

Analysis of Internet Use by High School Students Based on Digital Literacy

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Abstract

Preparing students to deal with the COVID-19 pandemic situation by implementing distance learning is not enough just by procuring learning facilities, such as laptops or internet connections, and strengthening digital literacy skills. Digital literacy skills are required to be more encouraged and considered as a structured learning mechanism in the curriculum or at least well applied in the teaching and learning process so that students can be in the digital world safely and use internet services properly. This study describes the use of Internet services by high school students based on digital literacy. This study used a qualitative method and was conducted on 36 students of the Tenth Year Science Class at the SMA Negeri 1 Garut academic year 2020/2021 as the respondent. The results showed that all students had used internet services as their primary learning resource during the COVID-19 pandemic, and they already had basic skills in applying digital literacy competencies when using internet services. The aspect of digital literacy most mastered by students was the aspect of social responsibility, while what had not been mastered was the information validation aspect. Motivation and self-awareness were the main factors in improving students' digital literacy skills and were the main factors for most students to be able to access learning resources from the internet.



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1. INTRODUCTION

Education around the world is currently undergoing considerable change. All students and education staff seem forced to carry out various daily activities by using the internet as a medium of communication in learning due to the COVID-19 pandemic. Moreover, Miskiah, et al. (2019) revealed that in recent days, the integration of ICT in education has become an absolute necessity and interest. Therefore, educators and students, today seem obliged to

understand and use everything in a digital form better than before. Based on the Decree of the Ministry of Education and Culture Number 719/P/2020 concerning Curriculum Guidelines in Special Conditions, point four of the Emergency Curriculum, teachers are given relaxation of teaching hours during the COVID-19 pandemic so that the teaching and learning process cannot be fulfilled 24 hours a week as usual in class. Therefore, students seem to have more opportunities to do many things, including higher opportunities to access the internet than before the COVID-19 pandemic.

Statistical data from the survey results of the Indonesian Internet Service Providers Association (APJII) shows that internet users in Indonesia in 2020 experienced an increase of around 25.5 million users compared to only 21 million users in 2019. The data proves that more significant changes digitally occurred after the COVID-19 pandemic in early 2020. The results of the APJII survey regarding internet user penetration by age in Indonesia in 2018 also show that respondents aged 15 - 19 years, namely junior and senior high school students are the highest internet users in Indonesia (Indonesian Internet Service Providers Association, 2020).

Learning by utilizing internet services is expected to make students more independent and responsible because internet technology has provided the flexibility to share and replicate learning resources. In addition, Distance Learning requires students to play a more active role, make plans, and look for teaching materials on their initiative according to their respective learning styles. Garad, et al. (2021) stated that during the COVID-19 pandemic, e-learning has successfully become traditional learning, causing many problems due to the lack of infrastructure and human expertise. Therefore, the digital literacy skill of educators and students is a required skill for a good learning process.

As for creating a distance learning atmosphere as expected, especially during the current COVID-19 pandemic situation, educators and students are expected to have good digital literacy skills. UNESCO (2018) defines digital literacy as the ability to access, manage, understand, integrate, communicate, evaluate, and create information safely and appropriately through digital technology, including the competencies of computers, ICT, information, and media literacy. Therefore, the use of internet services can be a threat if it is not balanced with digital literacy intelligence. Digital literacy intelligence is required to avoid and eradicate the spread of negative content through the internet, such as hoaxes, cyberbullying, online radicalism, pornography, gambling, human trafficking, fraud, or piracy (Musiiin, 2020). Digital literacy is described by Glitser (2007) as the ability to read, understand, and analyze various digital sources. Prime, et al. (2020) state that digital literacy skills are pivotal for students to use information technology effectively in learning. For this reason, digital literacy skills need to be encouraged and considered more as a structured learning mechanism in the curriculum or at least applied well in the teaching and learning process.

The research results that are relevant to this study are the research results by Saxenaa, et al. (2017) showed almost 80% of students stated that the use of this internet service could help the learning process during lectures. Thus, research can provide opportunities for educators and policymakers to modify learning methods according to the wishes of their students who have been able to adopt the digital revolution in their ongoing Dental Education studies. In relation to the research of Saxena et al. (2017), research on the quality of using e-resources conducted by Nurjanah, Rusmana, and Yanto (2017) concluded that digital literacy skills are a very decisive factor in using high-quality e-resources.

In relation to research on the use of internet services, research conducted by Dogruer et al. (2011) in general has shown that most students believe in the importance of internet services as a tool to support the learning process, as evidenced by statements from students regarding the convenience of using search engines that are easy and efficient to find sources of information, download required files and images, use electronic dictionaries, electronic encyclopedias, and translation tools to help them complete schoolwork. In addition, social media is also an intermediary for them to share knowledge and talk about school subjects.

The results of research conducted by Chirwa (2018) on teaching students in Tanzania also show that the majority (83.2%) of respondents use the internet for academic purposes, 61.3% for news, 50% for communication, 52% for games and entertainment, and only 43% for social networking.

Based on the description above, the focus of this study includes: (1) analyzing the use of internet services and digital literacy skills carried out and owned by high school students, and (2) analyzing how high school students can take advantage of internet services armed with good digital literacy skills. This study aims to describe the use of internet services by high school students based on digital literacy. We hope that the results of this study can be used as material for policy considerations for related parties to improve and develop educational needs in the current digital era.

METHOD

The method used in this research was qualitative descriptive. This research was conducted in the Tenth Year Science-6 Class of SMA Negeri 1 Garut Even Semester 2020/2021 Academic Year to 36 students. The data source was selected based on the purposive sampling technique because based on the average daily test scores of the Tenth Year Science Classes, the class Tenth Year Science-6 Class was the class that had the lowest average daily test scores. In addition, this class was the class that tended to experience the most obstacles and deficiencies during the online learning process during the COVID-19 pandemic.

Referred to Thanuskodi's (2020) study on internet use by students at Bharathidasan University as a source for compiling the Internet Service Utilization Questionnaire, which was then developed based on the experience of using the internet by most students in Indonesia. Meanwhile, the Digital Literacy Skill Questionnaire was compiled based on the sources developed by Nelson, et al. (2011) along with sources developed by the UK Council for Internet Safety (2020) called Education for a Connected World. The aspects covered in the Digital Literacy Skill Questionnaire are: (1) Information Research and Retrieval; (2) Information Validation; (3) Learning Resources; (4) Using Applications and Data Transmission; (5) Information Communication; (6) Social Responsibility; (7) Legal Aspects of Digital Information; (8) Computer Hardware and Software Selection; and (9) Privacy and Security. In addition, semi-structured interviews were also conducted to provide further insight and explanation into the questionnaire data. The data collection tools were validated by expert validators and the respondent readability test was carried out in Tenth Year Science Classes (other than Tenth Year Science-6 Class) at SMA Negeri 1 Garut.

The data analysis method used in this study referred to Miles & Huberman (in Cohen, et al., 2018), including (1) data reduction, carried out by removing some of the data obtained from the Internet Service Utilization Questionnaire, and several statements from students and teachers who are less relevant during the interview, to obtain conclusions and verifications that are in accordance with the research focus; (2) data display, conducted by presenting data in the form of diagrams, tables, and descriptions of research results based on the results of questionnaires and interviews, making it easier for readers or other researchers to understand the results of the research obtained; and (3) conclusion drawing/verification of the analysis results of the use of internet services by high school students based on digital literacy.

2. RESULTS AND DISCUSSION

Through the data processing, it is known that high school students have used internet services with positive goals and have a good impact on the ability to establish relationships with other people (online relationships), and on the implementation of learning at school. Previously, Dryli & Kinnaman (in Dogruer, et al., 2011) stated that the internet has the potential to enable students to become collaborative and cooperative students because internet is a place for unlimited communication and information. Hikmawati & Ningsih (2020) also stated that online learning has offered open access for constant and time-limitless learning, which

traditional offline classes have not, but even with its time and space flexibility, online learning has limitations in interaction. However, it is undeniable that according to the students' expressions, the use of this internet service, in general, has a negative impact on the eye health of students and achievement at school because they still find it difficult not to use the internet excessively and based on the results of interviews, this is also a challenge that they always encounter today.

As revealed by Triastuti, et al. (2017) that unintentionally or intentionally, teenagers often obtain information related to violence, pornography, and hate speech through advertisements on the internet, whether advertisements that appear on online games, news portals, or through posts that enter their timeline. Moreover, children and teenagers who fill their spare time by accessing social media, unconsciously share too much information about their personal lives. Thus, encouraging the potential to feel afraid of missing the latest news (Fear of Missing Out). Therefore, to avoid the risk of the negative impacts of internet use, such as online predators, pornography, invasion of privacy, and identity theft, the role of parents, families, and teachers in schools is required so that students can be in the digital world safely.

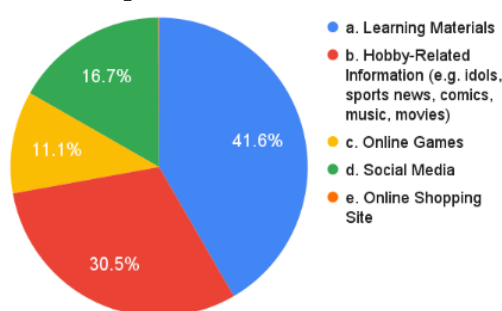


Figure 1. The Most Accessed Things During the COVID-19 Pandemic

The results of the data also indicate that the use of internet services carried out by students during the COVID-19 pandemic has had a good purpose because the prime purpose of students utilizing internet services is as the primary learning resource during Distance Learning, especially to increase knowledge, explore a learning material, and to do daily tasks (Figure 1). Likewise, with the research conducted by Saxenaa, et al. (2017), it is known that by using this internet service, the learning process of students during lectures becomes more helpful. This is in accordance with the statement from Brändström, C. (2011) that one of the advantages of using internet services is that it can increase and expand the scope of knowledge possessed by students.

In addition to the use of internet services as the primary learning resource by students, the biology teacher revealed that up to date, the Tenth Year Science students still cannot properly validate the information from the internet, supported by data results showing that most students use Brainly as the most frequently accessed learning site during the COVID-19 pandemic (Figure 2) because it is easy and instant. According to the research results of Le, L. T., et al. (2016), Brainly is an Online Community Question-Answering in education in which the possible answers available in the community may be of low quality due to lack of knowledge of the respondent, arrogant attitude, or anti-social behavior of Brainly users itself, and the possibility of confusing answers or spams.

Therefore, a critical and skeptical attitude is needed for students to absorb all the information available on the internet. An effective information search strategy is also required according to one aspect of Online Education proposed by the UK Council for Internet Safety (2020), namely Managing Online Education. Engle (2021) reveals that way to evaluate digital sources can be started by seeing critically the bibliographic citations. After that, check who the publisher is, the date of publication, indexation, bibliography, and the affiliation of the author of the information source.

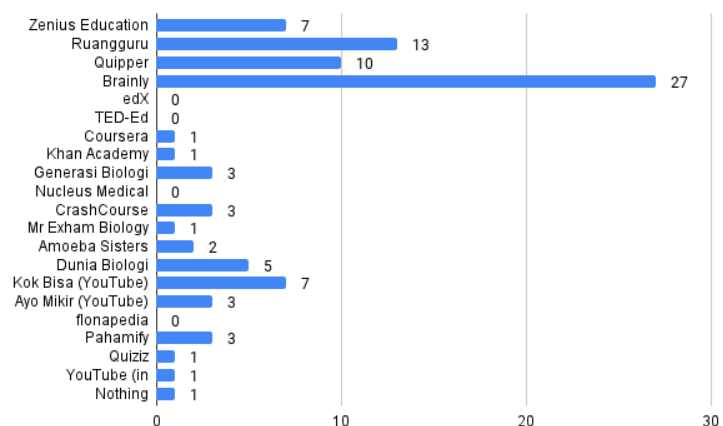


Figure 2. Frequently Accessed Learning Sites During the COVID-19 Pandemic

Most students have been able to compare differences in content between sources and can recognize falsified information well. However, half of the students are still unable to properly assess the limitations, truthfulness, and independence of a source. Therefore, the aspect of validating student information needs to be improved by fulfilling high skills in assessing, analyzing, verifying, and evaluating the information contained on the internet (Monggilo, et al., 2021). However, Nurjanah, Rusmana, & Yanto (2017) argue that to be able to achieve good quality use of e-resources, digital literacy skills are needed, which are more complex in nature. This not only involves technical skills but also involves a deeper understanding of information.

Setyaningsih & Prihantoro (in Rusydiyah, et al., 2020) revealed that digital literacy-based learning resources are important to be applied in education because lecturers can present teaching materials contextually, visually, and aurally in interestingly and interactively. Various forms of information on the internet allow students to think creatively, and create or develop different forms of information to be shared in a digital social environment (Loliyana & Sukanto, 2020). Meriam Library State University (in Nurjanah, Ervina, Agus Rusmana, & Andri Yanto, 2017) categorizes five main components related to the quality of using e-resources, which consist of an understanding of the up-to-date information, information suitability, ownership of information sources, the accuracy of the information, and information purposes.

Based on the data processing results shown in Figure 3, the percentage of digital literacy abilities of students has an average value of 76.36% and is in a good category. The aspect of digital literacy skill with the highest percentage is the Social Responsibility aspect, which is 82.17% in the good category, while the aspect of digital literacy skill with the lowest percentage is the Information Validation aspect, which is 68.75% in the good category.

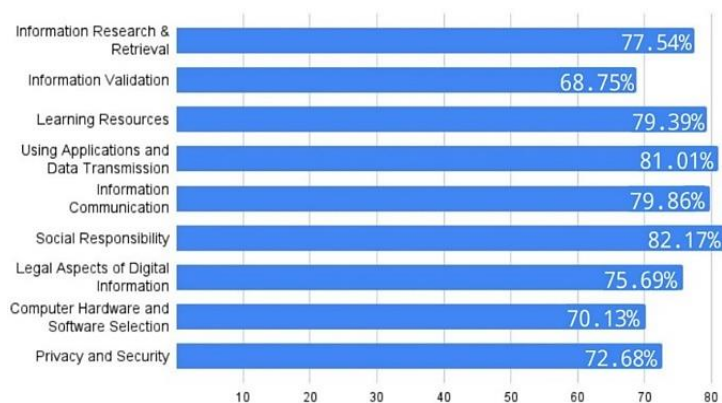


Figure 3. Achievement of Students' Digital Literacy Aspects

This research resulted in the findings that students have been able to utilize internet services according to their respective goals and needs, and indirectly have been good at using them by applying several competencies from digital literacy skills. However, their digital literacy skills have not been perfectly formed and channeled properly because achieving high digital literacy skills requires a deep understanding of the content of the information they receive on the internet (Burgess, in Dogruer et al., 2011). Students also have an awareness of the impacts and threats that can arise from using the internet, as seen from their knowledge of things that should not be done when using internet services. Unfortunately, the biology teacher said that there were still some students who had the same answers in their daily assignments. It is assumed that some students still need direction and guidance regarding netiquette in utilizing the information available on the internet. Thus, biology teachers also expect the role of parents and Guidance and Counseling teachers for some students who still need attention to this because the digital literacy skills of high school students are still said to be still uneven. This is supported by class grouping according to the student 's academic abilities when enrolling at the school.

In accordance with the statement of the biology teacher, one of the concerns that arise from the current use of internet services is that students can experience addiction to using the internet or online games. Students also revealed that they still have difficulty controlling themselves using social media and accessing entertainment content. Therefore, during this Distance Learning, parents or families at home are expected to be able and willing to play a role when students use the internet. One practical and efficient way is to install parental software, which has features to filter, monitor, and limit the use of digital devices for children.

Even though they have mastered several digital literacy skills, students are currently still not fully aware of the specific meaning of digital literacy skills themselves. In addition, what needs to be considered is that students still have difficulty in finding and validating information from the internet properly, both from technical problems due to errors in using search engines and problems of understanding and self-efficacy that are still lacking. Therefore, we hope that the schools can teach or implement a curriculum related to online education because it can improve and evaluate the activities of students in the digital world today.

3. CONCLUSION

Based on the analysis results of the use of digital literacy-based internet by high school students, all high school students had used internet services as the primary learning resource during the COVID-19 pandemic (Distance Learning). In general, high school students already had basic skills and good technical skills in the application of digital literacy competencies when using internet services, with the digital literacy aspect that was most mastered by students was the Social Responsibility aspect, while the aspect of digital literacy that had not been mastered by students was the aspect of Information Validation. In addition, motivation and self-awareness were the main factors for students to be able to improve their digital literacy skills, and are the main factors for most students to be able to access learning resources from the internet. The role of teachers, parents, and families at home was very much required in the process of using internet services by students, especially during Distance Learning. Thus, it is expected to minimize the threats and negative impacts caused by the internet on students' internet experience.

The school learning system is suggested to be able to apply aspects of online education in the curriculum to improve students' understanding and ability towards deeper digital literacy competencies and to improve the security and safety of students in the digital world. In addition to teaching technically related to ICT, ICT subject teachers are expected to be able to integrate an in-depth understanding of how to obtain information and how to communicate properly and correctly in the digital world. Thus, students can have increasingly qualified digital literacy and consciously have the desire to apply it in everyday life. The views of

parents, ICT teachers, and Guidance and Counseling teachers on the use of internet services by students and students' digital literacy skills were not included in this study. Therefore, it is expected that these criteria can be included by future researchers.

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