

## Digital Literacy Competencies of Students in Bandung

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**Abstract.** This study aims to determine the digital literacy competence of students in the city of Bandung. This study used descriptive qualitative method. The data collection technique used was semi-structured interviews involving 10 informants from 5 universities in the city of Bandung. The results showed that some students in the city of Bandung generally have digital literacy competencies which consist of: 1) the ability to understand internet searching, namely using search engines to find information, understanding the internet as a source of information, connecting and using the internet to carry out several activities; 2) competence in how hyperlinks work, even though they lack the meaning of hypertext; 3) content evaluation competence, they are able to understand the characteristics of websites that are used as references, cross-check the information they get and use FAQs on a website to help them get information; 4) competence in compiling knowledge by using keywords to facilitate the search for information, utilizing other sources of information other than the internet.

### 1. Introduction

The development of information and communication technology is very rapid at this time so as to create an integration between one media with other media that forms the emergence of new media that is more complex. The new integrated media is internet-based digital media. The emergence of the internet resulted in the connection of information from all corners of any hemisphere running so fast that it made it easier for humans to obtain and disseminate information anywhere and anytime, the ability of the internet that ultimately gave rise to the information explosion. The development of information and communication technologies (ICTs) and their integration in all spheres of people's life and work gave for the first time a possibility for a fast and unlimited access to vast information which is constantly enriched, transformed and actualized. This new model of society needs citizens who possess the necessary skills and competences to take advantage of the potential of new technologies and take active part in the economic, social and cultural life [1].

The development of information and communication technology gave birth to a trend of digital literacy in all sectors of life without exception in the world of higher education. Digital literacy has become an academic need in higher education, considering that today's students use searching engines on the internet as a source of reference for learning. Digital literacy needs to be supported through an integrated learning system with knowledge management. Users of digital literacy are very likely to master all dimensions of the learning experience, namely attitudes, knowledge and skills. Digital literacy information helps students' academic success at higher education institutions. [2].

Every individual in society has an active role to participate in the digital era when it comes to supporting the learning process in higher education. Digital literacy is needed by educators as the relevance of student needs to the trend of using digital in the classroom [3]. The concept of digital literacy can be used as a measure of the quality of students' work in a digital environment, and provide scientists and developers with a more effective means of communication in designing a more user-oriented environment. Given the rapid development of digital technology, everyone is required to be able to use the various skills they have, both technical, cognitive, and sociological skills to carry out tasks and solve problems they face. [4]

The average student already has technological devices such as mobile phones, laptops/notebooks, hard disks, and flash disks. Other findings show that on average, students have wifi access in their living environment that can be accessed at any time. This proves that the readiness of student technology devices is sufficient to carry out various activities in cyberspace. However, the readiness of student technology devices must be in line with the ability of students to create information that is easily understood by the general public, because digital literacy skills do not only use, search, and disseminate information, but also create information using digital media [5].

Some relevant previous studies are as follows: Research entitled Student experiences and perceptions of digital literacy skills development: engaging learners by design?. The results of this study are learner perceptions and engagement in relation to the demographic factors gender, age, previous education, disability and financial status and whether these factors influence individual learner preferences for learning design, such as use of generic resources versus contextualization of skills activities within the modules. We aim to identify good practice in learning design and what demographic factors need to be considered to support individual learners appropriately, and so optimize engagement [6]. Meanwhile, Agustin et al (2019) research on Digital Literacy Ability of 2018 Undergraduate Students, Faculty of Cultural Sciences, Diponegoro University. The results showed that the 2018 undergraduate students of the Faculty of Cultural Sciences, Diponegoro University in general mastered several aspects of digital literacy, especially in the ability to understand internet searching, namely using search engines in searching for information, understanding the internet as a source of information, connecting and using the internet to perform several activities. [7].

The above phenomenon resulted in changes in student behavior in utilizing and managing information. This diversity of forms and types of information should encourage more selective and able to maximize the use of the results of advances in information technology. The influence of this web technology then triggers the emergence of an industrial revolution in the publishing world which causes a transformation in the process and management of publishing or publication and dissemination of information. Publishing electronic sources has then become a trend for the new information society to get the right information from the right people and at the right time.

Students as academics are closely related to academic activities such as compiling scientific papers, compiling scientific research results and the like which of course do digital literacy. Based on this description, the goal to be achieved in this study is to find out how the digital literacy competence of students at universities in the city of Bandung is. To achieve this goal, the researcher took a qualitative descriptive approach to describe the conditions in the field in accordance with the findings of the existing data.

This research with the theme of digital literacy is expected to be able to contribute to scientific development in universities, the government as a policy maker, and become a reference for further researchers who are interested in the same theme.

## 2. Method

This study uses a qualitative research method with a descriptive approach with the aim of describing the digital literacy competencies of students in the city of Bandung. The method of data collection was done through interviews and literature studies.[8] The informant selection technique used in this research is to use purposive sampling technique based on certain provisions, totaling 10 8th (eight) semester students from five universities in Bandung consisting of the Indonesian Computer University, Padjajaran University, Pasundan University, Indonesian Education. Sunan Gunung Djati

State Islamic University, Bandung. Each campus is represented by 2 (two) students who serve as informants in this study. Interviews of informants were held on 3-15 September 2021 by telephone.

### **3.Results And Discussion**

In this section, the researcher will describe the results of research on the digital literacy competencies of students in the city of Bandung. Gilster revealed that there are 4 (four) digital literacy competencies, namely:

- a. Internet Searching (Internet Searching) Gilster describes this competency as a person's ability to use the internet and perform various other activities. This competency includes several components, namely the ability to search for information on the internet using search engines and use multimedia to view available videos. The ability to search for information on the internet in addition to using a search engine can also use a browser.
- b. Hypertextual Navigation (Hypertextual Navigation) Gilster describes this competency as an ability to read and dynamically understand hypertextual environments. So someone is required to understand the navigation of a hypertext on the web which is certainly very different from the text found in textbooks. This competency includes several components, namely: knowledge of hypertext and hyperlinks and how they work.
- c. Content Evaluation Gilster describes this competency as a person's ability to think critically and provide an assessment of what is found online accompanied by the ability to identify the validity and completeness of information referenced by hypertext links. This competency includes several components, including: the ability to distinguish between display and information content, namely the user's perception of understanding the appearance of a visited web page, the ability to analyze background information on the internet, namely the awareness to explore further about sources and creators of information, the ability to evaluate a web address by understanding the various domains for each particular institution or country, the ability to analyze a web page, and knowledge of FAQs on a web.
- d. Knowledge Assembly Gilster describes this competency as the ability to organize knowledge, build a collection of information obtained from various sources with the ability to gather and evaluate facts and opinions properly and without prejudice. This is done for certain purposes, both education and work. This competency includes several components, namely: the ability to search for information via the internet, the ability to create a personal newsfeed or notification of the latest news that will be obtained by joining and subscribing to news in a newsgroup, mailing list or other discussion group that discusses or discusses a topic. according to the needs or specific problem topics, the ability to cross check or re-check the information obtained, the ability to use all types of media to prove the truth of the information, as well as the ability to compile the sources of information obtained on the internet with real life that are not connected to network.[9]

Information and communication technology today is very important in learning, so everyone needs that information. Information and communication technology is also increasingly important in one's personal life, because in general more people turn to the internet than other sources of information and support when they face problems in their personal, family, and community lives. Information and communication technology is not only a means of communication, but also as a means of organizing and evaluating the learning process.

The development of technology, the 21st century provides an opportunity for users to reshape study spaces and other learning infrastructure. The advent of Web 2.0 tools, such as TV webcasting, blogging, social networking or wikipedia has facilitated content sharing and collaboration, as well as communication across geographies, time zones and cultures. Therefore, anyone can gain personal, cultural or political interests, as long as they are published on the web and can be seen by others. Moreover, content creation is a powerful means of getting people involved and voicing their concerns: engagement with information and communication technologies brings individual creativity and new opportunities to express themselves through different channels [10].

#### **1. Competency of student search engine in Bandung City**

Internet search became the first theme that was obtained based on the results of data analysis that had been carried out. In searching for information on the internet, it takes a search engine which

is commonly called a search engine. Search engines or search engines will assist users in searching for information stored in a database.

Based on the results of interviews, all of the informants claimed to be able to operate internet search engines for their digital literacy purposes. There are various search engines or search engines used in digital literacy. They even understand how search engines work since they were in high school. Regarding digital literacy for academic activities, they have used the search engine Google, Google Book, Google Scholar, Bing, Baidu and the like. Even some students have searched for data related to their research through more specific search engines, namely publish and perish, and vos viewer.

From a number of existing search engines, most of them claim to be only familiar with Google. Why google? Because this engine is more complete than the currently available search engines. A small number of them have used all the search engines described above. The Google search engine was also chosen because it was considered more practical and the information available was more complete than other search engines.

As for the devices used to access data on search engines, they are more dominant using laptops, then mobile phones and computers. Using a laptop according to them is more comfortable, because it can be directly used in making scientific papers. Because they mostly do scientific work using laptops rather than on computers.

## **2. Hypertextual Competence of Students in Bandung City**

Hypertextual navigation becomes the second theme obtained based on the results of data analysis that has been carried out. Hypertextual navigation in this study is the ability of students to understand and know how hypertext and hyperlinks work and understand the difference between information available on the internet and in books.

### **a. Hypertext and Hyperlink**

To understand how hypertext and hyperlink work, Bandung city students must first understand what hypertext and hyperlink are. Students in Bandung understand that hypertext and hyperlinks are a link between one document and another. Hypertext and hyperlinks are links between one document and another on the website, also in Microsoft Office PowerPoint. Most of them admit to understand the concept of hyperlink and hypertext as a link to documents, information or other websites related to the information they access. However, there were some students who claimed not to know about hypertext. Various kinds of information available on the internet, whether on an official website, blog, or social media usually contain hypertext or hyperlinks.

Cici, a student at Pasundan University, said that the existence of hyperlinks and hypertext on the internet is not something complicated and she has understood this since she was a student. Likewise, Muhammad Ariq, a Unikom student, said that he had acquired knowledge of hypertext and hyperlinks since semester 1 and 2. Because at the campus where he studied computer and internet knowledge, it was very emphasized.

### **b. Information Presentation Differences**

Hypertextual navigation skills also include knowledge of the differences between information presented on the internet and information presented in print or in textbooks. Their knowledge as accessors as well as compilers of information so that it is not easy to believe the information they find. With the presence of the internet, everyone can easily disseminate information, this makes everyone need to check the truth of the information they get through the internet. Because if no further action is taken, it is possible that someone will obtain irrelevant information. Information in print media such as books, newspapers, magazines and others requires many stages before the information is disseminated, so that information in printed form is more reliable than information on the internet.

Yani, a student at the Indonesian Education University in Bandung, said that at first he was more comfortable using literacy from books than from the internet. But as the habit of using the internet gradually began to be comfortable with data from the internet. In line with Yani, Gema from Padjadjaran University said the difference between text in books and digital data from the internet. He currently admits that he often downloads literacy data from the internet.

### **c. How the Website Works**

To understand how websites work, students must know about bandwidth, http, html, and urls. Students understand that bandwidth, http, html, and url are components in knowing how the website works. Some informants do not know what bandwidth is but understand other components of how the website works.

## **3. Competency of Student Content Evaluation in Bandung**

Content evaluation becomes the third theme obtained based on the results of data analysis that has been carried out. The evaluation of the content in this study is the ability of students in the city of Bandung to take advantage of digital information circulating through the internet. The ability to evaluate content consists of understanding the characteristics of the website, cross checking, and FAQ (Frequently Ask Questions).

### **a. Website Characteristics**

The first aspect in evaluating content is that students must know the characteristics of a website whose information content can be used as a reference. Students understand that the characteristics of the website are websites that contain reference sources. Students in the city of Bandung know the characteristics of websites whose information content can be used as a reference, namely websites that have reference sources, clear sources of information, and official websites. This knowledge is needed by students as a provision to deal with the many websites that provide various kinds of information on the internet. Through the domain, students can find out the subject of information from a website. Domain is a unique address or name on a website.

### **b. FAQ (Frequently Asked Questions)**

One of the capabilities included in the competence of content evaluation is an understanding of the use of FAQ services on a web. FAQ in a web serves to explain common things that are often asked by web readers. Students understand the FAQ and always take advantage of the FAQ. Students also understand FAQs and always take advantage of FAQs on online shopping sites. However, there are also students who do not use the FAQ because they feel they have received information without using the FAQ. These results include several components, namely the ability to understand the characteristics of the website, cross check, and utilize information services on the internet. This component relates to one of the core competencies in Paul Gilster's theory.

## **4. Competence of Student Knowledge Compilation in Bandung City**

The arrangement of knowledge becomes the fourth theme obtained based on the results of data analysis that has been carried out. The arrangement of information in this study is the ability of Bandung city students to use keywords when searching for information, joining discussion groups on the internet to obtain information, utilizing other sources of information besides the internet and the ways in which knowledge is compiled. Understanding the keywords will produce the right information according to the student's needs. Although it seems trivial about keywords, it actually requires precision in determining them. For example, when you want to find information about journal literature on the internet, you must be careful in writing keywords according to the main theme of our research to find relevant previous research manuscripts.

### **a. Use of Keywords**

The use of keywords is the initial stage in the preparation of knowledge. By using keywords, searches made through search engines will also be easier, more specific and relevant to the information needed by informants. Students said that they determined keywords to search for information.

Students in the city of Bandung understand the information they are looking for so that the results obtained from the search are not too broad, perform a search for information by entering predetermined keywords into a search engine on the internet. This is done by students in order to get the information they need more quickly.

#### **b. Cross Check**

One of the most core aspects in preparing knowledge is of course the understanding of Bandung students about the need to cross check and the methods used to cross check or analyze the background and truth of the information obtained. Because this affects the information obtained by them. The amount of information that may be similar when looking for information on the internet, therefore many students are deceived by it, because the substance is not the same as what is needed.

As stated by Ilham, a Communication Science student at Unikom Bandung, according to him, the large amount of information obtained from the internet will cause confusion to determine which one is actually the most appropriate for what is needed. Therefore, checking is an absolute thing he does when he gets data from the internet.

#### **c. Discussion Groups**

Joining discussion groups on the internet is included in the ability to organize knowledge. Not all information is available on the website or blog. Sometimes conducting discussions to obtain the latest information that is not yet available on the internet. The discussion group referred to in this discussion is a discussion forum. Bandung City students generally have discussion groups on the internet. The discussion groups they participate in are not only about knowledge but on many other discussion topics. Most of the discussion groups are cross-campus both in Bandung and in Indonesia. Yani, said discussion groups on the internet as a medium to increase networking and provide opportunities. Indra, from UPI Bandung also admits that when he needs ideas, discussion groups on the internet are the solution

#### **d. Resources**

Other sources of information apart from the internet are needed in the preparation of knowledge, although in fact the digital era is synonymous with things related to the internet and technology. Students need other sources of information to obtain other references that are more accountable for their truth because they have gone through several stages before being disseminated. Informants use other sources of information apart from the internet in the form of books.

Ade Manan, a student at the Islamic University of Bandung, said that he could not leave books even though digital literacy was very advanced. According to him, the book is used as a comparison as well as checking the truth. Likewise with Cici who said that the credibility of the data from the internet, especially from blog pages, was very doubtful.

#### **e. Information Compilation**

The ability that is also included in the competence of knowledge compilation is the method taken in preparing information. they do in compiling articles by determining the topics to be discussed. Muhammad Arik said that choosing a topic is important to provide a clear direction of scientific writing. Ilham admitted that the topic was the main idea that gave birth to the purpose of the article to be made. Sometimes according to Ilham there are many ideas in making scientific articles, but still confused to determine the topic.

### **4. Conclusion**

Based on the results of the research analysis, it can be concluded that students in the city of Bandung have digital literacy competencies which include the ability to operate search engines on the internet from these service providers, have the ability to navigate hyperlinks in finding information, have the ability to evaluate content from internet pages, and the latter have the ability to structure knowledge using keywords to help make it easier to find information, and have the awareness to cross-check the information they get from the internet by looking for information from various sources to ensure its correctness.

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