

# **Examining the Digital Literacy Movement in Higher Education and Its Relationship to Students' Digital literacy**

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## **Abstract**

This study examines the implementation of the digital literacy movement in higher education and its relation to student digital literacy. Researchers conducted descriptive qualitative research using questionnaires and interviews. This sample consists of 136 students from 15 different study programs. According to the findings of this study, the implementation of the digital literacy movement in higher education has been supported by policies and guidelines concerning the use of digital devices, the availability of a variety of digital services, and digital reading materials. Furthermore, students show good technological, personal security, critical thinking, and communication skills. Besides that, the security and informational capabilities of the students' mobile devices are pretty satisfactory. However, as a result, students have not consistently applied the concept of digital literacy. Therefore, universities must continue to enhance the implementation of the digital literacy movement and the involvement of parents, private organizations, and the government in the program.

**Keywords:** digital literacy, digital competence, digital literacy movement, higher education.

## **1. Introduction**

Digital skills are becoming increasingly important in various fields, professions, and aspects. Therefore, some academics recommend digital literacy training in order to protect students from technology-related dangers such as cyberbullying, sexual harassment or grooming, pornographic and violent content, sexting, contact with strangers, and impersonation (Chisholm, 2006; Purnama, Ulfah, Machali, Wibowo, & Shandy, 2021; Rodríguez de Dios & Igartua, 2014). As the center of change, higher education is one of the best places to implement the digital literacy movement. Increasing digital literacy has become one of the higher education programs so that students can gain many benefits from using digital technology. This research departs from the problem of the low literacy of students so that it affects the process and student learning outcomes. Observations showed that some students still lacked mastery of using digital technology safely and productively.

Implementing the digital literacy movement will be more effective if it uses the right approach and involves many parties. Every individual needs digital literacy to adapt to changes in people's lifestyles in the digital era. In addition, digital literacy is also helpful for developing students' abilities in using digital devices and strengthening students' character in dealing with information overload, harmful content, and ethical negligence in surfing the internet (Rahmah, 2015). In addition, digital literacy is also helpful for reducing students when participating in bold learning, such as committing fraud during exams, accessing prohibited websites, playing games, and participating in learning (Purnama, Ulfah, Machali, Wibowo, & Narmaditya, 2021).

Suwana and Lily have shown Indonesian women's limitations on digital literacy education (Suwana & Lily, 2017). Paterson explained that the program to increase the Indonesian people's digital literacy was insufficient, so Indonesian citizens were still vulnerable to misinformation or hoax news (Paterson, 2019). Puspitasari and Ishii show that giving smartphones to Indonesian students will not be effective if it is not accompanied by an increase in digital literacy (Puspitasari & Ishii, 2016). Finally, Yildiz suggests the need to increase digital literacy movement programs in higher education (Yildiz, 2020).

Research on student digital literacy is crucial because it is related to the risks of using digital devices during the COVID-19 pandemic (Ramadhan et al., 2021), student learning outcomes (Lei et al., 2021), and Indonesia's economic growth (Trinugroho et al., 2022). The Republic of Indonesia's Minister of Communication and Information Technology (KEMENKOMINFO) will launch a digital literacy national movement in 2021. This digital literacy national movement program has produced digital literacy-themed modules and has conducted

digital literacy seminars in various regions in Indonesia. Information about the national digital movement can be seen in more detail on the website page: <http://literasidigital.id>

The previous research had studied lecturers' level of digital literacy (Fauzan et al., 2022), students' level of digital literacy (Purnama, Ulfah, Machali, Wibowo, & Narmaditya, 2021), teaching-based digital literacy (Çetin, 2021), and the relationship of digital literacy with self-efficacy and other variables (Jeon & Kim, 2022). However, previous research has not clearly studied the digital literacy movement in higher education.

### *1.1 Objectives*

This research highlights the student digital literacy and implementation digital literacy movement in Universitas Islam Negeri Walisongo Semarang during the COVID-19 pandemic. In addition, this research will contribute to evaluating student digital literacy and the higher education effort to improve it.

## **2. Digital Literacy and The Role of Higher Education To Improve it**

The concept of digital literacy must be understood in a broad literacy context. The meaning of literacy is not limited to the ability to read and write. However, literacy also includes the ability to count and speak. Pragmatically, digital literacy is a set of skills, knowledge, and attitudes needed to access digital information effectively, efficiently, and ethically (Julien, 2018). Digital literacy is a competency every individual needs to adapt and compete in the digital era (Brata et al., 2022).

Digital literacy is also defined as acquiring knowledge via computer and online resources (List, 2019). According to Martin, digital literacy consists of three levels digital competence, digital use, and digital transformation. First, digital competence is related to the ability to use digital devices. Second, digital use relates to the way individuals use digital devices. Third, digital transformation is related to creating new knowledge due to digital device use (Martin, 2006).

Paul Gilster explained that digital literacy could be measured using four indicators, i.e., internet searching, hypertextual navigation, content evaluation, and knowledge assembly. First, searching the internet is the ability to search for information by a digital device. Second, hypertextual navigation is knowledge of how websites use hypertext and hyperlinks. Third, content evaluation is the ability to distinguish the elements contained in a website. Fourth, knowledge collection is the ability to organize knowledge or facts from information obtained from various sources (Gilster, 1997).

Digital literacy for teenagers refers to six indicators that have been developed and validated by Rodríguez-de-Dios et al. as digital literacy instruments, namely: technology skills, personal security skills, critical skills, devices security skills, informational skills, and communication skills (Rodríguez-de-Dios et al., 2016). Technological skills are the ability to use digital technology effectively. Communication skills are the ability to communicate through digital technology. Informational skills are the ability to find information, obtain it, and develop its relevance in the digital environment. Critical skills are the ability to analyze the information obtained critically. Personal security skills are the ability to use interactive communications without taking risks and dangers that can ensure safety first. Device security skills are the ability to keep digital devices safe and avoid potential threats, such as viruses and spyware.

The theoretical framework of the higher education effort to improve digital literacy will be analyzed using the theory of the digital literacy movement in schools. According to Nasrullah et al., the target of the digital literacy movement in schools consists of three parts, namely, class-based, school culture, and community. Indicators of the classroom-based digital literacy movement include the number of digital literacy training for school residents and the level of application of the concept of digital literacy. Indicators of the digital literacy movement based on school culture are the availability of digital readings, digital-themed books, information and communication technology regulations, and the number of activities and services based on information and communication technology. Indicators of the school community-based digital literacy movement are the number of digital facilities and the involvement of parents, the educational community, and certain institutions in the digital literacy movement (Nasrullah et al., 2017).

## **3. Methods**

This study is a qualitative descriptive study where researchers want to know about social phenomena related to the implementation of the digital literacy movement in Universitas Islam Negeri Walisongo Semarang and descriptive of student digital literacy. The main focus of this research is the implementation of digital literacy and its relation to student digital literacy. The participants in this study are 136 students from 15 different academic programs. Subjects were selected randomly based on questionnaires distributed using Google Forms.

#### 4. Data Collection

The twenty-eight-item instrument for measuring digital literacy was modified from the measurement developed by Rodríguez-de-Dios et al. (2016). Two sample digital literacy questions are "I know how to bookmark a website I like so I can view it later" and "I know when I can post pictures and videos of other people online." The instrument consisted of thirteen items with a five-point Likert scale, ranging from 1 ("Strongly disagree") to 5 ("Strongly agree"). The internal consistency of Cronbach's alpha for the instrument used in this study was 0.93, implying that the questionnaire was reliable. The instrument used to measure the implementation of digital literacy was developed from the theory of the digital literacy movement in schools (Nasrullah et al., 2017).

The following stages were used to collect data using a questionnaire: (1) distributing questionnaires to students with Google form; (2) data description; (3) data explanation; and (4) validation of research results. In addition, to strengthen the data obtained, researchers conducted interviews as supporting data related to the higher education effort to improve student digital literacy, such as the availability of digital facilities, digital reading material, digital literacy training, public engagement in digital literacy programs, and application of the digital literacy concept. This study used descriptive qualitative analysis as a data analysis technique. The data is obtained from the field, then the researcher analyzes, describes, and summarizes various conditions and situations from the field in the form of questionnaire results. Furthermore, the questionnaire data and the results of the interviews were concluded as the findings.

#### 5. Results and Discussion

This study provides information about student digital literacy and the implementation of digital literacy at Universitas Islam Negeri Walisongo Semarang. One hundred thirty-six respondents gave their opinion explained in the following discussion.

##### 5.1 Availability of Digital Facilities

Universitas Islam Negeri Walisongo already has rules and instructions on using information and communication technology in the learning process, such as blended learning lecture guidelines, instructions for using e-learning, and other information systems. In addition, university leaders have also urged lecturers to use information and communication technology in the learning process, such as using LCD projectors, interactive flat panels, video tutorials, e-learning, and digital quizzes in the learning process.

During the Covid-19 pandemic, higher education has improved the quality of several information and communication technology services. Such as providing LCD projectors in all classrooms, internet networks in all campus areas, web E-Learning, academic information systems, institutional email, and institutional blogs. All these services are managed by the information technology center and data center.

The diagram below shows students' perceptions about the availability of digital facilities provided by higher education.

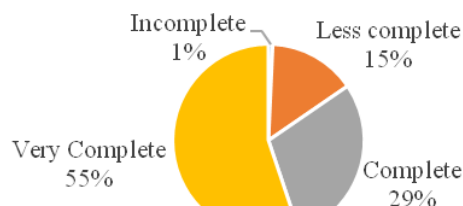


Figure 2 Availability of digital facilities provided by higher education

Although digital literacy is complete, some students still face problems using digital facilities. For example, the e-learning website's response is too slow when uploading files, student laptops cannot be connected to the LCD projector network, and the internet network in some ISDB classrooms is unstable.

##### 5.2 Availability of Digital Reading Materials

One indicator of the implementation of the digital literacy movement is the availability of digital reading materials supporting students' digital literacy. The following diagram shows students' perceptions about the availability of digital reading materials in higher education.

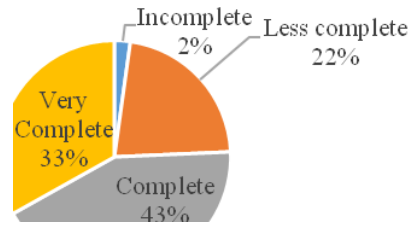


Figure 3 Availability of digital reading materials provided by the higher education

The interviews showed that students responded positively to the increase in digital reading materials that could be accessed online, such as books, modules, and research results. The types of digital reading materials available at Walisongo State Islamic University are institutional repository (<https://eprints.walisongo.ac.id>), UIN Walisongo journal house (<https://journal.walisongo.ac.id>), list of electronic journal links for each academic program, scientific journal database links (such as DOAJ, GARUDA, and Neliti), Ejournals & Ebooks subscribed to the Walisongo UIN Library (such as Cambridge, Ebsco Host, Proquest, Oxford Academic, Emerald publishing, and Gale), application Walisongo e-Library (in collaboration with digital library [www.kubuku.id](http://www.kubuku.id)), and national library services (such as Indonesia One Search, National Library of Indonesia, and National Library of Indonesia E-Resources). From several types of digital reading materials, researchers found some literature with the theme of digital literacy. For example, UIN Walisongo Semarang's repository has 68 titles themed on digital literacy.

The frequency of students using digital reading materials available at UIN Walisongo Semarang is as follows.

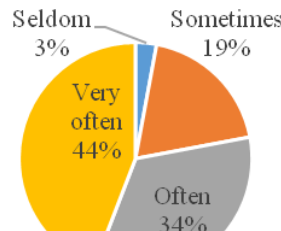


Figure 4 Frequency of students using digital reading materials

The diagram above explains that students have positively responded to the increasing number of e-books, digital modules, and video tutorials. However, on the other hand, some students admitted that they still have difficulty accessing and utilizing digital references. This is due to the low ability of students to use digital technology and understand English (Akbar, 2020). Therefore, the role of librarians and lecturers is needed to guide students on how to access relevant and quality digital references.

### 5.3 Availability of Digital Literacy Training

The interviews showed that students had participated in the socialization of digital literacy in a series of campus introduction activities for new students. Furthermore, students can also deepen digital literacy material through the lecture process, training activities, and seminars held by student organizations. On the other hand, the effectiveness and efficiency of digital literacy activities have not been evaluated, and the targets do not cover all students.

The student survey results show that the frequency of students participating in learning or training related to digital literacy is relatively less frequent. The details are as follows.

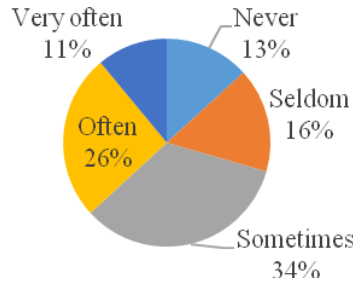


Figure 5 Frequency of students participating in digital literacy training

The digital literacy material that students learn the most is about using digital devices, such as e-learning, accessing digital references, applications that help students write papers, and techniques for designing infographics and videos. On the other hand, the digital literacy training materials that received less attention were on the ethics of using social media or digital media, techniques for maintaining the privacy and security of personal data when using the internet, and techniques for checking the correctness of the information. Discussing these three topics is necessary to build students' critical thinking skills and a conducive virtual environment.

Optimizing the digital literacy movement in higher education can apply various approaches (Jordana & Suwanto, 2017). In addition, lecturers also need to relate the specific subject matter to the theme of digital literacy (Polizzi, 2020) and students' initial experiences when encouraging students to use digital devices (Tham et al., 2021).

#### 5.4 Public Engagement in Digital Literacy Programs

Implementing the digital literacy movement is more beneficial if it involves parents of students, the education community, and public institutions. The role of universities as centers of change and producers of knowledge should invite parents and public organizations to support programs to increase student digital literacy.

According to the findings of the interviews, digital literacy-themed activities at UIN Walisongo Semarang are more frequently presented in the form of seminars by presenting speakers from other campus lecturers. However, the activity participants are still limited to the students of UIN Walisongo Semarang and rarely involve parents and community organizations. The lack of involvement of student parents in the activities of the digital literacy movement is in line with student statements which explain that parents of students pay less attention to the development of their children's digital literacy.

#### 5.5 Application of the Digital Literacy Concept

The interviews showed that most of the students stated that they had verified information before disseminating it, used official and well-known websites to check the veracity of information, and presented information with supporting evidence to be easy to understand and trust. These statements indicate that some students have understood some basic concepts of digital literacy. However, the survey results show that the frequency with which students use digital devices for productive purposes is still not consistent. The following diagram shows this.

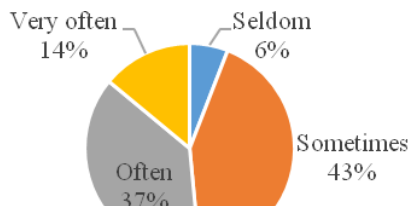


Figure 6 Frequency of students using digital devices for productive purposes

Students use digital devices to communicate with others, view social media pages, read news portals, and find information. Unfortunately, some college students abuse the advantages of digital technology, submitting plagiarized work, claiming the work of others as their own, and scrolling through social media instead of paying attention while supposed to be studying.

### 5.6 Student Digital Literacy

The participants in this study were active internet users from the State Islamic University of Walisongo Semarang. The duration of time they use the internet in a day is 42% for more than 8 hours and 49% for the internet between 5-8 hours. They most often access the internet to communicate with others, such as making voice calls, video calls, and text messages. In addition, students also very often spend their time opening social media pages, reading news portals, and looking for references. Subjects' gender consists of 14% male and 86% female. The class levels consist of semester two (72%), semester four (10%), semester six (12%), semester eight (5%), and semester ten (1%).

The study program consists of 15 undergraduate programs, namely: Islamic Religious Education, Mathematics Education, Early Childhood Islamic Education, Chemistry Education, Madrasah Ibtidaiyah Teacher Education, Islamic Education Management, English Education, Mathematics, Arabic Language Education, Physics Education, Psychology, Islamic Banking, Falak Sciences, Islamic Counseling Guidance, and Da'wah Management.

The results of the digital literacy questionnaire show that the average value of digital literacy of students has obtained a score of 3.6 (good) in the range of 1-5 values. The details are as follows.

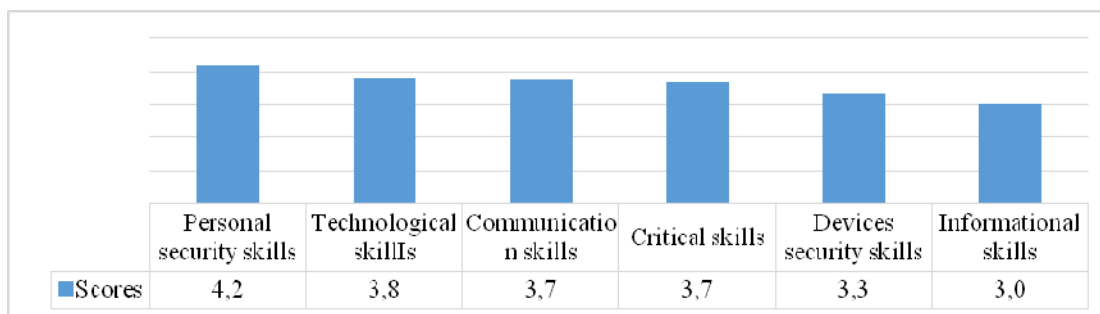


Figure 1 Student digital literacy

The graph above shows that students' digital literacy aspects achieving good category are personal security skills (4.2), technological skills (3.8), communication skills (3.7), and critical thinking skills (3.7). On the other hand, the students' digital literacy aspects achieving pretty good category are devices security skills (3.3) and informational skills (3.0). So, none of the students' digital literacy aspects reached the very good and very bad categories.

These results indicate that the lowest aspect of student digital literacy is the ability to find and evaluate the information needed. In addition, the ability of students to maintain the security of the digital devices they use is also relatively low. Therefore, all parties should contribute to expanding digital literacy movement activities. In addition, the method for implementing the digital literacy movement in universities must be enhanced by incorporating a variety of digital media to meet better students' needs (Jordana & Suwanto, 2017).

## 6. Conclusion

This research focuses on implementing the digital literacy movement and its relation to student digital literacy. This study indicates that the implementation of the digital literacy movement has been supported by policies and guidelines for the use of digital devices, the availability of digital facilities, and digital reading materials. In addition, the number of digital literacy education is still lacking and rarely involves parents, private organizations, and the government. Besides that, students' digital literacy is in a good category regarding technical skills, personal security, critical thinking skills, and communication. However, students' digital literacy in device security and information retrieval is in a pretty good category.

The researcher has three suggestions regarding the research results. First, digital literacy materials should be included in the curriculum and managed by lecturers who are experts in their fields. Second, continuing education and training must be held under the institution's leadership to improve the digital literacy skills of students and lecturers. Third, information technology institutions and libraries should increase seminars, workshops, and symposia activities to increase student awareness of digital literacy.

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