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Integrating artificial intelligence in education: readiness of faculty members of Eastern Samar State University-Salcedo Campus

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ABSTRACT

This study determined the artificial intelligence or AI integration readiness among faculty members in a provincial, resource-constrained higher education institution in the Philippines-Eastern Samar State University (ESSU)-Salcedo Campus-addressing the limited research on AI integration in rural contexts. Using descriptive-comparative design, data were collected through an adopted survey questionnaire to 69 faculty members, selected through complete enumeration. Data were analyzed using frequency, percentage, mean score, standard deviation, Mann-Whitney U test and Kruskal-Wallis test at a 5% level of significance. Findings reveal that respondents were ready to integrate AI into education. Specifically, the study reveals very positive attitudes towards AI, moderate access to technological resources, average professional development exposure, and perceived competence with notable gaps in advanced skills. AI integration readiness did not significantly differ by sex, age, educational attainment, or academic rank, but varied according to length of teaching experience. Findings suggest that institutions must strengthen technological infrastructure and deliver targeted, experience-sensitive AI training programs to enhance sustainable AI integration in instruction.

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1. INTRODUCTION

In today's education system, like ours, technology transforms the educational landscape [1] into modern and technology-based instruction. Technology has become a notable form of learning [2], promoting student willingness and engagement [3]. There has been an increase in the utilization of smart devices, interactive whiteboards, instructional software, and online learning platforms [4]. As a result, both learners and teachers can now access online resources and opportunities for learning [5].

Among these innovations, artificial intelligence (AI) has emerged as a transformative force [6], [7]. AI refers to computer systems capable of performing tasks that typically require human intelligence-such as learning, reasoning, problem-solving, and decision-making through technologies like machine learning and natural language processing (NLP) [8]–[10]. In education, AI supports advanced understanding of scientific concepts [11] and transforms the traditional classroom into a more engaging, personalized classroom that tailors learning experiences to individual needs, outcome-based, and outcome-focused experience classroom [12], [13]. Likewise, for teachers, AI can reduce their workload, design higher order thinking skill (HOTS)

tasks, spend less time planning, evaluate students' performance, and inform instruction and learning outcomes [9], [13].

Globally, higher education institutions (HEIs) are increasingly investing in AI integration to improve instructional quality and institutional efficiency [14], [15]. Kuleto *et al*. [16] and Wamba-Taguimdje *et al*. [17] emphasized that AI enhance efficiency of universities because it enhances service flexibility by improving the performance of employees. Meanwhile, Huang *et al*. [18] argued that AI can ease the burden for faculty, particularly in delivering their function in instruction. However, faculty are facing different challenges in adopting and implementing AI. Some professors are not aware of using and exhausting the potential of AI in higher education, leading some to perceive it as inconvenient or of limited practical value. Thus, effective AI in education is dependent on faculty readiness, including attitudes towards AI, perceived competence, access to resources, and training in AI education [11], [19]–[21].

While AI adoption is advancing worldwide, existing studies on AI integration readiness predominantly focus on urban or well-resourced universities. Faculty readiness in provincial, resource-constrained Philippine HEIs remains underexplored. This gap is particularly relevant for Eastern Samar State University (ESSU)-Salcedo Campus, a provincial institution aspiring to strengthen technology-driven instruction despite infrastructural and professional development constraints. Understanding faculty readiness in such contexts is crucial, as positive attitudes toward AI may coexist with limited access, uneven training opportunities, and varying levels of technological exposure. Unlike studies that examine readiness as a purely individual attribute, this research considers attitudinal, competency-based, and structural dimensions simultaneously, offering a more holistic and context-sensitive perspective.

Accordingly, this study determined the readiness of faculty members of ESSU-Salcedo Campus in integrating AI in education. Specifically, it answered the following questions: i) what is the demographic profile of the respondents in terms of sex, age, educational attainment, academic rank, and length of teaching experience? ii) what is the respondents' level of readiness in integrating AI in education relative to perceived competence in AI, access to resources, professional development and training, and attitudes towards AI in education? and iii) is there a significant difference in the respondents' level of readiness in integrating AI in education when grouped according to their demographic profile?

2. METHOD

The researchers employed descriptive-comparative research design. The study was descriptive in nature as it detailed the respondents' demographic profiles and their level of readiness to integrate AI in education. It was also comparative, as it examined differences in AI integration readiness of the respondents across their demographic profiles. The study utilized a total of 69 faculty members, representing complete enumeration of the faculty population of ESSU-Salcedo Campus at the time of data collection. Complete enumeration was chosen because the faculty population was relatively small and manageable, making it feasible to include all members. This approach ensured full representativeness of the campus faculty, eliminated sampling bias, and strengthened the internal validity of the findings by capturing the entire range of perspectives regarding AI integration readiness in the institution.

The researchers used an adopted questionnaire from Alshorman [20] with an overall Cronbach's alpha of 0.843, indicating a high internal consistency level. To ensure suitability to the local higher education context, the instrument underwent contextual adaptation. Minor modifications were made in terminology and phrasing to align with the Philippine higher education setting and the institutional context of ESSU. The adapted instrument was reviewed by experts in educational technology and research for content validity and clarity prior to administration. Table 1 presents the item distributions of the instrument. The instrument consists of 28 items equally distributed to four indicators: perceived competence in AI (7 items), access to resources (7 items), professional development and training (7 items), and attitudes towards AI in education (7 items) which were organized in a 5-point Likert rating scale, namely: 5-strongly agree, 4-agree, 3-neutral 2-disagree, and 1-strongly disagree.

Ethical considerations were strictly observed throughout the study. Prior to data collection, faculty members were informed about the purpose of the research, and their voluntary participation was secured through informed consent. Respondents were assured that their answers would be treated with strict confidentiality and used solely for academic and research purposes. No identifying information was disclosed in the reporting of results.

For data analysis, frequency, percentage, mean score, and standard deviation were used to describe the respondents' profiles and AI integration readiness levels. Since the data did not meet normality assumptions based on the Shapiro-Wilk test, nonparametric tests were employed for inferential analysis. The Mann-Whitney U test and Kruskal-Wallis test were used to determine significant differences across demographic variables, with the level of significance set at 0.05.

Table 1. Item distributions of the instrument

Indicator	No. of items
Perceived competence in AI	7
Access to resources	7
Professional development and training	7
Attitudes towards AI in education	7

3. RESULTS AND DISCUSSION

3.1. Demographic profile of the respondents

The demographic profile of the faculty members were determined in this study. It can be noted from Table 2 that faculty members of ESSU-Salcedo Campus are predominantly female (62.32%) and in the early to mid-career workforce with 57.97% aged 26-44 years old. Notably, 76.81% hold at least a master's degree, indicating strong academic qualifications. Moreover, most respondents hold instructor-level ranks (30.43%) and have five years or less teaching experience (34.87%), indicating a relatively young faculty composition.

Results of the analysis implies that the university is dominated by female faculty members, reflecting the broader sense that teaching is a female-dominated profession. Likewise, faculty profile implies a dynamic and evolving workforce that is generally more energetic, receptive to emerging pedagogical innovations, and committed to continuous professional growth and academic advancement. However, a substantial proportion remains in the early stages of their academic careers, actively working toward fulfilling promotion requirements and strengthening their professional credentials.

Table 2. The demographic profile of the respondents

Variable	Categories	Frequency	Percentage
Sex	Male	26	37.68
	Female	43	62.32
	Total	69	100.00
Age	18-25 years old	6	8.70
	26-44 years old	40	57.97
	45-64 years old	23	33.33
	Total	69	100.00
Educational attainment	BS graduate	3	4.35
	With units in masters	13	18.84
	Masters' degree holder	24	34.78
	With units in doctorate	19	27.54
	Doctorate degree holder	10	14.49
	Total	69	100.00
Academic rank	Lecturer	18	26.09
	Instructor	21	30.43
	Assistant professor	13	18.84
	Associate professor	17	24.64
	Total	69	100.00
Length of teaching experience	5 years and below	24	34.78
	6-10 years	16	23.19
	11-15 years	6	8.70
	16-20 years	5	7.25
	21 years and above	18	26.08
	Total	69	100.00

3.2. Level of respondents' readiness in integrating AI in education across domains

The study also examined the level of respondents' level of readiness in integrating AI into education. Specifically, it looked at the domains perceived competence in AI, access to resources, professional development and training, and attitudes towards AI in education. Presented in Tables 3-6 are the result of the analysis.

Faculty members generally perceived themselves to be competent in AI with a composite mean score of 3.75. However, lower confidence in troubleshooting minor (3.16) signals a technical skills gap. This result implies that while faculty are conceptually and pedagogically prepared for AI-enhanced instruction, their limited technical capacity hinders their full potential to improve teaching efficiency and learning outcomes. This aligns with Iddrisu and Iddrisu [22], who emphasized that technical competence significantly influences AI integration success. Similarly, Purnama *et al.* [23] argue that teachers' readiness to integrate AI in education is insufficient without practical technical ability.

Access to resources emerged as the weakest domain. Faculty reported limited software and hardware, limited teaching resources, unreliable internet connectivity, and inadequate technical support.

Overall, respondents were found to have moderate access to resources with a mean score of 2.87, implying that actual resource availability and access are significant limitations in integrating AI and need to be addressed through targeted support and resources [24]. Consistent with Alam [25] and Alshorman [20], external factors such as resources, funding, infrastructure, technical support, AI tools, and reliable internet connectivity, severely affect educators' capacity to utilize AI tools in real time. Even highly motivated and qualified educators cannot fully implement AI without structural backing. This finding is particularly important given that most respondents hold advanced degrees. Despite high educational attainment, resource limitations remain a barrier, highlighting that formal qualifications alone do not guarantee technological readiness—structural and institutional support play a crucial role.

Table 3. Perceived competence in AI

No.	Statement	Mean	Standard deviation	Interpretation
1.	I understand the basic concepts of AI relevant to education.	4.19	1.03	Agree
2.	I am confident in my ability to use AI tools for teaching my subjects.	3.78	1.07	Agree
3.	I can easily learn new AI tools that are introduced for educational purposes.	4.00	0.98	Agree
4.	I feel prepared to troubleshoot minor issues with AI technology in the classroom.	3.16	1.08	Neutral
5.	I am able to evaluate the effectiveness of AI tools in enhancing learning.	3.45	1.11	Agree
6.	I am comfortable explaining the benefits and limitations of AI to my students.	3.87	0.98	Agree
7.	I can integrate AI teaching tools with traditional teaching methods effectively.	3.78	1.02	Agree
	Composite	3.75	0.90	Competent

Table 4. Access to resources

No.	Statement	Mean	Standard deviation	Interpretation
1.	I have access to adequate AI resources for teaching my subjects.	3.33	1.11	Neutral
2.	The university provides sufficient hardware for utilizing AI in the classroom.	2.61	1.02	Neutral
3.	I have access to a variety of AI software and applications designed for education.	3.14	1.03	Neutral
4.	The university provides the necessary technical support for using AI tools.	2.43	0.93	Disagree
5.	I have a reliable internet connection in the classroom to support AI activities.	2.32	1.02	Disagree
6.	The AI teaching resources available to me are up-to-date and relevant.	3.06	0.92	Neutral
7.	I have the necessary instructional materials to complement AI tools in teaching.	3.16	1.07	Neutral
	Composite	2.87	0.81	Moderate access

The respondents exhibited an average level of professional development and training related to integrating AI in education, as supported by a mean score of 2.95, suggesting limited exposure of respondents to formal AI training opportunities. On the other hand, the study noted that respondents are interested and willing to undergo AI training or learning. However, institutional support appears insufficient, as seen in the lower mean scores for the availability of ongoing professional development, encouragement to attend AI-related workshops or conferences, and satisfaction with current training. Ng *et al.* [26] emphasized that acquiring skills and knowledge to integrate AI into teaching practices can be challenging without proper support and training. With training, educators become more confident in their competence to use AI tools and get ready to adopt new innovations [27]. Tan *et al.* [28] also argued that continuous professional development is necessary for sustained AI integration.

Table 5. Professional development and training

No.	Statement	Mean	Standard deviation	Interpretation
1.	I have received training on how to use AI in teaching.	2.83	1.22	Neutral
2.	Ongoing professional development in AI is available to me.	2.70	1.18	Neutral
3.	I am encouraged by my school to attend workshops or conferences about AI in education.	2.74	1.04	Neutral
4.	The professional development I receive is tailored to my subject area and year level.	2.86	0.99	Neutral
5.	I am satisfied with the level of training provided for AI integration into the curriculum.	2.83	0.98	Neutral
6.	I actively seek out new learning opportunities related to AI.	3.62	1.06	Agree
7.	The training I received has been practical and applicable to my teaching context.	3.06	1.08	Neutral
	Composite	2.95	0.86	Average

Attitudes represent the strongest domain. The study found that faculty members had a very good level of attitude towards AI with a mean score of 4.09, indicating a positive disposition and optimism about

the potential of AI to improve the quality of education. Specifically, faculty believe AI enhances teaching effectiveness, supports critical thinking, and will become essential in future education. Openness to experimentation (4.29) and belief in AI's future role (4.38) demonstrate strong psychological readiness. This result could be attributed to the respondents' level of competence in AI, suggesting that individuals with higher technological competence are more likely to hold favorable attitudes [29]. In support, studies highlighted that teachers' attitudes are important for successful implementation of AI [30], [31]. However, concern about AI replacing human roles indicates underlying professional anxiety. With such, it could result in hesitance to incorporate AI technologies [32].

Table 6. Attitudes towards AI in education

No.	Statement	Mean	Standard deviation	Interpretation
1.	I believe that AI can enhance the quality of education.	4.09	0.89	Agree
2.	I am excited about the potential of AI to personalize learning for my students.	4.00	0.92	Agree
3.	I think that AI can help me to be a more effective teacher.	4.17	0.73	Agree
4.	I am open to experimenting with AI in my teaching practice.	4.29	0.69	Strongly agree
5.	I believe that AI can support critical thinking and problem-solving skills in my subjects.	4.13	0.82	Agree
6.	I feel that AI will become an essential part of education in the future.	4.38	0.77	Strongly agree
7.	I am concerned about AI replacing human elements in teaching.	3.58	1.29	Agree
	Composite	4.09	0.65	Very good

Figure 1 presents the overall respondents' readiness in integrating AI into education. It can be gleaned from Figure 1 that faculty members are ready to integrate AI in education with a mean score of 3.42, indicating they are mostly prepared and willing to take part in the innovation of education despite readiness is uneven across domains. Consistent with Ozdemir and Mede [33], challenges related to limited resource access, insufficient professional development, and ethical concerns affect general readiness among faculty in integrating AI in education.

Moreover, the most notable finding of the study lies in the clear tension between faculty members' very positive attitudes toward AI (4.09) and their limited access to resources (2.87). While respondents believe that AI enhances education, they report insufficient hardware, unreliable internet, and limited technical support. This tension represents the central issue of AI integration readiness in the institution-faculty members are psychologically and professionally willing to adopt AI, yet the institutional environment does not fully support implementation. In short, motivation and openness are high, but structural capacity is weak. This imbalance suggests that the primary barrier to AI integration is not resistance or lack of interest among educators, but infrastructural and systemic limitations within the institution. Addressing this gap is therefore critical for translating positive attitudes into meaningful classroom practice.

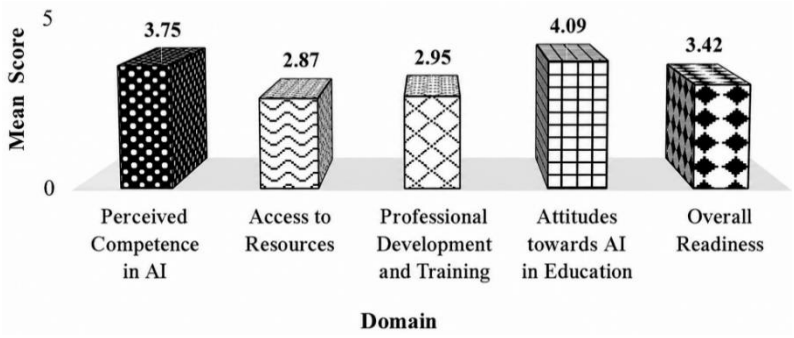

Figure 1. Overall respondents' readiness in integrating AI in education

3.3. Difference on respondents' level of readiness in integrating AI in education

As presented in Table 7, using the Mann-Whitney U test and Kruskal-Wallis H test, the results indicate that no significant difference exists in the respondents' level of readiness in integrating AI in education when they are grouped according to their sex (p=0.450), age (p=0.998), educational attainment (p=0.107), and academic rank (p=0.062). These findings suggest that AI integration readiness is shaped more

by institutional culture and exposure to AI than by personal background, consistent with Wang *et al.* [34], Alnasib [35], and Kalnina *et al.* [36].

Meanwhile, when respondents are categorized by their length of teaching experience, the Kruskal-Wallis test results revealed a significant difference in the level of AI integration readiness (p=0.001). This result implies that at least one group differs significantly in their median scores compared to the others. To test in which group or groups the difference exists, a post hoc analysis using Dwass-Steel-Critchlow-Fligner test was conducted. The result revealed that a significant difference exists (p=0.001) between the five years and below group and the 16-20 years group in favor of the first group. Meanwhile, other pairwise comparisons did not yield significant differences.

This result is supported by digital familiarity and lower technological anxiety among novice teachers than the seasoned ones. Salazar and Peeples [37] highlighted that early-career educators adopt emerging technologies more readily because they are more likely to be digital citizens, having completed their education during rapid technological expansion. Kumala *et al.* [38] also noted that seasoned teachers tend to experience greater technological anxiety and may avoid using technology [39].

Table 7. Difference between respondents' level of readiness in integrating AI in education when grouped according to technological profile

Dependent variable	Independent variable (demographic profile)	Categories	Median	Statistics (U/H)	p-value (α=0.05)	Interpretation
Level of readiness in integrating AI in education	Sex	Male	3.43	498	0.450	Not significant
		Female	3.64			
	Age	18-25 years old	3.57	0.03	0.998	Not significant
		26-44 years old	3.54			
		45-64 years old	3.43			
	Educational attainment	BS graduate	3.79	7.60	0.107	Not significant
		With units in masters	3.68			
		Masters' degree holder	3.29			
		With units in doctorate	3.68			
		Doctorate degree holder	3.27			
	Academic rank	Lecturer	3.70	7.34	0.062	Not significant
		Instructor	3.43			
		Assistant professor	2.89			
		Associate professor	3.54			
	Length of teaching experience	(1) 5 years and below	3.80	19.45	0.001	Significant
		(2) 6-10 years	3.54			
		(3) 11-15 years	3.14			
		(4) 16-20 years	2.98			
		(5) 21 years and above	3.50			
		Post hoc analysis (Dwass-Steel-Critchlow-Fligner test)				
		(1) vs (2): p=0.298				
		(1) vs (3): p=0.349				
		(1) vs (4): p=0.001 (significant)				
		(1) vs (5): p=0.829				
		(2) vs (3): p=1.000				
		(2) vs (4): p=0.702				
		(2) vs (5): p=0.054				
		(3) vs (4): p=0.892				
		(3) vs (5): p=0.192				
		(4) vs (5): p=0.935				

3. CONCLUSION

Based on the findings, the researchers conclude that the faculty members of ESSU-Salcedo are generally ready to integrate AI in education. They demonstrate strong perceived competence and positive attitude towards AI. However, this readiness is constrained by moderate access to resources and average levels of professional development and training. Given these findings, the university must prioritize strengthening its digital infrastructure. Specifically, upgrading internet connectivity across classrooms, improving access to updated hardware and AI-enabled software, and establishing responsive technical support systems. Beyond infrastructure, the institution should provide structured and subject-specific AI training workshops. Continuous professional development initiatives should also include hands-on sessions, classroom simulations, and follow-up support to sustain competent development. The findings further suggest the value of peer mentoring mechanisms. Since early-career faculty demonstrated higher AI integration readiness, the university may establish collaborative mentoring programs where digitally fluent

younger faculty support more experienced colleagues. At the policy level, these results align with national digital transformation of Commission on Higher Education (CHED) and other government initiatives promoting educational innovation and technology integration. The findings underscore the need for institutional strategies that operationalize these national directives through concrete infrastructure investments, faculty capacity-building programs, and systematic monitoring of AI adoption in instruction. Lastly, since the researchers gathered all the data once and reflected the respondents' conditions, perceptions, or behaviors only at the time of data collection, longitudinal studies are recommended to examine how faculty AI integration readiness evolves after infrastructure improvements and targeted training interventions. Such studies would provide evidence of the effectiveness of institutional reforms over time.

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AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

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C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

CONFLICT OF INTEREST STATEMENT

The authors state no conflicts of interest regarding the publishing of this work. They certify that there were no financial, political, personal, religious, ideological, academic, or intellectual competing interests.

INFORMED CONSENT

We have obtained informed consent from all individuals included in this study.

DATA AVAILABILITY

The data that supports the findings of this study are available on request from the corresponding author, [RDG]. The data, which contains information that could compromise the privacy of research respondents, is not publicly available due to certain restrictions.

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