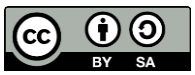
IDEAS

Journal of Language Teaching and Learning, Linguistics and Literature

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Volume 13, Number 1, June 2025
pp.1482 - 1490



Issued by English study program of IAIN Palopo

The Relationship of Digital Literacy and Student Engagement on Student English Learning

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Received: 2025-06-15 Accepted: 2025-06-24
DOI: 10.24256/ideas. v13i1.7040

Abstract

This study examines the relationship between digital literacy and student engagement in English language learning among tenth-grade students at a rural Indonesian high school. Using a quantitative correlational approach, data were obtained from 100 students using a structured questionnaire (Cronbach's α = 0.662). The analysis revealed a moderate, significant correlation between digital literacy and English learning achievement (r = 0.530), and a strong correlation between student engagement and achievement (r = 0.598). However, digital literacy was not significantly associated with engagement. These findings suggest that while digital skills contribute to achievement, they do not directly enhance engagement. This study applies the Self-Determination Theory framework and emphasizes the need for multifaceted strategies to foster engagement. Instrument reliability and contextual limitations are acknowledged. The findings offer insights for educators and policymakers in rural digital-based English instruction.

Keywords: *Digital Literacy, Student Engagement, English Learning*

Introduction

In the rapidly advancing digital age, the integration of digital literacy into education has become essential for students to thrive academically, especially in language learning (Alakrash and Razak 2021). Digital literacy, which encompasses the ability to effectively and critically use technology and digital resources, is crucial for students' academic success, particularly in English language acquisition (Dewanto et al. 2024). Recent studies have shown that digital literacy positively influences students' ability to engage with academic content and improve their learning outcomes (Wei et al. 2015).

Furthermore, student engagement, which is a critical factor in enhancing learning motivation and achievement, has been identified as essential for language learning (Hiver et al. 2021). Engaged students demonstrate higher participation,

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

interest, and effort, which contribute to their language development, especially in learning English (Wang, Zhang, and Zhang 2022).

Numerous studies have highlighted the importance of both digital literacy and student engagement in educational contexts. For instance, (Ng 2012) emphasized that students' ability to use digital resources effectively is fundamental for academic success, especially in English language learning. Similarly, (Kucuk and Richardson 2019) found that higher levels of digital literacy enable students to better understand and utilize learning materials independently. Research by (Hiver et al. 2021; Yang and Wang 2022) also indicated that student engagement plays a central role in boosting motivation and achievement, particularly in language education. However, most of these studies have focused on either digital literacy or engagement as separate factors, and have not examined their combined influence within the context of English language learning in Indonesian secondary schools.

Despite the growing body of research on digital literacy and student engagement, there is still a lack of studies investigating the relationship between these two variables in the specific context of English language learning, especially among Indonesian high school students. Previous research has generally explored the impact of digital literacy on academic outcomes (Ng 2012) examined student engagement in a broader educational setting (Kuh 2009), but has seldom addressed how these factors interact in English language classrooms, particularly in rural areas (Arsari 2022; Zein et al. 2020). This gap highlights the need for further investigation into how digital literacy and student engagement are interconnected and how they jointly affect students' learning experiences.

This study offers a new perspective by simultaneously examining digital literacy and student engagement as interconnected factors influencing English learning outcomes among high school students in a rural Indonesian setting (Hidayat and Suryadi n.d.). Unlike previous research that tends to treat these variables separately, this study integrates both aspects to provide a more comprehensive understanding of their combined impact. By focusing on a rural context, this research also contributes new insights into an area that has received limited attention in the literature. The findings are expected to inform the development of more effective digital-based English learning strategies in Indonesian high schools.

This study is guided by the Self-Determination Theory (Deci and Ryan 2008), which posits that intrinsic motivation is influenced by autonomy, competence, and relatedness. Accordingly, it is hypothesized that digital literacy is positively correlated with both student engagement and English learning achievement among high school students.

In light of the increasing role of digital literacy and student engagement in language education, particularly in rural Indonesian high schools, this study addresses the following research questions:

1) What is the relationship between digital literacy and student engagement in English language learning among high school students?
2) How does digital literacy affect students' achievement in English language learning?
3) To what extent does student engagement relate to English learning outcomes in this context?

Method

This research employed a quantitative survey approach utilizing a structured questionnaire as the primary data collection tool. This method allows for the systematic collection and analysis of numerical data to explore the relationship between digital literacy and student engagement in English learning (Creswell and Creswell 2017).

Research Design

A descriptive correlational design was used to examine the strength and direction of the relationship between students' digital literacy and their engagement in English learning. The use of a survey-based quantitative method is particularly effective in educational research where data from a large sample is required to identify trends and correlations (Bergdahl, Nouri, and Fors 2019).

Participant

The participants in this study were 100 tenth-grade students from SMAN 1 MANCAK, comprising three classes:

a. X3: 36 students (18 male, 18 female)
b. X4: 31 students (13 male, 18 female)
c. X5: 33 students (16 male, 17 female)

Although age data were not directly collected in the questionnaire, all participants were tenth-grade students. Based on the school's academic records, students in this grade level are typically between 15 and 16 years old.

The sample was selected using purposive sampling, which is appropriate when participants are chosen based on specific characteristics relevant to the research objectives (Etikan 2016).

Purposive sampling was chosen to ensure participants had relevant experience with digital tools in English learning. This non-random method was suitable due to school structure and classroom availability.

The main instrument was a questionnaire consisting of 30 statements, divided into three constructs:

The instrument was reviewed by two language education experts for content validity. A pilot test was conducted with 20 students from a different class to refine ambiguous items.

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ISSN 2548-4192 (Online)

Examples of questionnaire items include:

1) For Digital literacy: I feel capable of using various digital tools to support English learning.
2) For Student engagement: I am more active in participating in English classes that use digital technology.
3) For English Learning achievement: I feel my digital skills help me to understand English more easily.

The questionnaire used a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), to capture students' responses. The statements were developed by adapting indicators from prior studies on digital literacy (Ng 2012) and student engagement (Hiver et al. 2021), ensuring content relevance and construct validity.

Data Collection Procedure

The data were collected directly from students via an online survey distributed through Google Form. The link was shared with each class, and students were given 10 minutes per session to complete the questionnaire during a scheduled class period. This method provided a quick, accessible, and consistent way to gather responses across the different classes (Saleh and Bista 2017).

Data were collected in March 2024 during scheduled English lessons over the course of one week.

The data analysis in this study focused on three main procedures: descriptive statistics, validity testing, and reliability testing of the research instrument. All analyses were conducted using SPSS Statistics version 26.

Results

This section presents the findings of the quantitative analysis derived from students' responses to the 30-item questionnaire. The analysis includes descriptive statistics, reliability testing, and Pearson correlation analysis to explore the relationship between digital literacy and student engagement in English learning.

Descriptive statistics

Descriptive statistics were calculated to summarize the mean and standard deviation of each variable.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Digital Literacy	100	18	42	30.04	4.763
Student Engagement	100	19	38	29.79	4.096
English Learning	100	18	39	27.45	4.179
Valid N (listwise)	100				

Correlations

		Digital Literacy	Student Engagement	English Learning
Digital Literacy	Pearson Correlation	1	.088	.530**
	Sig. (2-tailed)		.384	.000
	N	100	100	100
Student Engagement	Pearson Correlation	.088	1	.598**
	Sig. (2-tailed)	.384		.000
	N	100	100	100
English Learning	Pearson Correlation	.530**	.598**	1
	Sig. (2-tailed)	.000	.000	
	N	100	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

Reliability Statistics

Cronbach's Alpha	N of Items
0.662	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Digital Literacy	57.24	54.709	.348	.748
Student Engagement	57.49	61.242	.373	.689
English Learning	59.83	42.890	.759	.160

Discussion

These results reinforce the principles of Self-Determination Theory, suggesting that while digital competence enhances learning outcomes, engagement likely depends on additional contextual and pedagogical factors. The lack of correlation between digital literacy and engagement may stem from passive learning environments or limited interactive digital content. Furthermore, in rural Indonesian contexts, access to technology and digital pedagogical practices may vary, affecting how students engage with digital tools. Future efforts should explore these contextual influences.

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The present study explored the relationships among digital literacy, student engagement, and English learning achievement among high school students. The descriptive statistics show that students generally possess moderate to high levels of digital literacy (M = 30.04, SD = 4.76), student engagement (M = 29.79, SD = 4.09), and English learning achievement (M = 27.45, SD = 4.18). These findings suggest that the participants are relatively well-equipped with digital skills and demonstrate satisfactory engagement and performance in English learning.

The correlation of r = .530 between digital literacy and English learning achievement is considered a moderate effect size, while r = .598 between student engagement and achievement is interpreted as a strong effect. Assumption tests for normality, linearity, and homoscedasticity were conducted and confirmed no major violations. The response rate was 95.2%, with 100 out of 105 students completing the survey.

The correlation analysis reveals a significant and moderate positive association between digital literacy and English learning achievement ($r = 0.530$, $p < 0.01$). This result is consistent with previous research indicating that digital literacy supports students in accessing and utilizing digital resources, which can enhance their language learning outcomes (Godwin-Jones 2018; Ng 2012). Students who are proficient in digital skills are more likely to take advantage of online learning tools, multimedia resources, and digital communication platforms to improve their English proficiency.

In contrast, the relationship between digital literacy and student engagement was found to be weak and statistically insignificant ($r = 0.088$, $p = 0.384$). This suggests that while digital literacy is crucial for academic success, it does not automatically increase students' participation or motivation in the classroom. Other factors, such as teaching strategies, classroom environment, and individual student characteristics, may play a more substantial role in fostering engagement (Fredricks, Blumenfeld, and Paris 2004).

Additionally, student engagement demonstrated a strong and significant correlation with English learning achievement ($r = 0.598$, $p < 0.01$). This finding supports the argument that engaged students tend to achieve higher academic outcomes, as engagement is a key predictor of learning success (Appleton, Christenson, and Furlong 2008).

The reliability analysis yielded a Cronbach's Alpha of 0.662 for the combined instrument, which is slightly below the commonly accepted threshold of 0.7. While this value is considered acceptable for exploratory studies, it indicates that further refinement of the measurement tools is recommended for future research (Taber 2018).

Overall, these results highlight the importance of digital literacy in supporting English language learning, but also underscore that engagement is influenced by a broader set of factors beyond digital competence. Educators should

consider integrating digital literacy instruction with pedagogical strategies that actively promote student engagement.

This study is subject to several limitations. First, the sample was limited to a single rural high school, which may affect the generalizability of the findings. Second, the reliability of the instrument, while acceptable for exploratory research, suggests that future studies should further refine the measurement tools. Third, the use of self-reported questionnaires may introduce response bias. Future research should consider including a larger and more diverse sample, employing mixed methods, and exploring additional variables that may influence student engagement, such as teacher support, family background, or access to digital infrastructure.

Conclusion

This study demonstrates that digital literacy plays a significant role in students' English learning achievement, emphasizing its essential contribution in contemporary language education, especially in rural Indonesia. However, digital literacy alone does not directly enhance student engagement, indicating that additional strategies are necessary to foster active classroom participation. The strong association found between engagement and achievement underscores the need for multifaceted approaches that address both digital competence and student involvement.

Given the moderate reliability of the instruments used, future research should aim to improve the validity and consistency of measurement tools. It is also recommended that subsequent studies investigate other variables that may mediate or moderate the relationship between digital literacy, engagement, and academic achievement, such as teaching strategies, classroom environment, or access to digital infrastructure.

These insights are valuable for educators and policymakers in developing effective, digitally integrated English language programs, particularly in rural school contexts where students' digital skills and engagement levels may vary. By addressing both digital literacy and engagement, schools can better support student success in English language learning in the digital era.

Despite these limitations, the study offers practical implications for educators and policymakers. Schools in rural contexts should consider integrating digital literacy instruction with pedagogical approaches that promote intrinsic motivation and student engagement. Professional development for teachers on using digital tools effectively to foster active learning could also be beneficial. At the policy level, expanding digital infrastructure and equitable access to technology are critical to supporting digital education in under-resourced areas.

This study has several limitations. Firstly, the sample was limited to a single rural Indonesian high school, which restricts the generalizability of the findings. Secondly, the reliability of the research instrument was moderate (Cronbach's α = 0.662), suggesting the need for improved measurement tools in future research.

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Thirdly, the reliance on self-reported questionnaire data may introduce response biases. Finally, this study did not control for potential confounding variables such as socioeconomic status, prior academic achievement, or access to digital devices, which could influence both digital literacy and engagement levels limitations and implications

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