

Assessing digital literacy levels and challenges among junior high school students in Yogyakarta

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Abstract

Digital literacy is the ability to access, understand, analyse, evaluate, and create information in digital format through information and communication technology devices. Digital literacy skills among students are essential to enable them to engage effectively in the learning process to facilitate students in achieving learning goals. Students' skills in using digital media are related to their levels of digital literacy. The level of digital literacy has a correlation with students' readiness to utilize technology. This study aimed to determine the digital literacy level of junior high school students in Indonesia and the challenges faced by them. This study used a mixed-method approach. The research data was collected through questionnaires and interviews. Findings indicate that students' digital literacy levels averaged 54.1%, classifying them as moderate. In addition, the challenges faced by students include limited knowledge about relevant websites, access constraints due to inadequate internet connections, and difficulties in understanding the features of word processing applications. Moreover, a collaborative approach from educators, stakeholders, and researchers is needed to address challenges and improve digital literacy to appropriate levels.

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1. Introduction

The concept of society 5.0 is a paradigm that not only includes manufacturing factors but also solving social problems by involving the assistance of integrating physical and virtual spaces (Skobelev & Borovik, 2017). The industrial revolution that occurred made students more mature with technological advances and accustomed them to living with digital devices.

Nowadays, students must have innovation and creativity in order to adapt quickly to the digital era. This became a special concern for the Indonesian government to face the era of society 5.0 in the field of education. In this case, curriculum development was the right step as a form of preparation to face this era. Curriculum development was expected not only to help students understand the material but also to help students be able to use technology in the learning process. The Merdeka Curriculum was an answer to the challenges faced in the world of education in Indonesia. The Merdeka Curriculum is a curriculum framework designed to be more adaptive as part of a learning reform initiative with a focus on important material and the development of student character and skills. The current paradigm and the forerunner of the Merdeka Curriculum education were then initiated based on the desire of students to learn freely (Setiawan et al. 2022). In the field of English language learning, curriculum changes present new challenges for the development of effective lesson plans, creative and meaningful teaching and learning processes, and evaluation of learning outcomes (Sofiana et al. 2019). Technology changed the way teachers and students learned (Richards, 2017). In the era of digital advancement, technology played an important role in curriculum implementation.

In learning, there were several factors that influenced the achievement of a learning goal. One important element in learning is the method used by teachers to facilitate the language learning process. In today's era, the use of technology is used to help support learning. Many benefits were obtained using technology in the teaching and learning process. Technology was often associated with learning and teaching. That meant technology had become a part of everyday life. This opportunity was used to integrate technology into the curriculum to develop the use of technology that supported the learning process. According to Gilakjani & Sabouri (2017), technology has changed teaching methods. The researchers then added that the use of technology in learning helped students learn based on their interests. Technology also helped students' visual and auditory senses in learning languages. Gilakjani & Sabouri (2017) also argued that the application of technology in learning helps students to adjust the learning process and provides access to a lot of information that was not obtained from teachers.

Technology played a very important role in language learning, including for junior high school students. One of the impacts of using technology in learning was increasing students' motivation to learn. There were many forms of technology used to teach young learners, such as using applications. Educational applications provided safe language learning services for young learners because there was no pressure and fear of being heard by other classmates; thus, teachers used technology as a tool to increase learning motivation and enrich young learners in learning languages and content areas (González-Carriedo & Esprívalo Harrell, 2018). The use of technology in teaching young learners allowed educators to present authentic learning materials and designs to create interesting learning. This is in line with (Riady, 2021) who stated that learning in the current era must be carried out in the right and interesting way to encourage children to be active in learning. Interesting learning was realized by involving the role of digital media that allowed students to be active and able to learn at any time (Sitepu, 2022). The demands

of using technology in learning required teachers and students to be able to operate digital tools. Therefore, digital literacy skills were needed to support technology-enhanced learning.

Digital literacy is the application of digital media to access, share, collaborate, and communicate effectively (Hague & Payton, 2010). In a narrow context, digital literacy was defined as a person's skills to operate software tools effectively in data information retrieval tasks (Buckingham, 2015). However, digital literacy skills are not just about operating a technology but skills that include information management, critical thinking, and appropriate online behavior (Tang & Chaw, 2016). In the context of education itself, students' digital literacy skills were an important component. Digital literacy skills influenced how students participate in community life, education, and additional training (Harris, 2015). For education practitioners themselves, increasing student involvement in digital media aimed to help students develop knowledge, skills, and dispositions to live, contribute, and develop in the digital era of the 21st century (Redmond, 2015). In the conceptualization of cultural competence, digital literacy has elements from several aspects, such as technical skills, skills in analyzing media into objects themselves, thinking critically about content and technology, and gaining knowledge about learning strategies in the form of information that is used for learning (Björger & Erstad, 2015). Another opinion also stated that the use of technology influenced students' understanding of reading skills. Students' reading ability is very important when required to understand a reading text (Grimshaw et al., 2007).

Digital literacy skills were very important considering that we were now currently in the era of Society 5.0, an era marked by technological advances or what can be called all-technological. Society 5.0 was a society that solved various challenges and social problems by utilizing various innovations that were born in the era of the Industrial Revolution 4.0, such as the Internet of Things (internet for everything), artificial intelligence, big data, and robots to improve the quality of human life. Society 5.0 is also interpreted as a concept of a human-centered and technology-based society. The rapid changes in science and technology required us to be ready to face changes in the world, especially in the field of education.

Previous research on digital literacy shows that although most students have adequate access to digital devices and the internet, their understanding of optimal and ethical use of technology still needs to be improved. For example, a study conducted by Perdana et al (2019) found out the level of students' digital literacy skills and differences in digital literacy skill levels based on education level. The research entitled "Assessing Students' Digital Literacy Skills in Senior High School Yogyakarta" resulted in the finding that the digital literacy skills of upper secondary students in Yogyakarta were at a low level. They also found that the level of education influenced students' digital literacy skills. Other than that, students with good critical understanding had the ability to analyze and evaluate media content comprehensively (Dewi et al., 2021). Her research, entitled "Analysis Study of Factors Affecting Students' Digital Literacy Competency," revealed

that critical understanding could influenced students' digital literacy competence. Another previous study was conducted to found that female and male students faced challenges in solving information in the title "Untraveling Secondary Students' Challenges in Digital Literacy: A Gender Perspective" by Argelagos & Pifarre (2017). From the results of this research, it was hoped that educators can make efforts to help students develop sub-skills. These findings confirm that further research to identify the level and reveal the challenges faced by students in digital literacy among junior high school students was important to be conducted, in order to prepare them to face challenges in the digital era.

2. The literature review

Learning cannot be separated from the role of the curriculum. According to Bahri (2017), the curriculum was defined as a tool that was used together in the education system to achieve the results and produce a production that could be used together. The Independent Curriculum itself was defined as a curriculum that had the concept of independence and freedom for education in Indonesia to determine the best way or method that could be used during the teaching and learning process (Afida et al. 2021). Based on the National Education Standards Agency, or BSNP, the independent learning curriculum was a policy set by the Indonesian Ministry of Education and Culture (Kementerian Pendidikan, Kebudayaan, Riset dan Teknologi) given to educational units as an additional step used in the context of learning recovery in 2022-2024. The Merdeka Curriculum had a different concept from the previous curriculum.

Efforts to improve the quality of education in Indonesia had to be accompanied by technological developments. Technology in education as a medium to facilitate the learning process, enabling it to be used as a learning resource in order to form efficient and effective education. Digital literacy was also defined as an individual's ability to apply functional skills to digital devices so that they could find and select information, think critically, be creative, collaborate with others, communicate effectively, and remain aware of electronic security and the evolving socio-cultural context (Hague & Payton, 2010). Digital literacy is not just about using digital devices, but digital literacy was expected to find and select information, think critically, be creative, collaborate with others, communicate effectively, and still pay attention to electronic security and the developing socio-cultural context (Naufal, 2021).

Digital literacy has an important role in the quality of learning. However, digital literacy has not been fully embraced by educational institutions as basic literacy, whose position is equivalent to reading, writing, and arithmetic. However, the research on the digital literacy of junior high school students was still limited. Therefore, this study was conducted to fill the gaps by assessing digital literacy levels and challenges among junior high school students in Yogyakarta.

3. Method

This study applied a mixed-method approach to assess digital literacy levels and challenges among junior high school students in Yogyakarta. Mixed-method research is a procedure for understanding research problems more fully through collecting,

analyzing, and mixing qualitative and quantitative data (Cresswell, 2017). The mixed-method research used two different types of data so that the strength of the study is greater when compared to qualitative and quantitative research. A mixed methods approach is used to provide a comprehensive understanding of the problem at hand in a study, as it allows for the integration of quantitative data, which offers statistical generalizations, and qualitative insights, which capture depth into participants' experiences (Creswell & Plano Clark, 2018). The data collection technique in this study used questionnaires and interviews. The questionnaire was conducted to collect quantitative data. Meanwhile, interviews were conducted to obtain qualitative data. The first step in this study was to collect quantitative data through questionnaires distributed to 94 eighth-grade students in two state junior high schools in Bantul, Yogyakarta, consisting of 38 male students and 56 female students. These two schools have different characteristics regarding technology access and digital literacy integration, thus providing a more comprehensive comparison regarding the level of digital literacy and the challenges faced by students. The questionnaire was distributed to students offline, containing closed questions and a Likert scale that measures aspects of digital literacy. The results of the questionnaire were analyzed using descriptive quantitative data analysis techniques to describe phenomena based on numerical data. The data obtained from the questionnaire were used to answer the research questions: 1) What is the student's level in digital literacy? 2) What challenges do students face in digital literacy? To strengthen the data from the questionnaire, the researcher interviewed 5 students. Interviews were conducted online via telephone calls to dig deeper into the challenges they face in digital literacy. These interviews were recorded and analyzed using qualitative methods to identify patterns of findings that could not be quantified through questionnaires.

4. Findings and discussion

This section contained the results of the researchers' study, which presented two main findings, including the level of digital literacy of junior high school students in Bantul, Yogyakarta, and the challenges that students faced in digital literacy. The two findings were discussed further in the following discussion.

4.1. Students' Level of Digital Literacy

In 2015, the World Economic Forum established six basic literacies, which included reading literacy, numeracy literacy, scientific literacy, digital literacy, financial literacy, and cultural and civic literacy (DeNardis & Hackl, 2015). However, unfortunately, Indonesia had not been able to master these six basic literacies. There were literacy standards that must be mastered to win global competition. Mastery of literacy in question included the ability to collaborate, think critically, be creative, and have communication skills, where these abilities were included in high-level literacy skills (Briandana & Dwityas, 2019). According to the Jisc digital capabilities framework in January 2024 itself, there were six elements of digital competence to reflect the digital capabilities possessed by individuals. The six elements of digital competence included digital proficiency and productivity; digital creation, problem solving, and innovation; digital learning and development; information, data, and media literacies; digital

communication, collaboration, and participation; and digital identity and well-being. The framework of Jisc digital capabilities was the basis for researchers to conduct questionnaires.

The questionnaire results obtained showed the percentage of students' digital literacy. The researchers explained each statement in the questionnaire so that students could understand the meaning of the statement. The data was then processed using the formula suggested by (Sugiyono, 2009). Data on students' digital literacy levels were supported through Tables 1 to 6.

Table 1. Digital Proficiency and Productivity

No	Categories	Agree	Neutral	Disagree
1.	I know English learning support applications such as Kahoot, Quiziz, YouTube, etc.	94%	6%	0
2.	I am able to use English learning support applications such as Kahoot, Quiziz, YouTube, etc. fluently.	82%	17,4%	0,6%
3.	I use digital services in the form of certain websites to do English assignments.	58,2%	39,4%	2,4%
4.	I use certain websites according to different assignments.	55,8%	42,4%	1,8%

Table 1 showed that the percentage score of students' digital literacy skills on the digital proficiency and productivity indicator reached 56.9%. According to (Sugiyono, 2009), this percentage indicated that students' digital literacy skills were at a medium level. The productivity and proficiency indicators themselves included the ability to use a device to complete a task. In this aspect, most students had known several learning support applications and could use them fluently, as indicated by 94% of students who chose agree in their answer. In addition, 82% of students also agreed that they could use learning support applications fluently. This showed that students' digital literacy skills in this aspect were good. This figure was important because good digital literacy skills could affect students' level of understanding in the learning process. Low literacy levels of students can cause them to not understand anything (Geske & Ozola, 2008).

Based on the results of interviews with five students, different answers were obtained regarding the statements contained in the digital productivity and proficiency indicators. Some students had known and could use learning support applications such as Kahoot, Quiziz, and YouTube smoothly. In practice, some of these applications had often been used by teachers to support learning activities in the classroom. Other statements also showed that students used certain websites to help them with English assignments. Although in this case students had limited knowledge about what websites they could use to help complete assignments. Students' opinions regarding the digital productivity and proficiency indicators were explained as follows:

Interviewee 1:

Saya faham dan bisa menggunakan dengan lancar aplikasi pendukung pembelajaran bahasa Inggris. (I understand and skilfully use the application that supports me in learning English.)

Interviewee 2:

Saya bisa menggunakan Quiziz dan YouTube tapi tidak dengan aplikasi Kahoot. (I can use Quiziz and YouTube, but not Kahoot application.)

Interviewee 3:

Saya menggunakan web tertentu untuk mencari arti kalimat Bahasa Inggris yang tidak saya ketahui. (I use certain websites to find out the meaning of English sentences that I do not understand.)

Table 2. *Digital Creation, Problem Solving and Innovation*

No	Categories	Agree	Neutral	Disagree
1.	I am able to design or create content in the form of writing, audio, or video using certain applications such as Animaker, Canva, CapCut, and others in the context of English learning.	78,6%	16,6%	4,8%
2.	I am able to use word processing applications such as Word, PowerPoint, and Excel fluently for English learning needs.	50%	44,1%	5,9%
3.	I use certain websites such as Google, Chrome, Microsoft Edge, and others to search for English learning materials.	81,5%	17,9%	0,6%
4.	I use certain applications such as Google, Chrome, Microsoft Edge, and others to develop ideas and complete projects from English subjects.	73,4%	25,4%	1,2%
5.	I try to find and use technology that I have never tried before to develop ideas and complete projects in English learning.	59,9%	37,8%	2,3%
6.	I try to adopt and develop templates provided by certain applications such as Animaker, Canva, CapCut, and others to create certain content in English learning.	72,8%	25,3%	1,9%

Table 2 consists of statements from the digital creation, problem-solving, and innovation indicators, which included a person's ability to create content, solve problems, and a person's willingness to try new solutions with digital technology. The percentage obtained from this indicator was 52%. The percentage in this aspect showed that students' digital literacy skills were at a medium level. In this section, more than half of the participants chose to agree and strongly agree with their answers. The questionnaire results showed that 73.4% of students agreed to use certain applications connected to the internet to develop ideas and complete English assignments. The use of the internet as a learning medium was part of digital literacy (Sulianta, 2020). In addition, 81.5% of students also agreed to use certain websites to search for references. Other results showed

that 78.6% of students agreed to use certain applications to produce content in the form of writing, audio, or video.

From these figures, it could be seen that students had involved a lot of technology in working on English assignments. In this aspect, it could be concluded that students had good digital literacy skills. With the digital literacy skills they had, students could access e-books, scientific journals, videos, and audio in English. Technology also enabled the development of English learning content that was rich in multimedia (Fansury et al., 2021). These resources not only complemented the material taught in class but also provided the latest and most diverse information that could improve their understanding of English.

Based on the interview results, the use of technology to support learning had often been used both to search for information and to create digital products in the form of text, audio, and video content. Even so, students still had difficulty understanding some of the features in word processing applications. This was a challenge in itself, considering that some of the tasks they had required them to be proficient in using the application. There needs to be special training where students could practice more intensively regarding the features and use of word processing applications. Students' views related to digital creation, problem-solving, and innovation were explained as follows:

Interviewee 1:

Saya mampu mendesain konten melalui aplikasi pembuat konten. (I am able to design a content through content creation applications.)

Interviewee 2:

Saya pernah menggunakan web bernama Scratch untuk membuat animasi berbentuk video. (I once used a website called Scratch to create video animations.)

Interviewee 3:

Terkadang saya mencoba beberapa teknologi yang belum saya coba seperti aplikasi pembuat animasi. (Sometimes I try some technologies that I have not tried before such as animation-making apps.)

Table 3. *Digital Learning and Development*

No	Categories	Agree	Neutral	Disagree
1.	I am able to participate in English learning that uses certain digital media such as the Quiziz, Kahoot, Quizlet, and others applications by providing ideas or concepts.	76,3%	21,1%	2,6%
2.	I am able to respond to every instruction given by the teacher in digital media-based English learning easily.	55%	43,2%	1,8%
3.	I am able to explain the steps for using certain learning media such as animaker, Canva, CapCut, and others easily to others.	55,4%	41,2%	3,4%

4.	I am able to use digital media that supports presentations such as Canva, PowerPoint, and others fluently.	80,9%	19,1%	0
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Table 3 contained the results of statements from digital learning and development indicators that included the individual's ability to turn opportunities from digital media into benefits for themselves and the ability to support others in using digital media. The percentage of this indicator was only 49.6%. The figures obtained from this aspect brought the students' digital literacy level to a low level. This figure showed that more students chose neutral, disagree, or strongly disagree in their answers. Although 80.9% of students agreed that they could use learning support applications, only 55.4% of students agreed that they could explain the steps for using media to others. As was known, the role of digital media was not only a means of supporting learning but also a tool that could trigger communication between students and students and teachers. As stated by Iqbal & Fradito (2020), digital media was expected to facilitate interaction between students and teachers, who played an important role in the dynamics of learning, which could be understood simply as an act of communication that helped students do assignments and gain the knowledge they needed to complete assignments.

Following up on the statement above, the results of interviews with students showed that students still feel insecure about explaining the steps for using a medium even though they could use it fluently. In this case, the ability to understand how a medium works became very important because it could affect how someone communicates with others. Baran & Davis (2010) stated that the ability to understand digital media was very important and that our skills were very important for the mass communication process. Related to the individual's ability to utilize digital media and the ability to support others was explained through the following student's perspective:

Interviewee 1:

Saya bisa menggunakan aplikasi yang mendukung presentasi. (I can use the application that supports the presentation.)

Interviewee 2:

Saya tidak terlalu percaya diri untuk menjelaskan langkah-langkah suatu media pembelajaran. (I am not really confident to explain the steps on how to use the learning media.)

Interviewee 3:

Saya mampu untuk berpartisipasi dalam pembelajaran yang menggunakan media digital tertentu. (I am able to participate in learning activities that apply certain digital media.)

Table 4. *Digital Information and Media Literacies*

No	Categories	Agree	Neutral	Disagree
1.	I will re-search from other websites to ensure that the information I get is accurate when getting	68,9%	30,3%	0,8%

	information from search engines such as Google, Chrome, Microsoft Edge, and others.			
2.	I will ensure that the information I get on search engines such as Google, Chrome, Microsoft Edge, and others comes from accurate sources.	85,1%	14,4%	0,5%
3.	I am always careful when sharing information in the form of text, audio, or video in a digital environment such as social media.	92,9%	6,7%	0,4%
4.	I consider the opportunities and risks that will occur when sharing information in the form of text, audio, or video in a digital environment such as social media.	82,2%	16,7%	1,1%
5.	I am able to provide responses in the form of ideas or thoughts to instructions from teachers through digital media such as WhatsApp groups, Google Class Room, E-learning, and others critically.	58,3%	38,1%	3,6%
6.	I am able to change, add, or re-edit the data that I get from search engines such as Google, Chrome, Microsoft Edge, and others to avoid plagiarism.	59,9%	36,9%	3,2%

Table 4 presented data obtained from the information, data, and media literacies indicator. This indicator contained the individual's ability to find, evaluate, organize, and share information in digital media. The figure obtained from this indicator reached 58.2%. The digital literacy level in this aspect was categorized at the medium level. This figure is important because it showed that most students had good abilities in establishing a life in digital media. This section was closely related to the individual's critical thinking skills in using digital media. By learning more about the available resources, students could be more careful in evaluating correct information. They could also find weaknesses or biases in arguments. Digital literacy made students active critical thinkers. Critical thinking was a high-level ability that was known to influence moral, social, mental, cognitive, and scientific growth. To deal with problems in community and personal life, critical thinking skills were very important (Nuryanti et al., 2018). 92.9% of students agreed that someone must be careful in sharing certain information in the digital space. This showed that students understood the risks when they shared something in the digital space. According to Fitriyani and Nugroho (2022), digital literacy could increase a person's insight, improve their ability to think and understand more critically, improve their mastery of various information read, and improve their verbal abilities. This statement was also supported by 82.2% of students who chose to agree that there were opportunities and risks at the same time when someone shared information in the digital environment.

Digital literacy also gave them the ability to take advantage of future opportunities. However, we had to be aware of the problems that arise because of technology. Students who were trained and accustomed to thinking critically had more innovative thinking and the drive to face challenges. They were also ready to solve problems in the future. Students understood a concept better in the future, which resulted in better learning outcomes. They could also provide practical experience to construct their knowledge (Sumiantari et al, 2019). Students' views on the ability to find, evaluate, organize, and share information in digital media were explained as follows:

Interviewee 1:

Saya mempertimbangkan resiko dan peluang saat memposting sesuatu melalui sosial media. (I consider the risks and opportunities when posting something through social media.)

Interviewee 2:

Saya selalu mempertimbangkan segala sesuatu yang saya bagikan untuk menghindari penyebaran informasi yang salah. (I always consider everything that I share on social media to avoid spreading misinformation.)

Interviewee: 3:

Saya tidak akan langsung percaya informasi pada sumber tertentu dan mencari informasi pada sumber yang lebih terpercaya. (I will not immediately believe information from certain sources and search for information from more reliable sources.)

Table 5. *Digital Communication, Collaboration and Participation*

No	Categories	Agree	Neutral	Disagree
1.	I am able to communicate effectively on digital media such as in communication in zoom rooms, Google meetings, WhatsApp, and others.	72,9%	24,6%	2,5%
2.	I understand the features available on communication media such as zoom, Google meetings, WhatsApp, and others.	64,9%	34,5%	0,6%
3.	I use digital communication tools such as zoom, Google meetings, WhatsApp, and others to discuss or complete group assignments in learning English.	69%	28,4%	2,6%
4.	I understand and am able to use the features available on communication media such as zoom, Google meetings, WhatsApp, and others to discuss and complete group assignments in learning English.	65,1%	33,1%	1,8%
5.	I participate in the digital environment by having social media such as Instagram, Facebook, TikTok, and others.	85,8%	13,1%	1,1%
6.	I use social media such as Instagram, Facebook, TikTok, and others to build relationships and learn English.	60,5%	37,8%	1,7%

Table 5 explained the data obtained from the digital communication, collaboration, and participation indicator. This indicator included individual communication skills, including group work and how to build relationships in digital media. The percentage obtained from this indicator was 52.9%. Based on the percentage obtained, the students' digital literacy level was at the medium level. This figure indicated that more students agreed with their answers. 72.9% of students agreed that they could communicate effectively on several digital communication tools. This percentage showed that almost all students had been able to use digital communication tools well for discussions and completing group assignments. Completion of group assignments was closely related to the collaboration skills of each individual. Collaboration skills were the ability of

individuals to work together, participate actively, and respect each other's opinions (Greenstein, 2012). In digital literacy, collaboration skills were an important aspect.

In addition to collaboration skills, 85.8% of students agreed to use social media as a tool to build relationships in a digital environment and learn English. It showed that students had tried to build a reputation through the social media platforms they used. On the other hand, they also learned a lot from text, audio, and video content on their social media to improve their English skills. The varied content on social media could indirectly increase students' learning motivation. Social media could be used as an effective and enjoyable learning tool (Sarosa et al., 2020). Students' views on collaboration skills and relationship-building skills were explained as follows:

Interviewee 1:

Saya menggunakan alat komunikasi digital untuk membahas materi Bahasa Inggris secara berkelompok. (I use digital communication tools to discuss English lesson materials in the group.)

Interviewee 2:

Saya mampu memahami fitur-fitur yang ada di alat komunikasi digital. (I am able to understand the available features on digital communication tools.)

Interviewee 3:

Saya dapat menemukan berbagai informasi terkait pembelajaran Bahasa Inggris di media sosial. (I can find various information that is related to learning English on social media.)

Table 6. *Digital Identity and Wellbeing*

No	Categories	Agree	Neutral	Disagree
1.	I use digital media to build a reputation by sharing achievements, activities, or other things such as on Instagram, Facebook, TikTok, and other accounts.	47%	47%	6%
2.	I feel that digital media such as Instagram, Facebook, TikTok, and others make it easier for me to learn English.	71,9%	26,5%	1,6%
3.	I use digital media such as learning applications, websites, and others according to my needs.	85%	14,5%	0,5%
4.	I feel that digital media such as learning applications, websites, and others have a positive impact on the scope of English learning.	83,7%	15,7%	0,6%

Table 6 represented the data obtained from the digital identity and well-being indicator. This indicator included an individual's ability to build an identity or reputation and an understanding of the impact of using digital services. The results obtained from this indicator reached 55.5%, where these results brought students' digital literacy skills to a medium level. In this aspect, 83.7% of students agreed that digital media had a positive impact on English learning. Additionally, 85% of students had successfully used digital media according to their learning needs. With the rapid development of telecommunications technology and the popularity of the internet today, social media has

become one of the main activities carried out in cyberspace (Ekasari & Widi, 2016). In addition to being a communication tool, social media was also a medium for learning English for students. Learning media was anything that could be used to facilitate teaching and learning activities (Tomlinson, 2001). The development of the internet and social media could also be used as learning media. To create an interesting learning experience, students could be brought to utilize the things they liked in the learning process so that learning outcomes were improved.

On the other hand, only 47% of students agreed to use the social media platforms that they had to build a reputation. On certain platforms, a person could create their own profile and then interact with people all over the world (Belal, 2014). Profiles shared through social media build a person's view of the individual. Students' views related to the impact of social media and how they built their identity were explained as follows:

Interviewee 1:

Media sosial membantu saya dalam mengasah kemampuan Bahasa Inggris.
(Social media helps me to improve my English skills.)

Interviewee 2:

Saya dapat meningkatkan kemampuan membaca, mendengarkan dan berbicara melalui beberapa platform di media digital. (I can improve my reading, listening and speaking skills through several platforms in digital media.)

Interviewee 3:

Saya sering membagikan konten melalui akun media sosial saya. (I often share content through my social media accounts.)

Data collection techniques in this study included observation, questionnaires, and interviews. The data obtained from the questionnaire results were then analyzed using a descriptive quantitative-qualitative data analysis technique to describe and interpret the percentage. Overall, the percentage of students' digital literacy level reached 54.1%. The percentage obtained indicates that the digital literacy level of junior high school students in Bantul, Yogyakarta, was at a medium level. At this level, it could be said that students' digital literacy skills were quite good. However, further improvements and attention were still needed to improve appropriate qualifications.

4.2. Students' Challenges in Digital Literacy

The use of digital media as a tool that supports English learning activities presented its own challenges for students. The challenges that arose often became obstacles for students to explore more widely into digital environment access. Based on the interview results, students revealed that students did not know much about internet sites that were appropriate to their needs to complete English assignments. The statement was explained through the following student perspectives:

Interviewee 1:

Saya tidak terlalu faham tentang situs web apa saja yang bisa digunakan. (I am not really familiar with the website that is possible for me to use it.)

This was certainly a special concern for educators and the government so that they could better introduce technology in the form of websites and applications in learning materials. In the current era, many high school students' activities involved the internet. Usually, the internet was used to do assignments or just for entertainment. Unfortunately, complex cognitive activities that included collecting and processing information were not obtained instinctively when they browsed the internet (Wood, 2009). Previous research showed that students had difficulties in sub-skills which included formulating questions (McCrory Wallace et al, 2000), activating prior knowledge, clarifying task requirements, and determining the information needed (Walraven et al, 2008).

Digital literacy also included skills to operate digital devices in everyday life (Dewi et al. 2021). These skills included a person's ability to operate word processing and number processing applications. For example, the use of Microsoft Office which was commonly used to create assignments, create reports, and work on final assignments. However, in this case, students were still not very proficient in mastering the features in these applications. This was explained through the following student views:

Interviewee 2:

Saya tidak terlalu memahami fitur-fitur di aplikasi pengolah kata. (I do not really understand the features in word processing application.)

The use of word processing applications to complete assignments was considered less than optimal. According to Rosyidah et al. (2019), Microsoft Office had not been able to facilitate students' assignments, including due to a lack of understanding of the tools available in Word, Excel, and PowerPoint. In this case, special training was still needed for students regarding the use of these applications.

Another obstacle that was often faced by students was the availability of learning facilities, particularly unstable network quality. This issue certainly hampered and limited students' access to the digital environment. According to one student's view, she stated that network problems were the biggest challenge in communicating through digital media. In fact, digital communication in that era had been widely used by students to discuss group assignments or study materials. Students' opinions regarding unstable network facilities were explained through the following interview results:

Interviewee 3:

Menurut saya tantangan terbesar dari penggunaan alat komunikasi digital adalah pada jaringan. (I think the biggest challenge in using digital communication tools is the network.)

Djamarah (2008), stated that learning facilities were everything that aimed to facilitate students in learning. Facilities that supported learning activities were very much

needed so that students could get a pleasant learning process and could get good learning achievements.

5. Conclusion

The level of digital literacy among two state junior high school students in Bantul, Special Region of Yogyakarta, Indonesia was categorized as medium qualification with a percentage of 54.1%. There are three main factors that cause the level of digital literacy of students to be in the medium category, according to the challenges they face. First, the limitations of students in finding relevant websites for learning needs. Second, lack of understanding of the features of word processing applications. Third, poor network quality that hinders access to digital space. Furthermore, some of the challenges faced by students require targeted interventions and special attention. Based on these findings, recommendations are given to educators, stakeholders, and researchers. These include identifying effective strategies to overcome challenges, increasing the integration of digital media in the learning process, and developing initiatives to improve students' digital literacy to meet the desired qualifications. Policy makers are expected to be able to develop digital education policies by updating curriculum policies to ensure that digital literacy becomes a mandatory part of the education system. Moreover, educators are required to be able to integrate digital literacy into the curriculum explicitly by using digital media ethically to help develop students' thinking about the digital space.

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