

# Digital Literacy Analysis in the Online Learning Process

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## ABSTRACT

Covid 19 has an impact on all people in the world. One of them is the field of Education. The current learning process has changed where schools are held face-to-face, but due to the impact of Covid-19, learning is carried out online. The implementation of online learning must be supported by adequate technology. Skills and abilities are needed to operate or use technological tools, as well as knowledge of the norms and practices of using appropriate technology, this is called digital literacy. The purpose of this study was to obtain information about students' digital literacy skills in conducting independent learning during the Covid-19 pandemic. The method used is by distributing surveys with various backgrounds. The findings obtained that students' digital literacy skills can be categorized as good. The conclusion is that to carry out optimal independent learning requires skills to use good technology or known as digital literacy.

**Keywords:** Digital, Literacy, Online.

## 1. INTRODUCTION

Mathematics is generally defined as a field of science that studies patterns of structure, change and space. So informally it can also be referred to as the science of numbers and numbers. In the formalist view, mathematics is the study of abstract structures defined axioms using symbolic logic and notation. Another view is that mathematics is the basic science that underlies other sciences (Hariwijaya, 2009). Soedjadi (2000) suggests several definitions or understandings of mathematics, namely: a) Mathematics is a branch of science that is exact and systematically organized. b) Mathematics is knowledge of numbers and calculations. c) Mathematics is knowledge of logical reasoning and dealing with numbers. d) Mathematics is knowledge of quantitative facts and problems about space and form. e) Mathematics is knowledge of logical structures. f) Mathematics is the knowledge of strict rules. From the explanation above, it can be interpreted that mathematics is a pattern that grows and develops in life that is created from the thought process and will create a pattern of regularity, as well as an organized structure, starting from elements that are not defined, to axioms or postulates, and finally to propositions. Mathematical concepts are arranged hierarchically, namely new mathematical concepts that can be formed because of an understanding

of the previous concept. The symbolization will be meaningful if a symbol is based on an idea. So we must understand the idea contained in the symbol. Mathematics can be learned by anyone, regardless of age. Learning mathematics itself is an individual or group effort for the purpose of learning, recognizing, solving, developing mathematics. In studying mathematics, one must clearly understand the meaning of a symbol. Because starting from this symbol a person is able to take the next step in learning mathematics. Geometry is one of the sciences studied in Mathematics.

To facilitate learning mathematics, we need a media that can present mathematics and can be retrieved. One of the learning media is books. Books are reading resources that can be used by anyone, including in learning, commonly referred to as textbooks. In this case, textbooks function as reading materials and teaching aids that are adapted to the curriculum and the age level of the reader. From its function, it can be seen that the importance of the existence of books in learning.

Along with the times, innovation continues to grow. Books are also experiencing an innovation. The book was originally a collection of sheets of paper, but not now. There are other options when we choose a book, namely the printed version or the electronic version or often referred to as an E-Book. E-Books make everything

practical. Students who used to have to carry all their textbooks in their bags, not anymore. Books can be converted into file forms that are very practical in carrying them. In addition, it can be opened anywhere and anytime. Can be opened with a laptop, computer or cellphone. In addition to the practicality obtained, students also indirectly already have literacy, namely digital literacy. According to Abidin, Mulyati, & Yunansah (2017: 1) literacy is defined as the ability to use language and images in rich and diverse forms to read, write, listen, speak, view, present, and think critically about ideas. Literacy serves to connect individuals and society, and is an important tool for individuals to grow and participate actively in a democratic society. While digital literacy is the knowledge and skills of users in utilizing digital media, such as communication tools, internet networks and so on related to technology (Suherdi, 2020). In the current era, digital literacy skills are very important, so that they are not left behind and can be maximized in learning, especially for students. From the explanation above, it can be concluded that the importance of learning Mathematics and digital literacy. Therefore, in this study the author raised the theme of digital literacy analysis in the online learning process.

**2. METHOD**

The type of research used is survey research. This type of research is part of Research and Development (R&D) research. The subjects of this study were 10th grade students for the 2020/2021 academic year. The research activity was carried out at SMA N 1 Stabat. Data was collected by means of observation, document analysis, interviews, and filling out questionnaires. The data analysis process uses the McDonough & McDonough model data analysis technique with peer-debriefing activities. Peer-debriefing is a technique to test the credibility of research data findings obtained previously, by asking questions more carefully to informants/research subjects who have never been studied (Cohen et al., 2007: 108). In this case, the researcher interviewed and gave questionnaires to students and teachers of Mathematics at SMA N 1 Stabat.

**3. RESULT AND DISCUSSION**

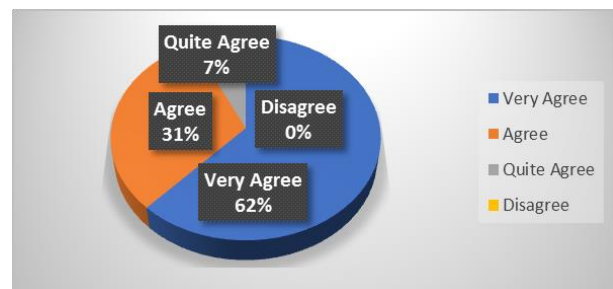
Based on the results of this preliminary study, it is described about the analysis of digital literacy needs in the online learning process at SMA N 1 Stabat. The results of the needs analysis were obtained through questionnaires, observations, interviews, and document analysis.

- Questionnaires are used to find the needs of students and teachers regarding the product model needed in Geometry learning.

- Observation is used to analyze needs through direct observation in Geometry learning.
- Interviews were used to find teacher needs and design products developed for Geometry learning.
- Document analysis is used to examine documents that support learning or archived documents from the results of Geometry learning activities.

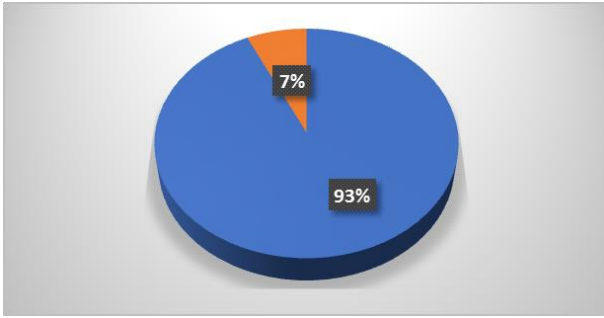
Based on the results of the questionnaire given to students, 73% of students stated that learning Mathematics, especially in Geometry, was very important to teach and students who stated it was important to be taught on the grounds that they could understand various types of shapes were 27%. In the aspect of learning resources, most students use books given from school. It is very rare for students to add their reference books in learning. Students hope that there are other learning resources that can be used as a guide in learning Mathematics, especially Geometry. And the existing teaching materials can be in the form of files, so they can be taken anywhere without carrying very heavy books.

Therefore, based on the results obtained there are as many as 62% of students stated strongly agree if the book is converted into a digital book. as many as 31% of students agreed, 7% of students stated that they quite agreed, and there were no students who did not want their books to be turned into softfiles on the grounds that if they were in the form of files, it was too risky to lose and so on.



**Figure 1** Level of student approval of digital books.

The results of the questionnaire show that 93% of students always use internet access as a learning medium and source of information. The reason is that the internet can facilitate the learning system, while as many as 7% of students are not accustomed to accessing the internet for the purposes of learning resources.



**Figure 2** Percentage use the Internet as a learning support.

The percentage above shows that more and even the majority of students use the internet in finding learning resources. In today's digital era, the internet is the main source of learning. Students use the internet more to find reference sources.

### 3.1. Teacher Needs Analysis

Analysis of teacher needs in this preliminary study phase of research was carried out by giving questionnaires to Mathematics subject teachers. Informants are determined based on their skills and expertise in the field of Mathematics study. In addition, the determination of informants is also based on their proficiency in expressing their opinions related to the suitability of the textbooks used so far and their needs in Mathematics subject textbooks, especially Geometry material. Based on the results of the questionnaire given to Mathematics teachers at SMA N 1 Stabat 88% of teachers stated that learning in Geometry material was very important to be taught, and 12% of teachers stated that Geometry learning was important to be taught.

So far, the books used as a reference for learning Mathematics are only books provided by the school and there are no additional reference books. Therefore, in this study related to the development of digital literacy-oriented textbooks aimed at supporting the learning needs of teachers and students. All equations and formulas should be referred to in the text using consecutive numbers in parentheses, see equation (1) for an example. Displayed equations or formulas should be centered and set on a separate line with an extra space above and below. They should be numbered for reference and the numbers should be consecutive, with numbers enclosed in parentheses and set on the right margin.

### 3.2. Observation

Observation activities are carried out with the aim of identifying needs in learning. In the observation activity, observation sheets were used to observe learning activities and student attitudes in class. As for the assessment aspects in the observation sheet, among others: aspects of learning activities, student attitudes, and teaching materials used. Based on the observations

made, the results showed that there were four problems in the learning process, among others:

- The teacher has not presented the material optimally, the teacher only uses powerpoint media followed by an explanation of the lecture.
- There is no Mathematics textbook, especially Geometry material written by the teacher concerned.
- Lack of digital literacy used as part of teaching materials.
- Students are less motivated by the teacher's theoretical explanations. Students are more enthusiastic when they are actively involved in the learning process. In addition, he is also enthusiastic in listening to teaching materials in the form of audiovisual videos.
- Teaching materials used in the learning process are more dominant using powerpoint and video. Other technology-based textbooks do not appear to be used. Based on the problems found, there are four things that can be concluded, namely
- Mathematics learning requires textbooks as handbooks and learning resources in achieving the expected competencies, as well as being able to frame material needs, assignments, and assessments.
- Students are more enthusiastic when learning is centered on them and prefer watching material in the form of videos.
- Mathematics learning requires technology-based learning media that are easily accessible and used by both teachers and students.

### 3.3. Interview

Needs analysis in this study was also obtained through the interview method. The interviews were conducted with several teachers and representatives.

- Interviews with teachers obtain information on the needs of the products developed in this study and confirm the data obtained in the observation activities. From the results of the interview, three needs were obtained, namely the aspect of teaching materials, where the teacher needed a complete and complete presentation of material with examples/illustrations such as watching videos. Second, teachers need tasks that can accommodate the achievement of student competencies. The last is task design that can motivate students to improve skills.
- Interviews with students aimed to strengthen the needs analysis in the preliminary study of this research related to the development of the resulting textbook products. The results of interviews with

student representatives indicate that students need textbooks to support Mathematics. The textbook products expected by students are complete material content with clear assignments, honing students' knowledge and skills, adding examples/illustrations in the form of videos packaged in today's advanced technology. Needs analysis in this study was also obtained through the interview method. The interviews

### 3.4. Document Interview

The results obtained from the analysis of this document are in the design of learning, the formulation of student competency achievements does not reach higher-order thinking skills, does not lead to the realization of mathematical abilities in the environment around students, the design of student learning experiences is limited to classroom experience because the learning objectives are only theoretical understanding, which are applied through learning activities without describing the learning experiences they apply in everyday life, as well as the lack of reference sources used in learning and only relying on old sources.

## 4. CONCLUSION

Based on the results of research on the analysis of digital literacy needs in online learning and book development, it can be concluded that digital literacy-oriented books are needed and can facilitate student learning, both with teachers and independently. Textbooks are teaching materials that are packaged as a whole and schematically according to the needs of users, in this case are teachers and students.

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