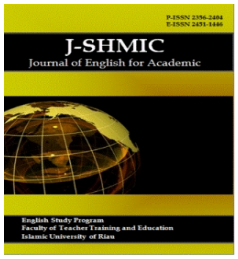

J-SHMIC: Journal of English for Academic

ISSN : 2641-1446 (Online) ISSN :2356-2404 (Print)
Homepage: https://journal.uir.ac.id/index.php/jshmic
Vol 13, No. 1, February 2026

The Correlation Between Students' Internet Device Use and Language Literacy in Khalifah Model School Secondary

Neni Kustina Sari[1], Herlinawati[2], Mardiah Hafizah[3], and Herdi[4]*
[1]English Education Language Program, Faculty of Education and Vocational Studies, Universitas Lancang Kuning, Indonesia
[2]English Education Language Program, Faculty of Education and Vocational Studies, Universitas Lancang Kuning, Indonesia
[3]Khalifah Model School Secondary, Sepang, Selangor, Malaysia
[4]English Education Language Program, Faculty of Education and Vocational Studies, Universitas Lancang Kuning, Indonesia

ABSTRACT

In the current era of globalization, technology plays an important role in all parts of life, especially in the world of education which is used to improve the teaching and learning process in the classroom. The increased use of technology in education will greatly help students and teachers in completing tasks while expanding their knowledge and understanding through the use of existing technology. This study aims to investigate the correlation between students' use of internet devices and language literacy at Khalifah Model School Secondary Malaysia. This study used quantitative method with a correlation design to assess the relationship of students' internet device use and language literacy. Data was collected through two sets of questionnaires with a total of 35 questions, which were administered to Grade 8 and 9 students with a total sample of 61 students. The results showed that there was a correlation between students' internet device use and language literacy (sig. 2 tailed = 0.005 < 0.05). However, the Pearson correlation coefficient of -0.356 indicates a negative relationship with low strength. In conclusion, this study found there is correlation but not significant between language literacy and internet use among schoolchildren. This study implies the need for a more thoughtful and targeted approach in integrating technology into education to maximize its benefits for students' literacy. This will be potential for the future researchers to investigate more topics about the school students' literacy and internet usage in the contexts of classroom settings.

KEYWORDS
Correlation Study, Device Use, Language Literacy

ABSTRAK

Pada era globalisasi saat ini, teknologi memegang peranan penting dalam berbagai aspek kehidupan, khususnya dalam dunia pendidikan, yang dimanfaatkan untuk meningkatkan proses belajar mengajar di kelas. Meningkatnya penggunaan teknologi dalam pendidikan sangat membantu siswa dan guru dalam menyelesaikan tugas sekaligus memperluas pengetahuan serta pemahaman melalui pemanfaatan teknologi yang tersedia. Penelitian ini bertujuan untuk menyelidiki hubungan antara penggunaan perangkat internet oleh siswa dan literasi bahasa di Khalifah Model School Secondary Malaysia. Penelitian ini menggunakan metode kuantitatif dengan desain korelasional untuk menilai hubungan antara penggunaan perangkat internet siswa dan literasi

KATA KUNCI
Studi Korelasional, Penggunaan Perangkat Internet, Literasi Bahasa

bahasa. Data dikumpulkan melalui dua set kuesioner dengan total 35 butir pertanyaan yang diberikan kepada siswa kelas 8 dan 9 dengan jumlah sampel sebanyak 61 siswa. Hasil penelitian menunjukkan bahwa terdapat hubungan antara penggunaan perangkat internet siswa dan literasi bahasa (sig. 2-tailed = 0,005 < 0,05). Namun demikian, koefisien korelasi Pearson sebesar -0,356 menunjukkan adanya hubungan negatif dengan tingkat kekuatan yang rendah. Sebagai kesimpulan, penelitian ini menemukan adanya hubungan, tetapi tidak signifikan, antara literasi bahasa dan penggunaan internet di kalangan siswa sekolah. Penelitian ini mengimplikasikan perlunya pendekatan yang lebih cermat dan terarah dalam mengintegrasikan teknologi ke dalam pendidikan agar manfaatnya terhadap literasi siswa dapat dimaksimalkan. Hal ini juga membuka peluang bagi peneliti selanjutnya untuk mengkaji lebih lanjut berbagai topik terkait literasi dan penggunaan internet oleh siswa sekolah dalam konteks pembelajaran di kelas. Hasil menunjukkan bahwa mahasiswa lebih sering menggunakan ChatGPT untuk menangani aspek

***Corresponding Author :**
Neni Kustina Sari
English Education Language Program, Faculty of Education and Vocational Studies, Universitas Lancang Kuning, Indonesia: nenisari115@gmail.com

INTRODUCTION

The rapid expansion of digital technology has significantly transformed educational practices worldwide. In contemporary classrooms, internet connected devices such as computers, laptops, tablets, and mobile phones are no longer supplementary tools but integral components of teaching and learning processes. These devices enable students and teachers to access multimodal resources that combine text, audio, video, and interactive elements, thereby reshaping how knowledge is constructed and literacy is developed (Park & Burford, 2019). Compared to traditional print based instruction, digital environments provide more dynamic and flexible learning experiences, which may lower barriers to literacy for diverse learners (Chen & Bryer, 2020). Consequently, the integration of internet devices into education has generated growing scholarly interest, particularly regarding their implications for language literacy.

Internet device use in educational contexts refers to the purposeful integration of digital tools into academic activities, including accessing information, completing assignments, and engaging in communication. Over the past two decades, these devices have evolved from simple communication tools into sophisticated platforms capable of delivering extensive educational content (Park & Burford, 2019). This transformation has altered how students access, process, and share information (Lai & Zheng, 2021). On the one hand, digital technologies offer flexibility, allowing students to learn anytime and anywhere while supporting individualized learning paths (Kukulska Hulme & Lee, 2020). On the other hand, their pervasive presence raises critical questions about their long term influence on core literacy skills, particularly reading comprehension, writing proficiency, and speaking ability (Lue et al., 2019).

Existing research presents mixed findings. Several studies emphasize the pedagogical benefits of internet devices, especially in language learning. Access to digital dictionaries, translation tools, online discussion forums, video tutorials, and interactive quizzes can enrich students' exposure to authentic language input and facilitate skill practice beyond classroom hours (Cheng et al., 2018; Li et al., 2021). Mobile learning environments allow students to practice reading, writing, listening, and speaking in flexible contexts, which supports language acquisition processes (Hwang et al., 2020). Moreover, educational policies in many contexts encourage the integration of technology to broaden students' access to diverse learning materials (Widodo et al., 2020; Suwarto et al., 2022). From this perspective, internet device use can promote language literacy development by increasing exposure, interaction, and autonomy.

However, other studies highlight potential drawbacks. Survey data indicate that adolescents spend a substantial amount of time on internet connected devices, primarily for entertainment and social interaction rather than academic purposes (Rideout, 2020; Widodo et al., 2020). Excessive recreational use has been associated with weaker performance in advanced literacy skills, including reading and writing (Rosen et al., 2018; Wardani & Widodo, 2024). Changes in reading behavior have also been documented, with students showing greater preference for short digital texts rather than sustained engagement with complex academic materials (Mangen & van der Weel, 2016). Such tendencies may undermine deep reading processes that require critical analysis and conceptual synthesis (Wolf, 2018). In addition, concerns have been raised regarding declining reading interest and negative study habits linked to gadget overuse (Sasabone et al., 2023), as well as practical challenges such as limited infrastructure and unequal access (Fitriani, 2019; Li et al., 2021).

Although the literature demonstrates both positive and negative implications, much of it treats language literacy as a broad construct without clearly differentiating its specific components. The impact of internet device use on reading, writing, and speaking is often discussed in general terms, rather than examined in relation to each skill in a coherent analytical framework. Reading may be influenced by digital text formats and screen based comprehension strategies, writing by access to online references and collaborative platforms, and speaking by exposure to audiovisual materials and interactive communication tools. Yet, the interrelationship between patterns of device use and these distinct language skills remains insufficiently synthesized in previous research.

Furthermore, the majority of existing studies focus on general school settings where students have relatively free access to digital devices. Limited attention has been given to boarding school contexts where internet device use is strictly regulated. Lim and Lee (2019) report that boarding students often face restrictive policies regarding digital access, even though they are expected to achieve high levels of digital literacy in technology related curricula. This tension between restricted access and academic expectations suggests a context specific dynamic that has not been adequately explored, particularly in relation to measurable language literacy outcomes.

Preliminary observations and interviews conducted during teaching practice at Khalifah Model School Secondary, Sepang, Malaysia, indicate that students are prohibited from bringing personal internet devices into classrooms. Device use is limited to computer laboratories and supervised activities, while independent access is generally permitted only at home for completing assignments under parental monitoring. This structured environment

provides a distinctive setting to examine how regulated internet device use relates to students' reading, writing, and speaking abilities.

Based on the identified gaps, this study seeks to move beyond descriptive accounts of technology integration by empirically examining the correlation between students' internet device use and specific components of language literacy. By focusing on reading, writing, and speaking skills within a boarding school context, this research aims to clarify whether and to what extent patterns of device use are associated with variations in language literacy levels. In doing so, the study contributes to a more nuanced understanding of digital technology's role in language education and provides context sensitive evidence that may inform policy and pedagogical decisions.

METHOD

Research Design

This study uses a quantitative approach with a correlational research design to examine the relationship between students' internet device use and their language literacy. A correlational design was selected because the primary objective of the research is to identify the strength and direction of the association between two naturally occurring variables without manipulating them. Since internet device use in the boarding school context is regulated by institutional policy, experimental manipulation was neither feasible nor ethically appropriate. Therefore, a non experimental correlational approach provides a suitable framework to determine whether variations in patterns of device use are statistically associated with differences in reading, writing, and speaking skills.

Participants and Context

The participants were Grade 8 and Grade 9 students at Khalifah Model School Secondary, Malaysia. The total sample consisted of 61 students drawn from the accessible population in the school. Because the sample was limited to one institution with a boarding system and specific device regulations, the findings cannot be generalized to broader student populations. Instead, the results should be interpreted as context specific evidence that reflects the characteristics of this particular educational setting.

Instruments

Data were collected using two structured questionnaires with a total of 35 items. The first questionnaire measured internet device use as the independent variable with 20 items, and the second measured language literacy as the dependent variable with 15 items. All items employed a Likert scale to capture the degree or frequency of students' responses.

The development of the instruments was based on previously established indicators. The internet device use questionnaire was adapted from the framework proposed by Noor et al. (2020), while the language literacy indicators were adapted from Cao et al. (2023). The adaptation process involved aligning the original indicators with the boarding school context and refining item wording to ensure clarity and relevance. Content alignment was reviewed to ensure that each item corresponded to its intended construct.

Internet device use was operationalized through four dimensions:

1. **Choice of internet use**
   This dimension measures how students access and use internet devices, whether independently or with others.
2. **Prohibition of internet use**
   This dimension examines the extent to which parents restrict or regulate students' device usage.
3. **Encouragement from teachers or parents**
   This dimension identifies situations in which adults permit or encourage device use for academic or other purposes.
4. **Students' reactions to internet restrictions**
   This dimension captures students' affective responses when access to devices is limited.

Although some indicators reflect regulatory and affective aspects, they were included to represent the broader pattern of device related behavior within a controlled boarding school environment. However, it is acknowledged that these dimensions may not fully capture usage intensity or frequency, which may influence construct precision.

Language literacy was measured through three skill domains:

1. **Reading**, including comprehension, fluency, and understanding of written texts.
2. **Speaking**, including oral expression, listening integration, and vocabulary use.
3. **Writing**, including spelling, handwriting, and overall writing quality.

Each domain was represented by five items, resulting in a total of 15 items for the language literacy variable.

Validity and Reliability

Instrument validity was examined using item total correlation analysis with Pearson correlation coefficients. Each item was correlated with the total score of its respective construct to determine whether it contributed meaningfully to the overall scale. Reliability was assessed using Cronbach's Alpha to measure internal consistency. Prior to hypothesis testing, a normality test was conducted using the Kolmogorov Smirnov test to ensure that the data met the assumptions for parametric statistical analysis.

Data Analysis

After confirming validity, reliability, and normality, Pearson's Product Moment Correlation was applied to determine the strength and direction of the relationship between internet device use and language literacy. The correlation coefficient was interpreted to assess whether higher levels of reported internet device use were associated with higher or lower levels of reading, writing, and speaking skills.

While the study provides empirical evidence regarding the association between the two variables, it is important to note that correlational findings do not imply causation. Additionally, the relatively small sample size and single school context limit external validity. Future research with larger and more diverse samples, as well as more refined measures of device usage intensity, is recommended to strengthen generalizability and construct alignment.

FINDINGS AND DISCUSSION

4.1 Descriptive Results

Data were collected from 61 Grade 8 and Grade 9 students using two validated questionnaires measuring internet device use (Variable X) and language literacy (Variable Y). Prior to hypothesis testing, descriptive tabulation was conducted to examine score distribution.

Table 2. Score Tabulation Variable X and Y

No	X	Y
1	60	40
2	71	41
3	64	42
4	63	50
5	61	41
6	68	35
7	61	42
8	66	42
9	79	34
10	69	34
11	59	46
12	64	42
13	57	49
14	52	51
15	65	44
16	62	44
17	49	48
18	52	43
19	64	42
20	52	50
21	64	35
22	52	41
23	66	55
24	69	42
25	67	36
26	74	34
27	57	37
28	71	49
29	52	43
30	61	40
31	60	41
32	63	38
33	64	35
34	67	36
35	64	42
36	57	48
37	63	44
38	63	40
39	62	44
40	66	39
41	64	45
42	60	39
43	51	46
44	61	44
45	61	39
46	49	42
47	68	39
48	70	35
49	72	41
50	63	42
51	64	44
52	58	44
53	67	41
54	68	43
55	68	39
56	73	51
57	67	43
58	73	43
59	66	45
60	73	41
61	65	40

Table 2 presents the individual scores of internet device use and language literacy. The distribution indicates sufficient variability across respondents. Internet device use scores range from 49 to 79, while language literacy scores range from 34 to 55. The spread of scores suggests that the data are suitable for correlation analysis because both variables demonstrate measurable variation rather than clustering around a single value.

4.2 Assumption Testing

A Kolmogorov Smirnov normality test was conducted to determine whether the data met the assumptions for parametric testing. The result showed an Asymp. Sig (2 tailed) value of

0.200, which is greater than 0.05. Therefore, the data were normally distributed and Pearson's Product Moment Correlation could be appropriately applied.

4.3 Correlation Analysis

Pearson's Product Moment Correlation was used to test the relationship between internet device use and language literacy.

Table 3. Pearson Correlation between Internet Device Use and Language Literacy

Correlations

		Internet device use	Laanguage literacy
Internet device use	Pearson Correlation	1	-.356**
	Sig. (2-tailed)		.005
	N	61	61
Laanguage literacy	Pearson Correlation	-.356**	1
	Sig. (2-tailed)	.005	
	N	61	61

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

The analysis produced a correlation coefficient (r) of **-0.356** with a significance value of **0.005**. Since 0.005 is less than 0.05, the correlation is statistically significant at the 0.01 level. Thus, the null hypothesis is rejected, and it can be concluded that there is a statistically significant relationship between internet device use and language literacy.

However, two important interpretations must be emphasized. First, the correlation coefficient is negative. This indicates an inverse relationship, meaning that higher levels of reported internet device use are associated with lower levels of language literacy among students in this context.

Second, the strength of the relationship is low. A coefficient of 0.356 falls within the low correlation range. Therefore, although statistically significant, the magnitude of the relationship is modest. Internet device use explains only a small proportion of the variation in language literacy scores.

This distinction between statistical significance and practical strength is important. The finding does not suggest that internet device use strongly determines literacy outcomes, but rather that there is a measurable inverse association within this sample.

DISCUSSION

The findings reveal a statistically significant but weak negative correlation between internet device use and language literacy in a regulated boarding school context. This result contributes to ongoing debates in the literature regarding whether digital technology enhances or hinders literacy development.

Several previous studies report similar negative tendencies when device use is excessive or unguided. Research by Rideout et al. (2017) indicates that students who spend more time on digital devices tend to demonstrate lower literacy scores compared to those who engage more

frequently with printed texts. Fuchs and Woessmann (2017) also argue that unsupervised computer use may negatively affect reading comprehension. Likewise, Wolf (2018) suggests that digital reading environments may weaken deep reading processes required for sustained comprehension of complex texts.

The negative direction of correlation in this study may reflect the nature of device engagement rather than technology itself. Internet device use that is fragmented, entertainment oriented, or focused on short form content may not promote the cognitive processes required for advanced literacy skills such as analytical reading, structured writing, and formal speaking.

However, the low strength of the correlation suggests that internet device use is not a dominant predictor of language literacy. Literacy development is influenced by multiple interacting variables, including instructional quality, reading culture, parental supervision, and curriculum design. This may explain why other studies demonstrate positive effects when technology is purposefully integrated into literacy instruction. Shin et al. (2019) emphasize that technology supports literacy when embedded within structured pedagogical frameworks rather than used passively. Similarly, Suwarto et al. (2022) and Wardani and Widodo (2024) highlight that guided digital activities can enhance engagement and skill development.

Therefore, the contradictory findings across studies suggest that the impact of internet devices depends on patterns of use. The present study measured internet device use through dimensions including choice, prohibition, encouragement, and reactions to restrictions. These indicators capture regulatory and behavioral aspects, which may reflect broader digital habits rather than strictly academic usage intensity. This contextual factor is important when interpreting the negative correlation.

In the boarding school setting examined in this study, device use is regulated and often occurs outside structured academic supervision. It is possible that students' independent digital engagement does not consistently align with literacy enhancing activities. Consequently, increased device use may correspond with reduced time allocated to sustained reading or structured writing practice.

Importantly, the findings should not be interpreted as evidence that technology inherently damages literacy. Instead, they indicate that unbalanced or unstructured digital engagement may be associated with lower literacy performance. The practical implication is not device restriction alone, but purposeful integration.

Balanced digital participation is therefore essential. Schools and teachers should design technology supported activities that promote deep reading, academic writing, and structured speaking practice. Project based learning, guided online research, and digital writing tasks can help align device use with literacy objectives. Periodic evaluation of internet use policies is also recommended to ensure that digital practices support rather than replace traditional literacy development.

CONCLUSION

This study investigated the relationship between students' internet device use and language literacy among Grade 8 and Grade 9 students at Khalifah Model School Secondary, Malaysia. The findings demonstrate a statistically significant negative correlation between the two variables ($r = -0.356$, $p = 0.005$). This indicates that higher levels of reported internet device use are associated with lower levels of language literacy within this sample.

However, the strength of the correlation is low. This suggests that internet device use accounts for only a modest proportion of the variation in students' reading, writing, and speaking scores. Therefore, while the relationship is statistically significant, its practical effect is limited. Importantly, the correlational design of this study does not allow causal conclusions. The findings indicate association, not direct impact.

The negative direction of the relationship may suggest that certain patterns of device engagement, particularly those not directly related to structured literacy activities, are not aligned with the development of academic language skills. At the same time, the weak magnitude of the correlation indicates that other educational, instructional, and environmental factors likely play a more substantial role in shaping students' literacy outcomes.

These findings highlight the importance of monitoring how internet devices are used in educational contexts rather than focusing solely on access or restriction. In settings such as boarding schools where device use is regulated, structured integration of digital tools into reading, writing, and speaking tasks may help ensure that technology supports rather than competes with literacy practices. For example, supervised digital reading assignments, guided academic writing using online resources, and structured speaking activities incorporating multimedia tools may better align technology use with literacy objectives.

Given that the study was conducted in a single school with a relatively small sample size, the results should be interpreted cautiously. Future research is recommended to include larger and more diverse populations, employ more refined measures of device usage intensity and purpose, and examine additional variables that may mediate or moderate the relationship between digital engagement and language literacy. Such research would contribute to a more comprehensive understanding of how technology interacts with literacy development in contemporary educational environments.

REFERENCES

Ahmad abadi, G. A., & Amrollah, O. (2022). Investigating the Effect of Media Literacy Components on Improving the Mobile Learning Process During the Corona Outbreak in the Country. 166-137), 31(9, ماظن و شناد یابایزاب ییانعم یاه.

Anderson, M., & Jiang, J. (2018). Teens, social media, & technology 2018. Pew Research Center.https://www.pewresearch.org/internet/2018/05/31/teens-social-media-technology-2018/

Cao, Y., Grace Kim, Y. S., & Cho, M. (2023). Are observed classroom practices related to student language/literacy achievement?. Review of Educational Research, 93(5), 679-717.

Chen, B., & Bryer, T. (2020). Engaging students through social media: Evidence from web-based collaborative learning in higher education. Journal of Educational Computing Research, 55(4), 500-519. https://doi.org/10.2190/EC.55.4.f

Chen, L., & Liu, X. (2021). The impact of digital device usage on language proficiency: A study among secondary school students. Journal of Educational Technology & Society, 24(3),
45-58.

Febria, L., & Yelfi, R. (2023). The Relationship Between Of Using A Learning Gadget With The Result From Student Learning Attitude In The Food Service Subject At Smk Negeri 6 Padang. Jurnal Pendidikan Tata Boga dan Teknologi, 4(2), 208-213.

Fuchs, T., & Woessmann, L. (2017). Computers and student learning: Empirical evidence on the effects of digital devices in education. Economics of Education Review, 30(3), 45-56.

Garcia, R., & Kim, H. (2019). The digital divide and its influence on language literacy: A correlational study. International Journal of Language Studies, 13(2), 67-85.

Jones, M. T., & Carter, P. (2020). Technology engagement and literacy development: Examining the role of internet devices in student learning. Computers & Education, 150, 103857.

Li, Y., Zhang, Y., & Wang, X. (2021). The role of mobile-assisted language learning in enhancing English language acquisition.

Leu, D. J., Forzani, E., Rhoads, C., Maykel, C., Kennedy, C., & Timbrell, N. (2015). The new literacies of online research and comprehension: Rethinking the reading achievement gap. Reading Research Quarterly, 50(1), 37-59.

Lim, S., & Lee, J. (2019). Digital literacy gap in boarding school students: A comparative analysis of mobile device usage. Technology and Society Review, 42(2), 67-82. https://doi.org/10.1016/j.techsoc.2019.01.009

Mangen, A., & van der Weel, A. (2016). The evolution of reading in the age of digitization: Insights from brain and cognitive science. Educational Research Review, 18, 100–112. https://doi.org/10.1016/j.edurev.2016.03.002

Noor, S., Haseen, F., Tomal, L. A., & Noor, N. (2020). Assessment of electronic gadgets use and its' effects on daily life and health of primary school children. Journal of Preventive and Social Medicine, 39(1), 78-87.

Pangesti, R. (2025). Menteri PPPA Usul Tugas Sekolah Siswa Tak Lagi Gunakan Gadget, Upaya Kurangi Ketergantungan Anak. tvOnenews.com. https://www.tvonenews.com/berita/nasional/291329-menteri-pppa-usul-tugas-sekolah-siswa-tak-lagi-gunakan-gadget-upaya-kurangi-ketergantungan-anak?page=1

Paramitha, E. S. G. (2019). Using Smartphone to Enhance Studentâ€™s Digital Art Literacy. Indonesian Journal of Curriculum and Educational Technology Studies, 7(2), 72-79.

Ramadhona, R., Oscar, S., Kathryn, M., & Cale, W. (2024). The Impact of Using Mobile Learning Applications on the Development of Students' Digital Literacy. Journal Emerging Technologies in Education, 2(2), 202-214.

Rideout, V. J. (2020). The common sense census: Media use by tweens and teens. CommonSenseMediaReport.https://www.commonsensemedia.org/research/the-common-sense-census-media-use-by-tweens-and-teens-2020

Rosen, L. D., Carrier, L. M., & Cheever, N. A. (2018). Multitasking and distraction: How Internet devicesare changing cognitive processes. Computers in Human Behavior, 77, 311–317. https://doi.org/10.1016/j.chb.2017.08.007

Shin, N., Sutherland, L., Shin, S. Q., & Constance, W. (2019). Digital entertainment and language learning: Investigating the trade-off. Journal of Adolescent Literacy, 62(3), 213-229.

Situmorang, R. (2022). Menumbuhkan Gerakan Literasi di Sekolah. https://badanbahasa.kemdikbud.go.id/artikel-detail/734/menumbuhkan-gerakan-literasi-di-sekolah

Suwarto, D. H., Setiawan, B., & Machmiyah, S. (2022). Developing digital literacy practices in Yogyakarta elementary schools. Electronic Journal of E-Learning, 20(2), pp101-111.

Taguchi, N., Kim, Y., & Lee, J. (2016). The influence of digital communication on grammar development in second language learners. Journal of Language Learning, 66(2), 230-255.

Vu, H. V., Kieu, T. A. D., & Dang, H. M. (2020). Effectiveness of shining mind-A smartphone app to increase mental health literacy among college students. VNU Journal of Science: Education Research, 36(4).

Wardani, I. S., & Widodo, A. (2024). The Effect of Smartphones Media to Improve Critical Thinking Skills Student of Elementary School. Jurnal Penelitian Pendidikan IPA, 10(2), 479-486.

Widodo, W., Sudibyo, E., Suryanti, S., Sari, D. A. P., Inzanah, I., & Setiawan, B. (2020). The effectiveness of gadget-based interactive multimedia in improving generation zâ€™ s scientific literacy. Jurnal Pendidikan IPA Indonesia, 9(2), 248-256.

Wolf, M. (2018). The reading brain in the digital world: The science of deep reading in the digital age. Reading Research Quarterly, 53(4), 345–361. https://doi.org/10.1002/rrq.237

Zikri, I. (2023). The Impact of Mobile Seamless Learning Strategies and Digital Literacy on Students' Concept Mastery in Islamic Education Courses. AFKARINA: Jurnal Pendidikan Agama Islam, 8(1), 25-34.