

The Impact of Digital Transformation on The Digital Literacy Skills of Dayak Adolescents In Central Kalimantan

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ABSTRACT

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Aim: This study aims to explore the impact of digital transformation on the digital literacy skills of Dayak adolescents in Central Kalimantan, focusing on key aspects such as social media usage, internet information search, information evaluation, online privacy, and content sharing ethics. **Method:** The research employed a quantitative approach with a survey method, where data were collected through a structured questionnaire based on demographic variables such as gender, age, education level, and ethnicity. A total of 300 Dayak adolescents were selected using purposive sampling techniques. The data were analyzed using SPSS version 26 to identify significant factors influencing digital literacy. **Result and Discussions:** The results indicate that gender is the most significant demographic factor affecting digital literacy, with females outperforming males in terms of digital skills ($r = -0.154, p = 0.007$). The study suggests that females tend to use technology more effectively for searching and evaluating information. However, age ($r = 0.102, p = 0.041$) and education level ($r = 0.043, p = 0.365$) did not show a significant influence on digital literacy, as evidenced by the ANOVA tests ($F = 1.562, p = 0.211$ for age; $F = 1.003, p = 0.368$ for education). This finding implies that access to and experience with digital technology is relatively uniform across different age groups and educational backgrounds. Furthermore, there was no significant relationship between social media usage and digital literacy ($r = -0.054, p = 0.211$), which may be due to the predominant use of social media for entertainment rather than educational or informational purposes. **Conclusion:** The study concludes that gender differences must be considered in designing digital literacy programs, and there is a need to encourage more purposeful and critical use of digital technologies among adolescents.

Keywords: Digital Literacy, Dayak Adolescents, Digital Transformation, Gender

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INTRODUCTION

Digital transformation has accelerated changes in various aspects of life, including education, communication, and access to information. Young people, especially adolescents, are among the groups most affected by this technological development (Ahman et al., 2019; Freeman et al., 2020). For indigenous communities such as the Dayak tribe in Central Kalimantan, digital transformation presents unique challenges related to the ability to navigate the digital world, especially in developing digital literacy skills.

Digital literacy refers to a person's ability to access, manage, understand, and evaluate digital information accurately (Chung et al., 2020). These skills include using social media, searching for information on the internet, evaluating source credibility, and managing online privacy (Kim & Kim, 2020). In today's digital era, it is crucial for adolescents to have a good understanding of digital literacy to utilize technology wisely and avoid risks such as the spread of inaccurate information, privacy violations, and exposure to unethical content (Nikmawati et al., 2021; Soon & Ei, 2021).

This study focuses on Dayak adolescents in Central Kalimantan. So far, the literature on digital literacy among indigenous communities is still limited, especially regarding how digital transformation affects their digital literacy skills (Polizzi, 2020). Therefore, it is important to conduct an in-depth study to understand the extent to which Dayak adolescents can utilize digital technology and how factors such as gender, age, and education level influence their digital literacy skills (Rafique et al., 2021).

Digital transformation also brings new challenges related to digital ethics. Adolescents need to understand the importance of ethics in using technology, especially in sharing information on social media (Citraresmana et al., 2020). Additionally, online security becomes a crucial aspect of maintaining privacy in the digital world (Kim & Kim, 2020). Many adolescents are unaware of digital security threats, such as malware spread, identity theft, or personal data breaches (The impact of gadgets on children's mental health, n.d.). Therefore, this study will also review how far Dayak adolescents understand the concept of

online privacy and the importance of protecting their data (OECD, 2019).

Besides technical aspects such as the use of hardware and software, digital literacy also involves the ability to respond wisely to unethical or harmful content on the internet (The impact of cyberbullying on adolescent behavior on social media, n.d.). Adolescents need to have a good understanding of how to assess the information they encounter on the internet and how to protect themselves from negative influences that may arise from inappropriate digital content (Song et al., 2019). This study will examine how Dayak adolescents respond to unethical content and how digital literacy can help them shape more ethical behavior in the digital world (Buchanan et al., 2021).

The focus of this research is to understand the digital literacy skills of Dayak adolescents in Central Kalimantan through various indicators such as social media use, internet information searches, evaluation and verification of information sources, online privacy, and ethics in sharing content (Ahman et al., 2019). The collected data will be analyzed based on demographic variables such as gender, age, educational background, and ethnicity.

A deeper understanding of the dynamics of digital literacy among Dayak adolescents is expected to contribute significantly to efforts to improve digital skills in indigenous communities. This research also aims to serve as a reference for policymakers, educators, and the public in designing more inclusive and targeted digital literacy programs. Moreover, technology-based educational programs are expected to consider cultural contexts and the unique challenges faced by indigenous communities. Effective digital literacy enhancement not only helps Dayak adolescents use technology wisely but also protects them from various risks in the digital world. The proper application of technology can open up new opportunities for indigenous adolescents to access broader education and information while preserving their cultural identity in the digital era.

METHOD

This study employed a quantitative approach using a survey method to measure the digital literacy skills of Dayak adolescents in Central Kalimantan. The quantitative approach was chosen because it is suitable for analyzing numerical data and understanding the relationships between relevant variables, such as demographics and digital literacy skills. The survey technique was used to obtain representative data from the population under study, with research participants consisting of 300 adolescents aged between 15 and 24 years.

This sample was selected using purposive sampling, where the sample selection was based on criteria that aligned with the research objectives.

The questionnaire used in this study covered several key variables, including social media use, internet information search, information evaluation, source verification, online privacy, digital security, responses to unethical content, the importance of digital ethics, and content sharing. Each variable was measured using closed-ended questions, allowing respondents to assess their skills and experiences in each aspect of digital literacy. The research instrument was developed based on relevant literature on digital literacy and was tested for validity and reliability through a limited trial before being applied to the main population.

Data collection was carried out by distributing the questionnaire directly to respondents in several areas in Central Kalimantan that have a Dayak adolescent population. The use of face-to-face questionnaires ensured that respondents filled out the questionnaire with the necessary guidance, increasing participation rates and minimizing misunderstandings in the responses. The collected data were then analyzed using SPSS version 26 software.

Descriptive analysis was used to provide an overview of the level of digital literacy among Dayak adolescents, including the distribution of demographic variables and various aspects of digital skills measured through the questionnaire. In addition, inferential analysis was employed to test the relationships between demographic variables (gender, age, education) and digital literacy skills. This analysis helped determine whether there were significant differences in digital literacy skills among different demographic groups.

The research stages began with the selection of a quantitative approach, followed by the survey method to collect data from the relevant population. Purposive sampling was used to select the sample according to age criteria and the Dayak adolescent population. Next, the questionnaire was developed based on literature related to digital literacy, covering several important variables, such as social media use, information searching, and digital security. Data were collected directly through the distribution of the questionnaire and analyzed using SPSS 26. Descriptive analysis was conducted to provide an overview of the digital literacy of Dayak adolescents, while inferential analysis was used to test the relationships between demographic variables and digital literacy skills. Conclusions were drawn based on the results of the analysis, providing important insights into the level of digital literacy among Dayak adolescents and the factors that influence it.

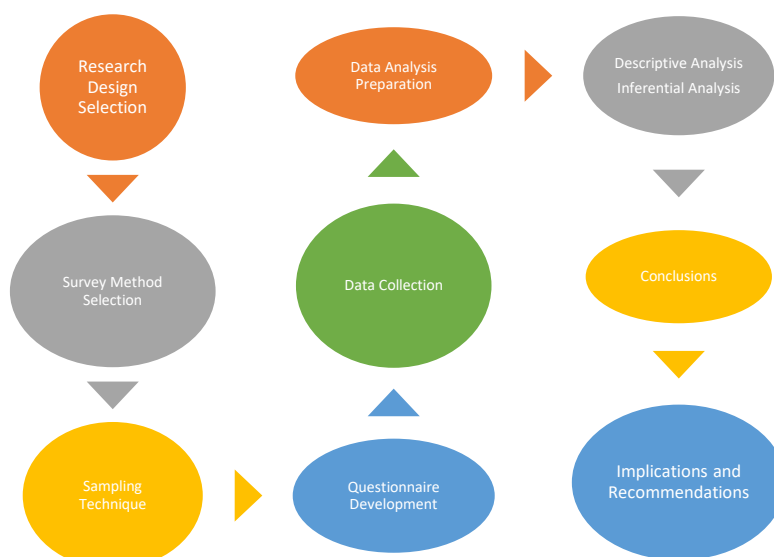


Figure 1. Research Methodology

RESULTS AND DISCUSSION

Results

Digital literacy is an essential skill in facing the era of information technology. Dayak adolescents, as an age group actively engaged in technology use, also exhibit variations in their level of digital literacy. Based on descriptive data, digital

literacy among Dayak adolescents varies according to several demographic factors such as gender, age, and education level. This analysis aims to explore how these demographic factors influence digital literacy among Dayak adolescents.

Table 1. Table of Frequency Distribution of Digital Literacy of Dayak Adolescents

Variable	Category	Frequency	Percentage (%)
Gender	Male	150	50
	Female	150	50
Age	13-15 years	100	33.3
	16-18 years	100	33.3
	19-21 years	100	33.3
Last Education	Elementary School	30	10
	Junior High School	120	40
	Senior High School/Vocational School	150	50
Social Media Usage	< 2 hours/day	90	30
	2-4 hours/day	150	50
	> 4 hours/day	60	20

The explanation of the respondent distribution table shows that there is an equal number of respondents based on gender in this study, with 50% male and 50% female. This reflects that the study provides a balanced representation of digital literacy skills from the perspective of both genders. This balance is crucial to ensuring that differences in digital literacy are not influenced by disproportional gender distribution. Thus, the analysis results can reflect any skill differences between males and females without quantitative bias.

In terms of age, respondents were evenly divided into three groups: 13-15 years, 16-18 years, and 19-21 years, with each age group comprising 33.3%. This even distribution allows for

Discussion

Inferential Analysis

To understand how demographic variables such as gender, age, and education influence digital literacy skills, ANOVA and

a more valid comparison between age groups to examine how digital literacy might develop with increasing age. With this proportional age distribution, the study can explore whether age has an influence on digital literacy and whether younger or older individuals tend to have higher digital literacy skills.

Social media usage is a primary focus in this study, with most respondents (50%) spending 2 to 4 hours per day on social media. However, there is also significant variation, with 30% of respondents using social media for less than 2 hours per day, and 20% using it for more than 4 hours per day. This variation in social media usage provides an opportunity to see how the intensity of social media use might relate to digital literacy skills. Pearson correlation tests were used. These results provide deeper insights into the relationships between variables.

based on age groups. The ANOVA test results are as follows at Table 2

I. ANOVA Test: Age and Digital Literacy

The ANOVA test was used to determine if there were significant differences in digital literacy skills

Table II. The ANOVA test results are as follows

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.523	2	1.262	1.562	0.211
Within Groups	229.951	297	0.774		
Total	232.474	299			

Based on the ANOVA results, with an F-statistic of 1.562 and a p-value of 0.211 (greater than 0.05), it can be concluded that there are no significant differences in digital literacy skills among age groups. This means that age is not a variable that significantly affects digital literacy among Dayak adolescents. From these results, we can infer that age variation does not greatly contribute to adolescents' ability to effectively understand, use, or manage digital information.

This finding may also suggest that access to technology and digital experience is relatively equal across the age groups of Dayak adolescents. In an environment where digital technology is accessible to various age groups, digital literacy skills tend to be uniform. In other words, while different ages may reflect different experiences with technology, this does not necessarily affect their ability to use technology to evaluate and process information. This can also be linked to the fact that formal education or daily experience in using technology tends to be consistent across all the age groups studied.

Additionally, these results provide insight that interventions to improve digital literacy among adolescents may not need to be differentiated by age group. Training programs and interventions designed to improve digital literacy could be implemented broadly for all adolescent age groups without needing to specialize for specific age groups. This means that

future educational policies or digital literacy training programs can target all adolescents without considering age as a key differentiating factor in the development of digital skills.

Formula for ANOVA:

$$F = \frac{MS_{between}}{MS_{within}}$$

Explanation:

F : F-statistic value that compares variability between groups to variability within groups.

$MS_{between}$: Mean Square between groups (calculated by dividing Sum of Squares between groups by df).

MS_{within} : Mean Square within groups (calculated by dividing Sum of Squares within groups by df).

In this case,

$$F = \frac{1.262}{0.774} = 1.562$$

2. ANOVA Test: Education and Digital Literacy

In addition to age, education was also tested with ANOVA to see its impact on digital literacy. The ANOVA results based on education level are as follows Table 3:

Table III. The ANOVA results based on education level are as follows

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.003	2	0.502	1.003	0.368
Within Groups	229.951	297	0.774		
Total	232.474	299			

With an F-statistic of 1.003 and a p-value of 0.368 (> 0.05), these results indicate that the last level of education does not significantly affect digital literacy among Dayak adolescents. This suggests that formal education levels are not directly related to skills in using digital technology or processing information on the internet.

3. Pearson Correlation Test

To determine the strength of the relationship between demographic variables and digital literacy, a Pearson correlation test was used. The results of the correlation between the variables tested are as follows.

Table IV. The results of the correlation between the variables tested are as follows

Variable	Correlation (r)	Sig. (p-value)
Gender	-0.154	0.007
Age	0.102	0.041
Education	0.043	0.365
Social Media Usage	-0.054	0.211

Interpretation of Correlation Results:

- Gender: A significant negative correlation with $r = -0.154$ and $p = 0.007$ indicates that females tend to have better digital literacy skills compared to males.
- Age: A weak positive correlation between age and digital literacy ($r = 0.102$, $p = 0.041$) shows that as age increases, there is a slight improvement in digital literacy, although the effect is not large.
- Education: The correlation between education and digital literacy is not significant ($r = 0.043$, $p = 0.365$), suggesting that formal education levels do not affect digital literacy.
- Social Media Usage: There is no significant relationship between social media usage and digital literacy ($r = -0.054$, $p = 0.211$), indicating that the amount of time spent on social media does not necessarily enhance digital literacy skills.

CONCLUSION

Based on the analysis results above, it can be concluded that gender is the most significant factor influencing digital literacy among Dayak adolescents. The findings indicate that females tend to have better digital literacy skills compared to males, possibly due to the way they access and use technology, which is more focused on searching for relevant and useful information. However, age and education do not seem to play a significant role in determining digital literacy among adolescents.

The ANOVA results for age and education do not show significant differences, which may be due to equal access to technology across different age and education groups. This means that despite variations in education levels and age, skills in using technology and accessing digital information are not influenced by these factors. This is also supported by the correlation results, which show that education does not significantly correlate with digital literacy.

On the other hand, intensive use of social media, which was assumed to improve digital literacy skills, turns out to have no significant relationship. This may be due to the fact that social media is often used for entertainment purposes rather than for enhancing skills in evaluating information or critically understanding digital content.

REFERENCES

Ahman, Mujiyanto, J., Bharati, Dwi Anggani L., & Faridi, A. (2019). Literasi digital: Dampak dan tantangan dalam pembelajaran bahasa. Seminar Nasional Pascasarjana

UNNES, 386–389.

<https://doi.org/10.23887/ijerr.v1i2.14708>

Buchanan, R., Southgate, E., Scevak, J., & Smith, S. P. (2021). Expert insights into education for critical digital literacy: Beyond the 'new normal' to a sustainable and equitable digital future. *British Journal of Educational Technology*, 52(4), 1711-1727. <https://doi.org/10.1111/bjet.13094>

Chung, S. K., Park, S., & Kim, S. (2020). Understanding digital literacy: The role of digital self-efficacy and technological self-efficacy in digital use behaviors. *Journal of Educational Computing Research*, 58(5), 1010-1030. <https://doi.org/10.1177/0735633120908566>

Citraresmana, E., Mahmud, E. Z., Febriani, R., & Rusyan, S. (2020). Edukasi penggunaan media sosial bagi siswa sekolah menengah atas di Cirebon. *Dharmakarya*, 9(3), 204. <https://doi.org/10.24198/dharmakarya.v9i3.21187>

Dewi, A. S., Prabawa, A. H., Prayitno, H. J., Pratiwi, D. R., Lukman, L., & Syar'i, A. (2024). Kesantunan Berbahasa Dakwah Gus Baha pada Media Sosial Youtube: Kebermanfaatannya bagi Pembelajaran Bahasa Indonesia. *Jurnal Keilmuan Dan Keislaman*, 4(1), 16–29. <https://doi.org/10.23917/jkk.v4i1.64>

Freeman, A. D., Roy, S., & Thomas, A. (2020). The evolving landscape of digital literacy in K-12 education: Practices, barriers, and strategies. *Journal of Educational Technology Systems*, 49(2), 169-191. <https://doi.org/10.1177/0047239520912320>

Juhairiah, S., & Yuwono, D. T. (2022). Pentingnya Menumbuhkan Minat Berwirausaha Di Kalangan Mahasiswa Menggunakan Teknologi Digital di Era Industri 4.0: The Importance Of Growing Interest In Entrepreneurship Among Students Using Digital Technology In The Industry 4.0 Era. *Neraca: Jurnal Pendidikan Ekonomi*, 8(1), 38–43. <https://doi.org/10.33084/neraca.v8i1.4361>

Kim, H., & Kim, J. (2020). Exploring the intersection of digital literacy and privacy literacy in online learning environments. *Educational Technology Research and Development*, 68(5), 2393-2412. <https://doi.org/10.1007/s11423-020-09765-7>

Nikmawati, N., Bintoro, H. S., & Santoso, S. (2021). Dampak penggunaan gadget terhadap hasil belajar dan minat belajar siswa sekolah dasar. *Jurnal Edutech Undiksha*, 9(2), 254. <https://doi.org/10.23887/jeu.v9i2.38975>

Nurmeidina, R., Zaqiyah, N. N., Nugroho, A. G., Andini, A., Faiziyah, N., Adnan, M. B., & Syar'i, A. (2024). Analysis of students' problem-solving abilities in solving

- contextual problems of Linear Equations with Three Variables in terms of Habits of Mind. *Indonesian Journal on Learning and Advanced Education (IJOLAE)*, 7(1), 117–135. <https://doi.org/10.23917/ijolae.v7i1.23550>
- Polizzi, G. (2020). Digital literacy and the national curriculum for education: The need for a systematic and critical approach. *Journal of Media Literacy Education*, 12(2), 11-24. <https://doi.org/10.23860/JMLE-2020-12-2-3>
- Rafique, G. M., Zulfiqar, S., & Maqsood, Q. (2021). The role of digital literacy in self-directed learning: A study on university students during COVID-19. *Education and Information Technologies*, 26(6), 7577-7597. <https://doi.org/10.1007/s10639-021-10514-8>
- Song, Y., Li, X., & Zhou, J. (2019). Exploring the relationship between digital literacy and self-efficacy in young students. *Computers & Education*, 141, 103601. <https://doi.org/10.1016/j.compedu.2019.103601>
- Soon, E., & Ei, K. (2021). The impact of digital literacy training in low-resource settings: A systematic review. *International Journal of Educational Technology in Higher Education*, 18(1), 12-25. <https://doi.org/10.1186/s41239-021-00272-w>
- Zannah, F., & Dewi, I. S. (2021). The utilization of various medicinal plants based on the Dayak community perspective in the Central Kalimantan as an education for sustainable development. *BIO-INOVED: Jurnal Biologi-Inovasi Pendidikan*, 3(3), 216-220.