

## *Low digital literacy in Indonesia: Online media content analysis*

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**Paper Type:**

*Literature Review*

### **Abstract**

**Background of the study:** The low level of digital literacy in Indonesian society is a significant challenge in the era of global digitalization, especially related to the lack of access and understanding of information technology needed to utilize digital libraries effectively.

**Purpose:** Identifying factors causing low digital literacy, evaluating policies that have been implemented, and formulating effective strategies to increase the use of digital libraries in Indonesia.

**Method:** This study uses a qualitative approach with online news analysis using the keyword "digital literacy" to explore the factors that cause low digital literacy in Indonesia. Data analysis methods include coding, theme creation, data reduction, and data display to identify patterns and reasons behind this phenomenon.

**Findings:** This study reveals that low digital literacy in Indonesia is caused by a lack of infrastructure, minimal focus on education, and low awareness of social media ethics. Collaboration between the government, educational institutions, and the community is needed through technology investment, education reform, and awareness campaigns.

**Conclusion:** Recommended follow-up actions include training, digital infrastructure development, and effective awareness campaigns to improve digital literacy in Indonesia.

**Keywords:** Digital Literacy, Indonesian Society, Global Digitalization Era

Submitted: 24 September 2024

Revised: 4 October 2024

Accepted: 9 November 2024

Online: 4 December 2024

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## Introduction

Indonesian society is ranked second from the bottom in terms of world literacy, meaning that reading interest is very low, only 0.001%. According to UNESCO, from this percentage, we can understand that out of 1,000 Indonesians, only 1 person has the desire to read. In addition to UNESCO data on literacy rates, Central Connecticut State University also conducted a study in March 2016 related to the "World's Most Literate Nations Ranked," which, in fact, shows that Indonesia is ranked 60th out of 61 countries with low reading interest ([Kominfo.go.id](http://Kominfo.go.id), 2017). This is the main reason for the low digital literacy among Indonesian people, one of which is the lack of access to and understanding of information technology in libraries, as well as the lack of effective digital education efforts ([Anwar, 2021](#)). Improve digital literacy in libraries, there needs to be an increase in technological infrastructure in libraries, as well as more intensive and even educational programs for the community, in order to utilize the era of global digitalization more effectively.

The low level of digital literacy among Indonesian people is a significant problem in the era of global digitalization. From the results of a survey released by APJII in 2024, Indonesia's internet penetration rate reached 79.5% ([Apjii.or.id](http://Apjii.or.id), 2024), the use of digital services for education and information, including digital libraries, is still very minimal ([Misbah, 2021](#)).

The number of users of the National Library's (iPusnas) online services has increased. In 2019, there were 7,111,746 service users. In 2020, there were 10,163,124 service users, while in 2021, there were 15,734,566 iPusnas service users. What is striking is the still low number of users of the National Library's online services compared to the population of Indonesia from 2019 to 2021. In 2019, the population of Indonesia was recorded at 266,911.9 thousand people, with the number of iPusnas users being 7,111,746 thousand people or around 2.66% of the population. In 2020, the population increased to 270,203.9 thousand, with iPusnas users increasing to 10,163,124 thousand, or 3.76%. In 2021, the population of Indonesia reached 272,682.5 thousand, and iPusnas users jumped to 15,734,566 thousand, or equivalent to 5.77% of the total population ([Bps.go.id](http://Bps.go.id), 2023).

The low number of iPusnas service users compared to the population of Indonesian society. This is caused by various factors, including low awareness of the importance of digital literacy, lack of adequate infrastructure in rural areas, and limited technological capabilities in the community ([Puspita, 2024](#)). This condition shows that even though the era of global digitalization has brought many technological advances, significant efforts are still needed to improve digital literacy in Indonesia so that people can make optimal use of digital library resources.

Several researchers have previously discussed the low level of digital literacy in Indonesia. Limilia (2022) stated that while Generation Z is fluent in using technology, they are still lacking in digital literacy, especially in participation and collaboration skills. The effectiveness of digital literacy and computerization skills of academics in Indonesia has supported increasingly developing academic activities ([Musa et al., 2021](#)). The gap in digital literacy skills in the digital immigrant generation can be analyzed by comparing it based on several criteria, such as demographic factors, interest in the field of science, familiarity with computers, and length of internet access. The digital literacy skills of this group are categorized as low to moderate ([Emosda & Annisa, 2019](#)). According to Akbar & Wijaya (2023), the condition of digital literacy in Indonesia focuses on four main pillars: digital skills, security, culture, and ethics. This study shows that rural communities show good levels of digital ethics, culture, and security while showing lower proficiency in digital skills. In comparison, Sandra & Yuliawan (2022) highlighted the four pillars of digital literacy: digital skills, digital culture, digital ethics, and digital. Two factors really need to be improved by Indonesian society today:



digital ethics and digital security.

However, a number of these scientific articles have not explored in depth the factors that influence digital literacy across different age groups and economic backgrounds. More research combining qualitative and quantitative methods is necessary to gain a more holistic picture of digital literacy in Indonesia. This includes an analysis of the influence of government policies, access to digital devices, and more integrated digital literacy education in formal and non-formal education curricula. Several studies have also not comprehensively examined the impact of low digital literacy on the economic and social participation of society in the current digital era, nor have they examined how efforts to improve digital literacy can be implemented effectively in various regions with different characteristics.

This article attempts to fill this gap by describing the low digital literacy in Indonesian society in the context of the global digitalization era and answering three questions. *First*, identify and analyze various factors that cause low levels of digital literacy in Indonesian society. This statement focuses on these factors, which can include lack of access to technology, low awareness of the importance of digital literacy, and limitations in technology education infrastructure. *Second*, evaluation of various programs and policies that have been implemented by the Indonesian government to improve digital literacy, especially in the context of digital libraries. This question relates to the assessment of initiatives such as digital literacy training, provision of technological infrastructure, and public awareness campaigns. This study analyzes the low digital literacy among Indonesian people through online media coverage, revealing several important findings. The analysis includes the frequency, intensity, perspective, and language style of the news, which shows a focus on the digital divide between urban and rural communities, as well as the impact on education and the economy. This study also evaluates public perception through reader comments, identifying the level of concern, personal experiences, opinions, and criticisms of government efforts. The impact of news on public awareness and behavior, as well as government policies, is also evaluated. Based on the findings, this study offers recommendations for improving digital literacy education, collaboration between sectors, and effective public campaigns. In addition, this study develops a framework for analyzing media and education integration and evaluating the impact of news for further study, providing practical solutions to improve digital literacy in the era of global digitalization.

The purpose of this article is first to identify the various factors that contribute to the low level of digital literacy among Indonesians. The focus is on limitations in technology education infrastructure, lack of access to technology, and lack of awareness of the importance of digital literacy. The aim is to understand the basis of the problem of low digital literacy. Secondly, review the Indonesian government's various programs and policies to improve digital literacy, particularly digital libraries. This includes reviewing initiatives that focus on digital literacy training, provision of technology infrastructure, and public awareness campaigns that aim to address the challenges faced in digital literacy.

## Method

### *Research Design*

This research uses a qualitative methodology with an analytical description approach. This approach allows researchers to understand the context, meaning, and dynamics in research subjects by providing a detailed description of the phenomenon under study through data collection, processing, and analysis. Using the analytical description approach, the collected data will be processed thoroughly to find relevant patterns, relationships, or implications. This method is very suitable for this study because it provides the freedom to explore the phenomenon thoroughly and in-depth, producing rich and comprehensive results (Khilmiah,



2016).

### Data collection

Data collection was conducted by selecting relevant news portals based on certain criteria, such as credibility, topic coverage and frequency of reporting on digital literacy. Then the researcher conducted a search process on online news that discussed ‘low digital literacy in Indonesia’ and obtained 191 online news that discussed cases such as: (‘low digital literacy’ OR ‘digital literacy’ OR ‘digital skills’ OR ‘digital competence’ OR ‘digital education’) AND (‘Indonesia’ OR ‘Indonesia’) AND (‘access’ OR ‘technology’ OR ‘internet’) examining news content, writing style, and main themes related to ‘digital literacy in Indonesia’ with a focus on news stories that discuss ‘low digital literacy in Indonesia’ among Indonesian people in the context of the global digitalization era. Furthermore, researchers selected popular and trusted news portals in Indonesia including: *cnbcindonesia.com*, *republika.co.id*, *lifestyle.bisnis.com*, *kompasiana.com*, *beritasatu.com*, *industry.co.id*, *aptika.kominfo.go.id*, *kompas.com*, *digital2045.id*, *katadata.co.id*, *mediaindonesia.com*, *indonesia.go.id*. Furthermore, these portals will be evaluated to ensure they provide representative and unbiased information.

### Data Analysis

Data analysis was carried out by selecting relevant news as many as 12 online news, with the selection of keywords ‘low digital literacy in Indonesia’ by limiting the inclusion of news, such as; News posted online on blogs, mass media sites, or social news platforms, news published is relevant to the research topic, News from the selected platform or site is credible and recognised by the public.

Then the data analysis process is carried out by coding news stories that discuss ‘low digital literacy in Indonesia’ which refers to the process of identifying and classifying themes or important information in news texts published on online platforms with the aim of facilitating analysis, searching, and grouping data based on relevant topics. Then the data is reduced to get more accurate and relevant, comprehensive and valid results in understanding the issue of ‘Low digital literacy in Indonesia’. So that the results of the data analysis obtained are interpreted or analysed to understand the format, process, and reasons behind the low digital literacy among Indonesian people. Data analysis is carried out with stages including coding, theme making, data reduction, and data display.

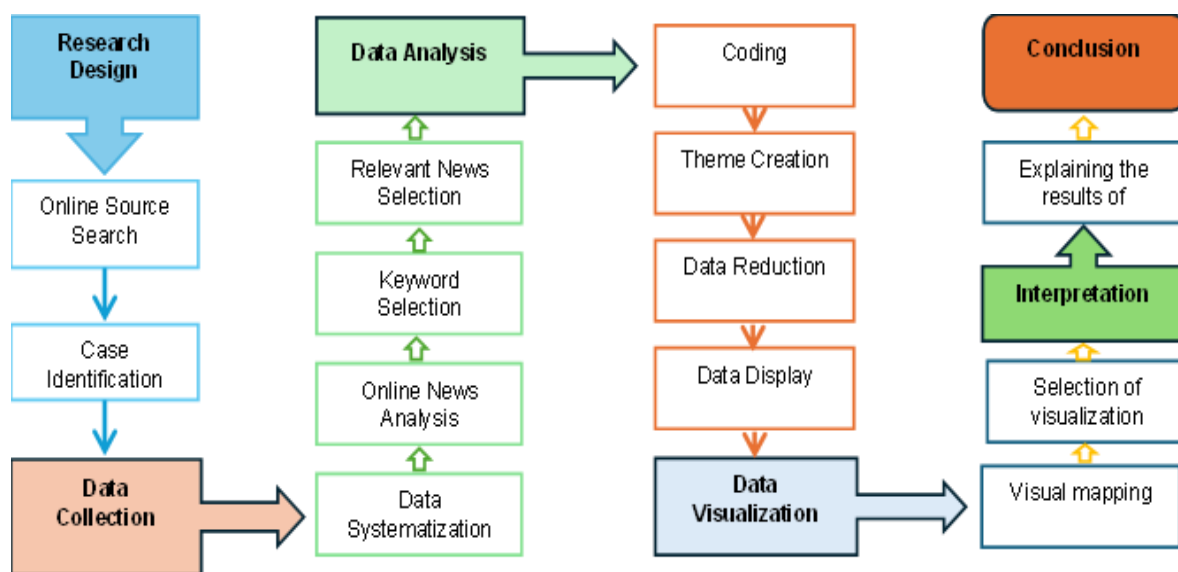


Figure 1. Workflow of Digital Literacy Phenomenon in Indonesia

## Result and Discussion

### *Factors causing low levels of digital literacy in Indonesian society*

In an era where digital technology is increasing and becoming the backbone of social, economic, and cultural progress, the low level of digital literacy among Indonesians is a major concern. The penetration of information technology and the internet is increasingly widespread, but data shows that Indonesians still face major challenges in acquiring and mastering the necessary digital skills. In this paragraph, we will explore some of the factors that contribute to the low digital literacy in Indonesia, from limited access to technology to a lack of awareness of the importance of digital literacy. By understanding the root of these problems, we can identify steps that need to be taken to improve digital literacy among Indonesians, enabling them to reap the full benefits of the global digitalization era.

Table 1. Cases of Low Digital Literacy Among Indonesian Society.

No	Digital Literacy case	Narrative	Source
1	Lowest in ASEAN, RI's Digital Literacy Rate is Only 62% ( <a href="https://www.cnbcindonesia.com/tech/20230214171553-37-413790/paling-rendah-di-asean-tingkat-literasi-digital-ri-cuma-62">Cnbcindonesia.com, 2023</a> )	Indonesian society's digital literacy average is 3.54, based on an index of 1-5. The position numbers include digital skills, digital safety, digital culture, and digital ethics.	<a href="https://www.cnbcindonesia.com/tech/20230214171553-37-413790/paling-rendah-di-asean-tingkat-literasi-digital-ri-cuma-62">https://www.cnbcindonesia.com/tech/20230214171553-37-413790/paling-rendah-di-asean-tingkat-literasi-digital-ri-cuma-62</a>
2	Experts Reveal Reasons for Low Digital Literacy in Indonesian Society ( <a href="https://republika.co.id">Republika.co.id, 2022</a> )	The low digital literacy due to the less productive creation of information has finally had an impact on the achievement figures of Indonesia's digital literacy strengthening program. One of them is Talenta Digital Indonesia.	<a href="https://republika.co.id/berita/r9b3pr430/pakar-beberkan-alasan-rendahnya-literasi-digital-masyarakat-indonesia">https://republika.co.id/berita/r9b3pr430/pakar-beberkan-alasan-rendahnya-literasi-digital-masyarakat-indonesia</a>
3	CIPS: Low Digital Literacy, Here's Why ( <a href="https://bisnis.com">Bisnis.com, 2021</a> )	The factor causing low literacy in Indonesian society is the lack of emphasis on critical thinking skills from an early age. In fact, digital literacy needs to be honed from elementary school.	<a href="https://lifestyle.bisnis.com/read/20210331/220/1375228/cips-literasi-digital-rendah-ini-penyebabnya">https://lifestyle.bisnis.com/read/20210331/220/1375228/cips-literasi-digital-rendah-ini-penyebabnya</a>
4	Lack of Digital Literacy Among the Young Generation: What to Do? ( <a href="https://kompasiana.com">Kompasiana.com, 2023</a> )	The level of digital literacy in Indonesia can still be categorized as low. This can be caused by several factors, such as Limited access to	<a href="https://www.kompasiana.com/jasmineemmanuela7317/655b3cdaedff76130e1c61a2/kurangnya-literasi-digital-di-kalangan-generasi-muda-apa-yang-harus-dilakukan">https://www.kompasiana.com/jasmineemmanuela7317/655b3cdaedff76130e1c61a2/kurangnya-literasi-digital-di-kalangan-generasi-muda-apa-yang-harus-dilakukan</a>



No	Digital Literacy case	Narrative	Source
		technology and the Internet, Lack of infrastructure, Lack of education and training, Digital inequality, and Lack of awareness and interest.	
5	Low Digital Literacy Drives Hate Speech in Digital Media ( <a href="https://beritasatu.com">Beritasatu.com</a> , 2022)	The level of digital literacy of Indonesian people using social media is still low. This is what causes a lot of hate speech on social media.	<a href="https://www.beritasatu.com/nasional/984571/rendahnya-literasi-digital-dorong-terjadinya-ujaran-kebencian-di-media-digital">https://www.beritasatu.com/nasional/984571/rendahnya-literasi-digital-dorong-terjadinya-ujaran-kebencian-di-media-digital</a>
6	Low Levels of Digital Literacy Tend to Make Adults Behave Badly ( <a href="https://industry.co.id">Industry.co.id</a> , 2021)	The tendency of adults to behave badly on the internet is related to their low level of digital literacy.	<a href="https://www.industry.co.id/read/91379/rendahnya-tingkat-literasi-digital-cenderung-membuat-orang-dewasa-berperilaku-buruk">https://www.industry.co.id/read/91379/rendahnya-tingkat-literasi-digital-cenderung-membuat-orang-dewasa-berperilaku-buruk</a>
7	The Urgency of Digital Literacy for the Future of Indonesia's Digital Space ( <a href="https://kominfo.go.id">Kominfo.go.id</a> , 2020)	The urgency of digital literacy in Indonesia is due to many factors, which can be the reason why digital literacy needs to be considered important by Indonesia as a nation facing the future of its digital space. These factors include the high penetration of Information and Telecommunication Technology (ICT), data commercialization, the rapid flow of information circulating, technological developments, and opportunities for community empowerment.	<a href="https://aptika.kominfo.go.id/2020/06/urgensi-literasi-digital-bagi-masa-depan-ruang-digital-indonesia/">https://aptika.kominfo.go.id/2020/06/urgensi-literasi-digital-bagi-masa-depan-ruang-digital-indonesia/</a>
8	Indonesia is the 14th Longest Internet User Country, but Digital Literacy is Low ( <a href="https://kompas.com">Kompas.com</a> , 2024)	Indonesia is ranked 14th as a country with internet users who spend a long time on the internet. The duration of internet users is	<a href="https://www.kompas.com/edu/read/2024/05/13/161656871/indonesia-urutan-14-negara-pengguna-internet-terlama-tetapi-literasi-digital?page=all">https://www.kompas.com/edu/read/2024/05/13/161656871/indonesia-urutan-14-negara-pengguna-internet-terlama-tetapi-literasi-digital?page=all</a>



No	Digital Literacy case	Narrative	Source
		considered to be able to cause problems for some Indonesian people due to the lack of digital literacy and cyber security.	

Table 1 shows the low level of Digital Literacy in Indonesian Society. *First*, Lack of Emphasis on Critical Thinking Skills from an Early Age: One of the factors causing low digital literacy is the lack of emphasis on critical thinking skills from an early age. Digital literacy requires critical thinking skills to critically evaluate information and understand its implications in a digital context. The lack of emphasis on this aspect in basic education causes the inability of society to deal with less productive information.

Many education systems in Indonesia focus more on memorization than on building critical thinking skills. This hinders students' ability to analyze, evaluate, and think logically about the information they receive, an essential part of digital literacy. Without strong critical thinking skills, it is difficult to distinguish true information from false information, especially in the digital era where disinformation abounds.

Thus, critical thinking skills are not always a major component of lessons in primary and secondary schools. The current curriculum centers more on teaching facts and theories but does not encourage students to wonder or learn more about the material being taught. Students will not be trained to identify bias, evaluate arguments, or use information effectively in the digital world if learning these skills is not prioritized. Many schools in Indonesia are still limited in their use of technology, even though technology can be a powerful tool for building critical thinking skills. Students will not have the opportunity to improve their digital skills and enhance their critical thinking about cyberspace if learning technology is not utilized properly. Moreover, it affects their ability to assess data available on the internet, which is crucial in the era of global digitalization.

*Second*, Limited Access and Infrastructure: Limited access to technology and the internet and lack of infrastructure are major obstacles to improving digital literacy in Indonesia. These factors affect how many people can access and utilize digital technology for educational and skills development purposes.

Limited access to the internet and technology as well as a lack of adequate infrastructure leads to low digital literacy in Indonesia. One of the main causes is the uneven distribution of internet access; urban areas have better internet access than rural and remote areas, creating a significant digital divide. In addition, factors that prevent people from having enough money to buy technological devices such as computers or smartphones also make it more difficult for them to use digital technology. As people in underserved areas find it difficult to access digital platforms such as online courses or digital libraries, these limitations have a direct impact on education and teaching. The situation is made worse by infrastructure deficiencies, including unstable internet networks and limited technology facilities in tertiary institutions.

Conversely, the lack of public awareness about the importance of digital literacy is also an obstacle. Many people see technology only as entertainment, not a tool for learning or improving skills. These issues cause the digital divide to widen, which limits the utilization of digital technology, and hinders digital progress in Indonesia. Therefore, inclusive government policies should be implemented, especially in remote areas, that prioritize infrastructure development, subsidies for technology devices, and digital literacy training. These factors



contribute greatly to the low level of digital literacy in Indonesia. Without improved access to technology and infrastructure development, improving digital literacy will be difficult to achieve.

*Third, Low Awareness and Level of Social Media Usage:* The level of digital literacy of Indonesian people using social media is still low, which causes a lot of hate speech on social media. A lack of understanding of digital ethics and critical skills in sorting information on social media can worsen this problem. In addition, bad behavior on the internet is also a tendency related to the low level of digital literacy of adults. These tendencies indicate that efforts to improve digital literacy in Indonesia need to pay attention to a holistic approach, including increasing awareness, investing in digital infrastructure, and emphasizing the development of critical thinking skills from an early age.

Due to Indonesians' low level of digital literacy, many problems arise on social media, including a lot of hate speech. One of the main factors is people's inability to verify information, which allows the spread of fake news or misinformation. In addition, many social media users do not realize the importance of speaking politely and ethically because they do not know about digital etiquette. This situation is further exacerbated by limited access to digital education, especially in remote areas. Users are often unaware of the social, legal, or emotional consequences of their online behavior, which is an important factor.

As a result, hate speech has increased on social media, which is seen in various forms such as cyberbullying, social and political polarization, and habitual sharing of unfiltered content. This phenomenon is exacerbated by the anonymity of social media, which allows users to convey hate without fear of repercussions. Limited access to technology, limited educational infrastructure, and uneven digital awareness campaigns are other factors that support low digital literacy.

To, social conflicts increased in society, relationships between individuals and groups deteriorated, and many people were involved in ITE Law offenses. Because social media is spread all over the world, this phenomenon also damages the image of Indonesian society in the eyes of the world. To address this issue, various strategic actions are needed, such as embedding digital literacy in school curricula and community training, stricter monitoring of social media content, campaigns to raise public awareness about positive social media use, and improving digital infrastructure to expand internet access across Indonesia. Improving digital literacy is key to building a broader social media ecosystem.

Thus, the low level of digital literacy among Indonesians is caused by. The lack of investment and development of technology and telecommunications infrastructure evenly across Indonesia. The impact is hampering digital learning and the development of skills needed to participate effectively in the global digital economy. There is a lack of focus on digital literacy in the national education system and a lack of in-depth training programs on digital technologies. The impact is that young people grow up with limited digital skills, which ultimately affects their ability to use technology productively and safely. There is a lack of effective public awareness campaigns and minimal incentives to improve digital literacy due to the impact of social media abuse and low levels of cybersecurity among internet users in Indonesia. The three descriptions above reflect various aspects that contribute to low digital literacy in Indonesia, indicating that solutions must include infrastructure improvements, education reform, and increasing public awareness of the importance of digital literacy.

### *Increasing Digital Literacy Among Indonesian Society in the Context of the Global Digitalization Era*




In the era of global digitalization that continues to grow, increasing digital literacy among Indonesian people is an urgent need. Digital literacy is the key to ensuring that individuals and





society can keep up with the rapid development of information and communication technology and take maximum advantage of it. In Indonesia, despite progress in digital technology penetration, data shows that the level of digital literacy is still far from adequate, with many people not yet having sufficient understanding in terms of digital skills, security, and ethics. This low level of digital literacy has the potential to become a major obstacle in facing future digital challenges, such as inequality in access to information, cybersecurity, and economic changes triggered by digital transformation. Therefore, there needs to be a joint effort from the government, private sector, and society as a whole to improve digital literacy, ensuring that every individual has the skills needed to participate effectively in this increasingly complex digital world.

Picture 1. Discourse on Increasing Digital Literacy among Indonesian Society in The Context of the Global Digitalization Era.

No	Discourse	Visual Description	Source
1	<p>Launching of Indonesia Digital Vision 2045: Accelerating Digital Transformation to Realize Golden Indonesia (<a href="https://digital2045.id">Digital2045.id</a>, 2024)</p>		<p><a href="https://digital2045.id/1-launching-visi-indonesia-digital-2045-percepatan-transformasi-digital-demi-wujudkan-indonesia-emas/">https://digital2045.id/1-launching-visi-indonesia-digital-2045-percepatan-transformasi-digital-demi-wujudkan-indonesia-emas/</a></p>
2	<p>Improving Digital Literacy in the Country (<a href="https://katadata.co.id">Katadata.co.id</a>, 2021)</p>		<p><a href="https://katadata.co.id/infografik/617a34dc1ffd5/meningkatkan-literasi-digital-di-tanah-air">https://katadata.co.id/infografik/617a34dc1ffd5/meningkatkan-literasi-digital-di-tanah-air</a></p>
3	<p>The Importance of Digital Literacy Towards Golden Indonesia 2045 (<a href="https://mediaindonesia.com">Mediaindonesia.com</a>, 2023)</p>		<p><a href="https://mediaindonesia.com/teknologi/627053/pentingnya-literasi-digital-untuk-menuju-indonesia-emas-2024">https://mediaindonesia.com/teknologi/627053/pentingnya-literasi-digital-untuk-menuju-indonesia-emas-2024</a></p>



No	Discourse	Visual Description	Source
4	Indonesia is increasingly digitally literate ( <a href="https://www.indonesia.go.id">Indonesia.go.id</a> , 2022)		<a href="https://www.indonesia.go.id/mediapublik/detail/1663">https://www.indonesia.go.id/mediapublik/detail/1663</a>
5	Let's Get to Know the 4 Pillars of Digital Literacy ( <a href="https://katadata.co.id">Katadata.co.id</a> , 2022)		<a href="https://katadata.co.id/infografik/625689fbd47ce/kenalan-yuk-dengan-4-pilar-literasi-digital">https://katadata.co.id/infografik/625689fbd47ce/kenalan-yuk-dengan-4-pilar-literasi-digital</a>

The visuals depicted above highlight that increasing Digital Literacy among Indonesian People in the Context of the Global Digitalization Era has resulted in a very rapid transformation towards Golden Indonesia 2045. In the context of the global digitalization era, efforts to increase digital literacy among Indonesian people are becoming increasingly urgent. This is due to various factors, including limited access to technology and inadequate infrastructure, lack of emphasis on critical thinking skills in education, and low awareness and interest in digital literacy among the community. In addition, the low level of digital literacy also has an impact on programs to strengthen Indonesia's digital literacy, such as Talenta Digital Indonesia, which has not achieved the expected targets. Therefore, comprehensive and targeted steps need to be taken to improve digital literacy in Indonesia, including investment in infrastructure, education reform, and effective public awareness campaigns.

In an effort to increase digital literacy among Indonesian society in the context of the global digitalization era, there are several relevant description categories to consider. *First*, it is necessary to emphasize the importance of equal access to technology and the Internet throughout Indonesia. This involves building adequate infrastructure to support digital connectivity, especially in rural and remote areas. *Second*, there is a need for reform in the national education system to include a curriculum that prioritizes the development of digital skills, including critical thinking skills, digital ethics, and cyber security. In addition, efforts are also needed to increase public awareness of the importance of digital literacy and its impact on everyday life, including the risks and benefits of using digital technology. By combining these efforts, it is hoped that a supportive environment can be created for the Indonesian people to become more skilled and intelligent in facing the challenges and opportunities offered by the era of global digitalization.

Several news portals have reported on the issue of low digital literacy among Indonesian people, which includes aspects such as digital skills, digital security, digital culture, and digital ethics. Low digital literacy, due to less productive information creation, has an impact on the achievement of digital literacy strengthening programs such as Talenta Digital Indonesia.

Factors causing low literacy include a lack of emphasis on critical thinking skills from an early age (Ariadila et al., 2023; Hamdani et al., 2019), limited access to technology, inadequate infrastructure, lack of education and training, digital inequality, and lack of awareness and interest (Afzal et al., 2023; Gai Mali et al., 2023). Low levels of digital literacy also lead to a lot of hate speech on social media and bad behavior on the internet (Alsobeh et al., 2023; Fazli Baharuddin et al., 2016). The urgency of digital literacy in Indonesia is increasingly clear with the high penetration of information and telecommunications technology, data commercialization, the rapid flow of information, technological developments, and opportunities for community empowerment, where Indonesia is ranked 14th in terms of duration of internet use, which can cause problems related to the lack of digital literacy and cybersecurity (Kompas.com, 2024), can cause serious problems for society. To address this issue, a holistic approach is needed that includes investment in digital infrastructure, educational reform to emphasize digital literacy and critical thinking skills, effective public awareness campaigns, and positive thinking (M. Suud & Na'imah, 2023). With these steps, it is hoped that the Indonesian people can be better prepared to face challenges and take advantage of opportunities in the era of global digitalization towards the vision of a Golden Indonesia 2045.

Although research on low digital literacy in Indonesian society provides valuable insights, several shortcomings need to be considered. *First*, this study does not fully explore the factors causing low digital literacy, such as how the lack of emphasis on critical thinking skills in primary education contributes to this problem. *Second*, there is a lack of empirical data to support claims about limited access to technology and infrastructure and a lack of adequate education and training. This study also has not specifically identified the regions or demographics most affected by limited access to technology and how this varies across Indonesia. *Ketiga*, although it is stated that low digital literacy has an impact on bad behavior on the internet and misuse of social media, this study does not provide an in-depth analysis or case studies that illustrate these impacts in concrete terms. By addressing this shortcoming, future research can provide a more comprehensive and detailed picture of digital literacy challenges in Indonesia as well as more effective solutions.

Further research recommendations to better understand the low level of digital literacy among Indonesians should cover several important aspects. First, research that focuses on the impact of the lack of emphasis on critical thinking skills in the basic education curriculum. This study needs to explore how changes in the curriculum can improve digital literacy from an early age. Second, in-depth research on the limitations of technology access and infrastructure, including policy analysis and investment needed to expand internet access throughout Indonesia, especially in rural areas. Third, research on effective strategies to increase awareness and interest in digital literacy, such as public campaigns, training programs, and incentives that can motivate people to be more active in developing their digital skills. These studies will provide valuable insights for developing more comprehensive policies and programs to improve digital literacy in Indonesia in the context of the global digitalization era.

## Conclusion

This study identified that low digital literacy among Indonesian people is caused by three main factors: *first*, lack of emphasis on critical thinking skills from an early age in the education system, resulting in an inability to evaluate information critically; *second*, limited access and technological infrastructure that hinder the use of digital technology for education and skills development; and *third*, low awareness and interest in digital literacy, reflected in the high rate of social media abuse and low levels of cybersecurity. To address this issue, a holistic approach is needed that includes investment in digital infrastructure, educational reform to emphasize digital literacy and critical thinking skills, and effective public awareness



campaigns. With these steps, it is hoped that the Indonesian people will be better prepared to face challenges and take advantage of opportunities in the era of global digitalization towards the vision of Golden Indonesia 2045. Limitations of this study include a lack of in-depth exploration of causal factors, limited empirical data, and a lack of case study analysis. Suggestions for future research need to focus more on analyzing policies to increase access to digital literacy in Indonesia, and effective strategies to increase awareness and interest in digital literacy. This follow-up research will provide more comprehensive and detailed insights into the challenges of digital literacy in Indonesia as well as more effective solutions.

### Acknowledgments

We would like to acknowledge and thank all those who have given valuable contributions to this study

### Authors' Contributions

All authors have contributed to the final manuscript in terms of conceptualization, methodology, analysis, original drafting, review, and editing. They have also read and approved the published version of the manuscript

### Conflict of Interest

All authors have no conflict of interest related to this study.

### Funding

The author(s) received no financial support for the publication of this article

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