The Revolution of Artificial Intelligence: Enhancing Digital Literacy of Prospective Economics Teachers

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Abstract

This project is to examine how potential teachers in Hamzanwadi University's Economic Education project Program might improve their digital literacy through the use of artificial intelligence (AI). This research employs a quantitative method involving respondents primarily composed of sixth-semester students. Digital literacy is an essential skill that prospective teachers must possess to navigate the digital era, and this study finds that the use of AI technology can significantly enhance this capability. According to the survey results, 94.6% of students actively use AI-based applications or services, such as ChatGPT, Google Assistant, and others, to enhance their knowledge. The study's findings show that AI significantly and favorably impacts pupils' development of digital literacyThis is indicated by the fact that the null hypothesis is rejected and the alternative hypothesis is accepted, as indicated by the significance value of 0.000, which is less than 0.05, and the t-value of 6.951, which is more significant than the t-table value of 1.663. Perceived Utility, Perceived Usability, and Intention to Use are the study's leading indicators. The TCR values for Perceived Usefulness are 85.86%, for Perceived Ease of Use is 84.2%, and for Intention to Use is 82.6%, indicating that students find AI to be very useful, easy to use, and have a solid intention to continue using this technology in their learning.

Keywords: *Artificial Intelligence, Digital Literacy, Prospective Economics Teacher.*

INTRODUCTION

In the rapidly evolving digital era, digital literacy skills have become essential for every individual, especially for future teachers who will be educators, (Falloon, 2020). Digital literacy encompasses basic abilities in using information and communication technology and involves a profound understanding of how technology can be effectively and ethically utilized in the teaching and learning process, (Celik, 2023; Klimova et al., 2023).

Technology development, especially in the area of artificial intelligence (AI), has had a profound impact on a number of industries, including education, (Bearman et al., 2023; Crompton & Burke, 2023; Rios-Campos et al., 2023). AI has great potential to enhance the quality of education through various applications, such as adaptive learning. Adaptive learning is a method that uses AI algorithms to personalize the learning experience for each student, thereby enhancing their digital literacy skills. Other applications of AI in education include data analysis and providing faster and more accurate feedback, (Alqahtani et al., 2023; Gligorea et al., 2023; Judijanto et al., 2024; Owan et al., 2023). AI in education can help prospective economics teachers understand economic concepts more deeply and interactively, as well as develop their digital literacy skills.

However, despite the significant potential of AI in enhancing digital literacy, implementing this technology in an educational context still faces various challenges. One of the main challenges is the lack of understanding and skills in using AI technology among prospective teachers, (Velander et al., 2024; Yue et al., 2024). Additionally, integrating AI into the curriculum and learning process also requires significant changes in teaching and assessment approaches. The purpose of this study is to investigate how the use of AI can enhance the digital literacy of aspiring economics teachers.

By understanding the extent to which AI can assist prospective teachers in developing digital literacy skills, it is hoped to provide deeper insights into the benefits and challenges of using AI in economics education. This

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study also aims to provide recommendations for curriculum development and training for prospective teachers to prepare them to face challenges and opportunities in the digital era.

It is anticipated that this research will yield techniques for optimizing the use of AI in the learning process as well as empirical evidence on the efficacy of the technology in raising digital literacy. As a result, this study will advance not only the standard of economics instruction but also the general advancement of digital literacy in aspiring educators. In the context of Indonesian education policy, the study on how AI usage enhances the digital literacy of aspiring economics teachers is equally pertinent. The Ministry of Education, Culture, Research, and Technology of the Indonesian government has established a number of policies aimed at raising educational standards, one of which is digital literacy. The goal of initiatives like Kampus Merdeka and Merdeka Belajar is to establish an educational ecosystem that can adapt to modern demands and technological advancements (Fahrurrozi, 2023; Firdaus & Ambarwati, 2024; Kowal et al., 2022; Sari, 2015).

Furthermore, in the era of the fourth industrial revolution, digital competence has become a primary focus in human resource development, (Fahrurrozi, 2023; Firdaus & Ambarwati, 2024; Kowal et al., 2022; Sari, 2015). Good digital literacy not only prepares future teachers to teach more effectively but also enables them to be agents of change who can integrate technology into the learning process, (Getenet et al., 2024; Kerimbayeva et al., 2024; Teane, 2024). Thus, this research also supports the government's efforts to create competent educators ready to face global challenges.

AI in education can also assist in overcoming some of the challenges associated with traditional learning, (Fahrurrozi, 2023; Firdaus & Ambarwati, 2024; Kowal et al., 2022; Sari, 2015). For example, AI can provide access to quality learning materials for prospective teachers in remote areas, offer personalized learning experiences, and enable more objective and continuous evaluation. This aligns with the goal of achieving educational equity and reducing the quality gap in education across different regions.

It is anticipated that this study would significantly advance the body of knowledge in education, especially in the area of learning with technology. By utilizing AI, it is hoped that prospective economics teachers will be better prepared and skilled in teaching and able to develop learning innovations relevant to the needs of 21st-century students, (Fahrurrozi, 2024).

Therefore, this research is not only important academically but also practically. The results of this study can be used to inform the creation of professional development and training programs for aspiring educators, as well as to assist educational establishments in incorporating AI technology into their curricula. Therefore, it is anticipated that this research would significantly and practically improve Indonesian education, particularly in the fields of teaching economics and digital literacy.

Furthermore, this research can uncover several important aspects that need to be considered in the implementation of AI in education. One of these aspects is how AI can be integrated with traditional teaching methods to create an effective hybrid approach. This hybrid approach is expected to combine the strengths of technology and human interaction to produce a more comprehensive and holistic learning experience. Additionally, this research can identify various factors that influence the effectiveness of AI use in enhancing the digital literacy of prospective economics teachers. These factors may include the availability of technological infrastructure, the readiness and positive attitudes of prospective teachers, support from educational institutions, and the quality and relevance of content delivered through AI technology.

The readiness of technology and infrastructure is a crucial aspect in the implementation of AI, (Kulkarni et al., 2024; Kulkov et al., 2024). Without adequate infrastructural support, the potential of AI in enhancing digital literacy cannot be fully optimized. Therefore, this research also needs to consider the technical and operational aspects related to the use of AI in education. The attitude and readiness of prospective teachers towards technology also play an important role. Prospective teachers who are open to innovation and willing to learn about new technologies will find it easier to adopt and utilize AI in the learning process. Conversely, resistance to change and a lack of technological skills can be obstacles in the implementation of AI. Thus, it is important to understand the attitudes and perceptions of prospective teachers towards AI usage and how this can influence learning outcomes.

Support from educational institutions is equally important. Proactive educational institutions that provide training, resources, and technical support will significantly aid in enhancing the digital literacy of prospective teachers. Additionally, clear policies and strategies from educational institutions will provide the right direction in integrating AI technology into the curriculum and learning activities.

The content delivered through AI technology must be relevant and of high quality. AI can help in filtering and presenting content that matches the needs and skill levels of each prospective teacher, (Fahrurrozi, 2024). This way, prospective teachers can learn more effectively and efficiently, gaining a deeper understanding of the subjects taught.

Ultimately, this research aims to make a meaningful contribution to the effort of enhancing the digital literacy of prospective economics teachers through the utilization of AI technology. With the results of this research, it is hoped that effective strategies for optimizing AI use in education can be found, and recommendations can be provided for the development of policies and training programs that support digital literacy among prospective teachers.

Through this research, it is expected that prospective economics teachers will not only master digital technology but also be able to teach it to students innovatively and effectively. Therefore, this research will benefit not only the prospective teachers themselves but also the students and the education system.

In the context of this research, several gaps or shortcomings have been identified. First, the Lack of Empirical Research on AI Usage in the Digital Literacy of Prospective Economics Teachers: Although there is extensive literature discussing digital literacy and the use of AI in education, research specifically exploring the impact of AI on the digital literacy of prospective economics teachers is still limited. This study aims to fill this gap by providing relevant empirical data. Second, Limited Focus on Prospective Teachers in Economics Education: Many studies on digital literacy and AI focus on students or experienced teachers. However, research investigating prospective teachers, especially in the field of economics education, is still rare. This research will provide light on how aspiring economics educators might use AI to improve their students' digital literacy. Third, a lack of knowledge about the variables affecting how effective the use of AI is: A more thorough comprehension of the elements influencing the effective integration of AI into the learning process is required. This research will identify factors such as prospective teachers' attitudes towards technology, the availability of infrastructure, and the support of educational institutions that can affect the effectiveness of AI use. Fourth, Challenges in Integrating AI with Traditional Learning Methods: This study also aims to explore how AI can be integrated with traditional learning methods. This is important to create a hybrid approach that combines technology and human interaction to enhance the digital literacy of prospective teachers. Fifth, Gaps in Policy Development and Training Programs: Policies and training programs supporting AI use in education are often underdeveloped. This research will provide recommendations that educational institutions and policymakers can use to design effective training programs for prospective teachers. Sixth, Relevance and Quality of Content Delivered through AI: The quality and relevance of content delivered through AI technology are important aspects often overlooked. This research will assess how AI can help filter and present content that meets the needs and capabilities of prospective teachers.

By addressing these gaps, this study aims to make a significant contribution to educational literature and teaching practices, especially in the context of using AI to enhance the digital literacy of prospective economics teachers. It is anticipated that this research will also offer important insights for the creation of more sensible guidelines and plans for integrating AI technology into the classroom.

Using Citespace as a visualization tool, Jing et al. (2019) investigated the boundaries and hotspots of Chinese research on "Artificial Intelligence Plus Education". More academics are interested in combining artificial intelligence (AI) with education as a result of the technology's quick development. The analysis showed that the frontiers of this research include AI applications in education, intelligent education, and educational big data. Higher education, educational reform, intelligent education, career education, educational big data, and AI applications in education are the key hotspots. These findings help predict future development trends in this field. The research by Kajal Roy B.Sc. & Noor Firdoos Jahan (2019) examined how artificial intelligence (AI) can be used in education and how this will affect higher education. AI has revolutionized various fields by

improving quality, speed of outcomes, and productivity. This study examines the role of AI in higher education, its implications on student learning and institutional teaching, and the latest technological advancements affecting higher education. Additionally, the research identifies challenges in applying AI for teaching, learning, student support, and administration, and suggests directions for further research.

Çayır (2023) examined the question of whether machines are capable of displaying human-like behavior and examined the benefits, drawbacks, and useful applications of AI in education. A review of the literature using qualitative methodologies was employed in this study. AI has had a huge impact on management, teaching, and learning in education by enabling the customisation of instructional materials to students' needs and skills. This has improved students' learning experiences. In their analysis of associated discourses and definitions of artificial intelligence in higher education, Bearman et al. (2022) discovered that there were few precise definitions and scant mentions of AI as a study object. They distinguished between two primary discourses: the authority of change, which characterizes AI as dismantling teacher authority and dividing it among employees, machines, businesses, and students, and the imperative of change, which sees AI as an inevitable shift to which all parties must adapt. This study suggests that more attention should be paid to the social impacts of AI, such as accountability in AI-mediated activities and AI's influence on teaching-learning relationships.

Compared to these studies, this research specifically focuses on the impact of AI on enhancing the digital literacy of prospective teachers in the Economics Education Program at Universitas Hamzanwadi. This is different from other studies that might be more general or explore AI in the broader context of higher education. This study pinpoints particular markers, including intention to employ AI, perceived utility, and perceived ease of usage. The findings demonstrate that students have highly good opinions of AI's utility and usability and a strong desire to keep utilizing it in the classroom. This indicates the psychological impact and acceptance of AI technology in the specific educational environment studied.

This research has novelty in its specific focus on prospective teachers in the Economics Education Program, a topic rarely studied with the same approach before. By using robust statistical tests, this study significantly demonstrates that the use of AI positively influences the enhancement of digital literacy. Furthermore, the thorough examination of how students view AI—including its perceived value, usability, and intention to use—illustrates how this technology is embraced and utilized in this particular educational setting. As a result, this study delivers insightful information about the adoption of AI in particular educational contexts in addition to empirical proof of the technology's educational benefits.

METHODOLOGY

The present study utilizes a quantitative survey approach to gather data from a pre-selected population or sample. Research instruments are used for data collecting, and quantitative or statistical analysis is performed.

The survey method investigates the symptoms of a group or individual behavior. Data collection can be conducted through questionnaires and interviews. This study aims to test the hypothesis about AI usage's influence on enhancing prospective teachers' digital literacy. The population of this study comprises students from the Economics Education Program at Universitas Hamzanwadi. The sample includes 86 respondents from the same program. In this study, questionnaires, interviews, and observations are used as data collection methods. The data obtained through the distribution of questionnaires is assessed using SPSS software, version 16.0 for Windows, which stands for statistical product and service solution.

RESULT

Respondent Characteristiccs

The characteristics of respondents analyzed in this study include gender and semester. These characteristics can be described as follows:

Gender Characteristics

The gender of the respondents is divided into two groups: male and female. The characteristics of respondents based on gender are illustrated in the following diagram.
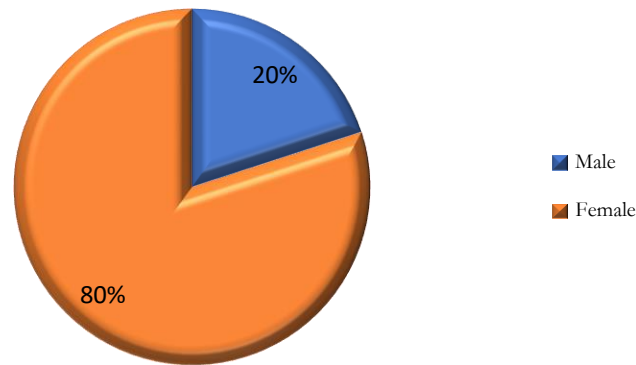

Figure 1 Respondent Gender Distribution

Based on Diagram 1 above, most respondents who completed the questionnaire were female, totaling 69 individuals or 80%, while male respondents numbered 17 individuals or 20%.

Semester Characteristics

The semesters are categorized into several groups: II, IV, VI, and VIII. The following diagram illustrates the characteristics of respondents based on their semester levels.
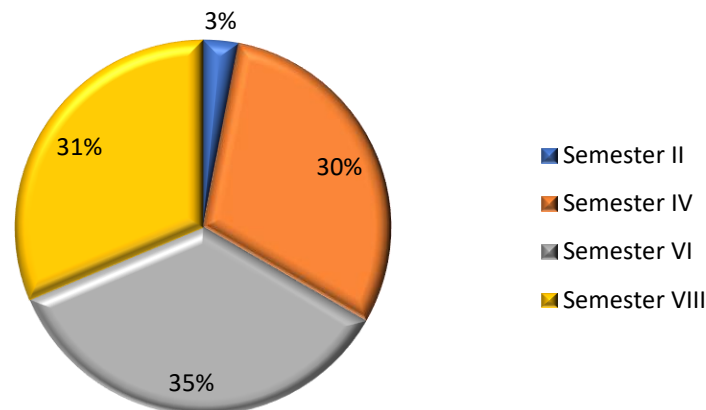
Figure 2 Respondents by Semester Level

Based on Diagram 2, out of 68 respondents, four groupings are based on semester levels. Most respondents are from semester VI, totaling 30 respondents or 35%. This is followed by 27 respondents, or 31%, from semester VIII, 26 respondents or 30%, from semester IV, and three respondents or 3% from semester II.

Description of Respondent Answer Variables

Based on the questionnaires distributed and filled out by students of the Economics Education program at Universitas Hamzanwadi, the results regarding the variables of AI usage and the enhancement of digital literacy for prospective teachers are as follows:

Artifical Intelligence Usage Variable (X)

The AI usage variable consists of 15 questions given to respondents. The results show that for the AI usage variable (X), question item 8 has the highest TCR value of 90.4%, followed by 89%, 87.2%, 86.8%, and 85.8%, indicating that these items fall into the "very good" category. On the other hand, question items 1 and 10 have the lowest TCR values of 76.2% and 78.1%, respectively, which means these items fall into the "good" category.
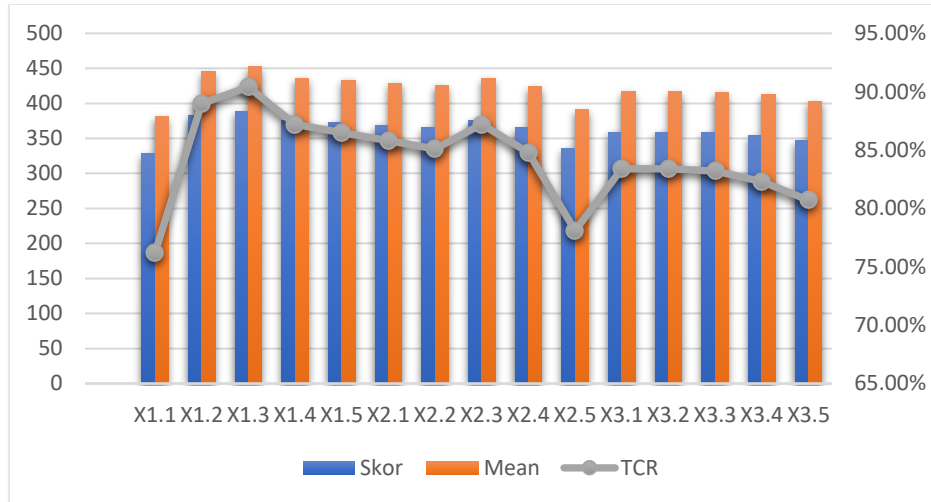

Figure 3 Results of Artificial Intelligence Usage

Based on the diagram above, the distribution of respondents' answers for the Artificial Intelligence usage variable shows that question item 8 has the highest TCR value of 90.4%, followed by 89%, 87.2%, 86.8%, and 85.8%, indicating that these items fall into the "very good" category. Conversely, question items 1 and 10 have the lowest TCR values of 76.2% and 78.1%, respectively, placing them in the "good" category.

Variable for Enhancing Prospective Teachers' Digital Literacy

The variable for enhancing prospective teachers' digital literacy consists of fifteen questions given to respondents. The results show that the distribution of respondents' answers for this variable indicates that all question items fall into the "good" category.
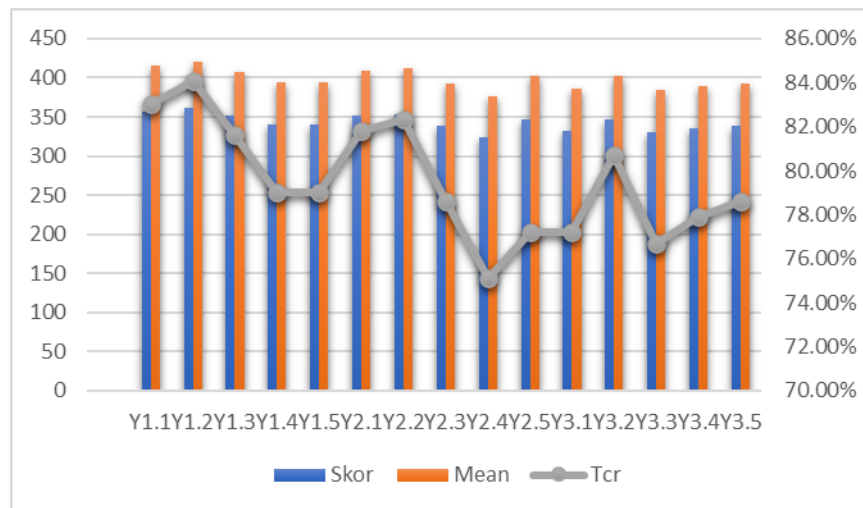

Figure 4 Results of Enhancing Prospective Teachers' Digital Literacy

The distribution of respondents' responses for the variable of improving aspiring teachers' digital literacy can be observed in the above figure, which shows that every question item falls into the "good" category.

Data Analysis Requirements Testing

Classical Assumption Test

Normality Test

The normality test is used to determine whether or not the data used in this study have a normal distribution. The Kolmogorov-Smirnov test is utilized to ascertain the normality of the data, with a significance threshold set at 5% (0.05). The following standards are applicable:

Data is normally distributed if the significance value is more than 0.05.

If the significance value is less than 0.05, it is possible to conclude that the data are not regularly distributed.

The following figure displays the findings of the independent variable's normalcy test:

Table 1 Kolmogrov Smirnov Test Result

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		86
Normal Parameters[a]	Mean	.0000000
	Std. Deviation	5.05422986
Most Extreme Differences	Absolute	.127
	Positive	.121
	Negative	-.127
Kolmogorov-Smirnov Z		1.174
Asymp. Sig. (2-tailed)		.127
a. Test distribution is Normal.		

Source: Primary data processed, 2024

The data in Table 1 have a significance value of 1.27, indicating a normal distribution, and a value greater than 0.05, indicating a normal distribution.

Multicollinearity Test

Finding out if there is a linear correlation between two or more independent variables is the aim of this investigation. It is challenging to distinguish between the influence of the independent and dependent variables in circumstances such as these. The tolerance value or variation inflation factor (VIF) in the research model can be used to detect multicollinearity. The absence of multicollinearity between the independent variables can be inferred from the tolerance limit exceeding 0.10 and the VIF value falling below 10.00. The study's multicollinearity test findings are displayed as follows:

Table 2 Multicollinearity Test

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.604[a]	.365	.358	5.084
a. Predictors: (Constant), Use of Artificial Intelligence				
b. Dependent Variable: Improving Digital Literacy of Teacher Candidates				

Source: Primary data processed, 2024

Coefficients[a]								
		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	15.300	6.429		2.380	.020		
	Use of Artificial Intelligence	.967	.139	.604	6.951	.000	1.000	1.000
a. Dependent Variable: enhancing prospective teachers' digital literacy								

Source: Primary data processed, 2024

Source: Primary data processed, 2024

The table above shows the results of the multicollinearity test. Multicollinearity will not occur if the VIF value is less than 10.00 and the tolerance value is greater than 0.100.

Heteroscedasticity Test

To determine whether there is a variation in the variance of residual values between observations, the heteroscedasticity test in regression models is used. This finding can be classified as homoscedasticity if the variance of the residuals does not significantly change from one observation to the next; otherwise, it is classified as heteroscedasticity. Heteroscedasticity shouldn't exist in a decent regression model (Ghozali et al., 2024).

Heteroscedasticity can be found using the Glejser test. For this test, the first rule of thumb is that if the significant value is greater than 0.05, there is no heteroscedasticity issue, and if it is less than 0.05, there is. The results of the heteroscedasticity test can be seen here:

Tabel 3 Heteroscedesticity Test

Coefficients[a]								
		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	15.300	6.429		2.380	.020		
	Use of Artificial Intelligence	.967	.139	.604	6.951	.000	1.000	1.000
a. Dependent Variable: Enhancement of prospective teachers' digital literacy								

Source: Primary data processed, 2024

The aforementioned table indicates that the artificial intelligence utilization value (b/regression coefficient) is 0.967 and the constant value (a) is 15.300. Therefore, Y1 = a1 + b1X and Y1 = 15.300 + 0.967X are the regression equations.

The following is an expression for this equation: 15.300 is the constant value for the dependent variable. The value grows by 0.967 for every 1% increase in the use of artificial intelligence, according to the regression coefficient for X. It can be inferred that variable X has a positive impact on variable Y as the regression coefficient is positive.

T-Test (Partial)

The T-test indicates if the independent variable X and the dependent variable Y have a significant individual or partial impact on one another. If the computed t-value is greater than the crucial t-value when using the T-test on the current variables, Ha is accepted and Ho is rejected, and vice versa. As a result, the following criteria apply:

There is an influence of variable X on variable Y if the estimated t-value > the crucial t-value or the significance (sig) < 0.05.

Variable X has no effect on variable Y if the significance (sig) ≥ 0.05 or the computed t-value ≤ the crucial t-value.

Table 4 T-Test (Partial)

	Coefficients[a]						
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
Model	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	15.300	6.429		2.380	.020		
Use of Artificial Intelligence	.967	.139	.604	6.951	.000	1.000	1.000
a. Dependent Variable: Improving Digital Literacy of Teacher Candidates							

Source: Primary data processed, 2024

Based on the table above, the results of the data analysis show the influence of Artificial Intelligence usage on the enhancement of prospective teachers' digital literacy among students in the Economics Education Program at Universitas Hamzanwadi. The independent variable X in the following table has t-test analysis findings of 6.951, and the t-table value that was produced is 1.663.

It is deemed to have a substantial impact on the dependent variable if the significance value (sig) is less than 5% or 0.05. The use of artificial intelligence (X) on the variable of improving future teachers' digital literacy (Y) can be described as partial given the computed t-value and the previously mentioned t-table value, with the computed t-value (6.951) > t-table (1.663). As a result, it is decided that Ha is approved and Ho is not. Furthermore, the significance value of 0.000 < 0.05 shows that the use of artificial intelligence significantly and favorably improves the digital literacy of aspiring teachers.

F-Test (Simultaneous Testing)

In multiple linear regression analysis, To assess the combined impact of independent factors, the F-Test is employed. The following is the formulation of the test's hypotheses:

Ho: The dependent variable is not substantially impacted by the independent variables when taken into account collectively.

Ha: The dependent variable is strongly impacted by the independent variables when taken into account collectively.

The estimated F value must be greater than the table F value or the significance value must be smaller than 0.05. If any of these conditions are not met, the alternative hypothesis will be accepted and the null hypothesis will be rejected.

Table 5 F-Test (Simultaneous Testing)

	ANOVA[b]					
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1249.038	1	1249.038	48.320	.000[a]
	Residual	2171.345	84	25.849		
	Total	3420.384	85			
a. Predictors: (Constant), Use of Artificial Intelligence						
b. Dependent Variable: Improving Digital Literacy of Teacher Candidates						

Source: Primary data processed, 2024

The significant value of 0.000 < 0.05 in the simultaneous F-Test of the preceding graphic indicates that the independent factors together influence the dependent variable. The result shows that the independent factors affect the dependent variable simultaneously using the formula F computed > F table; the calculated F value is 48.320. Thus, 48.320 > 3.95 indicates that the independent factors are impacting the dependent variable concurrently.

Coefficient of Determination Test (R^2)

Calculating the analysis of determination (R^2) determines how well the model can estimate the dependent variable. The range of the coefficient of determination is 0 to 1. A low R2 score suggests that the independent variables have little ability to explain the data. On the other hand, a larger R^2 value suggests that almost all of the information required to predict the variation in the dependent variable is provided by the independent variables (Ghozali, 2018). The purpose of this study's determination analysis is to ascertain how effectively the independent variables account for variations in the dependent variable.

Table 6 Determination Test (R^2)

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.604[a]	.365	.358	5.084
a. Predictors: (Constant), Use of Artificial Intelligence				
b. Dependent Variable: Improving Digital Literacy of Teacher Candidates				

Source: Primary data processed, 2024

The coefficient of determination, or R Square, has a value of 0.365, according to the output table above. Squaring the correlation coefficient, or "R," yields this R Square value of 0.365: 0.604 x 0.604 = 0.364. 36.4%, or 0.364, is the coefficient of determination (R Square). This graph shows that the variable X influences the variable Y by 36.4% concurrently.

The increase in digital literacy among prospective teachers in the Economics Education Study Program at Hamzanwadi University is significantly influenced by the use of Artificial Intelligence. The presence of Artificial Intelligence greatly facilitates prospective teachers in the self-learning process by leveraging advanced technology in the current era. As is known, students today can easily access various features that are practical and accessible to many. AI enables learning materials to be tailored and modified to each learner's needs, skills, and pace of learning. This helps aspiring teachers identify their own learning style preferences and make more informed adjustments to their teaching methods. With this technology, prospective teachers not only master the digital skills needed for the modern educational world but also stay abreast of the latest technological developments, ensuring they are always at the forefront of educational innovation. As a result, prospective teachers become more confident and competent in using digital tools and platforms, ultimately enhancing the quality of education they provide to future students.

Based on the results from the questionnaire, a significance value of less than 0.05 indicates that variable X has an influence on variable Y, whereas a significance value greater than 0.05 indicates that variable X has no influence on variable Y. Variable X effects variable Y, as indicated by the value of 0.000b in the ANOVA table's simple regression result. This output indicates that the regression model may be used to forecast that variable X (usage of artificial intelligence) effects variable Y (growth in digital literacy of prospective teachers), with the calculated F value = 48.320 at a significance level of 0.000 < 0.05. The correlation value (R), derived from the SUMMARY model table, is 0.604. The output indicates that the dependent variable (the rise in digital literacy of aspiring teachers) is more sensitive to the influence of other variables (63.5%) than to the independent variable (the use of artificial intelligence), with a coefficient of determination (R square) of 0.365.

DISCUSSION

After conducting research on the Impact of Artificial Intelligence on the Improvement of Digital Literacy Among Prospective Teachers in the Economics Education Study Program at Hamzanwadi University, it was found that the respondents were predominantly female, with most of them being in the sixth semester.

Prospective teachers who are preparing the next generation to face the digital era. At Hamzanwadi University, students in the Economics Education Study Program have actively utilized the advanced technology of Artificial Intelligence (AI) in their learning process, as evidenced by a survey showing that 94.6% of students actively use applications or services that incorporate AI to enhance their knowledge, such as ChatGPT, Google Assistant, and others.

Many academics and educational professionals have become interested in the application of AI technology in education in recent years. AI is considered a tool capable of improving the quality of learning through higher personalization and efficiency. Although the Economics Education program at Hamzanwadi University has not specifically implemented AI to support students in their learning processes, some faculty members have initiated the call for using AI technology in their independent learning.

Based on the tests conducted, the results are as follows: First, this section explains whether the use of AI influences the improvement of digital literacy among prospective teachers in the Economics Education Study Program at Hamzanwadi University. The results suggest that AI significantly and favorably improves digital literacy, as demonstrated by the t computed (6.951) > t table (1.663), which leads to the rejection of Ho and the acceptance of Ha. With a significance value of 0.000 < 0.05, AI usage positively and significantly affects the improvement of digital literacy among prospective teachers.

This study aligns with previous research on the Role of AI in Enhancing Efficiency and Effectiveness in the Education System. It demonstrates that AI can increase efficiency and effectiveness in education by speeding up and simplifying the learning process, providing personalized recommendations, predicting student behaviour, and improving data management.

AI provides diverse uses, including virtual simulations, adaptive learning, real-time feedback, and access to digital learning resources, all of which enhance digital literacy. This is consistent with the theory by Korkmaz & Akçay (2024), which states that digital literacy involves the competence to use digital devices effectively. Digital literacy skills include the ability to locate, systematize, evaluate, and analyze information using digital technology. A key factor in developing digital literacy in education is the active role of educators in connecting the intellectual transformation process.

The study is further supported by Grájeda et al. (2024), which examined the Impact of AI Use on University Students. The literature review found various positive effects of AI on students, such as improved understanding of foreign languages, immediate responses to questions, and constant mentoring in learning. However, negative impacts, such as data security concerns, were also noted.

Second, the use of AI in education has shown a significant influence on improving digital literacy among prospective teachers, particularly in the Economics Education Study Program at Hamzanwadi University. Digital literacy, which includes the ability to find, evaluate, and use digital information effectively, is crucial for prospective teachers in this digital age. This study, which measured indicators such as Perceived Usefulness, Perceived Ease of Use, and Intention to Use, provides deep insights into how AI can contribute to digital literacy development.

The first indicator, Perceived Usefulness, with a TCR value of 85.86%, shows that students significantly consider AI a very useful tool in enhancing their digital literacy. The Technology Acceptance Model (TAM) theory by Davis & Granić (2024) states that Perceived Usefulness is the belief that using a particular technology will enhance performance. In this context, the high TCR value indicates that students believe AI offers real benefits in their learning process, such as quick access to information, assisting in preparing teaching materials and facilitating learning evaluation.

Next, the Perceived Ease of Use indicator, with a TCR value of 84.2%, reflects that students find AI very easy to use. According to Ayanwale & Molefi (2024) The degree to which a person perceives that utilizing a specific technology will need no effort is known as perceived ease of use. The high TCR value in this indicator suggests that students feel comfortable and confident using AI, meaning they do not experience significant technical difficulties. This also indicates that the AI systems used are likely designed with user-friendly interfaces and adequate guidance.

The final indicator, Intention to Use, with a TCR value of 82.6%, depicts a high intention among students to use AI in their learning process. According to Ajzen's (1991) Theory of Planned Behavior, attitudes toward technology, subjective standards, and perceived behavioral control all have an impact on a person's intention to use it. The high TCR value indicates that students have a positive attitude towards AI use, feel supported by their social environment, and are confident in their ability to use this technology effectively.

Previous studies support these findings. Toros et al. (2024) for example, discovered that the intention to utilize technology is highly influenced by perceived usefulness and perceived ease of use. Granić (2024) also emphasized that these factors are crucial in education, where technology adoption heavily relies on user perceptions and attitudes.

It is clear from these results that using AI to teach kids improves their digital literacy considerably. The high TCR values for all three indicators show that students not only find AI useful and easy to use but also have a strong intention to continue leveraging this technology in their learning. To sustain this, educational institutions need to provide ongoing training and support, ensuring that the technology remains relevant and accessible to students.

Thus, the use of AI in education has great potential to enhance the digital literacy of prospective teachers. Effective implementation requires a holistic approach that integrates technology training, relevant curriculum development, and continuous support. These efforts will help create digitally literate prospective teachers who are ready to face future educational challenges.

CONSLUSION

The following is the study's conclusion. First, the Hamzanwadi University Economic Education Study Program's prospective instructors' increased digital literacy is positively and significantly impacted by artificial intelligence (AI). The computed t-value of 6.951, which is larger than the t-table value of 1.663, and the significance value of 0.000, which is less than 0.05, serve as evidence for this. Consequently, the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected. These findings suggest that utilizing AI can greatly improve pupils' digital literacy. Second, the influence of AI usage on the improvement of digital literacy among prospective teachers in the Economic Education Study Program at Hamzanwadi University can be observed through three leading indicators: perceived usefulness, perceived ease of use, and intention to use. The high TCR values on these three indicators—85.86% for perceived usefulness, 84.2% for perceived ease of use, and 82.6% for intention to use—demonstrate that students consider AI to be beneficial and easy to use, and they have a solid intention to continue using this technology in their learning process. Positive opinions about AI's utility and usability, along with intentions to use it sustainably, show that AI has a big potential to improve digital literacy.

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