

## Analysis of Digital Literacy of MIPA and MIPA Education Students

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### ABSTRACT

UNCEN Mathematics and Natural Sciences Education Department students are students who actively play a role in utilizing digital information sources. However, this raises problems regarding the use of digital sources. So because of the problems that often occur, it is not yet known whether students have utilized digital resources properly and correctly, so research needs to be conducted to find out more about what the digital literacy of students majoring in Mathematics and Natural Sciences Education is like in supporting learning using instant DCA (Digital Competence Assessment) measurements. which is a model and instrument used to determine and measure a person's digital literacy abilities. The research results show that the digital literacy skills of students majoring in P.MIPA in using technology are in the sufficient category with a percentage achievement of 59.25%. In the cognitive dimension, the overall percentage of results was 54.92%, which was categorized as sufficient. Meanwhile, in the ethical dimension, the overall percentage of results was 62.76%, which is categorized as good

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## **INTRODUCTION**

Current technological advances have made it easier for students to access information, share information, and how they can build relationships with the wider outside world. However, apart from the positive impact, it cannot be denied that the progress of the digitalization era also has negative impacts, one of which can be seen from the increasing number of problems and even cases that occur among students, such as cases of cyberbullying, sharing hoax news, lack of maintaining privacy in cyberspace and other problems. The problems above are also experienced by students of the Mathematics and Natural Sciences Education Department who still often get information on the internet without looking at the source of the information. When doing assignments, students often look for information from blogspots and articles. Another thing is also seen from student interactions on social media. media, students are still minimal, especially in maintaining privacy and there are still students who share incorrect information or hoax news.

Several studies that analyzed student digital literacy, including those conducted by Kahar (2018), examined the Digital Literacy Analysis of Prospective Biology Teacher Students through Amateur Video Projects. The results of his research showed that the digital literacy level of prospective teacher students was classified as at a medium level, while the indicator of using technology in distinguish whether the source is valid or not, the student's ability level is in the low category. Research by Nahdi & Jatisunda (2020) shows that the majority of students have basic internet skills, they are able to find and retrieve information from the internet, and use it effectively, but students' abilities are relatively weak in identifying the type of information presented by the internet. Dinata (2021) found that the digital literacy skills of students in the Mathematics Education Study Program, Faculty of Teacher Training and Education, Muhammadiyah University, Kotabumi were in the "Good" category, but were still lacking in indicators of skills and creativity in processing applications. Research by Nurrizqi (2020) concluded that the level of digital literacy skills in using e-resources by Library Science students class of 2016 is relatively high, but is still lacking in evaluating information presented on the internet.

UNCEN Mathematics and Natural Sciences Education Department students are students who actively play a role in utilizing digital information sources. However, this raises problems regarding the use of digital sources. So because of the problems that often occur, it is not yet known whether students have utilized digital resources properly and correctly, so research needs to be conducted to find out more about what the digital literacy of students majoring in Mathematics and Natural Sciences Education is like in supporting learning using instant DCA (Digital Competence Assessment) measurements. which is a model and instrument used to determine and measure a person's digital literacy abilities. Instant DCA (IDCA) assesses a person's digital literacy abilities by dividing them into 3 dimensions, namely technological, cognitive and ethical dimensions. The results of this research can be used as an evaluation for planning and paying attention in the future to better use of digital technology so that better digital literacy can be achieved for students.

## LITERATURE REVIEW

Digital literacy is the ability to observe, select, open, find reading sources from websites, determine reading, including saving and sending reading material as well as providing suggestions or comments on certain websites, including on social media (Cordell, 2013). Digital literacy is related to the ability and capacity to use digital means to access, manage, integrate, analyze and synthesize digital information (Kaeophanuek et al., 2018).

Relevant research related to the application of digital literacy by Nahdi & Jatisunda (2020) shows that the majority of students have basic internet skills, they are able to find and retrieve information from the internet, and use it effectively, but students' abilities are relatively weak in identifying the type of information they need. served by the internet. Dinata (2021) found that the digital literacy skills of students in the Mathematics Education Study Program, Faculty of Teacher Training and Education, Muhammadiyah University, Kotabumi were in the "Good" category, but were still lacking in indicators of skills and creativity in processing applications. Research by Nurrizqi (2020) concluded that the level of digital literacy skills in using e-resources by Library Science students class of 2016 is relatively high, but is still lacking in streaming information presented on the internet.

## METHODOLOGY

This research uses a quantitative description method. Data collection was carried out using questionnaires. The questionnaire was prepared based on digital literacy indicators according to instant DCA (Digital Competence Assessment), consisting of 24 questions adopted from IDCA digital literacy (Calvani, Fini, & Ranieri, 2009). The questionnaire is structured/closed by providing a choice of level of agreement using a Likert scale with a value of 1-5. The degree of agreement is positive, namely:

Table 1. Measurement Scale

Degree of Agreement	Code	Value
Strongly Disagree	SDG	1
Don't agree	DG	2
less agree	LG	3
agree	G	4
Strongly agree	SG	5

After the respondent fills in the questionnaire, the researcher will take the data collected in the form and then process it and analyze it using quantitative data analysis techniques. Data analysis was carried out using the percentage formula:

$$P = f/N \times 100\%$$

Information :

P = Percentage sought

f = Answer Frequency

N = Total number of frequencies

## RESULT AND DISCUSSION

The research results obtained data from the answers of 162 students, consisting of 118 female students and 44 male students. Data analysis of digital literacy skills of students majoring in Mathematics and Natural Sciences Education uses instant DCA (Digital Competence Assessment) measurements which have been obtained by distributing questionnaires which have 24 statement items with 5 alternative answers on a scale of 5 = strongly agree, 4 = agree, 3 = disagree, 2 = disagree, 1 = strongly disagree. The overall student digital literacy results that have been collected are presented in the table below:

Table 2. Overall Digital Literacy Data for P.MIPA Department Students

No	Category	Percentage	Dimension
1	Technological	59,25%	Enough
2	Cognitive	54,92%	Enough
3	Ethical	62,76%	Good
Average		58,98%	Enough

Based on the digital literacy table for all students majoring in P.MIPA above, the research results for each dimension that has been studied include the technology dimension, the overall percentage of results is 59.25%, namely the sufficient category. This is the basis for improving the quality of the learning process. According to research by Nahdi and Jatisunda (2020), the majority of students have demonstrated good basic skills in accessing the internet. Students' skills in using technology are an important key in measuring digital literacy abilities, because digital literacy is always related to the use of technology. Daryanes & Ririen (2020) state that currently, the learning process and even the learning evaluation system also rely on the use of technology.

However, there are a number of students who still do not have the ability to use digital devices, especially laptops or computers. On the other hand, students have studied and understood various learning applications, and have used them in the learning process. Overall, students have demonstrated quite good abilities in utilizing digital devices, especially smartphones, as learning resources. However, there are also those who still do not use their smartphones optimally for learning purposes, because they more often use them for entertainment.

In the cognitive dimension, the overall percentage of results was 54.92%, which was categorized as sufficient. Students have demonstrated adequate performance in utilizing the internet as a source of learning information. They are able to find relevant information well, and also have adequate abilities in comparing the information they get. However, there are still some students who rarely compare information because they do not like comparing information that has been found previously. Students are also good at retrieving information if the information they find is incomplete. Apart from that, they have also demonstrated adequate ability to crosscheck information to avoid errors or mistakes in using the information found.

However, in seeking information from trusted sources, students still show inadequate skill levels. This can be observed from the number of students who often use the blogspot platform as a source of information. Apart from that,

students also still need to improve their ability to differentiate information from reliable sources.

Based on Table 2, students' literacy level in the ethical dimension is included in the good category. This shows that students have a good level of skill in maintaining the security of personal data stored on their digital devices. They have implemented the necessary security measures on their phones or laptops. When it comes to privacy on social media, students have also shown quite good vigilance. They tend to only share important information and rarely share details of their daily activities. However, there are still some students who are sometimes active in sharing their daily activities. In terms of controlling their emotions and actions on online media platforms, students have demonstrated a good level of control. They are less likely to express their anger or frustration on social media. When sharing or disseminating the information they get, students have demonstrated good practices. They tend to check and ensure the veracity of information before spreading it to avoid spreading fake news.

## **CONCLUSIONS AND RECOMMENDATIONS**

Based on the results of research on the analysis of digital literacy of students majoring in P.MIPA, it can be concluded that the digital literacy abilities of students majoring in P.MIPA in using technology are in the sufficient category with a percentage achievement of 59.25%. In the cognitive dimension, the overall percentage of results was 54.92%, which was categorized as sufficient. Meanwhile, in the ethical dimension, the overall percentage of results was 62.76%, which is categorized as good.

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