

Redefining the Role of Teachers in the Age of Artificial Intelligence

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Index Terms:

artificial intelligence in education, teachers' roles, AI integration, assessment and feedback, educational technology, teacher perceptions

Abstract. The rapid advancement of artificial intelligence (AI) has significantly transformed the educational landscape, reshaped instructional practices and redefining the role of teachers. This study examined the integration of AI in education and its implications for the evolving roles of Filipino teachers who are enrolled in graduate programs. Specifically, it aimed to determine the level of AI integration across four domains—teachers' roles, assessment and feedback, opportunities, and challenges—identify differences based on teaching experience, and examine the relationship between AI familiarity, experience, and the integration domains. A quantitative descriptive-correlational design was employed, involving 32 respondents selected through purposive and convenience sampling methods. Data were collected using a structured survey instrument and analyzed using descriptive statistics, Analysis of Variance (ANOVA), and Pearson Product-Moment Correlation. The results revealed that AI integration was perceived at a moderate to high level across all domains, with stronger agreement on its role in enhancing instructional practices and expanding learning opportunities than on its challenges. A significant difference was found in perceptions of AI's impact on teachers' roles when grouped by teaching experience, indicating that mid-career teachers were more receptive to AI-driven instructional changes. No significant differences were observed between the other domains. Furthermore, AI familiarity showed a significant negative relationship with perceived challenges, suggesting that increased familiarity reduces the barriers to adoption. AI experience showed no significant relationship with any of the domains. The findings indicate that AI is viewed as a complementary tool that enhances rather than replaces teaching. This study underscores the need for targeted professional development, ethical guidelines, and institutional support to ensure effective and responsible AI integration while sustaining human-centered pedagogy.

Introduction

Artificial intelligence (AI) is rapidly transforming various sectors, including the education sector. Technologies such as adaptive learning systems, automated grading, and intelligent tutoring platforms support personalized learning and real-time feedback, leading to improved student engagement and performance (Leong 2024; Thy and Tien 2024). Globally, education is shifting from teacher-centered to learner-centered approaches, where technology enables individualized instruction and collaborative learning (Imran et al., 2024; Solórzano et al., 2024). International organizations such as UNESCO and OECD emphasize the need for educators to adapt to AI-driven environments to maintain educational quality and inclusivity (Hussein et al., 2025; Kazimova et al., 2025). Rather than replacing teachers, AI is widely viewed as a tool that enhances instruction, supports personalized learning, and reduces workload (Stošić et al., 2025; Thy & Tien, 2024).

In the Philippines, AI integration in education is gradually advancing through initiatives by the Department of Education aimed at promoting digital transformation and 21st-century skills (Ortega-Dela Cruz & Dela Cruz, 2025). Policies encourage the use of AI to improve teaching and assessment; however, challenges such as limited infrastructure, unequal access to resources, and insufficient teacher training hinder effective implementation (Ahmed 2025; Ortega-Dela Cruz and Dela Cruz

2025). Although professional development programs are available, many educators are still developing their competence in using AI tools (Lin and Hwang, 2022). Filipino teachers are increasingly using AI for lesson planning, content development, and assessment, shifting their roles from knowledge providers to facilitators of learning and critical thinking (Alejandro et al., 2024; Lin et al., 2022). Despite its benefits, AI raises concerns related to reduced human interaction and overreliance on technology (Nguyen et al., 2025). Differences in teachers' readiness and attitudes highlight the need to better understand their perceptions to support effective AI integration (Ahmed 2025; Alejandro et al. 2024).

Despite the growing body of international research, there is limited localized evidence on how Filipino teachers experience AI integration in practice in the classroom. Existing studies often focus on student outcomes and technological developments, with less attention paid to teachers' roles, assessment practices, and concerns related to job security and human interaction. Moreover, few studies provide a balanced view of the opportunities and challenges of AI in education. This gap limits our understanding of how teachers adapt to AI-driven changes. Therefore, this study aimed to examine Filipino teachers' perceptions of and adaptive strategies regarding AI integration, providing a more holistic view of its impact on their instructional roles and practices.

Research Questions

1. What is the level of AI integration in education in terms of the following: Teachers' roles, Assessment and feedback, Opportunities and Challenges and concerns
2. Are there significant differences in AI integration when grouped according to the following factors? Age, Gender, Teaching experience
3. Is there a significant relationship between AI familiarity and AI integration domains, and between AI experience and AI integration domains?"

Methodology

This study employed a quantitative descriptive-correlational research design to examine the integration of artificial intelligence (AI) in education. The descriptive component assessed the level of AI integration across four domains: teachers' roles, assessment and feedback, opportunities, and challenges. The correlational component examined the relationships between AI familiarity, AI experience, and these domains. In addition, the study investigated differences in AI integration based on selected profile variables, including age, gender, and teaching experience. This design was appropriate as it enabled the systematic analysis of existing conditions and relationships among variables without manipulation.

The study was conducted in a recognized private school in Isabela, where respondents were enrolled in a Master of Arts in Education program. Although data collection took place within this institution, the majority of respondents were practicing teachers from public schools, providing relevant insights into real-world teaching contexts. The respondents consisted of 32 graduate students, most of whom were full-time teachers. A non-probability sampling method was used, combining convenience and purposive sampling. Participants were selected based on availability and their prior exposure to or familiarity with AI tools in education. While the sample size was relatively small, it was deemed appropriate for exploratory analysis and is consistent with similar descriptive-correlational studies. However, this limitation is acknowledged in terms of generalizability.

Data were collected using a structured survey questionnaire developed by the researchers. The instrument consisted of two parts: (1) demographic information and measures of AI familiarity and experience, and (2) Likert-scale items assessing AI integration across four domains. The scale ranged from 1 (Strongly Disagree) to 4 (Strongly Agree). To ensure content validity, the instrument was reviewed by subject matter experts in educational technology and research. A pilot test was conducted with a small group of respondents, and reliability analysis yielded acceptable internal consistency, with Cronbach's alpha coefficients exceeding 0.70 across all domains. Data collection followed ethical research procedures. Permission was obtained from relevant authorities, and informed consent was secured from all participants. Surveys were administered either face-to-face or online, depending on respondents' availability. Completed questionnaires were checked for completeness and prepared for analysis.

Data were analyzed using both descriptive and inferential statistics. Descriptive measures, including frequency, percentage, mean, and standard deviation, were used to summarize respondent characteristics and levels of AI integration. Inferential statistics were used to examine relationships and differences among variables. Analysis of Variance (ANOVA) was conducted to test differences across groups, while Pearson Product-Moment Correlation was used to assess relationships between AI familiarity, experience, and integration domains. Prior to analysis, assumptions for parametric tests were evaluated using the Shapiro-Wilk test for normality and Levene's test for homogeneity of variance. Results confirmed that the data met the required assumptions, supporting the use of parametric statistical techniques.

Results and Discussion

Demographic Profile of the Students

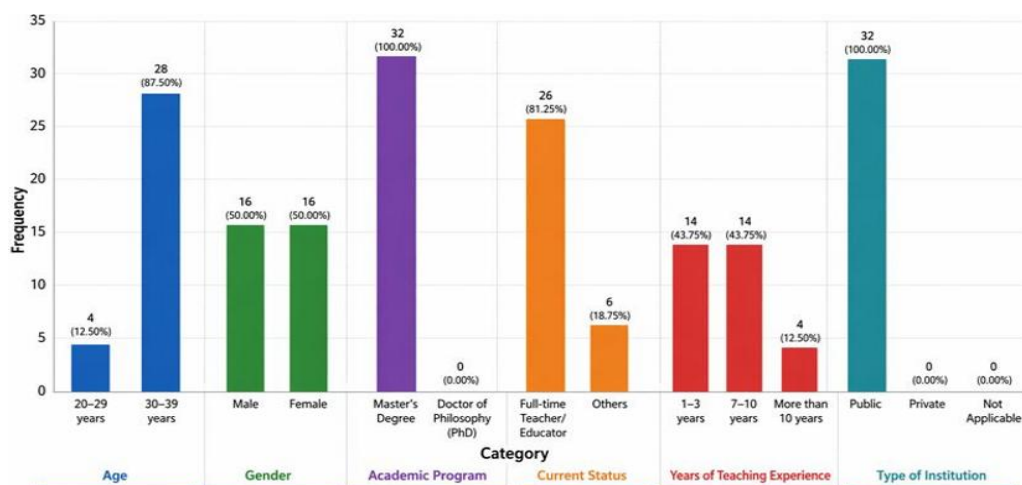


Figure No. 1. Demographic Profile of the Students

Figure 1 presents the demographic characteristics of the respondents in terms of age, gender, academic program, current status, years of teaching experience, and type of institution. The data reveal that the majority of respondents belong to the 30–39 age group (87.50%), while a smaller proportion falls within the 20–29 age group (12.50%). This indicates that most participants were in their early-to mid-career stage, suggesting a level of professional maturity and experience that could provide informed perspectives on the integration of artificial intelligence in education. In terms of gender, the respondents were evenly distributed, with 50% male and 50% female, reflecting a balanced representation that minimized gender bias in the study. All respondents (100%) were enrolled in a Master’s Degree program, specifically a Master of Arts in Education, indicating that they were engaged in advanced professional and academic training. Furthermore, these respondents are studying in a recognized private school in Isabela, implying that they are exposed to structured academic environments that may support the integration of emerging technologies such as artificial intelligence. Regarding the current status, a significant majority (81.25%) were full-time teachers or educators, while 18.75% fell under other categories. This confirms that most participants were actively involved in teaching, making their insights highly relevant to the study’s focus on teachers’ roles in the age of AI. Regarding teaching experience, the respondents were primarily distributed across 1–3 years (43.75%) and 7–10 years (43.75%), with a smaller proportion having more than 10 years of experience (12.50%). This distribution suggests a mix of relatively new and moderately experienced educators, allowing for diverse perspectives on AI adoption in educational practices. Finally, all respondents (100%) were affiliated with public institutions, indicating a uniform institutional background. While this ensured consistency in context, it may also have limited the generalizability of the findings to private school settings. Overall, the demographic profile indicates that the respondents are graduate-level educators, primarily full-time teachers with varying levels of teaching experience, who are currently pursuing advanced studies in education. Their academic engagement and professional background position them well to provide meaningful insights into the evolving role of teachers in an AI-driven educational landscape.

AI Familiarity and Experience of Respondents (n = 32)

Variable	Category	Frequency	Percentage
Level of Familiarity with AI	Very familiar	16	50.00%
	Moderately familiar	8	25.00%
	Slightly familiar	4	12.50%
	Highly proficient	4	12.50%
Experience in Using AI Tools	Intermediate	22	68.75%
	Beginner	10	31.25%

Table 1 (Continued). AI Familiarity and Experience of Respondents (n = 32)

The data indicate that half of the respondents (50.00%) consider themselves very familiar with artificial intelligence, while 25.00% report being moderately familiar. Smaller proportions identified themselves as slightly familiar (12.50%) and highly proficient (12.50%), suggesting that although most respondents had a solid understanding of AI, only a few possessed advanced expertise. In terms of practical usage, the majority of respondents (68.75%) had intermediate experience using AI tools such as ChatGPT and Grammarly, while 31.25% were at the beginner level. Notably, none reported having no experience, indicating that all participants had at least some level of engagement with AI technologies. Overall, these findings suggest that the respondents possessed adequate familiarity and practical experience with AI, which supports their capacity to provide informed insights into its impact on teaching roles, assessment practices, and educational processes.

Level of AI Integration in Education Summary (n = 32)

Category	Mean	SD	Interpretation
AI and Teachers' Roles	3.16	0.54	Agree
AI in Assessment and Feedback	3.00	0.78	Agree
Opportunities of AI in Education	3.16	0.65	Agree
Challenges and Concerns of AI	2.72	0.87	Agree
Overall	3.01	0.71	Agree

Table 2. Level of AI Integration in Education Summary (n = 32)

The results indicate that teachers generally perceive AI integration at a moderate to high level (M = 3.01), with the highest ratings observed in teachers' roles and opportunities (M = 3.16), supporting studies that highlight AI's role in enhancing instructional practices and promoting personalized learning (Imran et al., 2024). AI in assessment and feedback also received positive ratings (M = 3.00), reflecting its usefulness in improving efficiency and providing timely feedback (Mahamad et al., 2025). However, its slightly lower mean suggests that concerns regarding validity and overreliance may still influence its adoption (Zhang & Cao, 2025). Meanwhile, challenges and concerns received the lowest mean (M = 2.72), indicating that although issues such as limited training and ethical considerations exist, they are not perceived as major barriers, which aligns with findings that teachers generally demonstrate cautious optimism toward AI integration (Alotaibi, 2024). Overall, the findings suggest that teachers tend to prioritize the benefits of AI over its limitations, reinforcing its role as a supportive tool in education (Haroud & Saqri, 2025).

Comparison of AI Integration Categories

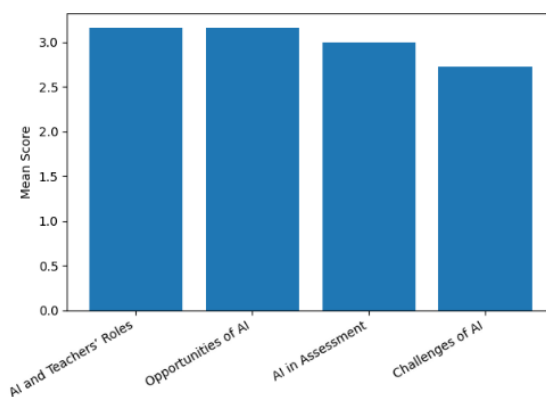


Figure 2. Comparison of AI Integration Categories

Figure 2 further illustrates the mean scores across the four domains of AI integration. Consistent with Table 2, AI and Teachers' Roles and Opportunities of AI in Education received the highest ratings, reinforcing the view that AI is perceived as a supportive tool in both pedagogy and learning enhancement. Meanwhile, AI in Assessment and Feedback showed slightly lower agreement, suggesting that while useful, its application may still be developing. The comparatively lower mean for Challenges and Concerns indicates that perceived barriers are present but not dominant, highlighting a tendency among respondents to prioritize the functional benefits of AI over its limitations.

ANOVA Results of AI Integration by Teaching Experience

Variable	df	F	p	η^2	Decision	Interpretation
AI and Teachers' Roles	2, 29	3.21	.045	0.18	Significant	Significant difference across groups
AI in Assessment and Feedback	2, 29	1.87	.172	0.11	Not Significant	No significant difference
Opportunities of AI in Education	2, 29	2.54	.095	0.15	Not Significant	No significant difference
Challenges and Concerns of AI	2, 29	1.69	.202	0.10	Not Significant	No significant difference

Note: *df* = degrees of freedom; α = .05; η^2 = effect size. Values of η^2 around .01 indicate a small effect, .06 a moderate effect, and .14 a large effect.

Table 3. ANOVA Results of AI Integration by Teaching Experience

The results of the ANOVA indicate a significant difference in perceptions of AI and teachers' roles based on teaching experience ($F = 3.21, p = .045, \eta^2 = 0.18$), suggesting that teaching experience influences how educators view the impact of AI on instructional roles. This finding supports studies indicating that teachers' professional experience shapes their adaptability to technological changes and their acceptance of AI-driven instructional practices (Pratiwi et al., 2025). In contrast, no significant differences were found in AI in assessment and feedback ($F = 1.87, p = .172$), opportunities ($F = 2.54, p = .095$), and challenges ($F = 1.69, p = .202$), indicating that teachers share relatively consistent perceptions across these domains regardless of experience. This suggests that the perceived benefits and limitations of AI are generally recognized across different experience levels, reflecting a common understanding of its role in education (Alotaibi, 2024)

Illustration the mean scores of AI and teachers' roles across groups of teaching experience

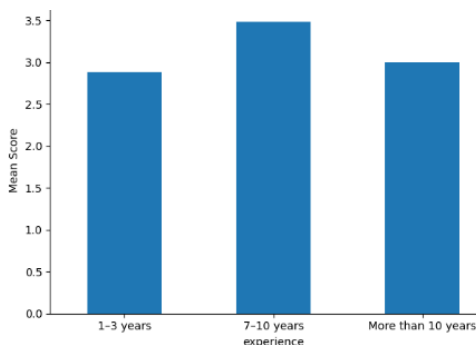


Figure 3 Illustration the mean scores of AI and teachers' roles across groups of teaching experience

Figure 3 illustrates the differences in the mean scores of AI and teachers' roles across groups of teaching experience. The results show that respondents with 7-10 years of teaching experience obtained the highest mean score, indicating a stronger agreement on the transformative role of artificial intelligence in teaching. In contrast, respondents with 1-3 years of experience recorded the lowest mean score, while those with more than 10 years of experience fell in between. This pattern suggests that mid-career teachers are more receptive to the evolving role of AI in education, which supports the significant differences identified in the ANOVA results. The variation in the mean scores across the groups further confirmed that teaching experience influences perceptions of AI integration, particularly in relation to instructional roles.

Post Hoc Test (Tukey HSD) for AI and Teachers' Roles by Teaching Experience

Comparison Group	Mean Difference	p-value	Interpretation
1-3 years vs 7-10 years	0.60	0.0001	Significant
1-3 years vs 10+ years	0.11	0.8064	Not Significant
7-10 years vs 10+ years	-0.49	0.0323	Significant

Note: Tukey's HSD was conducted to identify specific group differences for variables with significant ANOVA results.

Table 4. Post Hoc Test (Tukey HSD) for AI and Teachers' Roles by Teaching Experience

The post hoc analysis revealed significant differences between teachers with 1–3 years and 7–10 years of experience ($p = 0.0001$), as well as between 7–10 years and more than 10 years of experience ($p = 0.0323$), indicating that mid-career teachers demonstrate stronger agreement regarding the impact of AI on teaching roles. In contrast, no significant difference was found between the 1–3 years and more than 10 years groups ($p = 0.8064$), suggesting similar perceptions between early-career and highly experienced teachers. These findings support the view that teachers' acceptance of AI evolves with experience, with mid-career educators showing greater adaptability to technological integration (Pratiwi et al., 2025).

Pearson Correlation Analysis of AI Familiarity and Experience with AI Integration Domains

Variables	r	p-value	Interpretation
AI Familiarity vs Teachers' Roles	-0.28	0.117	Weak negative (Not Significant)
AI Familiarity vs Assessment	0.29	0.111	Weak positive (Not Significant)
AI Familiarity vs Opportunities	0.21	0.254	Weak positive (Not Significant)
AI Familiarity vs Challenges	-0.50	0.004	Moderate negative (Significant)
AI Experience vs Teachers' Roles	0.13	0.470	Weak positive (Not Significant)
AI Experience vs Assessment	0.23	0.210	Weak positive (Not Significant)
AI Experience vs Opportunities	0.15	0.415	Weak positive (Not Significant)
AI Experience vs Challenges	-0.34	0.054	Weak negative (Not Significant)

Table 5. Pearson Correlation Analysis of AI Familiarity and Experience with AI Integration Domains

The significance level was set at $\alpha = 0.05$. Correlation coefficients (r) were interpreted as follows: 0.00–0.19 (very weak), 0.20–0.39 (weak), 0.40–0.59 (moderate), 0.60–0.79 (strong), and 0.80–1.00 (very strong). The results indicate that AI familiarity has no significant relationship with teachers' roles ($r = -0.28$, $p = 0.117$), assessment ($r = 0.29$, $p = 0.111$), and opportunities ($r = 0.21$, $p = 0.254$), suggesting that familiarity does not significantly influence positive perceptions of AI integration. However, a significant moderate negative relationship was found between AI familiarity and challenges ($r = -0.50$, $p = 0.004$), indicating that increased familiarity reduces perceived barriers to AI use. In contrast, AI experience showed no significant relationship across all domains, although a weak negative trend was observed for challenges ($r = -0.34$, $p = 0.054$). These findings suggest that familiarity, rather than experience, plays a more important role in reducing concerns about AI, consistent with studies emphasizing the importance of knowledge and confidence in technology adoption (Yehya et al., 2025).

Tests of Normality and Homogeneity of Variance

A. Test of Normality (Shapiro–Wilk Test)

Variable	W Statistic	p-value	Interpretation
AI and Teachers' Roles	0.957	0.231	Normal Distribution
AI in Assessment and Feedback	0.948	0.145	Normal Distribution
Opportunities of AI in Education	0.962	0.298	Normal Distribution
Challenges and Concerns of AI	0.941	0.102	Normal Distribution

Table 6 Tests of Normality and Homogeneity of Variance

B. Test of Homogeneity of Variance (Levene's Test)

Variable	F-value	p-value	Interpretation
AI and Teachers' Roles	1.24	0.305	Homogeneity Assumed
AI in Assessment and Feedback	1.67	0.211	Homogeneity Assumed
Opportunities of AI in Education	0.98	0.389	Homogeneity Assumed
Challenges and Concerns of AI	1.52	0.238	Homogeneity Assumed

Table 6 Tests of Normality and Homogeneity of Variance

The results of the Shapiro–Wilk test indicate that all variables are normally distributed, as all p-values are greater than 0.05, confirming that the assumption of normality is satisfied. Similarly, Levene’s test shows that the assumption of homogeneity of variance is met across all variables, with p-values exceeding 0.05. These findings justify the use of parametric statistical tests, such as ANOVA and Pearson correlation, in the analysis. Ensuring that these assumptions are met strengthens the validity and reliability of the study’s statistical results, consistent with standard practices in quantitative research (Field, 2018).

Reliability Analysis of the Instrument

Domain	Number of Items	Cronbach’s Alpha (α)	Interpretation
AI and Teachers’ Roles	5	0.82	Good
AI in Assessment and Feedback	5	0.79	Acceptable
Opportunities of AI	5	0.85	Good
Challenges and Concerns	5	0.76	Acceptable
Overall Scale	20	0.83	Good

Table 7: Reliability Analysis of the Instrument

The instrument demonstrated acceptable to good internal consistency, with Cronbach’s alpha coefficients ranging from 0.76 to 0.85 across the four domains, and an overall reliability of 0.83, indicating that the items were reliable for measuring AI integration.

Conclusion and Implications

This study concludes that teachers generally perceive artificial intelligence (AI) as a supportive and beneficial tool in education, particularly in enhancing instructional practices and expanding learning opportunities. The results indicate a moderate to high level of AI integration across key domains, with teachers showing stronger recognition of its role in transforming teaching practices than concerns over its potential challenges. Although issues such as overdependence on technology, lack of training, and ethical considerations are acknowledged, these do not significantly hinder teachers’ acceptance of AI in educational contexts. Notably, teaching experience significantly influenced perceptions of AI in relation to instructional roles, with mid-career teachers demonstrating greater receptiveness to its integration. In contrast, AI familiarity and experience showed limited influence on most domains, except for the significant relationship between familiarity and reduced perceived challenges. These findings imply that successful AI integration in education requires not only access to technology but also targeted professional development that enhances teachers’ familiarity with and confidence in using AI tools. Therefore, educational institutions and policymakers should prioritize continuous training programs, ethical guidelines, and infrastructure support to ensure responsible and effective AI adoption. Ultimately, the study highlights that AI should be positioned as a complementary tool that empowers teachers rather than replacing them, reinforcing the importance of maintaining human-centered pedagogy in an increasingly digital learning environment.

Based on the findings of this study, several recommendations are proposed to support the effective integration of artificial intelligence (AI) in education. First, educational institutions should implement continuous and targeted professional development programs to enhance teachers’ familiarity and competence in using AI tools, as increased familiarity reduces perceived challenges. These training programs should focus not only on technical skills but also on pedagogical integration to ensure that AI is used to support meaningful learning experiences for students. Second, policymakers and school administrators should develop clear guidelines and ethical frameworks to address issues such as data privacy, algorithmic bias, and responsible AI use in the classroom. Third, investments in digital infrastructure and access to AI technology should be prioritized to ensure equitable implementation across different educational settings. Fourth, collaboration among educators, technology developers, and policymakers should be strengthened to design context-appropriate AI solutions that align with the actual needs of classrooms. Finally, future research should include larger and more diverse samples and additional variables, such as age and gender, to further explore differences in AI integration and improve the generalizability of the findings. These efforts will help ensure that AI serves as a supportive and transformative tool while preserving the essential human elements of teaching and learning in the future.

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Competing Interests Statement

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 article.

Data Availability Statement

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

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Appendices

No appendices are attached to this study.