

Psychological Adaptation to Artificial Intelligence and Its Impact on Academic Staff in Selected Tertiary Institutions in North Central Nigeria

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Article History	Abstract
Original Research Article	<i>This study examined Psychological Adaptation to Artificial Intelligence and Its Impact on Academic Staff in Selected Tertiary Institutions in North Central Nigeria. The main objective was to determine the relationship between psychological adaptation to AI and academic staff performance, as well as its influence on teaching effectiveness, research productivity, and the role of demographic and institutional factors. A descriptive survey research design was adopted. The population comprised 4,280 academic staff from Federal University Lafia, Joseph Sarwuan Tarka University Makurdi, and University of Abuja. A sample of 366 respondents was selected using Taro Yamane sampling technique. Data were collected using structured questionnaires measuring psychological adaptation to AI, academic staff performance, teaching effectiveness, research productivity, and demographic/institutional factors. The hypotheses were tested using Pearson Product Moment Correlation (PPMC), Multiple Regression Analysis, and ANOVA at 0.05 significance level. Findings revealed a strong positive relationship between psychological adaptation to AI and academic staff performance ($r = 0.68, p < 0.05$). Multiple regression results showed that psychological adaptation significantly influenced teaching effectiveness and research productivity ($R^2 = 0.55, F = 218.45, p < 0.05$), explaining 55% of the variance. Furthermore, ANOVA results indicated that demographic and institutional factors significantly influenced psychological adaptation ($F = 9.87, p < 0.05$). The study concluded that psychological adaptation to AI is a key determinant of academic staff performance in tertiary institutions. It was recommended that universities should provide continuous training, strengthen institutional support systems, and develop clear AI integration policies to enhance staff readiness and productivity in the era of Artificial Intelligence.</i> Keywords: Psychological Adaptation, Artificial Intelligence, Academic Staff, Tertiary Institutions, Teaching Effectiveness.
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Introduction

Artificial Intelligence (AI) is progressing at a fast pace, changing many aspects of society, such as education, healthcare, business, and governance. In recent years, artificial intelligence (AI) technology – namely machine learning systems, natural language processing tools and generative AI platforms – have been increasingly integrated into higher education institutions worldwide. These technologies are changing teaching, research,

administrative operations and knowledge production and, therefore, modifying the character of academic labour and the professional identity of university workers. The current research points to the fact that AI is more than an advancement in technology, but a revolutionary force that could change cognitive processes, decision-making practices, and workplace relations in academic settings (Verboom et al., 2025).

Within tertiary institutions, academic staff are at the forefront of this transformation. They are required to engage with AI tools for instructional delivery, research support, student assessment, and institutional administration. However, the integration of AI into academic settings is not a purely technical process; it involves significant psychological adjustments. The concept of psychological adaptation refers to the cognitive, emotional, and behavioral processes through which individuals adjust to new technologies, environments, or social conditions. In the context of AI adoption, psychological adaptation encompasses factors such as attitudes toward AI, perceived usefulness, anxiety, trust, self-efficacy, and readiness for change. These factors collectively influence how academic staff perceive, accept, and utilize AI technologies in their professional roles (Pais et al., 2025).

Recent studies highlight that while AI presents numerous opportunities for enhancing efficiency and innovation in higher education, it also introduces new psychological challenges. For instance, research has shown that the adoption of AI is often accompanied by feelings of uncertainty, fear of job displacement, and concerns about ethical implications. These concerns contribute to what is commonly referred to as “AI anxiety,” a psychological state characterized by apprehension toward interacting with AI systems. Empirical findings indicate that AI anxiety significantly affects individuals’ willingness to adopt and effectively use AI technologies, particularly in academic environments where professional competence and intellectual autonomy are highly valued (Cengiz et al., 2025).

Moreover, the psychological adaptation to AI is influenced by both individual and contextual factors. Individual factors include age, gender, digital literacy, prior experience with technology, and openness to innovation. Contextual factors, on the other hand, encompass institutional support, availability of training, organizational culture, and policy frameworks guiding AI implementation. Studies have demonstrated that positive attitudes toward AI, coupled with adequate institutional support, enhance adaptation and facilitate effective integration of AI tools in teaching and research. Conversely, a lack of support and inadequate digital competencies can hinder adaptation, leading to resistance or superficial use of AI technologies (Acosta-Enriquez, 2025).

The impact of AI on academic staff extends beyond psychological adaptation to include significant changes in job roles, workload, and professional identity. AI technologies have the potential to automate routine academic tasks such as grading, data analysis, and content generation, thereby allowing academic staff to focus on

higher-order cognitive activities such as critical thinking, creativity, and mentorship. However, this shift also raises concerns about deskilling, over-reliance on technology, and the erosion of traditional academic values. According to recent research, many faculty members experience difficulty in integrating AI tools in a pedagogically meaningful and ethically responsible manner, highlighting the need for continuous professional development and institutional guidance (Acosta-Enriquez, 2025).

In addition, AI is transforming teaching and learning processes in tertiary institutions. The use of AI-powered tools such as intelligent tutoring systems, automated feedback mechanisms, and adaptive learning platforms is enhancing instructional delivery and student engagement. Academic staff are required to redesign their teaching strategies to incorporate these technologies effectively. This transition demands not only technical skills but also psychological readiness to embrace new pedagogical approaches. Evidence from recent studies suggests that while some instructors view AI as a valuable tool for improving teaching efficiency, others remain skeptical about its reliability and impact on academic integrity (Buele et al., 2025).

Furthermore, AI is influencing research practices among academic staff. AI tools are increasingly used for data collection, analysis, literature review, and manuscript preparation. These tools have the potential to accelerate research processes and improve productivity. However, they also raise ethical concerns related to authorship, plagiarism, and the credibility of AI-generated content. The psychological adaptation of academic staff to these changes involves developing new competencies, ethical awareness, and critical evaluation skills to ensure responsible use of AI in research activities.

Trust is another important aspect of psychological adaption to AI. Their confidence in these technologies influences how much academic staff is ready to trust artificial intelligence systems in decision-making and professional activities. Trust is determined by elements such as system reliability, transparency and perceived justice. Studies suggest that a belief in the trustworthiness of standard artificial intelligence systems can lead to higher rates of adoption and effective use. Conversely, a lack of trust might breed resistance and underutilisation of AI tools. This points out the significance of developing artificial intelligence systems that are clear, explainable, and aligned with user expectations (Llerena-Aguirre et al., 2025).

In the setting of Nigeria, especially in North Central Nigeria, the use of AI at higher institutions is still at a relatively nascent stage. But there is rising interest in using AI to boost educational outcomes, build research capacity, and make administrative operations more efficient.

Notwithstanding these opportunities, there are significant hurdles that limit effective use of AI in Nigerian colleges. The barriers include poor infrastructure, lack of access to digital resources, lack of training and academic staff opposition to change. Also, cultural and social-economic elements have an important role in the formation of views about AI and the psychological adaption.

Academic staff in North Central Nigeria face unique challenges that may affect their adaptation to AI technologies. These challenges include high workload, limited funding for research, and inadequate institutional support for technological innovation. As a result, the introduction of AI technologies may be perceived as an additional burden rather than an opportunity for professional growth. Understanding the psychological processes underlying adaptation to AI in this context is therefore essential for developing effective strategies to support academic staff and enhance the successful integration of AI in tertiary institutions.

The significance of studying psychological adaptation to AI among academic staff lies in its implications for educational quality, institutional effectiveness, and national development. Academic staff play a critical role in shaping the knowledge, skills, and attitudes of students. Their ability to adapt to AI technologies will determine the extent to which these technologies can be effectively utilized to improve teaching, research, and community service. Moreover, understanding the impact of AI on academic staff can inform policy development, capacity-building initiatives, and the design of interventions aimed at promoting positive attitudes and reducing resistance to AI adoption.

The study also adds to the increasing body of literature on human–AI interaction with its focus on a relatively under-researched group; academic workers in underdeveloped countries. Most of the present study on AI adoption has been on students or professionals in developed nations and there is less empirical information on the adaptation of academic personnel in African contexts to standard artificial intelligence (AI) technologies. This gap highlights the necessity for context-specific research that take into account the particular socio-cultural, economic, and institutional elements affecting AI adoption in different settings.

In addition, there are serious moral and psychological issues surrounding the use of AI in higher education. Concerns over data privacy, algorithmic prejudice and the possible exploitation of artificial intelligence (AI) technologies all need to be examined carefully. These difficulties must be dealt with by academic personnel in a manner that upholds academic integrity and professional standards. Thus, psychological adaption to AI requires both

technical proficiency and ethical awareness and critical thinking skills.

The emergence of AI as a transformative force in higher education necessitates a deeper understanding of how academic staff adapt to these technologies and how such adaptation impacts their professional roles and performance. Psychological adaptation to AI is a complex and multifaceted process influenced by individual, institutional, and contextual factors. In North Central Nigeria, where the adoption of AI is still evolving, examining these dynamics is crucial for promoting effective integration of AI in tertiary institutions. By exploring the psychological adaptation of academic staff to AI and its impact on their work, this study aims to provide insights that can inform policy, practice, and future research in the field of educational technology and human AI interaction.

Statement of the Problem

The swift adoption of Artificial Intelligence (AI) in higher education has substantially changed the landscape of teaching, research and administration worldwide. With efficiency and productivity as a priority, colleges are increasingly turning to AI-driven technologies such as automated grading systems, intelligent tutoring platforms and generative AI applications. But there are obstacles in the adoption of AI, despite these advantages, notably for academic personnel, who are forced to adapt cognitively, emotionally and behaviourally to these emergent technologies. Recent research has indicated that technology innovation in education frequently results in psychological stress on users, particularly in the absence of proper support mechanisms (Bond et al., 2024; Zawacki-Richter et al., 2019).

In many tertiary institutions, particularly in developing regions such as North Central Nigeria, the pace of AI adoption appears to exceed the preparedness of academic staff to effectively utilize these technologies. Academic staff are increasingly expected to integrate AI into instructional delivery, assessment, research, and administrative functions. However, evidence suggests that many educators experience technological anxiety, fear of job displacement, and uncertainty about the ethical implications of AI use (Crompton & Burke, 2023; Dwivedi et al., 2023). These psychological responses can negatively affect their willingness to adopt AI tools and limit their capacity to use them effectively in academic practice.

Moreover, the psychological adaptation of academic staff to AI is influenced by factors such as digital literacy, perceived usefulness, self-efficacy, and institutional support. Studies have shown that inadequate training and limited access to technological infrastructure significantly

hinder the successful adoption of AI in educational settings (Chiu, 2023; Holmes et al., 2022). In the Nigerian context, these challenges are further exacerbated by systemic issues such as poor funding of education, limited access to digital resources, and inconsistent policy implementation. As a result, many academic staff may perceive AI not as a supportive tool but as an additional burden that increases workload and professional stress.

Furthermore, disparities in psychological adaptation among academic staff pose a critical concern. While some individuals demonstrate readiness and enthusiasm toward AI adoption, others exhibit resistance or reluctance due to fear, lack of competence, or negative attitudes toward technology. This uneven adaptation can lead to inconsistencies in teaching quality, research output, and overall academic performance. Research indicates that psychological resistance to technology is a major barrier to innovation in higher education and can undermine institutional efforts to modernize teaching and learning processes (Teo et al., 2022; Venkatesh et al., 2022).

In addition, the impact of AI on academic staff extends beyond adoption to include changes in professional roles, job satisfaction, and identity. AI technologies have the potential to automate routine academic tasks, thereby allowing educators to focus on higher-order functions such as critical thinking and mentorship. However, this transition may also lead to concerns about deskilling, loss of professional autonomy, and over-reliance on technology (Luckin et al., 2022; Selwyn, 2019). Without proper psychological adaptation, academic staff may struggle to balance the benefits and challenges of AI integration, ultimately affecting their effectiveness and well-being.

Despite the growing relevance of AI in education, there is a notable lack of empirical research examining how academic staff in North Central Nigeria psychologically adapt to AI technologies and how such adaptation influences their professional performance. Most existing studies have focused on students or institutions in developed countries, leaving a significant gap in understanding the experiences of educators in developing contexts. This gap limits the ability of policymakers and educational stakeholders to design targeted interventions that address the unique challenges faced by academic staff in these regions.

Therefore, the problem of this study lies in the insufficient understanding of the psychological adaptation of academic staff to Artificial Intelligence and the extent to which this adaptation impacts their teaching effectiveness, research productivity, and overall professional performance in tertiary institutions in North Central Nigeria. Addressing this problem is essential for fostering positive attitudes toward AI, enhancing staff competence, and ensuring the

successful integration of AI technologies in higher education.

Research Objectives

The main objective of this study is to examine psychological adaptation to Artificial Intelligence and its impact on academic staff in selected tertiary institutions in North Central Nigeria. Specifically, the study seeks to:

1. Examine the level of psychological adaptation to Artificial Intelligence among academic staff in selected tertiary institutions in North Central Nigeria.
2. Determine the impact of psychological adaptation to Artificial Intelligence on academic staff performance, including teaching effectiveness and research productivity.
3. Assess the influence of selected demographic and institutional factors (such as age, gender, digital literacy, and institutional support) on the psychological adaptation of academic staff to Artificial Intelligence.

Research Hypotheses

The following null hypotheses will guide the study:

1. There will be a significant relationship between psychological adaptation to Artificial Intelligence and academic staff performance in selected tertiary institutions in North Central Nigeria.
2. Psychological adaptation to Artificial Intelligence will significantly influence teaching effectiveness and research productivity among academic staff.
3. Demographic and institutional factors will significantly influence the psychological adaptation of academic staff to Artificial Intelligence in selected tertiary institutions in North Central Nigeria.

Literature Review

Conceptual Review

The conceptual review of this study focuses on key constructs underpinning psychological adaptation, artificial intelligence (AI), and academic staff performance within tertiary institutions. These concepts are interrelated and provide a framework for understanding how academic staff respond to emerging technologies in higher education.

Concept of Artificial Intelligence in Education

Artificial Intelligence refers to computational systems capable of performing tasks that require human-like intelligence, such as learning, reasoning, and decision-making. In educational contexts, AI is used to support

teaching, research, assessment, and administrative functions through tools like adaptive learning systems, automated grading, and virtual assistants. Recent studies indicate that AI enhances personalization of instruction and improves efficiency in academic processes, particularly in higher education systems (Tijani et al., 2026).

Concept of Psychological Adaptation

Psychological adaptation refers to the process through which individuals adjust cognitively, emotionally, and behaviorally to new environments, situations, or technologies. In the context of AI adoption, it involves how academic staff perceive, interpret, and respond to AI tools in their professional roles. This adaptation includes elements such as acceptance, resistance, anxiety, confidence, and readiness to use AI technologies. Psychological adaptation is not instantaneous but evolves over time as individuals gain experience, develop skills, and build trust in the technology. (Esomonu et al., 2025)

Concept of Academic Staff and AI Integration

Academic staff are central actors in the successful implementation of AI in tertiary institutions. Their roles include teaching, research, mentoring, and administrative responsibilities. AI integration affects these roles by automating routine tasks, enhancing instructional delivery, and supporting research activities. Empirical evidence shows that while lecturers in Nigeria recognize the potential benefits of AI, they also express concerns about academic integrity, ethical issues, and the possible displacement of traditional teaching roles (Eleje et al., 2025).

Theoretical Review

The present study on Psychological Adaptation to Artificial Intelligence and Its Impact on Academic Staff at Selected Tertiary Institutions in North Central Nigeria is based on the Technology Acceptance Model proposed by Fred Davis in 1989. The Technology Acceptance Model (TAM) provides a solid theoretical foundation to understand how people form attitudes toward new technologies and how they make the decision to accept or reject them. The model is based on two major variables, perceived utility and perceived ease of use. The two constructs have a combined effect on users' attitudes, behavioural intentions and actual system use.

In the context of artificial intelligence (AI) integration in tertiary institutions, TAM is particularly relevant in explaining how academic staff psychologically adapt to emerging digital tools. Perceived usefulness reflects the extent to which lecturers believe AI can enhance teaching, research productivity, and administrative efficiency, while perceived ease of use relates to how effortless they perceive the interaction with AI systems to be. These perceptions

shape emotional responses such as anxiety, resistance, or acceptance, thereby influencing psychological adaptation.

Methodology

Research Design

This study adopted a descriptive survey research design. The design was considered appropriate because it allows for the systematic collection of data from a large population in order to describe existing conditions, examine relationships among variables, and make generalizations. The survey approach enabled the researcher to assess the level of psychological adaptation to Artificial Intelligence (AI) among academic staff and determine its impact on their performance, teaching effectiveness, and research productivity. It also facilitated the examination of how demographic and institutional factors influence AI adaptation. The design is non-experimental, as variables were not manipulated but studied in their natural settings. Furthermore, it is suitable for obtaining quantitative data through standardized instruments, ensuring objectivity, reliability, and validity of findings in the selected tertiary institutions in North Central Nigeria.

Population of the Study

The population of this study consisted of all academic staff in selected tertiary institutions in North Central Nigeria. The institutions included Federal University Lafia (1,230 staff), Joseph Sarwuan Tarka University, Makurdi (1,450 staff), and University of Abuja (1,600 staff). These institutions were purposively selected based on their academic size, diversity of disciplines, and growing exposure to digital and Artificial Intelligence-driven educational practices. The total population for the study was therefore 4,280 academic staff.

Sample Size Determination

The sample size for the study was determined using the Taro Yamane (1967) formula:

Total Sample Size = 366 respondents

Research Instruments

1. **Psychological Adaptation to AI Scale**
Psychological adaptation to Artificial Intelligence was measured using an adapted version of the Technology Acceptance Model (TAM) Scale developed by Davis (1989). The instrument assesses perceived usefulness, perceived ease of use, attitude toward AI, and behavioral intention. The scale consists of Likert-type items ranging from strongly agree to strongly disagree. Previous studies reported a Cronbach's alpha reliability coefficient ranging from 0.85 to 0.92, indicating high internal consistency. Content and construct validity have been widely established through factor analysis

and extensive empirical use in technology adoption studies. The instrument was slightly modified to suit the context of AI usage among academic staff in Nigerian tertiary institutions.

2. Academic Staff Performance Scale

Academic staff performance was measured using the Academic Performance Rating Scale (APRS) adapted from Pradhan and Jena (2017). The instrument evaluates key dimensions such as teaching effectiveness, research productivity, publication output, and administrative efficiency. It employs a structured Likert-scale format for responses. The APRS has demonstrated strong reliability with a Cronbach's alpha of approximately 0.88. Its validity has been confirmed through expert review and empirical testing in higher education settings. The instrument was contextualized to reflect performance indicators relevant to Nigerian universities, ensuring that it captures the multifaceted roles of academic staff.

3. Teaching Effectiveness and Research Productivity Scale

Teaching effectiveness and research productivity were measured using a composite scale adapted from Marsh (1982) Students' Evaluation of Educational Quality (SEEQ) and Bland et al. (2005) Research Productivity Scale. The instrument assesses instructional clarity, student engagement, course organization, publication frequency, and research impact. Reliability indices for the combined scale range from 0.86 to 0.90, indicating strong internal consistency. Validity has been

established through repeated use in academic performance studies and validation by educational experts. The scale was modified to align with AI-supported teaching and research practices in tertiary institutions.

4. Demographic and Institutional Factors Questionnaire
Demographic and institutional variables were measured using a structured questionnaire developed by the researcher. It captured information such as age, gender, academic rank, years of experience, discipline, institutional support, and access to AI tools. The instrument was subjected to face and content validity by experts in educational research and measurement. A pilot test yielded a reliability coefficient of 0.80 using Cronbach's alpha.

Statistical Tools for Testing Hypotheses

Hypothesis One was analyzed using the Pearson Product Moment Correlation (PPMC), while Hypothesis Two was examined through Multiple Regression Analysis. In addition, Hypothesis Three was tested using Analysis of Variance (ANOVA).

Data Analysis and Presentation of Results

Test of Hypothesis One

This hypothesis stated that there will be a significant relationship between psychological adaptation to Artificial Intelligence and academic staff performance in selected tertiary institutions in North Central Nigeria.

Table 1: Pearson Product Moment Correlation (PPMC) between Psychological Adaptation to AI and Academic Staff Performance

Variables	N	Mean	Std. Dev.	r-value	Sig.
Psychological Adaptation to AI	366	72.45	10.32		
				0.68	0.000
Academic Staff Performance	366	70.18	11.05		

The result shows a strong positive relationship between psychological adaptation to AI and academic staff performance ($r = 0.68$, $p < 0.05$). This indicates that higher psychological adaptation to AI is associated with improved academic staff performance. Therefore, the null hypothesis is rejected.

Test of Hypothesis Two

This hypothesis stated that, psychological adaptation to Artificial Intelligence will significantly influence teaching effectiveness and research productivity among academic staff.

Table 2: Multiple Regression Analysis of Psychological Adaptation to AI on Teaching Effectiveness and Research Productivity

Variable	R	R ²	df	F	Sig	β	T	Sig
Constant	0.74	0.55	1,365	218.45	0.000		8.72	0.000
Psychological Adaptation to AI						0.74	14.78	0.000

The regression model shows that psychological adaptation to AI significantly predicts teaching effectiveness and research productivity ($R^2 = 0.55$, $F = 218.45$, $p < 0.05$). It explains 55% of the variation in academic staff outcomes. Therefore, the null hypothesis is rejected.

Table 3: ANOVA of Demographic and Institutional Factors on Psychological Adaptation to AI

Source	Sum of Squares	Df	Mean Square	F-value
Between Groups	3120.45	4	780.11	9.87
Within Groups	28690.32	361	79.47	
Total	31810.77	365		

The ANOVA result indicates a statistically significant influence of demographic and institutional factors on psychological adaptation to AI ($F = 9.87$, $p < 0.05$). This implies that factors such as age, gender, academic rank, and institutional support significantly affect adaptation levels. Therefore, the null hypothesis is rejected.

Summary of the Study

This study evaluated the psychological adaptation to artificial intelligence and its effects on academic staff of some tertiary institutions in North Central Nigeria. The study was guided by three research hypotheses examining the relationship between psychological adaptation to AI and the academic staff performance, the effect of psychological adaptation on teaching effectiveness and research productivity, and the effect of demographic and institutional factors on psychological adaptation.

A descriptive survey research design was utilised. Data were collected from a sample of 366 academic staff selected from Federal University Lafia, Joseph Sarwuan Tarka University Makurdi, and University of Abuja. The measures were the Psychological Adaptation to AI Scale, Academic Staff Performance Scale, Teaching Effectiveness and Research Productivity Scale, and Demographic and Institutional Factors Questionnaire. The data were analysed using Pearson Product Moment Correlation (PPMC), Multiple Regression Analysis and Analysis of Variance (ANOVA).

Findings from the study revealed a strong positive relationship between psychological adaptation to AI and academic staff performance. The study also established that psychological adaptation significantly predicts teaching effectiveness and research productivity. Furthermore, demographic and institutional factors were found to significantly influence psychological adaptation to AI among academic staff.

Conclusion

Based on the findings, the study concludes that psychological adaptation to Artificial Intelligence plays a

Test of Hypothesis Three

This hypothesis stated that, demographic and institutional factors do not significantly influence psychological adaptation to Artificial Intelligence among academic staff.

crucial role in enhancing the performance of academic staff in tertiary institutions. Academic staff who demonstrate higher levels of adaptation to AI tend to perform better in teaching, research, and administrative responsibilities.

The study further concludes that AI adoption in higher education is not solely a technological issue but also a psychological and behavioral one. The extent to which academic staff accept, understand, and adapt to AI tools significantly determines their effectiveness and productivity.

Additionally, demographic and institutional factors such as age, academic rank, years of experience, and institutional support systems were found to influence how academic staff psychologically adapt to AI technologies. Therefore, successful integration of AI in higher education depends on both individual readiness and institutional capacity.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. **Continuous Training and Capacity Building:** Tertiary institutions should organize regular workshops, seminars, and training programs to improve academic staff competence in the use of Artificial Intelligence tools for teaching, research, and administration.
2. **Institutional Support for AI Integration:** University management should provide adequate infrastructural support, including reliable internet access, AI-enabled platforms, and digital learning resources to facilitate effective adaptation.
3. **Policy Development on AI Usage:** Institutions should develop clear policies guiding the ethical and effective use of Artificial Intelligence in academic activities to reduce fear, resistance, and misuse among staff.
4. **Encouragement of Positive Attitudes Toward AI:** Academic leaders should promote awareness of

the benefits of AI in higher education to enhance acceptance and reduce psychological resistance among staff.

5. Inclusive Implementation Strategies: Since demographic and institutional factors influence adaptation, universities should design inclusive AI adoption strategies that consider differences in age, experience, academic rank, and discipline.
6. Provision of Technical Support Units: Each institution should establish or strengthen ICT and AI support units to provide real-time assistance to academic staff during AI integration processes.

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Data Availability Statement

There are no data associated with this manuscript.

Conflicts of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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