

Digital Literary Proficiency of 4th Semester Student at UIN Raden Mas Said Surakarta

Kemampuan Literasi Digital Mahasiswa Semester 4 UIN Raden Mas Said Surakarta

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Abstract: In today's digital world, being digitally literate is essential for university students to thrive both academically and socially. This research examines the level of digital literacy skills among 4th semester students at UIN Raden Mas Said Surakarta, using Ng's (2012) framework, which includes the technical, cognitive, and socio-emotional aspects. A descriptive quantitative approach was used, involving a sample of 120 students from different faculties. Data were gathered through a validated questionnaire and examined using descriptive statistics. The results indicate that students have a high level of technical literacy ($M = 4.12$), a moderate level of cognitive literacy ($M = 3.41$), and a medium-high level of socio-emotional literacy ($M = 3.78$). Although many students feel confident in using digital resources (Kirschner and De Bruyckere, 2017), there are still deficiencies in areas such as critical evaluation and digital ethics (List, 2019; Eshet-Alkalai, 2004). The study suggests that universities should incorporate digital literacy training into their curricula to better equip students with the necessary skills for the 21st century (UNESCO, 2018).

Keywords: Cognitive skills, Digital literacy, Higher education, Socio-emotional skills, Technical skills, University students

Abstrak: Melek digital sangat penting bagi mahasiswa untuk berkembang, baik secara akademis maupun sosial. Pada penelitian ini meneliti tentang kemampuan literasi digital di kalangan mahasiswa semester 4 di UIN Raden Mas Said Surakarta dengan menggunakan Ng (2012) yang mencakup aspek teknis, kognitif, dan socio-emosional. Penelitian ini menggunakan pendekatan kuantitatif deskriptif yang melibatkan 120 sampel mahasiswa dari berbagai fakultas. Pengumpulan data melalui kuesioner yang telah divalidasi dan diperiksa menggunakan deskriptif statistik. Hasil penelitian menunjukkan bahwa mahasiswa memiliki tingkat literasi teknis yang tinggi ($M=4.12$), tingkat kognitif moderat ($M=3.41$), dan socio-emosional yang sedang-tinggi ($M=3.78$). Banyaknya mahasiswa yang merasa percaya diri dalam menggunakan sumber daya digital (Kirschner dan De Bruyckere, 2017), terdapat kekurangan di berbagai bidang seperti evaluasi kritis dan etika digital (List, 2019; Eshet-Alkalai, 2004). Studi ini menyarankan agar universitas dapat memasukkan pelatihan literasi digital ke dalam kurikulum merdeka untuk dapat membekali mahasiswa dengan keterampilan yang diperlukan pada abad ke-21 (UNESCO, 2018).

Kata kunci: Keterampilan kognitif, Literasi digital, Pendidikan tinggi, Keterampilan socio-emosional, Keterampilan teknis, Mahasiswa

INTRODUCTION

In the current era of technology, possessing digital literacy is a vital competence for college students. Digital literacy encompasses the capability to seek, assess, utilize, share, and produce content through the use of information technologies and the internet. Eshet-Alkalai (2004) points out that digital literacy extends beyond mere technical skills, incorporating cognitive and socio-emotional abilities essential for effective functioning within digital settings.

Enhancing digital literacy among learners is fundamental for fostering academic achievement, promoting critical thinking, and encouraging the responsible application of technology. Ng (2012) categorized digital literacy into three main aspects: technical (basic skills for operating digital tools), cognitive (the ability to think critically and assess digital content), and socio-emotional (ethical practices and responsible conduct online). These aspects serve as a well-rounded basis for evaluating levels of digital literacy.

Prior research has produced varying findings about students' digital literacy capabilities. Although many young people are referred to as "digital natives" due to their upbringing in a tech-centered environment, this does not necessarily mean they possess digital literacy skills (Kirschner and De Bruyckere, 2017). A study conducted by List (2019) showed that even though students frequently engage with digital platforms, many do not have the necessary skills to critically assess online content or use technology in a responsible manner.

Worldwide, there is a discussion regarding if colleges and universities are adequately fostering digital literacy competencies in their students. Some believe that the prevalent use of digital tools in learning implies that students automatically acquire these skills. Conversely, others highlight that in the absence of focused teaching, students might misapply digital resources or find it difficult to evaluate the reliability of information. In light of this situation, the present study aims to investigate the level of digital literacy among students in their 4th semester at UIN Raden Mas Said Surakarta. This research is based on Ng's (2012) theoretical model and intends to address the following research question:

What is the proficiency in digital literacy among students in their fourth semester at UIN Raden Mas Said Surakarta?

The goal of this research is to assess students' digital literacy skills in terms of technical, cognitive, and social-emotional aspects, as well as to determine aspects that might need additional teaching assistance or improvements in the curriculum.

METHOD

This research utilized a descriptive and quantitative approach. Its purpose was to detail the existing level of digital literacy skills among the selected group through numeric data gathered from a systematic survey tool. The population included undergraduate students in their 4th semester at UIN Raden Mas Said Surakarta for the academic year 2024/2025. A sample group of 120 students from different faculties was chosen through purposive sampling to ensure that both science and social science departments were represented.

The primary tool employed was a digital literacy questionnaire inspired by Ng's (2012) framework. This questionnaire featured 30 items that were categorized into three dimensions:

1. Technical Knowledge (10 items)
2. Cognitive Skills (10 items)
3. Social-Emotional Skills (10 items)

Each question was rated on a 5-point scale, where 1 meant Strongly Disagree and 5 meant Strongly Agree. Experts reviewed the questionnaire and a pre-test was carried out with 30 students to ensure it was clear and reliable. The Cronbach Alpha score was 0.86, which demonstrates a strong level of consistency within the items.

Data were gathered online via Google Forms over a span of two weeks. University emails and class WhatsApp groups were used to inform students about the research study. Participation was optional and kept anonymous. The data were analyzed using descriptive statistics, including averages, percentages, and standard deviations. Each aspect was evaluated separately and grouped into three categories: low (1.00-2.33), medium (2.34-3.66), and high (3.67-5.00). The analysis was conducted using SPSS software.

FINDINGS AND DISCUSSION

The findings are reported based on the three aspects of digital literacy:

- **Technical Literacy:** The mean score for technical literacy was 4.12 (SD = 0.55), suggesting a strong level of skill. Students expressed assurance in their ability to utilize digital applications like MS Office, LMS platforms, and perform basic troubleshooting.
- **Cognitive Literacy:** The mean score stood at 3.41 (SD = 0.68), indicating a moderate level of skill. While students were capable of conducting information searches effectively, they found it challenging to assess the reliability of sources and recognize misinformation.
- **Socio-Emotional Literacy:** Students achieved an average score of 3.78 (SD = 0.60), reflecting a moderately high level. They acknowledged the significance of proper online behavior and digital accountability, although some exhibited lower awareness regarding privacy concerns and cyberbullying.

In summary, the data indicated that 58% of the students had a moderately high level of digital literacy, 27% demonstrated a high level, and 15% were categorized as having low digital literacy.

Table 1.1 Descriptive Statistic of Digital Literacy Proficiency among 4th Semester Students

Dimension	Number of Items	Mean Score	Standard Deviation (SD)	Proficiency Level
Technical Literacy	10	4.12	0.55	High
Cognitive Literacy	10	3.41	0.68	Moderate
Socio-Emotional Literacy	10	3.78	0.60	Medium - High
Overall Average	30 (Total)	3.77	0.61	Medium - High

Table 1.2 Descriptive Statistic of Digital Literacy Proficiency among 4th Semester Students

Proficiency Category	Percentage (%)	Interpretation
High (3.67 – 5.00)	27%	Strong proficiency in all three areas
Medium (2.34 – 3.66)	58%	Adequate but with room for improvement
Low (1.00 – 2.33)	15%	Needs significant support.

In addition to measuring the three dimensions of digital literacy, we also collected data on the platforms most frequently used by students in searching for academic information. The results are presented in the following table:

Table 1.3 Platforms Frequently Used by Students to Search for Academic Information (N=21)

Platform	Number of Respondent	Percentage
Google Scholar & Electronic Journal	15	75%
Youtube	9	45%
Wikipedia	3	15%
E-Journal / Perpustakaan Digital Kampus	7	35%
Other blogs or website	6	30%
Checking the credibility of the author	15	75%
View citations/ references	13	65%
Compare sources	10	50%
Check website domain	10	50%

The data presented in the table reveals that students predominantly utilize Google Scholar and Electronic Journals, with 75% expressing a preference for these reputable and verified academic resources. Additionally, the same percentage of participants made an effort to verify the credibility of authors, showcasing a strong understanding of the importance of trustworthy academic information.

Moreover, 45% of students turned to YouTube, suggesting that visual media serves as an alternative reference, even if it isn't entirely academic. In contrast, only 15% of students relied on Wikipedia, reflecting their recognition of the platform's limited reliability.

The Campus Digital Library was accessed by 35% of the surveyed individuals, while 30% explored blogs and other websites, which may indicate a desire to find supplemental resources beyond the primary academic platforms.

Regarding information assessment, 65% of participants verified citations or references, and half as many examined sources and scrutinized website domains. This indicates that a significant portion of students demonstrate solid digital literacy skills when it comes to assessing the credibility of information.

As a supplement to the main data, the following presents student responses to several questions related to digital habits and perceptions of digital literacy.

Question	Dominant Answer	Percentage
How often do you use the internet to search for academic information?	Very often	80% (17 from 21)
How important is digital literacy in academic life	Very important	90% (19 from 21)

How often do you check the validity of information from the internet?	Often	70% (15 from 21)
Have you participated in any digital literacy training?	Never	65% (13 from 21)
Should digital literacy be part of the university curriculum?	Yes (strongly agree)	95% (20 from 21)
How often do you use e-learning (classroom, moddle, etc.)?	Often	76% (16 from 21)
How often do you use data processing applications (Excel, SPSS)?	Rarely	60% (13 from 21)

Table 1.4 Summary of Student Responses to Additional Questions (N = 21)

To back up the information in tables 1. 3 and 1. 4, below are the results from various other questions that outline the behaviors and views of students regarding digital literacy and their internet use for academic purposes.

Question	Most Answer/ Perceptions
Frequency of internet use for academic information	50% everyday and 50% Several times a day
Importance of Digital Literacy in Academics	75% Very important
Frequency checking the validity of information from the internet	65% often
Experience of attending Digital Literacy	55% hsve
Whether Digital Literacy should be part of the curriculum	100% agree
Frequency of use of e-learning applications	55% several times a week
Frequency of use of data processing application (Excel, SPPS, Phyron)	30% quite often

From this information, it is clear that:

- Learners frequently engage with the academic internet, though the verification of information is not consistently applied.
- Knowledge of digital literacy is considerable, particularly following the training sessions experienced by some learners.
- Every student advocates for the inclusion of digital literacy resources in the curriculum.
- The utilization of data management software remains limited, highlighting the necessity for additional technical training.

Table 1.5 Key barriers to improving Digital Literacy

Question	Dominant Answer	Percentage
Limited Internet Connection	11	55%
Lack of technical understanding	8	40%
No more learning time	6	30%
No instructor support	5	25%
Low technical skills	7	35%
Other	4	20%

Based on responses from 21 participants, several key challenges impede the advancement of digital literacy. The primary challenge is the insufficient internet connectivity faced by 55% of the participants (11 individuals). This highlights that issues with digital infrastructure remain a significant concern in technology-driven learning environments.

Additionally, 40% of the participants (8 individuals) acknowledged that their insufficient technical knowledge served as an obstacle to enhancing their digital skills. This underscores the necessity for training or guidance to bolster foundational knowledge of digital technology.

Moreover, 35% of participants (7 individuals) pointed out that inadequate technical abilities were a limiting factor, which is closely tied to a deficiency in hands-on experience with effectively using technology.

Furthermore, 30% (6 individuals) expressed that their hectic academic schedules left them with little time to acquire new digital skills, while 25% (5 individuals) reported a lack of support from teachers as a hindrance.

The "Other" category, chosen by 20% of respondents (4 individuals), suggests the presence of additional barriers beyond the primary ones mentioned, which may encompass personal issues like motivation to learn, availability of devices, or psychological challenges.

The results reveal that students at UIN Raden Mas Said Surakarta typically have robust technical literacy, averaging a score of 4.12. This indicates that they are comfortable using digital resources such as learning management systems, word processors, and other popular online platforms. This aligns with the concept of "digital natives," who have been immersed in technology throughout their upbringing (Prensky, 2001). Nonetheless, as noted in earlier research (Kirschner and De Bruyckere, 2017), simply being a digital native doesn't ensure the development of critical digital skills.

The findings further indicate that students exhibit a moderate level of cognitive literacy ($M = 3.41$), revealing some challenges in assessing the reliability of information and distinguishing falsehoods on the internet. This is in line with List's (2019) results, which show that although many students frequently utilize digital platforms, they often lack sound digital judgment. Notably,

additional insights from the survey disclosed that while 75% of respondents state they verify an author's credibility and 65% look for citations, only 50% make comparisons across various sources or domain categories. This implies that even though students recognize basic verification methods, their ability for deeper critical analysis may still require enhancement.

On the socio-emotional front, students achieved a moderately high score ($M = 3.78$), indicating an understanding of digital etiquette and responsibilities. However, distinct challenges persist, particularly concerning online safety and privacy. These findings underline the necessity for comprehensive digital citizenship education, which should not only concentrate on respectful interactions but also on safeguarding mental well-being and securing personal data in increasingly interconnected settings.

Moreover, the reported obstacles to enhancing digital literacy provide valuable insights. Issues like limited internet availability (55%), inadequate technical comprehension (40%), and insufficient time (30%) suggest that even when students are enthusiastic, structural and situational factors can impede their growth. This underscores the principle that digital literacy cannot be taken for granted; it must be deliberately cultivated through curriculum development, improved infrastructure, and educator support.

This research thus points out a gap between access and skill level. While students may frequently use digital tools, they still face shortcomings in both cognitive and socio-emotional literacy. To tackle this, universities should consider:

1. Integrating digital literacy training throughout various subjects, particularly those related to research, media usage, and teamwork.
2. Offering specialized workshops focused on assessing online information, detecting misinformation, and utilizing advanced digital tools.
3. Ensuring fair access to technology and internet resources.
4. Preparing educators to exemplify and instruct responsible digital conduct.

By systematically addressing these concerns, higher education institutions can better prepare students with the essential 21st-century skills required for academic achievement, ethical online engagement, and future job prospects.

As an aspiring teacher, this research highlights the critical necessity of methodically incorporating digital literacy instruction across all aspects of education. It is no longer adequate to think that students possess digital skills simply because they are engaged with social media or knowledgeable about electronic devices. Today's definition of digital literacy goes beyond mere technical abilities; it also involves analyzing information critically, participating responsibly in online environments, and thoughtfully collaborating, communicating, and generating content in an ethical manner.

1. Practical Implications for Teaching Practice

This study has enhanced my comprehension of the three facets of digital literacy (technical, cognitive, socio-emotional) and their application within actual classroom settings. In the future, I intend to:

- Include activities that focus on evaluating sources, such as contrasting biased and reliable articles.
- Educate students about digital citizenship and online well-being, stressing the importance of respectful engagement, privacy, and mental health in digital spaces.

- Utilize collaborative platforms (like Padlet and Google Docs) to foster technical and socio-emotional development during group projects.
- Integrate digital literacy assessments into every assignment, helping students think critically about how they locate, verify, and share information.

2. Strengths of the Study

- Based on a solid theoretical framework (Ng, 2012), addressing technical, cognitive, and socio-emotional factors.
- Utilized a reliable and structured instrument with a strong Cronbach's Alpha score (0.86), reflecting consistency in data.
- Included a diverse sample across various faculties, providing a comprehensive understanding of student digital literacy in the university context.

3. Limitations

- The research depended on data reported by participants, which may not completely reflect actual abilities or behaviors.
- Conducted at a single institution with a specific semester group, which might limit the applicability of the results to a broader context.

4. Recommendations for Future Research

- Employ qualitative approaches, such as interviews or focus groups, to investigate the hurdles students face in using digital literacy in practical situations.
- Examine digital literacy proficiency across various semesters or fields of study (such as sciences compared to humanities).
- Create and assess educational interventions or workshops targeting identified weaknesses like online credibility assessments or promoting digital health.
- Incorporate observation-based evaluations or performance tasks to confirm self-reported skills.

This study not only provides academic insights but also personally shapes my role as a future English teacher amidst digital advancements. In today's classrooms, digital literacy is essential; it is a fundamental element of education. As teachers, we need to transition from merely imparting knowledge to guiding students in developing digital fluency and responsible online conduct. By thoughtfully weaving digital literacy into our teaching, we equip students to excel in their academic journeys and flourish in a digitally-driven world.

CONCLUSION

This study reveals that students in their 4th semester at UIN Raden Mas Said Surakarta demonstrate varying levels of digital literacy across the three aspects examined. In general, students exhibit high technical literacy, but face significant challenges in cognitive literacy, particularly in terms of critically evaluating the reliability of information and identifying online misinformation. Although students demonstrate a fairly good understanding of digital ethics and responsibility in the socio-emotional aspect, there is still a need to enhance awareness regarding privacy and issues such as cyberbullying. Barriers such as limited internet connectivity, lack of technical understanding, and limited study time also act as hindrances to improving digital literacy.

This research highlights the gap between access to digital tools and actual skill levels. Therefore, universities have a crucial role to play in systematically integrating digital literacy training into the curriculum, offering workshops focused on critical information assessment, ensuring equitable

access to technology, and preparing educators to be role models for responsible digital behaviour. As a result, universities can equip students with the essential 21st-century skills needed for academic success, ethical online engagement, and future career prospects.

REFERENCES

- Ardhiani, O., Hadjam, M. N. R., & Fitriani, D. R., (2023). "Digital Literacy and Student Academic Performance in Universities: A Meta-analysis." *Journal Of Psychology And Instruction*, Volume 7, Number 3, 2549-4589. <https://doi.org/10.23887/jpai.v5i2>.
- Gilster, P. (1997). Digital literacy. John Wiley & Sons.
- Eshet-Alkalai, Y. (2004). "Digital literacy: A conceptual framework for survival skills in the digital era." *Journal of Educational Multimedia and Hypermedia*, 13(1), 93–106.
- Herawati, A. R., & Anne, M. (2023). "Digital Literacy and its Urgency in Education Sector." <https://share.google/woJaLYaOJu5za7JEA>.
- Kirschner, P. A., & De Bruyckere, P. (2017). "The myths of the digital native and the multitasker." *Teaching and Teacher Education*, 67, 135–142. <https://doi.org/10.1016/j.tate.2017.06.001>.
- Kurniawati, N., Maolida, E. H., & Anjaniputra, A. G. (2018). "The praxis of digital literacy in the EFL classroom: Digital-immigrant vs digital-native teacher." *Indonesian Journal of Applied Linguistics*. Vol. 8 No. 1. pp 28-37. <https://doi.org/10.17509/ijal.v8i1.11459>.
- List, A. (2019). "Defining digital literacy development: An examination of pre-service teachers' beliefs." *Journal of Digital Learning in Teacher Education*, 35(1), 20–34. <https://doi.org/10.1080/21532974.2019.1524392>.
- Martin, A. (2008). Digital literacy and the "digital society." In C. Lankshear & M. Knobel (Eds.), *Digital literacies: Concepts, policies and practices* (pp. 151–176). Peter Lang.
- Munir, H., Fatima, H., & Tufail, A. (2024). "Digital Literacy and Students' Academic Performance: A Study of Higher Education Level." *Al-Mahdi Research Journal (MRJ)*, Volume 5, Nomor 3.
- Ng, W. (2012). "Can we teach digital natives digital literacy?" *Computers & Education*, 59(3), 1065–1078. <https://doi.org/10.1016/j.compedu.2012.04.016>.
- UNESCO. (2011). "Media and information literacy curriculum for teachers." <https://unesdoc.unesco.org/ark:/48223/pf0000192971>
- UNESCO Institute for Statistics. (2018). "A global framework of reference on digital literacy skills for indicator 4.4.2." UNESCO. <https://uis.unesco.org/en/news/global-framework-reference-digital-literacy-skills>.
- Zhou, N., & Li, Y. (2019). "Digital literacy and this impact on academic performance: A study of University students in China." *Journal of Educational Computing Research*, 57(7), 1763–1780.