



THE RELATIONSHIP BETWEEN DIGITAL READING ACTIVITY, READING ENGAGEMENT, AND READING COMPREHENSION AMONG EFL LEARNERS

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ABSTRACT

The growth of digital technology has changed the way students read, learn, and interact with English texts. In many EFL classrooms, reading is no longer limited to printed books because students increasingly access materials through smartphones, laptops, and online platforms. This shift gives learners wider exposure to authentic texts, yet it also introduces new demands related to navigation, attention control, and strategic reading. In such contexts, reading comprehension is shaped not only by students' access to digital texts but also by how actively they engage with what they read. This study examined the relationship between digital reading activity, reading engagement, and reading comprehension among eleventh-grade EFL learners. A quantitative correlational design was used. Data were collected through a digital reading activity questionnaire, a reading engagement questionnaire, and a reading comprehension test, then analyzed using descriptive statistics, Pearson product-moment correlation, and multiple regression. The findings show that digital reading activity was positively and significantly related to reading comprehension. Reading engagement also had a positive and significant relationship with comprehension. In addition, both variables simultaneously contributed to students' reading comprehension performance. These findings suggest that digital reading becomes more academically meaningful when it is accompanied by active emotional, behavioral, and cognitive engagement during reading.

Keywords: *Digital reading activity, reading engagement, reading comprehension, EFL learners, digital literacy*

1. INTRODUCTION

Reading comprehension remains one of the most important aspects of English learning because it enables students to interpret information, connect ideas, and develop academic understanding from written texts. In EFL settings, reading often becomes the main route through which learners encounter vocabulary, text structures, and new knowledge. For that reason, comprehension is not a simple act of decoding words, but a complex process involving prior knowledge, strategic thinking, and meaning construction (Elleman & Oslund, 2019; Duke, Ward, & Pearson, 2021).

At the same time, reading practices have changed considerably in the digital era. Students no longer depend only on printed books or handouts because digital devices now give them immediate access to websites, e-books, classroom platforms, social media content, and multimodal materials. This shift has broadened the reading environment, but it has also changed the nature of reading itself. Digital reading requires learners to move across screens, follow hyperlinks, evaluate sources, and manage information presented in multiple forms at once (Al-Seghayer, 2023; Coiro, 2021; Dufva & Pusa, 2020).

Several scholars have pointed out that digital reading can support language learning when students use it purposefully. Online environments may increase access to authentic English materials, improve flexibility, and expose learners to varied genres and topics (Blikstad-Balas & Roe, 2020; Catone, 2021; Chang, Hsu, & Wu, 2022; Huang & Chen, 2020). However, the same environment can also weaken comprehension when reading becomes fragmented, rushed, or overly dependent on surface scanning. Multimedia distractions, multitasking habits, and low strategy awareness may reduce the quality of comprehension, especially for EFL learners who are still developing vocabulary and textual understanding (Reiber-Kuijpers, Kral, & Meijer, 2021; Schmid, Bernard, & Borokhovski, 2021; Kurniasih & Aldino, 2022; Nurfaizah, Erniyati, & Pranata, 2024).

Because of that, reading engagement becomes highly relevant. Engagement refers to the extent to which students are emotionally interested, behaviorally involved, and cognitively invested in reading. Engaged readers are generally more willing to persist with difficult texts, use strategies, and actively construct meaning rather than merely passing through a text (Gambrell, 2011; Guthrie & Wigfield, 2022). Previous research has linked engagement to stronger reading achievement, deeper processing, and better comprehension outcomes because engaged students tend to approach reading as an active intellectual task rather than a routine classroom obligation (Fardadi & Azizi, 2020; Kim, Boyle, Levine, & Woolley, 2019; Guthrie & Klauda, 2022).

This issue becomes even more important in digital settings. Interactive reading tools, mobile learning applications, and multimodal text features may increase interest and participation, but they do not automatically guarantee deeper understanding. Students still need to stay focused, regulate attention, and apply strategies that help them process content meaningfully. Studies in digital reading contexts have shown that engagement often acts as the bridge between access to technology and genuine comprehension growth (Chen, Hwang, Lin, Abou-Khalil, Li, & Ogata, 2022; Chen, Fan, & He, 2022; Mete, 2020).

A number of recent studies have also produced mixed findings. On one side, digital reading habits and digital extensive reading have been associated with increased language exposure, learner autonomy, and vocabulary development (Pardede, Rafli, & Iskandar, 2023;

Pardede, Widodo, & Mulyono, 2023; Fajhira, Putri, & Damayanti, 2025). On the other side, studies have also shown that the benefits of digital reading depend heavily on the quality of students' engagement, self-regulation, and instructional support (Naumann, 2022; Noori, A., 2025; Noori, M., 2025). Zhu and Sabir (2024) further argue that reading engagement may mediate the effect of digital reading activity on comprehension. Yet, empirical evidence from Indonesian senior high school EFL settings is still limited. Based on that gap, this study examines the relationship between digital reading activity, reading engagement, and reading comprehension among EFL learners.

2. LITERATURE REVIEW

Digital reading activity can be understood as students' habits, preferences, and strategies when reading through digital devices. It includes how often students read online, what materials they access, how they navigate texts, and whether they use digital tools to support understanding. In contemporary literacy research, digital reading is not viewed merely as reading on a screen, but as a multilayered literacy practice that combines language processing, information management, and technological awareness (Al-Seghayer, 2023; Coiro, 2021; Dufva & Pusa, 2020; Catone, 2021).

Compared with printed reading, digital reading tends to be more dynamic and less linear. Readers may jump between sections, open supporting links, compare sources, and interpret images or other embedded media while reading. These conditions can be productive when students are strategic, but they can also split attention and reduce comprehension when students lack control over the process. Research has shown that successful digital reading depends on purposeful strategy use, source evaluation,

and sustained focus (Huang & Chen, 2020; Banditvilai, 2020; Schmid et al., 2021). In addition, comprehension is affected by learners' background knowledge, since readers must connect what they see on screen with what they already know in order to construct meaning (Smith, Snow, Serry, & Hammond, 2021).

Reading engagement, meanwhile, refers to how deeply students participate in reading as a cognitive and emotional activity. Engagement is usually described through three dimensions: emotional engagement such as enjoyment and

interest, behavioral engagement such as effort and persistence, and cognitive engagement such as monitoring, questioning, and strategy use (Gambrell, 2011; Guthrie & Wigfield, 2022; Guthrie & Klauda, 2022). Students who are engaged do not simply finish reading tasks; they are more likely to interact with ideas, remain attentive, and invest effort in understanding the text. This is why engagement has repeatedly been associated with stronger comprehension, better retention, and more consistent academic performance (Fadardi & Azizi, 2020; Kim et al., 2019; Mete, 2020).

In EFL contexts, the relationship among digital reading, engagement, and comprehension has attracted growing attention. Interactive mobile learning environments have been found to increase students' participation and achievement when reading tasks are well designed (Chen et al., 2022). Digital text features can also influence how students engage with reading and how well they comprehend it (Chen, Fan, & He, 2022). At the same time, several studies emphasize that technology alone is not enough. Structured instructional support, metacognitive guidance, and meaningful task design remain necessary if digital reading is expected to improve comprehension (Noori, A., 2025; Noori, M., 2025; Naumann, 2022).

Within Indonesia and similar EFL environments, digital reading has shown both promise and tension. Students today are highly familiar with digital devices, but their reading habits are not always academic in orientation. Some use digital media frequently, yet spend more time on entertainment than on sustained English reading (Pardede, Rafli, & Iskandar, 2023; Nurfaizah et al., 2024). Other studies indicate that digital extensive reading can still be productive when learners are encouraged to read regularly and enjoy texts beyond classroom assignments (Pardede, Widodo, & Mulyono, 2023; Fajhira et al., 2025). These mixed findings support the view that reading comprehension in digital settings is best understood as the outcome of several interacting factors, especially reading behavior and reading engagement. This position is also consistent with the model proposed by Zhu and Sabir (2024), which suggests that engagement plays a meaningful role in linking digital reading experiences with comprehension outcomes.

3. METHODS

This study used a quantitative correlational design to examine the relationship

between digital reading activity, reading engagement, and reading comprehension. The participants were 100 eleventh-grade students from one public senior high school in South Sumatra. The sample represented regular classroom learners who had already been exposed to English reading activities and to digital devices in their learning environment.

Three instruments were used to collect the data. The first was a digital reading activity questionnaire. After the try-out process, 16 valid items were retained to measure students' digital reading habits, including reading frequency, platform use, text preference, and strategy-related behavior. The second instrument was a reading engagement questionnaire. Seventeen valid items were retained to measure emotional, behavioral, and cognitive engagement in reading. The third instrument was a reading comprehension test with 35 valid multiple-choice items covering main ideas, supporting details, vocabulary in context, inference, and conclusion drawing.

To make the three measures comparable, raw scores were transformed into a 0–100 scale. The data were then analyzed through descriptive statistics, Pearson product-moment correlation, and multiple regression. Assumption testing was conducted before inferential analysis. The Kolmogorov–Smirnov procedure was considered in interpreting normality, while model interpretation also paid attention to the explanatory value of the coefficient of determination, following commonly used guidance in quantitative analysis (Demir, 2022; Chicco & Jurman, 2021; Gao, 2024).

4. RESULTS AND DISCUSSION

The descriptive results indicate that students demonstrated relatively high levels of both digital reading activity and reading engagement. The transformed mean score for digital reading activity was 82.09, while reading engagement reached a higher average of 87.80. In comparison, reading comprehension recorded a mean score of 78.63, suggesting a moderate-to-good performance level; however, it exhibited greater variability than the other two variables. Overall, these findings imply that although students are familiar with digital reading environments and show strong engagement tendencies, such familiarity does not always translate into

consistently high comprehension outcomes.

Tabel 1. Descriptive Statistics of Research Variables

Variable / Model	Mean	SD	r with Reading Comprehension	Sig.	B	t	Result
Digital Reading Activity	82.09	6.19	0.617	0.000	1.475	2.900	Significant
Reading Engagement	87.80	6.74	0.623	0.000	1.379	3.138	Significant
Reading Comprehension	78.63	21.41	—	—	—	—	Dependent variable
Regression model ($X_1 + X_2 \rightarrow Y$)	—	—	R = 0.661	0.000	—	F = 37.725	R ² = 0.438; Adj. R ² = 0.426

Source: Adapted from the thesis data.

The first major finding reveals a positive and statistically significant relationship between digital reading activity and reading comprehension. The correlation coefficient ($r = 0.617$) suggests that students who engage more frequently in digital reading tend to achieve higher levels of comprehension. This result reinforces prior research emphasizing that sustained exposure to digital texts can enhance reading development, particularly when used for meaningful academic purposes (Chang et al., 2022; Pardede et al., 2023). It also aligns with the view that digital reading environments provide broader access to authentic English materials and foster autonomous interaction with texts (Al-Seghayer, 2023; Catone, 2021). However, this relationship should not be interpreted as a purely technological effect, as comprehension is also shaped by how strategically students interact with digital materials. Effective digital reading requires purposeful navigation, selective attention, and the ability to manage cognitive load (Huang & Chen, 2020; Coiro, 2021; Schmid et al., 2021).

The second key finding shows a similarly strong positive relationship between reading engagement and reading comprehension, with a correlation coefficient of $r = 0.623$. This indicates that students who are more emotionally, behaviorally, and cognitively engaged in reading tend to perform better in comprehension tasks. This finding strongly supports engagement theory, which emphasizes that deep comprehension is facilitated when learners read with interest, persistence, and strategic

involvement (Gambrell, 2011; Guthrie & Wigfield, 2022). Previous empirical studies also confirm that engaged readers are more likely to monitor understanding, overcome difficulties, and actively construct meaning (Fadardi & Azizi, 2020; Kim et al., 2019; Mete, 2020). In digital reading environments, engagement becomes even more critical due to the potential for distraction and fragmented attention.

The multiple regression analysis further strengthens these findings, showing that digital reading activity and reading engagement jointly explain 43.8% of the variance in reading comprehension ($F = 37.725$; $R^2 = 0.438$). Both predictors remain statistically significant, indicating that each variable contributes uniquely to comprehension even when controlling for the other. This suggests that digital reading behavior and engagement function as complementary rather than independent factors. While digital access provides opportunities for exposure to texts, engagement determines the depth of processing and learning outcomes (Chen et al., 2022; Chen et al., 2022).

These results are consistent with recent literature highlighting engagement as a mediating or connecting mechanism between digital reading practices and comprehension outcomes. Zhu and Sabir (2024) emphasize that digital reading influences comprehension partly through engagement, while Noori (2025) highlights the importance of structured instructional support and metacognitive regulation in digital reading environments. Reiber-Kuijpers et al. (2021) further note that the effectiveness of digital

reading in second-language learning depends on pedagogical design, and Naumann (2022) argues that online comprehension requires advanced cognitive control beyond basic decoding. Additionally, Smith et al. (2021) stress the importance of background knowledge as a foundational element in comprehension development.

Overall, the findings suggest that reading comprehension in EFL contexts is shaped by the interaction of behavioral reading patterns and learner engagement rather than by a single factor. Digital reading environments expand access and flexibility, but their effectiveness depends on how actively and meaningfully students engage with texts. Therefore, pedagogical practices should not only increase students' exposure to digital reading materials but also foster sustained attention, strategic reading behavior, and cognitive engagement. When these elements are integrated, digital reading becomes significantly more effective in enhancing comprehension outcomes.

5. CONCLUSION

This study examined the relationship between digital reading activity, reading engagement, and reading comprehension among EFL learners. The findings show that digital reading activity was positively and significantly related to reading comprehension, and reading engagement demonstrated a similarly strong positive relationship with comprehension. In addition, both variables simultaneously contributed to students' comprehension performance.

These results indicate that digital reading can support comprehension, but its value depends greatly on the extent to which students are genuinely engaged while reading. Simply providing digital materials is not enough. What matters is whether students interact with texts attentively, strategically, and meaningfully. For English teachers, this means that digital reading instruction should be accompanied by engagement-oriented activities such as guided questioning, text reflection, vocabulary support, and post-reading discussion. Future studies may explore other factors that were not included in this model, such as vocabulary knowledge, digital literacy skill, and the role of specific platforms in shaping reading behavior.

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