

**INTEGRATING ARTIFICIAL INTELLIGENCE AND DIGITAL LITERACY TO ENHANCE READING COMPREHENSION IN HIGHER EDUCATION: AN ENGLISH LANGUAGE TEACHING STUDY**

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**ABSTRAK**

Perkembangan pesat kecerdasan buatan (AI) dan meningkatnya kebutuhan literasi digital telah mengubah secara signifikan praktik pendidikan, terutama dalam meningkatkan keterampilan pemahaman bacaan siswa. Integrasi AI dan literasi digital untuk meningkatkan pemahaman bacaan di pendidikan tinggi masih merupakan area penelitian yang terbatas. Penelitian ini mengkaji dampak aplikasi AI dan keterampilan literasi digital terhadap pemahaman bacaan mahasiswa Buddha di Bandar Lampung, khususnya dalam unit kegiatan mahasiswa Buddha. Populasi penelitian terdiri dari 295 mahasiswa, dengan 170 di antaranya dipilih sebagai sampel. Data dikumpulkan menggunakan kuesioner skala Likert dan dianalisis melalui regresi linier berganda. Hasil penelitian menunjukkan bahwa baik pemanfaatan AI maupun literasi digital berkontribusi secara positif dan saling melengkapi untuk meningkatkan pemahaman bacaan. Secara spesifik, variabel AI menunjukkan dampak yang lebih besar dengan koefisien regresi sebesar 0,520 ( $p < 0,001$ ), sementara literasi digital memiliki pengaruh signifikan dengan koefisien sebesar 0,177 ( $p = 0,012$ ). Integrasi kedua variabel ini mendorong proses pembelajaran yang lebih mendalam dan bermakna, meningkatkan tidak hanya pencapaian akademik tetapi juga kemandirian siswa dan keterampilan kognitif tingkat tinggi. Temuan ini menekankan pentingnya mengintegrasikan alat AI dan literasi digital sebagai strategi pembelajaran yang saling melengkapi di pendidikan tinggi. Penelitian ini memberikan bukti empiris mengenai peran penting inovasi teknologi dalam memperkaya praktik pemahaman bacaan dan mendorong hasil pembelajaran yang berkelanjutan di era digital.

**Kata kunci:** *Kecerdasan Buatan; Literasi Digital; Pemahaman Bacaan*

**ABSTRACT**

The rapid development of artificial intelligence (AI) and the growing need for digital literacy have significantly transformed educational practices, particularly in enhancing students' reading comprehension skills. The integration of AI and digital literacy to improve reading comprehension in higher education remains a limited area of research. This study examines the impact of AI applications and digital literacy skills on the reading comprehension of Buddhist students in Bandar Lampung, specifically within Buddhist student activity units. The population consisted of 295 students, with 170 selected as the sample. Data were collected using a Likert-scale questionnaire and analyzed through multiple linear regression. The results indicate that both AI utilization and digital literacy contribute positively and complementarily to improving reading comprehension. Specifically, the AI variable showed a greater impact

with a regression coefficient of 0.520 ( $p < 0.001$ ), while digital literacy had a significant effect with a coefficient of 0.177 ( $p = 0.012$ ). The integration of these two variables fosters a deeper and more meaningful learning process, enhancing not only academic achievement but also student independence and higher-order cognitive skills. These findings emphasize the importance of integrating AI tools and digital literacy as complementary learning strategies in higher education. This study provides empirical evidence of the significant role of technological innovation in enriching reading comprehension practices and promoting sustainable learning outcomes in the digital era.

**Keywords:** *Artificial Intelligence; Digital Literacy; Reading Comprehension*

## INTRODUCTION

The era of digital transformation has brought significant changes to various aspects of life, including education. One of the most noticeable changes is the improvement in students' reading comprehension skills. Artificial Intelligence (AI) opens new opportunities to support the learning process, such as virtual tutors and adaptive learning systems. AI also provides automated reading tools that can be tailored to the specific needs of each user, helping students better understand texts more effectively (Walter, 2024).

In addition to AI, digital literacy has become an increasingly important skill in the world of education. Digital literacy allows students to access, evaluate, and utilize information available online in a more critical and effective manner. With good digital literacy, students can not only comprehend texts but also evaluate sources of information in a broader (Chea & Xiao, 2024). Therefore, digital literacy plays a crucial role in supporting the learning process in this digital era.

Reading comprehension in higher education is not just a language skill; it also serves as the foundation for developing critical, analytical, and creative thinking skills. These skills are vital for students' academic success and their overall intellectual development (Naidu & Krishnan, 2025). Despite the rapid development of technology, challenges arise when students lack adequate digital literacy. This can hinder their ability to fully utilize technology and enhance the quality of their reading comprehension (Gani et al., 2025).

Although research on AI and digital literacy in education exists, studies examining the integration of both to enhance reading comprehension remain limited. However, the integration of AI and digital literacy can lead to a more personalized and adaptive learning process, better suited to students' individual characteristics (Rad, 2025). AI can present materials tailored to students' ability levels and provide real-time feedback. Meanwhile, digital literacy allows students to navigate and evaluate digital information effectively, making it an essential skill in today's educational landscape (Chea & Xiao, 2024).

The integration of AI and digital literacy in higher education has great potential to create more effective and efficient learning methods. With digital literacy, students can sift through and evaluate digital information well, while AI offers an interactive and personalized learning experience (Ndungu, 2024). The combination of these two elements not only enhances reading comprehension that is textual but also more in-depth, critical, and reflective (Laupichler et al., 2022). Several quantitative studies show that the simultaneous application of AI and digital literacy can significantly improve students' reading comprehension skills. These empirical findings provide a strong basis for higher education institutions to review and develop curricula and learning methods that accommodate technological innovations (Baskara, 2024; Khan et al., 2022).

The era of digital transformation has brought about significant changes in various aspects of life, including the world of education, particularly in enhancing reading comprehension skills. Artificial Intelligence (AI) presents new opportunities to support the learning process, ranging from virtual tutors and adaptive learning systems to automated reading tools that can adapt to user needs. On the other hand, digital literacy is a crucial skill that enables students to access, evaluate, and utilise digital information critically and effectively. Reading comprehension in higher education is not just a language skill, but it is also an essential foundation for the development of critical, analytical, and creative thinking skills.

However, real challenges arise when students lack adequate digital literacy, as they may be easily distracted, less critical, or unable to harness the full potential of AI. In addition, although many studies have demonstrated the positive potential of AI in reading learning, a gap remains in understanding the extent to which AI contributes to digital literacy as an independent variable in the context of education in developing countries, where access to technology and the quality of teaching resources vary significantly. This is important because reading comprehension (RC) has far-reaching implications for language learning outcomes, critical thinking, and other academic abilities.

Although AI and digital literacy have been applied separately in the education sector, research examining the integration of these two concepts to enhance reading comprehension remains limited. Therefore, this study aims to fill this gap by providing empirical evidence on the contribution of AI integration and digital literacy to the quality of students' reading comprehension. The rapid development of AI technology enables the creation of a more personalised and adaptive learning process tailored to individual characteristics. AI can present reading materials that are tailored to students' ability levels and provide real-time feedback that accelerates comprehension. Meanwhile, digital literacy enables students to navigate and evaluate information available in various digital media, making this ability a crucial skill in the current information age.

The integration between AI and digital literacy in the context of higher education has great potential to create more effective and efficient learning methods. Digital literacy enables students to sort and assess digital information effectively, while AI provides an interactive and personalised learning experience. This combination supports the development of reading comprehension skills that are not only textual but also profound, critical, and reflective. Several quantitative studies demonstrate that the simultaneous application of AI and digital literacy has a positive impact on enhancing students' reading comprehension skills. These empirical findings provide a crucial basis for higher education institutions to review and develop curricula and learning methods that accommodate technological innovations. This integration also plays a role in forming students who are independent and possess better cognitive abilities in facing future academic and professional demands.

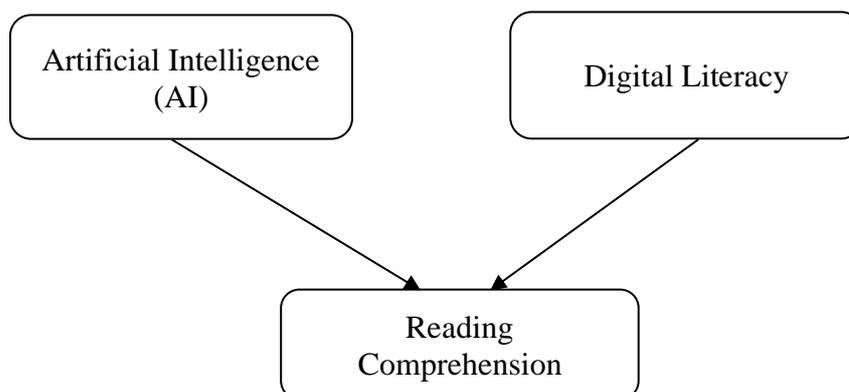
Artificial Intelligence (AI) is transforming education by customising the learning experience, streamlining administrative tasks, and enhancing student engagement. AI-based platforms develop personalized learning plans, automate the assessment process, and improve accessibility, making education more effective and inclusive. To find out the level of development of students' reading skills, there is PISA for the assessment of students on an international scale in the form of the integration of various factors in literacy activities, the learning process, school characteristics, organizational implementation structure in KBM and human resources to make education successful (Wulandari et al., 2021).

Thus, studies on the integration of artificial intelligence and digital literacy to improve reading comprehension in higher education are highly relevant and urgent to develop. This research not only makes a theoretical contribution but also a practical contribution in enriching learning methods and preparing a superior generation who are ready to face the challenges of the digital age with confidence and competence (Nurhayati et al., 2024). This integrative approach is expected to be a strategic step for universities in enhancing the quality of learning and student learning outcomes, thereby having a significant positive impact on individuals and educational institutions as a whole (Lestari et al., 2023).

Therefore, research on the integration of AI and digital literacy to improve reading comprehension is highly relevant to develop. This study not only contributes theoretically but also practically in enriching learning methods in higher education. This study aims to provide empirical evidence regarding the contribution of these two elements in enhancing students' reading comprehension. This integrative approach is expected to help higher education institutions prepare students who are ready to face the challenges of the digital world with better and more competent skills (Lestari et al., 2023).

## RESEARCH METHOD

This study uses a quantitative approach with a survey method to examine the impact of artificial intelligence (AI) and digital literacy on students' reading comprehension. The research design employed is multiple linear regression analysis because there are more than one independent variable, namely AI and digital literacy, whose contributions to the dependent variable, reading comprehension, are analyzed. In this study, AI is considered as a tool that assists in learning, while digital literacy is an essential skill for accessing and evaluating information effectively. Multiple regression was chosen to measure the simultaneous and partial effects of both variables on students' reading comprehension.



**Figure 1. Research Model Constellation Framework**

The population in this study consisted of 295 Buddhist students in Bandar Lampung, who are from various departments at Jinarakkhita College. A sample of 170 students was selected using a proportional random sampling technique, ensuring that each group within the population was proportionally represented. These students are aged between 18 and 25 and come from departments such as Buddhist Education, Buddhist Communication, and Business

& Management. The students involved in this study have varying levels of experience with technology and digital literacy.

The instrument used in this study is a Likert-scale questionnaire consisting of 18 items designed to measure three main variables: the use of artificial intelligence in learning, digital literacy skills, and reading comprehension levels. The Likert scale used ranges from 1 (strongly disagree) to 5 (strongly agree), with questions designed to measure how students use AI in their learning process, their level of digital skills, and how well they understand the material they read. This questionnaire has been validated by experts and tested for reliability using the Cronbach's Alpha coefficient. The testing process aims to ensure the accuracy and consistency of the measurement tool used.

The data collected from the questionnaires were then analyzed using multiple linear regression to test the partial and simultaneous effects of AI and digital literacy on students' reading comprehension. Before conducting the regression analysis, classical assumption testing was performed to ensure the regression model meets the assumptions of normality, multicollinearity, and heteroscedasticity. The analysis was performed using SPSS software, with the aim of providing valid and reliable results in explaining the relationships between the variables studied.

## RESULT AND DISCUSSION

### Results

Based on the reliability instrument test, the results of the reliability coefficient on 18 valid items, as analysed using the reliability analysis scale (alpha) in SPSS for Windows version 27, produced a Cronbach's alpha value of 0.928 because the minimum requirement for a variable to be considered reliable is that the Cronbach's alpha value  $\geq 0.7$  or greater than 0.7. If the Cronbach alpha value  $\leq 0.7$  or less than 0.7, then the variable is considered unreliable. So it can be concluded that the research instruments used in this study have met the requirements for good reliability.

**Table 1. Instrument Reliability Test Results**

Test Reliability		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,928	,929	18

Source: Research Data Management Through SPSS 26, 2025

**Table 2. Hasil Uji Normalitas**

One-Sample Kolmogorov-Smirnov Test		
	Unstandardized Residual	
N	170	
Normal Parameters <sup>a,b</sup>	Mean	,0000000
	Std. Deviation	2,85434978
Most Extreme Differences	Absolute	,043
	Positive	,043

	Negative		-,042
Test Statistic			,043
Asymp. Sig. (2-tailed) <sup>c</sup>			,200 <sup>d</sup>
	Sig.		,629
Monte Carlo Sig. (2-tailed) <sup>e</sup> 99% Confidence Interval	Lower Bound		,616
	Upper Bound		,641

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

Source: Research Data Management Through SPSS 26, 2025

Based on the results of the Kolmogorov-Smirnov (K-S) normality test on unstandardized residual with a sample of 170 respondents, an Asymp value was obtained. Sig. (2-tailed) is 0.200 and Monte Carlo Sig. (2-tailed) is 0.629, both of which are greater than the significance level of  $\alpha = 0.05$ . These results indicate that the residual data are typically distributed, as there is no significant difference between the empirical distribution of the data and the theoretical normal distribution. A residual mean value of 0.000 also indicates that the residual deviation is approximately zero, consistent with the characteristics of the normal distribution.

Meanwhile, the standard residual deviation value of 2.854 indicates that the residual spread level remains within reasonable limits. The Most Extreme difference (Absolute) value of 0.043 indicates a slight maximum difference between the data distribution curve and the standard curve, thus reinforcing the evidence that the data meets the assumption of normality. Therefore, it can be concluded that the regression model used in this study meets the assumption of normality, allowing the results of the statistical analysis to be trusted and facilitating the progression to the next stage of parametric analysis.

**Table 3. Multicollinearity Test Results**

Model	Coefficients <sup>a</sup>		
		Collinearity Statistics	
		Tolerance	VIF
1	AI	,697	1,434
	DL	,697	1,434

a. Dependent Variable: ABS

Source: Research Data Management Through SPSS 26, 2025

Based on the results of the multicollinearity test on the regression model involving AI and DL variables as independent variables to ABS-dependent variables, a Tolerance value of 0.697 and a Variance Inflation Factor (VIF) of 1.434 were obtained for each variable. A regression model is said to be free of multicollinearity symptoms if the Tolerance value is  $> 0.10$  and the VIF is  $< 10$ . A tolerance value close to 1 indicates that the independent variable has a low correlation with other independent variables. In contrast, a low VIF value suggests

that there is no variance inflation due to the correlation between the predictors. Thus, the results of this test indicate that there are no symptoms of multicollinearity between the AI and DL variables in the regression model. This means that the two variables are independent of each other and can be used simultaneously in regression analysis without disturbing the stability of the regression coefficient estimation. Statistically, this indicates that the regression model built meets the assumption of multicollinearity, allowing the results of the analysis to be interpreted validly and reliably.

**Table 4. Heteroscedasticity Test**

Coefficients <sup>a</sup>						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
	(Constant)	5.485	1.181	4.645	.000	
1	AI	.520	.064	.559	8.125	.000
	DL	.177	.070	.174	2.532	.012

a. Dependent Variable: RC

Source: Research Data Management Through SPSS 26, 2025

Based on the results of the heteroscedasticity test conducted using the Glejser method, a significance value (Sig.) for the AI variable of 0.000 and a DL of 0.012 were obtained in the regression model with the RC dependent variable. However, since this table is derived from the primary regression test (not the Glejser test), the heteroscedasticity interpretation should refer to the regression results with absolute residual as a dependent variable (ABS). If, in the model with the ABS-dependent variable (the outcome of the previous Glejser test), all independent variables have a Significant P-value. A value of > 0.05 indicates that there are no symptoms of heteroscedasticity. This means that residual variance is homogeneous across the data range and the regression model meets the assumption of homogeneity. Conversely, if there is a variable with a Sig. A value of < 0.05 indicates heteroscedasticity, meaning that the residual variance is not constant at each predictor level. In such cases, it is recommended to perform data transformations (e.g., natural logarithms, square roots, or White correction methods) to stabilise the model.

**Table 5. F test and t test**

Coefficients <sup>a</sup>						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
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	DL	.177	.070	.174	2.532	.012

a. Dependent Variable: RC

Source: Research Data Management Through SPSS 26, 2025

From the Coefficients table above, it can be explained that the constant value ( $B_0$ ) of 5.485 indicates that if the AI and DL variables are zero, then the Reading Comprehension (RC) score will be 5.485. This score describes the basic level of students' reading ability before the influence of the two independent variables. Furthermore, the value of the regression coefficient for the AI variable is 0.520, with a t-value of 8.125 and a significance level of 0.000. A p-value of 0.000 ( $< 0.05$ ) indicated that AI had a positive and significant effect on RC. This means that a one-unit increase in the AI variable will increase reading ability (RC) by 0.520 units, assuming the other variables remain constant. These results confirm that the application of AI-supported reading tools can significantly enhance students' reading comprehension, aligning with previous research that has highlighted the effectiveness of AI in improving interactivity and personalising the reading process.

Meanwhile, the DL variable has a regression coefficient of 0.177, a t-value of 2.532, and a significance level of 0.05. = 0.012 ( $< 0.05$ ). This shows that DL also has a positive and significant effect on RC. Thus, a one-unit increase in students' digital literacy level will result in a 0.177-unit increase in reading ability. These results demonstrate that mastery of digital literacy facilitates the reading process in the digital era, particularly in the context of technology-based learning media. The Standardized Coefficients Beta value showed that AI ( $\beta = 0.559$ ) had a greater influence on reading ability than DL ( $\beta = 0.174$ ). This means that between the two predictors, AI-supported reading tools are the dominant factor in improving students' reading comprehension.

**Table 6. Coefficient of Determination**

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted Square	RStd. Error of the Estimate
1	.670 <sup>a</sup>	.449	.443	2.871

a. Predictors: (Constant), DL, AI  
b. Dependent Variable: RC

Source: Research Data Management Through SPSS 26, 2025

Based on the Model Summary table, the values of  $R = 0.670$ ,  $R\text{ Square } (R^2) = 0.449$ ,  $\text{Adjusted } R\text{ Square} = 0.443$ , and  $\text{Std. Error of the Estimate} = 2.871$ . The value of  $R$  (0.670) indicates the degree of correlation or relationship between the independent variables (AI and DL) and the dependent variable (RC). This figure falls within the category of strong relationships, as it lies between 0.60 and 0.799. This suggests a strong positive correlation between the use of AI-supported reading tools and both digital literacy and students' reading abilities.

Furthermore, the R-Square value (0.449) indicates that 44.9% of the variation in reading ability (RC) can be explained by the combination of AI and DL variables in the regression model. In other words, approximately 44.9% of the improvement or decrease in reading ability among students is attributed to the role of AI and digital literacy. In comparison, the remaining 55.1% is explained by other factors outside the model, such as learning motivation, reading anxiety, literacy interest, learning environment, or teaching strategies. The value of  $\text{Adjusted } R^2$  (0.443) is used to correct  $R^2$  because the model involves more than one independent variable. This value is slightly smaller than  $R^2$  (0.449  $\rightarrow$  0.443), indicating that this regression model is relatively stable and does not overfit. That is, when the model is

applied to a broader population, its predictive consistency is relatively high. Meanwhile, a Standard Error of the Estimate value of 2.871 indicates the degree of deviation between the values predicted by the model and the actual values in the data. The smaller this value, the better the model's ability to predict the value of the dependent variable.

## **Discussion**

### ***The Influence of AI on Reading Ability***

The regression results showed that the AI (Artificial Intelligence–Supported Reading) variable had a coefficient of  $B = 0.520$ , with a t-value of 8.125 and a significance level of  $p < 0.001$ . This shows that AI has a positive and significant effect on RC. Every one unit increase in the AI score is expected to increase the reading comprehension score by 0.520, when other variables are considered constant. In this case, the use of AI appears to be a strong predictor in strengthening students' reading skills. These findings align with the current literature, which indicates that the application of AI in reading education can yield significant benefits. For example, recent research on Smart Learning Environments has concluded that AI-based interventions in learning can strengthen student engagement and support self-regulated learning, thereby driving progress in students' reading comprehension (Rad, 2025). In addition, other research, such as AI-driven mobile applications: unravelling students' motivational feature preferences for reading comprehension by (Chavez & Palaoag, 2025) it also supports the finding that motivational features in AI applications such as personalization (choice of text according to interest), progress tracking, social interaction, and gamification are highly influential in increasing student engagement when reading. These features support SRL by giving students control over their own learning, providing immediate feedback, and enhancing a participatory and enjoyable learning experience.

Nevertheless, it is essential to note that the effects of AI are not always homogeneous in all contexts. A study published in *Frontiers in Education* reveals that the use of AI tools has varying effects depending on the student's initial ability: AI tools are beneficial for students with low skills, but for high-ability students, there is a potential for decreased performance (Etkin & Carter, 2025). These studies indicate that AI is not only a technical tool, but also a catalyst in transforming how students learn to read, from a passive activity to an active, reflective process, in which students set learning goals, monitor their progress, and evaluate their own learning approach. Finally, the integration of AI in effective reading learning seems to require instructional design that considers UX (user interface) and system responsiveness, so as not to become a barrier for some students.

### ***The Influence of Digital Literacy on Reading Ability***

Your regression model yields  $R = 0.670$ ,  $R^2 = 0.449$ , and Adjusted  $R^2 = 0.443$ . An  $R^2$  value of 0.449 indicates that 44.9% of % variability of students' reading comprehension scores can be explained by the AI and DL variables together. This means that almost half of the difference in RC scores between students is explained by these two variables. At the same time, the rest (55.1%) is influenced by factors other than the model (e.g. basic language skills, motivation, cognitive background, teaching methods, etc.). The slightly lower Adjusted  $R^2$  value (0.443) indicates that the model is not overfitting, and the independent variables used are quite relevant. In technology-based education studies,  $R^2$  values in the range of around 0.30–0.50 are often considered quite good, given the complexity of many factors that affect learning performance. Some AI and digital literacy research suggests that while a single influence may not be

overwhelming, the combination of the two can demonstrate significant cumulative effects in explaining variations in learning outcomes (such as comprehension). For example, in the review of Artificial Intelligence in Education, it was stated that the use of AI integrated with other pedagogical aspects tends to produce greater effects on learning achievement.

The regression results also showed that the DL (Digital Literacy) variable had a coefficient of  $B = 0.177$ , with a t-value of 2.532 and a p-value of 0.012 ( $< 0.05$ ). Thus, digital literacy also has a positive and significant effect on students' reading ability. Although its influence is smaller than that of AI, DL remains an essential factor that aids students in the context of technology-based learning. Modern literature supports these findings. For example, the study "Digital Literacy: Enhancing English Reading Comprehension" found that a ten-week digital literacy intervention significantly improved the reading ability of EFL students, especially in aspects of reading and evaluating information in texts (Rochanaphapayon, 2024). Systematic digital literacy instruction helps learners develop metacognitive strategies and adaptive reading online strategies; thus, students become more effective in organizing information, monitoring comprehension, and verifying sources, all of which contribute to an increase in reading comprehension scores. These findings are supported by a systematic review that found teaching interventions emphasizing digital reading instruction and resource evaluation strategies tend to result in improved reading ability. However, the effects vary depending on the intervention design and the quality of the comparative control (Murphy & Arciuli, 2024).

Furthermore, conceptual studies and literature reviews show the key components of digital literacy (technical, cognitive, and socio-emotional) that together determine the extent to which learners can utilize digital resources to build deep meaning of texts. In other words, digital literacy serves as a mediator between access to technology and learning outcomes, as it enables the competence to assess the reliability of sources and adapt reading strategies to digital formats. Without this competence, the potential of digital texts (multimodal, hyperlinked, and multimedia) will not lead to a better understanding. Empirical studies in the context of higher education also confirm that strengthening the digital competency component (e.g., information evaluation, resource navigation, information management) is positively correlated with academic achievement, which includes the reading aspect (Tinmaz et al., 2022).

#### ***Model Strength: Coefficient of Determination ( $R^2$ and Adjusted $R^2$ )***

Your regression model yields  $R = 0.670$ ,  $R^2 = 0.449$ , and Adjusted  $R^2 = 0.443$ . An  $R^2$  value of 0.449 indicates that 44.9% of % variability of students' reading comprehension scores can be explained by the AI and DL variables together. This means that almost half of the difference in RC scores between students is explained by these two variables. At the same time, the rest (55.1%) is influenced by factors other than the model (e.g. basic language skills, motivation, cognitive background, teaching methods, etc.). The slightly lower Adjusted  $R^2$  value (0.443) indicates that the model is not overfitting, and the independent variables used are quite relevant. In technology-based education studies,  $R^2$  values in the range of around 0.30–0.50 are often considered quite good, given the complexity of many factors that affect learning performance. Some AI and digital literacy research suggests that while a single influence may not be overwhelming, the combination of the two can demonstrate significant cumulative effects in explaining variations in learning outcomes (such as comprehension). For example, in the review of Artificial Intelligence in Education, it was stated that the use of AI integrated with other pedagogical aspects tends to produce a greater effect on learning achievement (Wang et al., 2024).

## CONCLUSION

This study confirms that the integration of artificial intelligence (AI) and digital literacy significantly contributes to the enhancement of students' reading comprehension skills in higher education. The use of AI-based technology not only improves cognitive reading comprehension but also develops metacognitive skills through adaptive feedback and personalized learning experiences. On the other hand, digital literacy plays a crucial role in shaping students' ability to access, select, and evaluate information in an increasingly complex digital environment. The combination of these two variables transforms the reading process from a purely linguistic activity into a reflective and strategic one that fosters critical, analytical, and adaptive thinking related to technology.

Theoretically, this study expands our understanding of how technology-based learning models can promote the development of deeper and more meaningful reading comprehension. The study also provides practical contributions by offering recommendations for universities to design curricula and learning activities that integrate the use of AI and digital literacy development in a balanced manner. Thus, learning should not only focus on mastering content but also on developing 21st-century competencies that students need to face future challenges.

Globally, the integration of AI and digital literacy has a wide-reaching impact on current educational trends. Education is increasingly focused on preparing students to face the fast-paced digital era. Therefore, developing these competencies is crucial to preparing students to be individuals ready to tackle future academic and professional challenges. This integration also plays a role in shaping a generation that is not only technically proficient but also critically and independently capable of managing the ever-evolving information and knowledge. As such, the development of these skills should be prioritized in higher education so that students can adapt well in a world that is increasingly dominated by technology.

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