DOI: https://doi.org/10.33487/edumaspul.v9i2

EDUMASPUL
JURNAL PENDIDIKAN

Vol 10 No. 02 (2026) page 177-182

p-ISSN 2548-8201 | e-ISSN 2580-0469
https://ummaspul.e-journal.id/maspuljr/

The Influence of Digital Literacy and the Utilization of Artificial Intelligence Technology on Students' English Language Skills

Nur Eva Yanti[1]; Nur Rahma Wahyuddin[2]; Sam Hermansyah[3];

Universitas Negeri Makassar[1], Universitas Ichsan Sidenreng Rappang[2],Universitas Muhammadiyah Sidenreng Rappang[3]

*Corresponding Author. E-mail: nur.eva.yanti@unm.ac.id

Receive: 10/04/2026	*Accepted: 15/04/2026*	*Published: 01/05/2026*

Abstrak

Penelitian ini bertujuan untuk menganalisis pengaruh literasi digital dan pemanfaatan teknologi Artificial Intelligence (AI) terhadap keterampilan bahasa Inggris mahasiswa. Penelitian menggunakan pendekatan kuantitatif dengan metode survei yang melibatkan 50 mahasiswa sebagai responden yang dipilih menggunakan teknik purposive sampling. Pengumpulan data dilakukan melalui penyebaran kuesioner berbasis skala Likert yang mengukur variabel literasi digital, penggunaan teknologi AI, dan keterampilan bahasa Inggris mahasiswa. Data dianalisis menggunakan statistik deskriptif dan inferensial melalui uji validitas, reliabilitas, normalitas, korelasi Pearson, dan regresi linear berganda menggunakan SPSS. Hasil penelitian menunjukkan bahwa instrumen penelitian valid dan reliabel dengan nilai Cronbach's Alpha masing-masing variabel di atas 0,60. Hasil uji normalitas menunjukkan data berdistribusi normal dengan nilai signifikansi lebih besar dari 0,05. Analisis regresi linear berganda menunjukkan bahwa literasi digital dan penggunaan teknologi AI secara simultan berpengaruh signifikan terhadap keterampilan bahasa Inggris mahasiswa dengan nilai signifikansi sebesar 0,046. Selain itu, hasil korelasi menunjukkan bahwa literasi digital memiliki hubungan positif terhadap penggunaan AI dan keterampilan bahasa Inggris mahasiswa. Penelitian ini menyimpulkan bahwa kemampuan literasi digital dan pemanfaatan teknologi AI berkontribusi dalam mendukung peningkatan keterampilan bahasa Inggris mahasiswa di era digital..

Kata Kunci: *Literasi Digital, Artificial Intelligence, Teknologi AI, Keterampilan Bahasa Inggris, Pembelajaran Digital*

Abstract

This study aimed to analyze the influence of digital literacy and the utilization of Artificial Intelligence (AI) technology on students' English language skills. The research employed a quantitative approach using a survey method involving 50 university students selected through purposive sampling techniques. Data were collected through Likert-scale questionnaires measuring digital literacy, AI technology utilization, and students' English language skills. The data were analyzed using descriptive and inferential statistics, including validity, reliability, normality, Pearson correlation, and multiple linear regression tests using SPSS. The results showed that the research instruments were valid and reliable, with Cronbach's Alpha values above 0.60 for all variables. The normality test indicated that the data were normally distributed, with significance values greater than 0.05. Multiple linear regression analysis revealed that digital literacy and AI technology utilization simultaneously had a significant effect on students' English language skills, with a significance value of 0.046. Furthermore, the correlation analysis showed that digital literacy had a positive relationship with AI utilization and students' English language skills. This study concludes that digital literacy and the utilization of AI technology contribute to improving students' English language skills in the digital era..

Keywords: *Digital Literacy, Artificial Intelligence, AI Technology, English Language Skills, Digital Learning*

Introduction

The development of digital technology has brought significant changes to various aspects of life, including the field of education. One of the rapidly growing technological innovations today is the utilization of Artificial Intelligence (AI) technology in the learning process. AI is capable of enhancing the effectiveness and quality of students' learning experiences through various features such as personalized learning, automated feedback, and interactive learning materials (Darmawati & Nurhafizah, 2023). The use of AI in education is also considered capable of improving learning quality and supporting the development of 21st-century competencies required by students in the digital era.

In the context of English language learning, AI technology has increasingly been utilized through applications such as ChatGPT, Grammarly, Duolingo, and Google Translate. These technologies provide students with greater opportunities to improve their grammar, vocabulary, pronunciation, and speaking skills independently and interactively. Previous studies have shown that the use of AI in English language learning can increase students' motivation and interest in learning because it offers a more flexible and enjoyable learning experience (Syahira et al., 2023). In addition, AI can provide instant feedback, enabling students to correct language errors directly and more effectively.

On the other hand, the advancement of AI also requires students to possess adequate digital literacy skills. Digital literacy is not only related to the ability to operate technological devices but also involves the ability to access, evaluate, understand, and utilize digital information critically and responsibly. Eshet-Alkalai (2004) explained that digital literacy is an essential skill in addressing the challenges of the digital era, particularly in utilizing technology effectively for academic and learning purposes. Students with a high level of digital literacy tend to be more capable of utilizing AI technology to support their learning process, including in English language learning.

Digital literacy also has a close relationship with students' English language skills. In foreign language learning, the ability to search for, understand, and evaluate digital information is an important factor influencing learning success. Wahyuddin et al. (2024) found that the integration of digital literacy with technology-based learning can improve students' English language skills, particularly in reading, writing, and speaking abilities. Furthermore, the use of AI in English language learning helps students improve their self-confidence and communication skills through interactive technology-based exercises.

Nevertheless, the utilization of AI in learning still faces several challenges. Not all students possess adequate digital literacy skills to utilize AI optimally. Some students still use AI merely for entertainment purposes or simply copy information without evaluating its accuracy and credibility. This condition may lead to excessive dependence on technology and increase the risk of spreading invalid information or misinformation. Previous studies have also revealed that students often encounter inconsistent and inaccurate AI-generated responses and experience difficulties distinguishing credible information from misleading information.

Previous studies have shown that digital literacy has a positive relationship with the utilization of AI technology and students' English language skills. Multiple regression analysis indicates that digital literacy and AI utilization simultaneously have a significant effect on students' English language skills. In addition, interview findings from previous studies revealed that students perceived AI as helpful in understanding English learning materials, improving grammar skills, enriching vocabulary, and practicing speaking skills independently.

However, studies comprehensively examining the influence of digital literacy and AI technology utilization on students' English language skills remain relatively limited, particularly in the context of higher education institutions in Indonesia. Most previous studies have focused only on AI utilization or digital literacy separately. Therefore, this study is important to analyze more deeply the influence of digital literacy and the utilization of Artificial Intelligence technology on students' English language skills. This study is expected to contribute to the development of more effective, innovative, and student-centered AI-based learning strategies in the digital era.

Method

This study employed a quantitative approach using a survey method to analyze the influence of digital literacy and the utilization of Artificial Intelligence (AI) technology on students' English language skills. A quantitative approach was chosen because it is capable of generating numerical data that can be statistically analyzed to identify the relationships and influences among the research variables. The study was conducted among students

at Universitas Ichsan Sidrap using a purposive sampling technique, which involves selecting respondents based on specific criteria relevant to the research objectives. The respondent criteria included active students in semesters 3–6, students who had used AI applications such as ChatGPT, Grammarly, or Duolingo in learning activities, and students who had participated in English-based learning either formally or informally.

Data collection was conducted through the distribution of online questionnaires to obtain information regarding students' levels of digital literacy, AI utilization, and English language skills. The research instrument was designed using a Likert scale that covered indicators related to the ability to access and evaluate digital information, the intensity of AI utilization in learning, and students' English language skills in writing, speaking, reading, and understanding English materials. Before being administered, the research instrument underwent validity and reliability testing to ensure that each statement item was appropriate and consistent for data collection purposes.

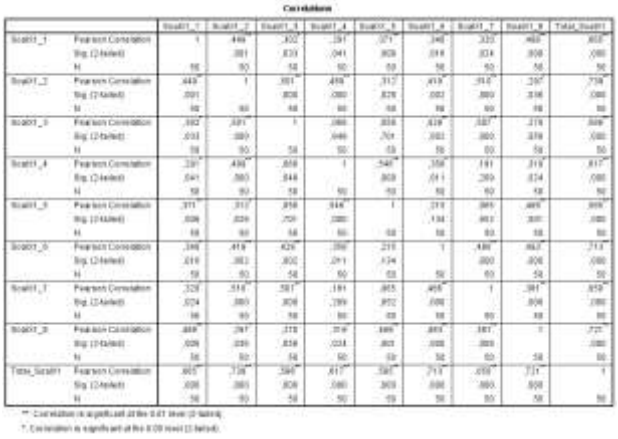
Data analysis was conducted using descriptive and inferential statistics. Descriptive statistics were used to describe the levels of digital literacy, AI utilization, and students' English language skills based on mean scores, percentages, and standard deviations. Furthermore, inferential statistics were employed to examine the relationships and influences among the research variables. Normality testing was conducted using the Kolmogorov-Smirnov or Shapiro-Wilk tests to determine the distribution of the data. Pearson Product Moment correlation analysis was applied when the data were normally distributed, whereas the Spearman Rank test was used when the data were not normally distributed. In addition, multiple linear regression analysis was employed to determine the extent to which digital literacy and AI utilization influenced students' English language skills.

The results of the data analysis were then interpreted to address the research objectives concerning the influence of digital literacy and the utilization of Artificial Intelligence technology on students' English language skills. Through this quantitative approach, the study is expected to provide empirical evidence regarding the relationships among the variables as well as the contribution of AI utilization in supporting the improvement of students' English language skills in the digital era.

Result

The research data were obtained through questionnaires distributed to 50 student respondents who met the research criteria. Based on the data analysis results, the average score for the Digital Literacy variable was 3.89, AI Technology Utilization was 3.81, and English Language Skills was 3.36. These findings indicate that students' levels of digital literacy and AI technology utilization were categorized as good, while their English language skills were categorized as moderately good.

1. Validity and Reliability Test



Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,812	,815	8

Gambar 1. Validity and Reliability Test of Digital Literacy Indicators

The validity test was conducted to determine the extent to which the research instrument accurately measured the intended variables. Based on the validity test results for the Digital Literacy variable consisting of 8 statement items, all items showed Pearson Correlation values greater than the r-table value of 0.273 and significance values below 0.05. This indicates that all statement items in the Digital Literacy variable were valid and appropriate for use as research instruments. In addition, the reliability test results showed a Cronbach's Alpha value of 0.812, indicating that the instrument was reliable because it exceeded the minimum threshold of 0.60..

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,780	,784	9

Figure 2. Validity and Reliability Test of AI Technology Utilization Indicators

For the AI Technology Utilization variable consisting of 9 statement items, all items also showed r-count values greater than the r-table value (0.273) and significance values below 0.05. Therefore, all items were declared valid. The reliability test produced a Cronbach's Alpha value of 0.780, indicating that the instrument had good internal consistency and was reliable for use in the study.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,863	,861	8

Figure 3. Validity and Reliability Test of English Language Skills Indicators

Meanwhile, the English Language Skills variable consisting of 8 statement items also demonstrated good validity results. All items had significant correlations with the total score and were therefore considered valid. The reliability test results showed a Cronbach's Alpha value of 0.863, indicating that the instrument had a very high level of reliability. Based on the overall validity and reliability test results, it can be concluded that all research instruments related to the variables of Digital Literacy, AI Technology Utilization, and English Language Skills were valid and reliable, making them appropriate for use in the data collection process.

2. Normality Test

Figure 4. Normality Test Results

The normality test was conducted using the Kolmogorov-Smirnov method to determine whether the research data were normally distributed. The results showed that the Asymp. Sig. (2-tailed) values for the Digital Literacy variable were 0.545, AI Technology was 0.358, and English Language Skills was 0.548. All significance values were greater than 0.05, indicating that the research data were normally distributed. Since the assumption of normality was fulfilled, the data were suitable for parametric statistical analyses such as Pearson correlation and multiple linear regression.

3. Correlation Test

Correlations

		Literasi Digital	Teknologi AI	Keterampilan Bahasa Inggris
Literasi Digital	Pearson Correlation	1	,329*	,314*
	Sig. (2-tailed)		,020	,027
	N	50	50	50
Teknologi AI	Pearson Correlation	,329*	1	,250
	Sig. (2-tailed)	,020		,080
	N	50	50	50
Keterampilan Bahasa Inggris	Pearson Correlation	,314*	,250	1
	Sig. (2-tailed)	,027	,080	
	N	50	50	50

*. Correlation is significant at the 0.05 level (2-tailed).

Figure 5. Pearson Correlation Test

The Pearson correlation test was conducted to determine the relationship among Digital Literacy, AI Technology Utilization, and students' English Language Skills. The analysis results showed that Digital Literacy had a positive and significant relationship with AI Technology Utilization and students' English Language Skills. This indicates that the better the students' digital literacy skills, the better their utilization of AI technology and English language skills.

However, the relationship between AI Technology Utilization and English Language Skills was positive but not statistically significant. This finding suggests that AI utilization has not directly provided a strong influence on improving students' English language skills. Other factors such as learning motivation, practice intensity, and basic English proficiency may also influence these results.

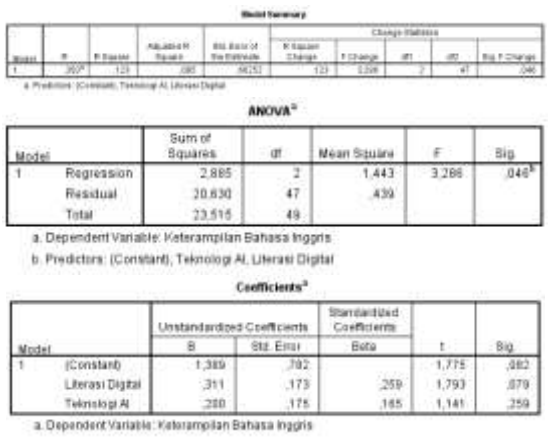
4. Multiple Linear Regression Analysis

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Teknologi AI, Literasi Digital[b]	.	Enter

a. Dependent Variable: Keterampilan Bahasa Inggris

b. All requested variables entered.



ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2,885	2	1,443	3,286	,046[b]
	Residual	20,630	47	,439		
	Total	23,515	49			

a. Dependent Variable: Keterampilan Bahasa Inggris
b. Predictors: (Constant), Teknologi AI, Literasi Digital

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,389	,782		1,775	,082
	Literasi Digital	,311	,173	,259	1,793	,079
	Teknologi AI	,200	,175	,165	1,141	,259

a. Dependent Variable: Keterampilan Bahasa Inggris

Figure 6. Multiple Linear Regression Analysis

Analisis regresi linear berganda dilakukan Multiple linear regression analysis was conducted to determine the simultaneous influence of Digital Literacy and AI Technology Utilization on students' English Language Skills. Based on the analysis results, the multiple correlation coefficient (R) value obtained was 0.350. This value indicates a positive relationship between the independent variables and the dependent variable, although the relationship was categorized as weak.

Furthermore, the R Square value of 0.123 indicates that the variables of Digital Literacy and AI Technology Utilization together explained 12.3% of the variation in students' English Language Skills. Meanwhile, the remaining 87.7% was influenced by other factors outside the research variables. The significance test results showed a Sig. F Change value of 0.046, which was lower than 0.05. Therefore, it can be concluded that Digital Literacy and AI Technology Utilization simultaneously had a significant influence on students' English Language Skills. These findings indicate that digital literacy skills and the utilization of AI technology contribute to supporting the improvement of students' English language skills in the digital era..

Discussion

The results of the quantitative analysis indicate that the research instruments used in this study met the criteria of validity and reliability, making them appropriate for use in the research process. All statement items in the variables of digital literacy, AI technology utilization, and English language skills had r-count values greater than the r-table value (0.273) and Cronbach's Alpha values above 0.60. These findings indicate that the instruments were capable of measuring the research variables accurately and consistently. Furthermore, the normality test results showed that all variables had significance values greater than 0.05, indicating that the data were normally distributed and fulfilled the requirements for parametric statistical analysis, particularly multiple linear regression analysis.

Based on the results of the multiple regression analysis, a significance value of 0.046 was obtained, indicating that digital literacy and the utilization of Artificial Intelligence (AI) technology simultaneously had a significant influence on students' English language skills. Although the coefficient of determination (R Square) value of 0.123 indicates a relatively low level of influence, the findings still demonstrate that both variables contributed to the improvement of students' English language skills. These findings suggest that students' ability to utilize digital technology and AI in learning can support the development of English language skills, particularly in writing, reading, and speaking aspects.

The findings of this study are consistent with the digital literacy theory proposed by Yoram Eshet-Alkalai, which emphasizes that the ability to access, understand, evaluate, and utilize digital information is an essential competence for achieving learning success in the digital era. Students with high levels of digital literacy tend to be more capable of utilizing AI effectively in English language learning, such as using AI for text translation, grammar correction, vocabulary enhancement, and conversation practice. Therefore, digital literacy serves as the primary foundation for supporting the effective utilization of AI technology in students' academic activities.

The findings of this study are also supported by research conducted by Nur Rahmah Wahyuddin et al. (2025), which found that the utilization of Artificial Intelligence applications such as ChatGPT, Grammarly, and Duolingo contributed positively to improving students' digital literacy and English language skills. AI helped students understand learning materials, improve grammar, enrich vocabulary, practice pronunciation, and increase learning motivation by providing quick and interactive feedback. The study also emphasized that the effectiveness of AI utilization is strongly influenced by students' levels of digital literacy. Students with good digital literacy tend to use AI more critically, productively, and responsibly, whereas students with low digital literacy are more likely to accept AI-generated information without verification, potentially leading to excessive dependence on technology. These findings are in line with the results of the present study, which demonstrate that digital literacy and AI utilization significantly influence students' English language skills.

The correlation test results also revealed that digital literacy had a positive and significant

relationship with AI technology utilization and students' English language skills. This indicates that the better students' digital literacy skills are, the better their ability to utilize AI in supporting English language learning. However, the relationship between AI technology utilization and English language skills was positive but statistically insignificant. This finding suggests that the use of AI alone is not sufficient to improve students' English language skills optimally without being supported by adequate digital literacy, learning motivation, practice intensity, and basic English proficiency.

Empirically, the findings of this study indicate that the use of AI provides several benefits in students' English language learning processes. AI-based applications such as ChatGPT, Grammarly, and Duolingo assist students in understanding learning materials, correcting grammar, improving vocabulary mastery, and practicing English communication skills independently. The utilization of AI is also considered capable of increasing students' learning motivation because it provides a more interactive, flexible, and easily accessible learning experience. These findings reinforce the view that AI can function as a digital learning medium that supports students' independent learning in the technological era.

Nevertheless, the results of this study also indicate that the utilization of AI still faces several challenges. Some students are not yet capable of critically evaluating the information provided by AI, which may lead them to accept inaccurate or irrelevant information. This condition demonstrates that the use of AI without adequate digital literacy skills can result in excessive dependence on technology. Therefore, digital literacy is not only related to technical abilities in using technology but also includes critical thinking skills, the ability to evaluate information, and the responsible and ethical use of technology in the learning process.

Based on the overall findings of this study, it can be understood that digital literacy and the utilization of AI technology are two interconnected aspects in improving students' English language skills. Digital literacy serves as the primary foundation that enables students to utilize AI effectively, while AI functions as a supporting learning tool that helps students develop English language skills in a more practical and contextual manner. Therefore, higher education institutions need to encourage the strengthening of students' digital literacy while also providing academic training on the use of AI technology so that technology utilization can optimally support the improvement of English language learning quality.

.

Conclusion

Based on the findings of this study, it can be concluded that digital literacy and the utilization of Artificial Intelligence (AI) technology have a significant influence on students' English language skills. The results of the quantitative analysis showed that the research instruments used were valid and reliable, and the research data were normally distributed, making them suitable for parametric statistical analysis. The multiple linear regression analysis indicated that digital literacy and AI utilization simultaneously had a significant effect on students' English language skills, with a significance value of 0.046. In addition, the correlation test results revealed that digital literacy had a positive relationship with AI technology utilization and students' English language skills. These findings indicate that students' ability to access, understand, and utilize digital technology effectively contributes to the improvement of their English language proficiency.

This study also revealed that the utilization of AI in English language learning provides various benefits, such as helping students improve grammar, enhance vocabulary, understand learning materials, and practice English communication skills independently. Nevertheless, the use of AI also presents several challenges, particularly related to students' ability to evaluate the accuracy of AI-generated information and the potential for excessive dependence on technology. Therefore, improving digital literacy is essential to ensure that students are able to utilize AI critically, wisely, and responsibly. Consequently, higher education institutions are expected to integrate digital literacy enhancement and AI technology utilization into the learning process in order to support the improvement of students' English language skills in the digital era.

References

Bawden, D. (2001). Information and digital literacies: A review of concepts. *Journal of Documentation, 57*(2), 218–259.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Darmawati, D., & Nurhafizah, N. (2023). Pemanfaatan artificial intelligence dalam pendidikan tinggi. *Jurnal Pendidikan dan Teknologi, 5*(2), 120–130.

Eshet-Alkalai, Y. (2004). Digital literacy: A conceptual framework for survival skills in the

digital era. *Journal of Educational Multimedia and Hypermedia, 13*(1), 93–106.

Hendrayadi, H., Kustati, M., & Sepriyanti, N. (2023). Metode mixed methods dalam penelitian pendidikan. *Jurnal Penelitian Pendidikan, 15*(2), 85–96.

Holmes, W., & Porayska-Pomsta, K. (2022). *The ethics of artificial intelligence in education*. Routledge.

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.

Kellner, D., & Share, J. (2019). *The critical media literacy guide: Engaging media and transforming education*. Brill Sense.

Syahira, S., Kartini, K., Sulistyahadi, S., & Prafiadi, S. (2023). Persepsi mahasiswa prodi pendidikan bahasa Inggris tentang penggunaan AI dalam pengajaran bahasa Inggris. *Jurnal Perspektif Pendidikan, 17*(2), 263–269. https://doi.org/10.31540/jpp.v17i2.2630

Usman, H., & Akbar, P. S. (2012). *Pengantar statistika* (2nd ed.). Bumi Aksara.

Wahyuddin, N. R., Yanti, N. E., Arnas, R., & Hermansyah, S. (2024). Digital literacy integrated with blended learning in improving EFL students' English language skills: A lesson learned from the independent campus program. *Journal of Language and Literature Studies, 4*(4), 744–757. https://doi.org/10.36312/jolls.v4i4.2351

Wahyuddin, N. R., Yanti, N. E., Arnas, R., & Hermansyah, S. (2025). Utilization of artificial intelligence in EFL learning from a digital literacy perspective. *IDEAS: Journal on Language Teaching and Learning, Linguistics and Literature, 13*(2), 7113–7122. https://doi.org/10.24256/ideas.v13i2.8331

Wang, Y. (2025). A study on the efficacy of ChatGPT-4 in enhancing students' English communication skills. *SAGE Open, 15*(1), 1–17. https://doi.org/10.1177/21582440241310644