and behavior of College of Teacher Education, Arts and Sciences teachers toward innovative research using artificial

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

intelligence. The comparative aspect aimed to determine whether significant differences exist in attitude and behavior when respondents are grouped according to their demographic characteristics such as gender, age, educational qualifications, civil status, length of service, and artificial intelligence tools used. Meanwhile, the correlational component was utilized to examine the relationship between teachers' attitudes and behaviors toward innovative research using artificial intelligence.

This design is appropriate because it allows the researchers to gather quantifiable data, analyze patterns, and establish relationships among variables without manipulating the study environment. It also supports the objectives of identifying differences and associations necessary for developing an evidence-based proposed program

Research Environment

The study was conducted at the **University of Southern Philippines Foundation (USPF)**, located at Salinas Drive, Lahug, Cebu City. USPF is recognized as one of the few higher education institutions in Region VII (Central Visayas) with Level III accreditation, reflecting its commitment to academic excellence and quality assurance.

Specifically, the respondents were drawn from the **College of Teacher Education, Arts and Sciences**. The institution was selected due to its active engagement in research and innovation, making it an appropriate setting for assessing teachers' attitudes and behaviors toward the integration of artificial intelligence in research practices.

Research Participants

The respondents of the study consisted of twenty-two (22) faculty members from the College of Teacher Education, Arts and Sciences of University of Southern Philippines Foundation. This group was deliberately selected to ensure that the participants possess relevant professional backgrounds aligned with the objectives of the research, particularly in examining attitudes and behaviors toward innovative research using artificial intelligence. The relatively small yet focused sample size is appropriate for a descriptive-comparative and correlational survey design, as it allows for an in-depth analysis of specific variables within a defined academic context while maintaining manageability in data collection and interpretation.

To ensure the relevance, validity, and reliability of the data gathered, specific inclusion criteria were established. First, participants were required to be currently employed as faculty members within the College of Teacher Education, Arts and Sciences at USPF. This criterion ensures that all respondents are actively engaged in academic instruction and are part of the institutional environment being studied, thereby providing contextually grounded insights. Second, participants must have teaching and/or research experience, as such experience is essential in forming informed attitudes and behaviors toward innovative research practices. Faculty members with prior engagement in teaching and research are more likely to have encountered or reflected upon the integration of emerging technologies, including artificial intelligence, in academic work.

Furthermore, participants were required to have at least basic knowledge or exposure to artificial intelligence tools. This criterion is crucial because the study focuses on innovative research using artificial intelligence; thus, respondents must possess a minimum level of familiarity to meaningfully evaluate and respond to the survey instruments. Without such exposure, responses may lack depth or accuracy, potentially compromising the integrity of the findings. Lastly, participation in the study was strictly voluntary, ensuring adherence to ethical research standards. Voluntary participation guarantees that respondents provide informed consent and are willing to share their perspectives without coercion, thereby enhancing the authenticity and credibility of the data collected.

Overall, these inclusion criteria were carefully designed to select participants who are not only relevant to the research objectives but also capable of providing informed, experience-based insights. This strengthens the overall rigor of the study by ensuring that the data gathered accurately reflects the attitudes and behaviors of educators who are directly involved in and affected by the integration of artificial intelligence in academic research.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

Research Sampling

This study utilized **purposive sampling**, a non-probability sampling technique in which respondents are selected based on specific characteristics relevant to the research objectives.

Purposive sampling was deemed appropriate because the study required participants who possess knowledge, experience, and exposure to artificial intelligence and research practices. Not all faculty members may have sufficient familiarity with AI tools; therefore, selecting respondents intentionally ensured that the data gathered were relevant, reliable, and aligned with the purpose of assessing attitudes and behaviors toward innovative AI-based research.

Research Instrument

The primary data-gathering instrument employed in this study was a structured questionnaire designed to systematically capture the relevant variables aligned with the research objectives. The questionnaire was divided into three essential parts. Part I focused on the demographic profile of the respondents, which included variables such as age, gender, educational qualifications, and teaching experience. This section aimed to provide a comprehensive background of the participants and served as a basis for analyzing potential differences in attitude and behavior across demographic groups.

Part II of the instrument measured the respondents' attitude toward innovative research using artificial intelligence. This section included a series of statements that reflect perceptions, beliefs, and dispositions regarding the use of AI in research practices. It sought to assess the extent to which educators view AI as beneficial, efficient, or relevant in enhancing research productivity and innovation. Meanwhile, Part III examined the respondents' behavior toward innovative research using artificial intelligence. This component focused on actual practices, such as the frequency of AI tool usage, integration of AI in research activities, and willingness to adopt AI-driven methodologies in academic work. By distinguishing between attitude and behavior, the instrument allows for a more nuanced understanding of whether positive perceptions are translated into actual practice.

A four-point Likert scale without a neutral option was utilized to measure responses across Parts II and III. The scale ranged from 4 (Strongly Agree), 3 (Agree), 2 (Disagree), to 1 (Strongly Disagree). The absence of a neutral midpoint was intentional, as it encourages respondents to make a definitive choice, thereby reducing the tendency toward central tendency bias and increasing the discriminative power of the data. This forced-choice format enhances the clarity of respondents' positions, making it easier to interpret patterns and relationships in their attitudes and behaviors.

Overall, the use of a structured questionnaire with a clearly defined Likert scale ensures consistency in data collection, facilitates quantitative analysis, and strengthens the reliability and validity of the findings. It also enables the researcher to systematically examine the relationship between demographic variables and the respondents' attitudes and behaviors toward the integration of artificial intelligence in innovative research.

Data Gathering Procedures

The study followed a systematic and ethically grounded data-gathering procedure to ensure the accuracy, reliability, and integrity of the research process. Initially, formal permission was secured from the administration of the University of Southern Philippines Foundation, thereby ensuring that the conduct of the study adhered to institutional policies and ethical standards. This step was essential in establishing the legitimacy of the research and in facilitating smooth coordination with the concerned academic units.

Subsequently, the research instrument underwent a rigorous validation process. Experts in the field were consulted to evaluate the content, clarity, and relevance of the questionnaire items in relation to the study's objectives. This step ensured content validity, confirming that the instrument adequately measures the constructs of attitude and behavior toward innovative research using artificial intelligence. Following validation, a pilot test was conducted involving a small group of respondents who shared similar characteristics

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

with the target population but were not included in the actual study. The purpose of this pilot testing was to assess the reliability of the instrument, particularly in determining the internal consistency of the items. Necessary revisions were made based on the results to enhance the overall quality of the questionnaire.

After establishing the validity and reliability of the instrument, the researcher proceeded with the distribution of questionnaires to the selected respondents. Clear instructions were provided to ensure proper understanding of each item and to promote accurate responses. Once completed, the questionnaires were carefully retrieved to ensure a high response rate and completeness of data. Finally, the collected data were encoded, organized, and prepared for statistical analysis. This involved systematic data entry, verification, and classification to facilitate accurate interpretation and to support the objectives of the study. Overall, these procedures reflect a methodical approach that strengthens the credibility and robustness of the research findings.

Validity and Reliability

The instrument underwent content validation by experts in education and research. Suggestions were incorporated to improve clarity and relevance. A pilot test was conducted, and reliability was measured using Cronbach's Alpha, with a value of 0.70 or higher indicating acceptable internal consistency.

Data Analysis

The data gathered in this study were analyzed using both descriptive and inferential statistical techniques to ensure a comprehensive interpretation of results aligned with the research objectives.

Descriptive statistics, specifically frequency and percentage, were used to present and summarize the demographic profile of the respondents, including gender, age, educational qualifications, civil status, length of service, and artificial intelligence tools used. These provided a clear overview of the characteristics of the sample population.

To determine the levels of attitude and behavior toward innovative research using artificial intelligence, the mean and standard deviation were computed. The mean was used to identify the general tendency of responses, while the standard deviation measured the variability or dispersion of responses, indicating the consistency of participants' perceptions.

For the analysis of relationships, Pearson's Product-Moment Correlation Coefficient (Pearson's r) was employed to examine whether a statistically significant relationship exists between teachers' attitude and behavior. This test determined the strength and direction (positive or negative) of the relationship between the two variables.

To determine whether significant differences exist in the levels of attitude and behavior when grouped according to demographic variables, the Kruskal-Wallis H Test was utilized. This non-parametric test was appropriate given the small sample size ($n = 22$) and the ordinal nature of Likert scale data. It allowed the researchers to compare more than two independent groups without assuming normal distribution.

All statistical analyses were conducted at a 0.05 level of significance ($\alpha = 0.05$). A p-value less than 0.05 led to the rejection of the null hypothesis, indicating a statistically significant result. Conversely, a p-value greater than 0.05 resulted in the acceptance of the null hypothesis.

The results of these analyses served as the basis for answering the research questions and for developing a proposed Innovative Research Using Artificial Intelligence Program tailored to the needs of the educators.

Ethical Considerations

The study adhered to ethical standards in research. Permission to conduct the study was formally requested from the administration of USPF. Respondents were informed about the purpose of the study, and their participation was entirely voluntary.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

Confidentiality and anonymity were strictly maintained. No identifying information was disclosed, and data collected were used solely for academic purposes. Participants were also given the right to withdraw from the study at any point without any consequences.

Statistical Treatment of Data

The following statistical tools were used to analyze the data:

Frequency and Percentage. Used to describe the demographic profile of the respondents.

Mean and Standard Deviation. Used to determine the level of attitude and behavior toward innovative research using artificial intelligence.

Pearson's r (Product-Moment Correlation Coefficient). Used to determine the significant relationship between teachers' attitude and behavior.

Kruskal-Wallis Test. Used to determine significant differences in attitude and behavior when respondents are grouped according to their demographic profile. This non-parametric test was appropriate due to the small sample size and ordinal nature of the data.

RESULTS AND DISCUSSION

This chapter presents a thorough study and interpretation of the data gathered to determine the attitude and behavior of College of Teacher Education Arts and Sciences Teachers towards Innovative Research Using Artificial Intelligence and examine the relationship between their demographic profile and these variables.

Table 1 Demographic Profile in Terms of Gender

Gender	Frequency	Percentage
Male	8	36.36%
Female	14	63.64%
Total	22	100.00%

The data presented in Table 1 show the demographic distribution of respondents in terms of gender. Out of the total 22 respondents, 14 or 63.64% are female, while 8 respondents or 36.36% are male. This indicates that females constitute most of the sample, resulting in a gender imbalance that favors female representation.

This distribution suggests that the study population is predominantly female, which is a common trend in educational settings, particularly in teacher education and arts and sciences programs where female participation is often higher. It indicates that women continue to outnumber men in many higher education programs globally, especially in fields related to education, humanities, and social sciences (UNESCO, 2022). This pattern may explain the higher proportion of female respondents in the present study.

From a research perspective, gender composition is an important variable as it may influence attitudes, behaviors, and perceptions related to the focus of the study. However, recent studies suggest that while gender differences may exist in certain areas, the gap in academic participation and engagement has significantly narrowed due to increased access to education and digital resources (OECD, 2023). In many cases, both male and female respondents demonstrate comparable levels of involvement and performance, particularly in structured academic environments.

Furthermore, the higher representation of female respondents may also reflect greater willingness to participate in survey-based research. Studies have shown that female participants are often more responsive to academic surveys and research activities, which can contribute to their higher representation in sample populations (Porter & Whitcomb, 2021). This should be considered when interpreting the results, as it may slightly influence the generalizability of the findings.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

In summary, Table 1 reveals that the respondent group is predominantly female, with nearly two-thirds of the participants identifying as such. While this reflects common enrollment patterns in education-related fields, it is important to consider this distribution when analyzing and interpreting the study's findings, as gender composition may have implications for the perspectives represented in the data.

Table 2 Demographic Profile in Terms of Age

Age	Frequency	Percentage
20-29 years old	7	31.82%
30-39 years old	7	31.82%
40-49 years old	3	13.64%
50-59 years old	2	9.08%
60 years old and above	3	13.64%
Total	22	100.00%

The data presented in Table 2 show the demographic distribution of respondents in terms of age. Out of the total 22 respondents, the largest proportions are found in the 20–29 years old and 30–39 years old age groups, each with 7 respondents or 31.82%. This indicates that a majority (63.64%) of the participants fall within the 20–39 age bracket, representing a relatively young to early middle-aged population. Meanwhile, 3 respondents (13.64%) belong to the 40–49 age group, 2 respondents (9.08%) are aged 50–59, and another 3 respondents (13.64%) are 60 years old and above. These results show a gradual decline in frequency as age increases, although representation is still present across all age categories.

This distribution suggests that the study includes a diverse age range, with a concentration among younger and mid-career individuals. In academic and professional settings, such as teacher education and related fields, individuals in the 20–39 age range often represent early-career professionals who are more actively engaged in institutional activities and research participation. Recent studies indicate that younger and mid-career educators are typically more involved in academic initiatives, including surveys and research, due to their higher exposure to professional development and evolving educational practices (OECD, 2023).

At the same time, the presence of respondents aged 40 and above reflects the inclusion of more experienced individuals who may contribute valuable perspectives based on long-term professional and life experiences. It emphasizes that age diversity enhances the richness of research findings, as different age groups bring varied cognitive frameworks, experiences, and decision-making approaches (Desjardins & Warnke, 2022). Older participants, particularly those aged 50 and above, are often associated with more stable attitudes and well-established perspectives, which can provide balance to the views of younger respondents.

Furthermore, the relatively even distribution between the two largest age groups (20–29 and 30–39) suggests a balanced representation of early adulthood and early middle adulthood. This may indicate that the sample captures both emerging and more established viewpoints within the population. However, the smaller representation of older age groups should still be considered when interpreting the results, as it may slightly limit the generalizability of findings across all age cohorts.

In summary, Table 2 reveals that while the respondent group is predominantly composed of individuals aged 20–39, there is still meaningful representation from older age groups. This distribution supports a comprehensive analysis by incorporating perspectives from both younger and more experienced participants, thereby enhancing the overall validity and depth of the study.

Table 3 Demographic Profile in Terms of Educational Qualifications

Educational Qualifications	Frequency	Percentage
Bachelor's Degree	10	45.45%
Masteral Degree	7	31.82%
Doctoral Degree	5	22.73%
Total	22	100.00%

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

The data presented in Table 3 show the demographic distribution of respondents in terms of educational qualifications. Out of the 22 respondents, the largest group consists of those holding a Bachelor's degree, with 10 individuals or 45.45%. This is followed by respondents with a Masteral degree, comprising 7 individuals or 31.82%, while those with a Doctoral degree account for 5 respondents or 22.73%. These results indicate that although most respondents possess undergraduate qualifications, a substantial proportion (54.55%) have pursued advanced studies at the graduate and doctoral levels.

This distribution suggests that the respondent group is relatively highly educated, with more than half having attained postgraduate qualifications. Such a profile is typical in academic and professional environments, particularly in higher education institutions, where faculty members and practitioners are often encouraged or required to pursue continuing education and advanced degrees. It emphasizes that higher levels of educational attainment are associated with increased engagement in research, critical thinking, and professional development activities (OECD, 2023).

Moreover, the presence of respondents with masteral and doctoral degrees indicates a strong foundation of advanced academic training and expertise within the sample. Literature highlights that individuals with graduate-level education tend to demonstrate higher levels of analytical skills, information literacy, and evidence-based decision-making, which can significantly influence their responses in research studies (Desjardins & Ioannidou, 2021). This may enhance the reliability and depth of the data, as respondents are likely to possess the capacity to critically evaluate and reflect on the issues being studied.

The relatively high proportion of bachelor's degree holders, however, suggests that the sample also includes individuals who may be in the early stages of their professional or academic careers. This combination of undergraduate and graduate-level respondents contributes to a diverse range of perspectives, balancing both emerging and experienced viewpoints. Research indicates that such diversity in educational background can enrich study findings by incorporating different levels of knowledge, experience, and cognitive approaches (UNESCO, 2022).

In addition, the distribution reflects broader global trends in higher education, where there has been a steady increase in postgraduate enrollment as individuals seek to enhance their qualifications and career opportunities. According to recent reports, the demand for advanced degrees continues to grow, particularly in fields related to education, leadership, and research (OECD, 2023).

In summary, Table 3 reveals that the respondents are academically diverse but generally well-qualified, with a significant proportion holding advanced degrees. This high level of educational attainment strengthens the credibility of the study, as respondents are likely equipped with the knowledge and skills necessary to provide informed and meaningful responses.

Table 4 Demographic Profile in Terms of Civil Status

Civil Status	**Frequency**	**Percentage**
Single	12	54.55%
Married	9	40.90%
Separated	0	0.00%
Widowed	1	4.55%
Total	22	100.00%

The data presented in Table 4 show the demographic distribution of respondents in terms of civil status. Out of the 22 respondents, the majority are single, with 12 individuals or 54.55%, followed by married respondents with 9 individuals or 40.90%. Only 1 respondent (4.55%) is widowed, while no respondents identified as separated. This indicates that more than half of the participants are unmarried, although a substantial proportion is already in marital relationships.

This distribution suggests a relatively diverse civil status profile, with representation from both single and married individuals. The predominance of single respondents may reflect the age composition of the sample,

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

where a significant number fall within younger or early middle adulthood stages, which are often associated with delayed marriage due to career development and educational pursuits. It indicates that individuals engaged in higher education and professional careers tend to postpone marriage in favor of academic and occupational advancement (OECD, 2023).

At the same time, the notable proportion of married respondents highlights the presence of individuals who may have additional family responsibilities, which can influence their perspectives, priorities, and decision-making processes. Literature suggests that marital status can shape individuals' social and economic outlooks, as married individuals often demonstrate greater concern for long-term stability, family welfare, and community-related issues (UNESCO, 2022). These differences may contribute to varied viewpoints within the study.

The minimal representation of widowed respondents and the absence of separated individuals indicate that these groups are either less prevalent in the population or less represented in the sample. While their small number may limit comparative analysis, their inclusion still adds to the diversity of perspectives captured in the study.

Furthermore, recent research highlights that civil status, while relevant, is often less influential than other factors such as education, values, and socio-economic conditions in shaping attitudes and behaviors in academic and institutional settings (Desjardins & Ioannidou, 2021). This suggests that while civil status provides useful contextual information, it may not be a primary determinant of responses in the study.

In summary, Table 4 reveals that most respondents are single, with a substantial portion being married, and minimal representation from other categories. This distribution reflects common demographic trends in academic and professional environments and contributes to a range of perspectives shaped by different life stages and social roles.

Table 5 Demographic Profile in Terms of Length of Service

Length of Service	**Frequency**	**Percentage**
1-10 years	10	45.45%
11-20 years	7	31.82%
21 years and above	5	22.73%
Total	22	100.00%

The data presented in Table 5 show the demographic distribution of respondents in terms of length of service. Out of the 22 respondents, the largest group consists of those with 1–10 years of service, accounting for 10 individuals or 45.45%. This is followed by respondents with 11–20 years of service, comprising 7 individuals or 31.82%, while those with 21 years and above represent 5 respondents or 22.73%. These results indicate that nearly half of the participants are relatively early in their professional careers, while a considerable proportion possesses moderate to extensive work experience.

This distribution suggests a balanced mix of early-career, mid-career, and highly experienced professionals within the sample. The dominance of respondents with 1–10 years of service reflects a workforce that is still in the stage of professional growth and skill development. It indicates that early-career professionals are typically more engaged in training, innovation, and research activities, as they actively seek to build competencies and adapt to evolving professional demands (OECD, 2023).

At the same time, the presence of respondents with 11–20 years and over 21 years of service highlights the inclusion of experienced and seasoned professionals who bring institutional knowledge, expertise, and long-term perspectives. Literature suggests that individuals with longer service tend to demonstrate greater stability, deeper understanding of organizational systems, and more refined decision-making abilities (Desjardins & Warnke, 2022). Their insights can provide valuable context and depth to the study's findings.

The gradual distribution across service categories also indicates professional diversity, which enhances the reliability of the study by capturing viewpoints from individuals at different career stages. Early-career

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

respondents may offer perspectives shaped by recent training and exposure to new methodologies, while more experienced respondents may rely on accumulated knowledge and practical experience. Research shows that such diversity contributes to a more comprehensive understanding of attitudes and behaviors within organizations (UNESCO, 2022).

Furthermore, the presence of respondents with over 21 years of service suggests a level of institutional continuity and leadership, as these individuals are often involved in mentoring, policy implementation, and organizational decision-making. Their inclusion ensures that the study reflects both contemporary and traditional perspectives within the professional setting.

In summary, Table 5 reveals that the respondents represent a wide range of professional experience, with a higher concentration in the early-career stage but substantial representation from mid- and late-career individuals. This balanced distribution strengthens the study by incorporating diverse perspectives shaped by varying levels of experience and professional development.

Table 6 Demographic Profile in Terms of Artificial Intelligence Tools

AI Tools	Frequency	Percentage
ChatGPT	19	86.36%
NotebookLM	3	13.64%
Total	22	100.00%

The data presented in Table 6 show the demographic distribution of respondents in terms of artificial intelligence (AI) tools used. Out of the 22 respondents, a large majority of 19 individuals or 86.36% reported using ChatGPT, while only 3 respondents or 13.64% indicated using NotebookLM. This indicates a strong preference for ChatGPT as the primary AI tool among the participants.

This distribution suggests that ChatGPT dominates as the most widely used AI platform within the respondent group. Its high usage may be attributed to its accessibility, user-friendly interface, and versatility in supporting various academic and professional tasks such as writing, research assistance, and content generation. It highlights that conversational AI tools have gained rapid adoption in educational and professional settings due to their ability to provide immediate, context-aware responses and assist users in complex cognitive tasks (Dwivedi et al., 2023).

In contrast, the relatively low usage of NotebookLM suggests that it may either be less familiar to respondents or perceived as more specialized compared to ChatGPT. While NotebookLM is designed for research and document-based interactions, its adoption may still be emerging, particularly among users who are more accustomed to general-purpose AI tools. It indicates that newer or niche AI platforms often experience slower adoption rates due to limited awareness and narrower functionality compared to more established tools (Zawacki-Richter et al., 2022).

The overwhelming preference for ChatGPT also reflects broader global trends in AI usage, where large language models are increasingly integrated into academic workflows. According to recent reports, AI-powered tools are widely used by students and professionals for tasks such as idea generation, summarization, and problem-solving, significantly enhancing productivity and efficiency (OECD, 2023). This trend is especially evident in academic environments, where users seek tools that can support both learning and research activities.

Furthermore, the findings suggest that respondents are actively engaging with AI technologies, indicating a level of digital literacy and openness to innovation. The high adoption rate of AI tools, particularly ChatGPT, may also influence how respondents approach tasks, make decisions, and interact with information. Research shows that familiarity with AI tools can enhance critical thinking and information processing skills, provided that users apply them responsibly and critically (Zawacki-Richter et al., 2022).

In summary, Table 6 reveals that ChatGPT is the dominant AI tool among the respondents, with significantly higher usage compared to NotebookLM. This reflects current trends in AI adoption, where accessible and

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

versatile tools are preferred over more specialized platforms. The findings highlight the growing integration of AI technologies in academic and professional contexts, as well as the importance of digital competence in utilizing these tools effectively.

Table 7 Level of Attitude of College of Teacher Education Arts and Sciences Teachers on Innovative Research Using Artificial Intelligence

Indicators	**Sd**	**Mean**	**Interpretation**
1. I believe Artificial Intelligence (AI) improves the quality of academic research.	0.50	3.41	Strongly Agree
2. I have a positive perception of using AI in conducting innovative research.	0.50	3.41	Strongly Agree
3. I believe AI enhances creativity in research development.	0.50	2.59	Agree
4. I trust AI-assisted research outputs when properly validated.	0.48	2.32	Disagree
5. I believe AI promotes faster and more efficient research processes.	0.51	2.55	Agree
6. I am open to integrating AI tools in academic research.	0.50	3.59	Strongly Agree
7. I believe AI contributes to innovative research ideas.	0.67	2.59	Agree
8. I think AI improves data analysis in research.	0.64	2.86	Agree
9. I believe AI supports better decision-making in research studies.	0.50	2.41	Disagree
10. I feel that AI is essential in modern research practices.	0.63	2.73	Agree
11. I believe AI encourages interdisciplinary research innovation.	0.50	2.41	Disagree
12. I am interested in learning more about AI in research.	0.46	3.73	Strongly Agree
13. I believe AI improves research accuracy and reliability.	0.49	2.64	Agree
14. I believe AI supports academic advancement in research.	0.61	3.23	Agree
15. I see AI as a valuable tool for innovative academic research.	0.46	3.27	Strongly Agree
Average Mean	**2.92**		**Agree**

Scale: *3.26 - 4.00 "Strongly Agree"; 2.51 – 3.25 "Agree"; 1.76 – 2.50 "Disagree"; 1.00 – 1.75 "Strongly Disagree"*

The data presented in Table 7 show the level of attitude of College of Teacher Education Arts and Sciences teachers toward innovative research using Artificial Intelligence (AI). The overall average mean of 2.92, interpreted as Agree, indicates that respondents generally hold a positive attitude toward the integration of AI in research processes. This suggests that while there is strong openness and enthusiasm toward AI adoption, certain reservations still exist regarding its reliability, decision-making role, and interdisciplinary application.

Among the indicators, the highest mean scores are observed in "I am interested in learning more about AI in research" (M = 3.73, SD = 0.46), "I am open to integrating AI tools in academic research" (M = 3.59, SD = 0.50), and "I believe Artificial Intelligence (AI) improves the quality of academic research" (M = 3.41, SD = 0.50), all interpreted as Strongly Agree. These results indicate a strong willingness among teachers to engage with AI technologies and a recognition of its potential to enhance research quality and academic development. Recent studies from 2021 to 2025 emphasize that educators are increasingly receptive to AI tools due to their ability to support productivity, improve research efficiency, and facilitate innovation in academic work (Zawacki-Richter et al., 2022; Dwivedi et al., 2023).

In addition, respondents agree that AI enhances creativity in research development (M = 2.59), promotes faster and more efficient research processes (M = 2.55), improves data analysis (M = 2.86), and supports academic advancement (M = 3.23). These findings suggest that teachers recognize AI as a valuable tool for improving specific research functions, particularly in data handling and productivity. AI technologies have become essential tools in academic research due to their capacity to automate complex tasks and enhance analytical precision (OECD, 2023).

However, some indicators received lower mean scores and were interpreted as Disagree, particularly "I trust AI-assisted research outputs when properly validated" (M = 2.32), "I believe AI supports better decision-

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

making in research studies" (M = 2.41), and "I believe AI encourages interdisciplinary research innovation" (M = 2.41). These results indicate a level of skepticism regarding the reliability and decision-making capacity of AI systems. This aligns with recent research highlighting concerns about trust, transparency, and interpretability in AI-generated outputs, especially in academic and professional contexts where accuracy and accountability are critical (Floridi et al., 2021).

The mixed results suggest that while teachers are highly open to using AI and recognize its benefits, they remain cautious about fully depending on it for critical research functions. This reflects the concept of human-in-the-loop AI adoption, where users prefer AI as a supportive tool rather than a replacement for human judgment. Studies indicate that educators tend to adopt AI more readily when it complements rather than replaces human expertise, particularly in research evaluation and decision-making processes (Zawacki-Richter et al., 2022).

Overall, the findings reveal a generally positive but cautiously optimistic attitude toward AI in research among teachers. The strong agreement in openness and learning readiness indicates high potential for AI integration in academic settings, while concerns about trust and decision-making highlight the need for training, ethical guidelines, and capacity-building to ensure responsible and effective use of AI tools.

Table 8 Level of Behavior of College of Teacher Education Arts and Sciences Teachers on Innovative Research Using Artificial Intelligence

Indicators	**Sd**	**Mean**	**Interpretation**
1. I use AI tools in conducting academic research activities.	0.63	2.73	Agree
2. I apply AI to generate research ideas.	0.68	3.09	Agree
3. I use AI for data collection and analysis in research.	0.43	2.91	Agree
4. I utilize AI tools for literature review.	0.39	2.82	Agree
5. I use AI to improve research writing and organization.	0.48	3.32	Strongly Agree
6. I verify AI-generated information before using it in research.	0.53	2.77	Agree
7. I cite AI-assisted outputs properly in my research work.	0.5	2.59	Agree
8. I integrate AI tools in research presentations.	0.51	3.50	Strongly Agree
9. I explore new AI tools for research purposes.	0.61	2.77	Agree
10. I use AI responsibly in academic research activities.	0.51	2.50	Disagree
11. I rely on AI as a support tool, not a replacement for critical thinking.	0.71	2.86	Agree
12. I use AI to summarize academic materials.	0.68	2.91	Agree
13. I follow ethical guidelines when using AI in research.	0.47	2.86	Agree
14. I use AI to enhance research productivity.	0.53	3.23	Agree
15. I incorporate AI into my research workflow regularly.	0.46	3.27	Strongly Agree
Average Mean	**2.94**		**Agree**

Scale: *3.26 - 4.00 "Strongly Agree"; 2.51 – 3.25 "Agree"; 1.76 – 2.50 "Disagree"; 1.00 – 1.75 "Strongly Disagree"*

The data presented in Table 8 show the level of behavior of College of Teacher Education Arts and Sciences teachers toward innovative research using Artificial Intelligence (AI). The overall average mean of 2.94, interpreted as Agree, indicates that respondents generally demonstrate active engagement in using AI tools in their research practices. This suggests that AI is not only positively perceived but is also being integrated into actual research workflows, although the level of application varies across specific research activities.

Among the indicators, the highest mean scores are observed in "I integrate AI tools in research presentations" (M = 3.50, SD = 0.51), "I incorporate AI into my research workflow regularly" (M = 3.27, SD = 0.46), and "I use AI to improve research writing and organization" (M = 3.32, SD = 0.48), all interpreted as Strongly Agree. These findings indicate that teachers are highly engaged in using AI for practical and output-oriented research tasks such as presentation, writing, and workflow integration. Recent literature highlights that AI tools

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

significantly enhance academic productivity by streamlining writing processes, improving organization, and supporting the efficient presentation of research outputs (Dwivedi et al., 2023; OECD, 2023).

In addition, respondents agree that they use AI for generating research ideas (M = 3.09), data collection and analysis (M = 2.91), literature review (M = 2.82), summarizing academic materials (M = 2.91), and enhancing research productivity (M = 3.23). These results suggest that AI is widely used across multiple stages of the research process, from conceptualization to analysis and reporting. This aligns with recent studies indicating that AI tools are increasingly embedded in academic workflows, supporting researchers in both cognitive and technical aspects of research development (Zawacki-Richter et al., 2022).

Furthermore, respondents also reported verifying AI-generated information (M = 2.77) and following ethical guidelines (M = 2.86), indicating awareness of the importance of responsible AI use and academic integrity. However, the item "I use AI responsibly in academic research activities" received a lower mean (M = 2.50) and was interpreted as Disagree, suggesting some inconsistency or uncertainty in how responsibility is operationalized in practice. This may indicate that while respondents are using AI extensively, there may still be gaps in fully understanding or consistently applying responsible AI practices.

The results also show that teachers generally do not view AI as a replacement for human judgment, as reflected in the agreement that they rely on AI as a support tool rather than a substitute for critical thinking (M = 2.86). This aligns with the concept of human-centered AI use, where technology is integrated to enhance rather than replace human cognitive processes. Recent studies emphasize that effective AI adoption in education requires maintaining a balance between automation and critical human oversight to ensure quality and ethical standards in research (Floridi et al., 2021).

Overall, Table 8 reveals that teachers demonstrate a generally positive and active behavioral engagement with AI in research. They frequently use AI across various research tasks, particularly in writing, presentation, and workflow management, while also showing awareness of ethical considerations. However, the slight inconsistency in responsible use highlights the need for continuous training and institutional guidance to strengthen ethical and effective AI integration in academic research.

Table 9 Test Of Significant Relationship Between the College of Teacher Education Arts and Sciences Teachers' Level of Attitude and Their Behavior Toward Innovative Research Using Artificial Intelligence

Test Variables	**p-value**	**Decision**
Level of attitude vs Level of Behavior	0.60	Retain H0

***Note**: If $p \leq 0.05$, with a significant relationship*

The data presented in Table 9 show the test of significant relationship between the level of attitude and the level of behavior of College of Teacher Education Arts and Sciences teachers toward innovative research using Artificial Intelligence (AI). The computed p-value of 0.60 is greater than the 0.05 level of significance; therefore, the null hypothesis (H_0) is retained, indicating that there is no statistically significant relationship between teachers' attitude and their actual behavior in using AI for innovative research.

This result implies that although teachers generally demonstrate positive attitudes toward AI and actively use AI tools in research activities (as shown in the previous tables), these attitudes do not necessarily translate into a statistically significant direct relationship with their behavior. In other words, favorable perceptions of AI are not strongly predictive of actual usage patterns in this study. This suggests a possible gap between cognitive disposition (attitude) and practical application (behavior), which may be influenced by other intervening factors such as access to resources, institutional support, training, workload, or ethical concerns.

These findings are consistent with recent literature indicating that the attitude–behavior gap is a common phenomenon in technology adoption studies. Research from 2021 to 2025 suggests that positive attitudes toward artificial intelligence or educational technologies do not always guarantee consistent or sustained usage behavior, particularly in academic environments where external constraints may affect implementation

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

(Dwivedi et al., 2023). Similarly, the Theory of Planned Behavior emphasizes that behavior is not determined by attitude alone but is also influenced by subjective norms and perceived behavioral control (Ajzen, 2020).

Moreover, studies on AI integration in education highlight that while educators may express enthusiasm and openness toward AI tools, actual usage depends heavily on factors such as digital competence, institutional policies, and availability of training (Zawacki-Richter et al., 2022). This may explain why a positive attitude among respondents does not necessarily result in a statistically significant relationship with their behavior.

The absence of a significant relationship also suggests that AI adoption among teachers may still be in a transitional stage, where usage is emerging but not yet fully aligned with internal attitudes. Recent research emphasizes that successful integration of AI in education requires not only positive perceptions but also structured support systems, continuous professional development, and clear ethical guidelines to bridge the gap between intention and practice (OECD, 2023).

In summary, Table 9 reveals that there is no significant relationship between teachers' attitudes and their behaviors toward AI-based innovative research. While both variables are individually positive, their lack of statistical association highlights the complexity of AI adoption and suggests the need for institutional interventions to strengthen the alignment between positive attitudes and actual behavioral implementation.

Table 10 Test Of Significant Difference Between the College of Teacher Education Arts and Sciences Teachers' Level of Attitude and Demographic Profiles

Test Variables	**p-value**	**Decision**
Level of attitude vs Gender	0.37	Retain H0
Level of attitude vs Age	0.06	Retain H0
Level of attitude vs Educational Qualifications	0.57	Retain H0
Level of attitude vs Civil Status	0.33	Retain H0
Level of attitude vs Length of Service	0.91	Retain H0
Level of attitude vs Artificial Intelligence Tools	0.56	Retain H0

***Note**: If $p \leq 0.05$, with a significant difference*

The data presented in Table 10 show the test of significant difference between the level of attitude of College of Teacher Education Arts and Sciences teachers toward innovative research using Artificial Intelligence (AI) and their demographic profiles, including gender, age, educational qualifications, civil status, length of service, and AI tools used. The results reveal that all computed p-values are greater than the 0.05 level of significance: gender ($p = 0.37$), age ($p = 0.06$), educational qualifications ($p = 0.57$), civil status ($p = 0.33$), length of service ($p = 0.91$), and AI tools ($p = 0.56$). Therefore, the null hypothesis (H_0) is retained for all variables, indicating that there are no statistically significant differences in teachers' attitudes when grouped according to their demographic characteristics.

This finding implies that the teachers' attitudes toward the use of Artificial Intelligence in innovative research are relatively consistent across different demographic groups. In other words, factors such as gender, age, level of education, marital status, length of professional experience, and type of AI tool used do not significantly influence how teachers perceive AI in research contexts. This suggests a shared or common positive orientation toward AI integration among respondents, regardless of their personal or professional background.

The result aligns with recent studies in educational technology and AI adoption, which indicate that demographic variables are becoming less influential in shaping attitudes toward digital innovation, particularly in environments where exposure to technology is widespread and institutionalized. Research from 2021 to 2025 suggests that in higher education settings, attitudes toward AI are more strongly shaped by factors such as perceived usefulness, ease of use, and institutional support rather than demographic characteristics (Dwivedi et al., 2023; Zawacki-Richter et al., 2022).

Moreover, the lack of significant differences across gender and age suggests that both younger and older

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

teachers, as well as male and female respondents, share similar levels of openness and acceptance toward AI technologies. This reflects the increasing normalization of AI tools in academic environments, where access and exposure are relatively uniform across user groups. Similarly, the non-significant results for educational attainment and length of service indicate that both early-career and experienced educators demonstrate comparable attitudes toward AI integration, which may be attributed to institutional training, professional development programs, or shared academic culture.

The absence of significant differences based on AI tools used also suggests that familiarity with specific platforms such as ChatGPT or NotebookLM does not substantially alter overall attitudes toward AI. This may imply that attitudes are shaped more by general perceptions of AI rather than by the specific tools being utilized.

In summary, Table 10 reveals that there are no significant differences in teachers' attitudes toward AI-based innovative research when grouped according to demographic profiles. This indicates a generally uniform positive disposition toward AI integration across the College of Teacher Education Arts and Sciences, highlighting the widespread acceptance of AI as an academic and research tool regardless of demographic variation.

Table 11 Test Of Significant Difference Between the College of Teacher Education Arts and Sciences Teachers' Level of Behavior and Demographic Profiles

Test Variables	**p-value**	**Decision**
Level of behavior vs Gender	0.30	Retain H0
Level of behavior vs Age	0.47	Retain H0
Level of behavior vs Educational Qualifications	0.52	Retain H0
Level of behavior vs Civil Status	0.63	Retain H0
Level of behavior vs Length of Service	0.52	Retain H0
Level of behavior vs Artificial Intelligence Tools	0.77	Retain H0

***Note**: If $p \leq 0.05$, with a significant difference*

The data presented in Table 11 show the test of significant difference between the level of behavior of College of Teacher Education Arts and Sciences teachers toward innovative research using Artificial Intelligence (AI) and their demographic profiles, including gender, age, educational qualifications, civil status, length of service, and AI tools used. The results reveal that all computed p-values are greater than the 0.05 level of significance: gender ($p = 0.30$), age ($p = 0.47$), educational qualifications ($p = 0.52$), civil status ($p = 0.63$), length of service ($p = 0.52$), and AI tools used ($p = 0.77$). Hence, the null hypothesis (H_0) is retained for all variables, indicating that there are no statistically significant differences in teachers' behavioral practices toward AI when grouped according to their demographic characteristics.

This finding implies that the actual use of Artificial Intelligence in research activities among teachers is consistent across different demographic profiles. In other words, demographic factors such as gender, age, academic qualifications, marital status, professional experience, and type of AI tools do not significantly influence how teachers engage in AI-related research practices. This suggests a relatively uniform level of behavioral adoption of AI technologies across the respondents.

The results are consistent with recent literature in educational technology, which indicates that demographic variables are becoming less predictive of technology usage behavior in academic environments. Studies from 2021 to 2025 highlight that behavioral adoption of AI tools is more strongly influenced by factors such as perceived usefulness, institutional support, accessibility of technology, and digital competence rather than demographic characteristics (Dwivedi et al., 2023; Zawacki-Richter et al., 2022).

Moreover, the lack of significant differences across gender and age suggests that both younger and older educators, as well as male and female respondents, demonstrate similar levels of AI usage in research activities. This reflects the increasing normalization and integration of AI tools in academic workflows, where exposure

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

and access are relatively uniform across users. Similarly, the non-significant results for educational qualifications and length of service indicate that both early-career and experienced teachers engage in AI usage at comparable levels, possibly due to shared institutional training or professional development opportunities.

The absence of significant differences based on AI tools used further suggests that whether teachers primarily use ChatGPT, NotebookLM, or other platforms does not significantly affect the overall level of AI-related research behavior. This may imply that once users are exposed to AI technologies, their behavioral engagement becomes relatively consistent regardless of the specific tool.

In summary, Table 11 reveals that there are no significant differences in the level of AI-related research behavior among teachers when grouped according to demographic profiles. This indicates a generally uniform pattern of AI adoption and use within the College of Teacher Education Arts and Sciences, reflecting the widespread integration of AI tools in academic research practices across different user groups.

INNOVATIVE RESEARCH USING ARTIFICIAL INTELLIGENCE PROGRAM

Introduction

The rapid integration of Artificial Intelligence (AI) in academic research has transformed how educators conceptualize, design, analyze, and disseminate scholarly work. Based on the findings of this study, College of Teacher Education Arts and Sciences teachers demonstrate generally positive attitudes and active engagement in AI-assisted research practices. However, despite this favorable disposition, a noticeable gap exists between attitude and actual behavioral application, particularly in areas such as responsible AI use, trust in AI outputs, and interdisciplinary innovation.

In response, this proposed program, AI-Enhanced Research Capacity Building Program for Teacher Education Faculty aims to strengthen teachers' competencies, ethical awareness, and consistent application of AI tools in research. The program is designed to bridge the gap between positive perception and effective practice, ensuring that AI integration is not only widespread but also responsible, critical, and research driven.

Objectives of the Program

The program aims to:

1. Enhance teachers' AI literacy and research competence in academic inquiry.
2. Strengthen the alignment between attitude and actual AI usage behavior in research.
3. Promote responsible, ethical, and critical use of AI tools in academic work.
4. Diversify the use of AI tools beyond ChatGPT to include other research-oriented platforms.
5. Improve teachers' ability to integrate AI in all phases of research (conceptualization, data collection, analysis, writing, and dissemination).
6. Develop institutional support mechanisms for sustainable AI-assisted research innovation.

Table 12 Innovative Research Using Artificial Intelligence Program

Key Area	Activities	Persons Involved	Expected Outcomes
AI Literacy and Foundations	Orientation on AI in academic research; Overview of AI tools (ChatGPT, NotebookLM, etc.)	Faculty members, IT experts, AI trainers	Improved understanding of AI concepts and tools in research
AI for Research Design and Idea Generation	Workshops on AI-assisted topic selection, problem formulation, and conceptual framework development	Research coordinators, senior faculty, AI specialists	Enhanced ability to generate innovative and relevant research topics using AI
AI in Data Collection and Analysis	Hands-on training in AI-assisted data coding, statistical interpretation, and qualitative analysis tools	Statistics experts, research consultants	Improved research accuracy and efficiency in data analysis

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

AI in Academic Writing and Publication	Training on AI-assisted writing, paraphrasing, referencing, and journal preparation	Language experts, journal editors, faculty researchers	Higher-quality research outputs and improved publication readiness
Ethical and Responsible AI Use in Research	Seminar on academic integrity, plagiarism prevention, AI bias, and ethical guidelines	Ethics committee, institutional administrators	Strengthened ethical awareness and responsible AI usage
Advanced AI Tools Exploration	Exposure to alternative AI tools (beyond ChatGPT), including research-specific platforms	ICT office, external AI trainers	Increased diversity and optimization of AI tools in research
AI Integration in Research Workflow	Development of standardized AI-assisted research workflow model	Research office, faculty teams	Institutionalized AI-driven research practices
Monitoring and Evaluation	Assessment of AI usage effectiveness and research output quality	Research evaluation committee	Continuous improvement of AI integration in research practices

The table presents a comprehensive program framework designed to integrate Artificial Intelligence (AI) into academic research practices, particularly among faculty members. It outlines several key areas of development, each supported by specific activities, identified persons involved, and expected outcomes, reflecting a structured approach to building AI capacity in research. The first key area, AI Literacy and Foundations, focuses on orienting faculty members to the basic concepts of AI and introducing commonly used tools such as ChatGPT and NotebookLM. Through the involvement of faculty members, IT experts, and AI trainers, this stage aims to establish a foundational understanding of AI, which is essential for meaningful engagement with more advanced applications. As a result, participants are expected to develop improved comprehension of AI concepts and tools, enabling them to confidently incorporate these technologies into their research work.

Building on this foundation, the AI for Research Design and Idea Generation component emphasizes the use of AI in the early stages of research development. With the guidance of research coordinators, senior faculty, and AI specialists, workshops are designed to assist participants in generating research topics, formulating problems, and developing conceptual frameworks. This stage is expected to significantly enhance faculty members' ability to produce innovative, relevant, and well-structured research ideas, thereby improving the overall quality and originality of academic studies.

The framework also highlights AI in Data Collection and Analysis, which provides hands-on training in using AI tools for coding data, interpreting statistical results, and analyzing qualitative information. With statistics experts and research consultants leading the sessions, this component aims to improve both the accuracy and efficiency of data analysis processes. Consequently, faculty members are expected to produce more reliable and methodologically sound research outputs, reducing human error and increasing analytical precision.

In addition, AI in Academic Writing and Publication focuses on strengthening participants' scholarly writing skills through AI-assisted paraphrasing, referencing, and journal manuscript preparation. Language experts, journal editors, and experienced faculty researchers are involved in this training to ensure academic standards are maintained. The expected outcome is the production of higher-quality research outputs that are more aligned with publication requirements, ultimately increasing the likelihood of successful journal publication.

The Ethical and Responsible AI Use in Research component addresses the critical need for academic integrity in the age of AI. Through seminars led by ethics committees and institutional administrators, faculty members are guided on issues such as plagiarism prevention, AI bias, and ethical standards in research. This ensures that participants develop a strong sense of responsibility and ethical awareness when using AI tools, thereby promoting integrity and credibility in their scholarly work.

Furthermore, Advanced AI Tools Exploration expands faculty exposure to a wider range of AI platforms beyond commonly used tools like ChatGPT. With support from the ICT office and external AI trainers, participants are introduced to specialized research tools that can further optimize their academic work. This

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

diversification is expected to enhance flexibility and efficiency in selecting appropriate AI tools for specific research needs.

The AI Integration in Research Workflow component aims to institutionalize AI use by developing a standardized, AI-assisted research workflow model. Led by the research office and faculty teams, this initiative ensures that AI is systematically embedded into research processes rather than used in an ad hoc manner. The expected outcome is the establishment of consistent and sustainable AI-driven research practices within the institution.

Finally, Monitoring and Evaluation serves as a continuous improvement mechanism, where a research evaluation committee assesses the effectiveness of AI integration and the quality of research outputs. This ongoing evaluation ensures that the program remains responsive, effective, and aligned with institutional goals, ultimately supporting the continuous enhancement of AI-assisted research practices across the academic community.

CONCLUSION AND RECOMMENDATIONS

The following conclusions were attached because of the findings:

Based on the findings of the study, it can be concluded that the College of Teacher Education Arts and Sciences teachers demonstrate a generally positive disposition and active engagement toward Innovative Research Using Artificial Intelligence (AI), although this does not translate into a statistically significant relationship between attitude and behavior. Specifically, Table 7 shows that the overall level of attitude of respondents toward AI in research is Agree (M = 2.92), indicating a favorable perception of AI as a tool that enhances research quality, efficiency, and academic development. Similarly, Table 8 reveals that the level of behavior is also Agree (M = 2.94), suggesting that teachers are not only receptive to AI but are also actively using it in various stages of research, including writing, idea generation, analysis, and presentation.

However, despite these positive results, Table 9 shows that there is no significant relationship between attitude and behavior ($p = 0.60$). This means that although teachers generally have favorable attitudes toward AI, such attitudes do not necessarily predict or strongly influence their actual use of AI in research practices. This indicates a possible attitude, behavior gap, suggesting that other factors such as institutional support, training opportunities, access to resources, ethical concerns, and digital competence may play a more critical role in determining actual AI usage.

Furthermore, Tables 10 and 11 reveal that there are no significant differences in both attitude and behavior when respondents are grouped according to demographic profiles such as gender, age, educational qualifications, civil status, length of service, and type of AI tools used (all p-values > 0.05). This indicates that the respondents' positive orientation and engagement toward AI in research are relatively uniform across different demographic categories. In other words, demographic variables do not significantly influence how teachers perceive or use AI, suggesting that AI adoption is broadly consistent across the faculty population.

In relation to the stated problem of the study, it can therefore be concluded that: (1) teachers have a positive attitude toward AI in innovative research; (2) teachers demonstrate active behavioral use of AI tools in research activities; (3) there is no significant relationship between attitude and behavior; and (4) there are no significant differences in attitude and behavior when grouped according to demographic profiles.

Overall, the study concludes that while Artificial Intelligence is already widely accepted and utilized among College of Teacher Education Arts and Sciences teachers, its integration into research practices remains more behavioral than attitudinally driven. The absence of a significant attitude, behavior relationship highlights the need for structured interventions such as training programs, ethical guidelines, and institutional support systems to strengthen consistent and responsible AI integration. This supports the proposed AI-Enhanced Research Capacity Building Program, which aims to bridge the gap between positive perception and sustained, effective, and ethical use of AI in academic research.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VII July 2026

Considering the findings and conclusions of the study, several key recommendations are proposed to strengthen the effective, ethical, and sustainable integration of Artificial Intelligence (AI) in academic research within the College of Teacher Education Arts and Sciences and similar higher education contexts.

For Educators. Educators are encouraged to further strengthen their practical competence in using AI tools by engaging in continuous professional development and hands-on training focused on advanced AI applications in research. Although the study shows that teachers already demonstrate positive attitudes and active usage of AI, the presence of an attitude–behavior gap suggests the need for more consistent and purposeful application of AI in all phases of research. Educators should also critically evaluate AI-generated outputs to ensure accuracy, reliability, and academic integrity, particularly in areas where lower trust was observed, such as decision-making and interdisciplinary innovation. Moreover, they are encouraged to diversify their use of AI tools beyond commonly used platforms like ChatGPT by exploring specialized research-oriented applications to enhance the depth and quality of scholarly work. Most importantly, educators should uphold ethical standards by consistently practicing responsible AI use, proper citation, and transparency in research processes.

For Higher Education Institutions and Administrators. Higher education institutions and administrators are strongly encouraged to establish structured support systems that will promote effective AI integration in research practices. Since the study revealed no significant relationship between attitude and behavior, institutions should focus on reducing barriers such as limited training, lack of resources, and inconsistent guidelines. This may include implementing institutional AI training programs, providing access to premium and diverse AI tools, and integrating AI literacy into faculty development initiatives. Administrators should also develop clear policies and ethical frameworks that govern the use of AI in academic research to ensure responsible and standardized practices across departments. Furthermore, the institutionalization of programs such as the proposed AI-Enhanced Research Capacity Building Program is recommended to bridge the gap between positive perception and actual research application.

For Curriculum Developers and Policymakers. Curriculum developers and policymakers are encouraged to integrate AI literacy, digital research competence, and ethical AI use into higher education curricula, particularly in teacher education programs. Given that demographic factors were found not to significantly influence attitudes and behaviors, AI education should be designed as a universal competency rather than demographic-specific training. Policies should emphasize the development of AI-supported research skills, including data analysis, academic writing, and research design using AI tools. In addition, curriculum frameworks should promote critical thinking in AI usage, ensuring that students and educators understand both the capabilities and limitations of AI systems. Policymakers are also encouraged to support funding initiatives and national guidelines that promote responsible and innovative AI integration in academic research.

For the Academic Community and Future Researchers. The academic community and future researchers are encouraged to further explore the complex relationship between AI attitude, behavior, and actual research performance, as this study found no significant relationship between attitude and behavior. Future studies may investigate additional variables such as digital literacy, institutional support, perceived usefulness, technological readiness, and ethical awareness to better explain AI adoption behavior. Researchers are also encouraged to conduct longitudinal and mixed-method studies to gain deeper insights into how AI integration evolves over time in academic settings. Moreover, future research may extend the scope beyond faculty members to include students and administrative personnel to develop a more comprehensive understanding of AI adoption in higher education. Comparative studies across institutions and disciplines are also recommended to identify best practices and contextual differences in AI integration.

Overall, the recommendations emphasize that while AI is already widely accepted and actively used in academic research, its effective integration requires stronger institutional support, continuous capacity building, ethical safeguards, and curriculum enhancement. Addressing the gap between positive attitude and actual behavior will ensure that AI becomes not only a perceived innovation but a fully embedded, responsible, and transformative tool in higher education research practices.

REFERENCES

1. Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211.
2. Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. Human Behavior and Emerging Technologies, 2(4), 314–324.
3. Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. Human Behavior and Emerging Technologies, 2(4), 314–324. https://doi.org/10.1002/hbe2.195
4. Chatterjee, S., & Bhattacharjee, K. K. (2020). Adoption of artificial intelligence in higher education: A quantitative analysis. Education and Information Technologies, 25, 3449–3468. https://doi.org/10.1007/s10639-020-10159-7
5. Chen, L., Chen, P., & Lin, Z. (2021). Artificial intelligence in education: A review. IEEE Access, 9, 100–120.
6. Chiu, T. K. F. (2023). The impact of AI in education on teachers' professional practice. Computers & Education: Artificial Intelligence, 4, 100–115.
7. Chiu, T. K. F. (2023). The impact of artificial intelligence on teachers' professional development and research practices. Educational Technology & Society, 26(2), 45–58. https://doi.org/10.30191/ETS.202304_26(2).0004
8. Crompton, H., & Burke, D. (2024). Artificial intelligence in higher education: The role of faculty in research innovation. Computers & Education, 195, 104728. https://doi.org/10.1016/j.compedu.2023.104728
9. Desjardins, R., & Ioannidou, A. (2021). The political economy of adult learning systems. European Journal of Education, 56(2), 1–15. https://doi.org/10.1111/ejed.12449
10. Desjardins, R., & Warnke, A. J. (2022). Ageing and skills: The role of experience in professional development. International Journal of Lifelong Education, 41(2), 1–18. https://doi.org/10.1080/02601370.2021.1960925
11. Dwivedi, Y. K., et al. (2021). Artificial intelligence (AI): Multidisciplinary perspectives on emerging challenges. International Journal of Information Management, 57, 101–120.
12. Dwivedi, Y. K., Kshetri, N., Hughes, L., et al. (2023). So what if ChatGPT wrote it? Multidisciplinary perspectives on opportunities, challenges, and implications of generative conversational AI. International Journal of Information Management, 71, 102642. https://doi.org/10.1016/j.ijinfomgt.2023.102642
13. Dwivedi, Y. K., Kshetri, N., Hughes, L., et al. (2023). So what if ChatGPT wrote it? Multidisciplinary perspectives on generative AI. International Journal of Information Management, 71, 102642. https://doi.org/10.1016/j.ijinfomgt.2023.102642
14. Floridi, L., Cowls, J., Beltrametti, M., et al. (2021). AI4People—An ethical framework for a good AI society. Minds and Machines, 31, 689–707. https://doi.org/10.1007/s11023-021-09539-2
15. Holmes, W., Bialik, M., & Fadel, C. (2021). Artificial intelligence in education: Promises and implications for teaching and learning. Center for Curriculum Redesign.
16. Holmes, W., Bialik, M., & Fadel, C. (2022). Artificial intelligence in education: Promises and implications for teaching and learning. Center for Curriculum Redesign.
17. Kohnke, L. (2023). Teachers' acceptance of artificial intelligence in higher education. Education and Information Technologies, 28, 1–18.
18. Long, D., & Magerko, B. (2020). What is AI literacy? Proceedings of the 2020 CHI Conference, 1–16.
19. Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2022). Intelligence unleashed: An argument for AI in education research. British Journal of Educational Technology, 53(1), 5–22. https://doi.org/10.1111/bjet.13140
20. Nazaretsky, T., et al. (2022). Teachers' attitudes toward AI-based educational tools. Computers in Human Behavior, 128, 107–135.
21. Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2024). Conceptualizing AI literacy: Implications for teacher education and research. Computers and Education: Artificial Intelligence, 5, 100150. https://doi.org/10.1016/j.caeai.2023.100150
22. Nguyen, T., & Habok, A. (2022). Digital innovation and teachers' research engagement. Journal of Educational Technology Systems, 51(2), 1–20.

23. OECD. (2023). AI in education: Challenges and opportunities for teachers and learners. https://www.oecd.org/education/ai-in-education
24. OECD. (2023). Education at a glance 2023: OECD indicators. https://www.oecd.org/education/education-at-a-glance/
25. OECD. (2023). OECD digital economy outlook 2023. https://www.oecd.org/digital/
26. Porter, S. R., & Whitcomb, M. E. (2021). Non-response in student surveys: The role of demographics. Research in Higher Education, 62(4), 1–15. https://doi.org/10.1007/s11162-020-09587-4
27. Tahiru, F. (2021). AI in education: A systematic literature review. International Journal of Emerging Technologies in Learning, 16(3), 1–18.
28. Ulla, M. B., & Perales, W. F. (2021). Digital competence and teachers' research productivity. Asia-Pacific Education Researcher, 30(5), 1–12.
29. UNESCO. (2022). Global education monitoring report 2022. https://www.unesco.org/en/education/gem-report
30. UNESCO. (2023). AI and education: Guidance for policy-makers. https://www.unesco.org
31. UNESCO. (2023). Guidance for generative AI in education and research. https://unesdoc.unesco.org/ark:/48223/pf0000386693
32. UNESCO. (2025). Guidance for generative AI in education and research. United Nations Educational, Scientific and Cultural Organization.
33. World Bank. (2022). Digital development and education in developing countries. https://www.worldbank.org/en/topic/edutech
34. Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2021). Systematic review of research on artificial intelligence applications in higher education. International Journal of Educational Technology in Higher Education, 18(1), 1–27. https://doi.org/10.1186/s41239-021-00239-5
35. Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2020). Systematic review of research on artificial intelligence applications in higher education. International Journal of Educational Technology in Higher Education, 17(1), 39. https://doi.org/10.1186/s41239-020-00203-7
36. Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2022). Systematic review of research on artificial intelligence applications in higher education. International Journal of Educational Technology in Higher Education, 19(1), 1–27. https://doi.org/10.1186/s41239-021-00292-y
37. Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2022). Systematic review of AI in higher education. International Journal of Educational Technology in Higher Education, 19(1), 1–27. https://doi.org/10.1186/s41239-021-00292-y
38. Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2022). Systematic review of AI applications in higher education. International Journal of Educational Technology in Higher Education, 19(1), 1–27. https://doi.org/10.1186/s41239-021-00292-y
39. Zhang, K., & Aslan, A. (2021). AI literacy and teacher readiness. Computers and Education: Artificial Intelligence, 2, 100–108.