

Build Students' Digital Literacy Through the Stages of Making Infographics

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ABSTRACT

The COVID-19 pandemic, which is not known for sure when it will end, has caused digital transformation to occur faster in the world of education. One of the forms of digital transformation is the implementation of learning activities that were previously carried out with direct interaction between teachers and students, now learning activities are more often carried out online as an effort to reduce the spread of the Covid-19 virus. This change in the form of learning activities makes teachers and students inevitably have to be able to operate ICT tools and use digital platforms to support these learning activities. Nevertheless, the learning objectives will still be achieved with distance learning methods as long as teachers and students have good literacy skills, in this case, digital literacy. This article aims to examine the stages in making infographics to build students' digital literacy skills. Where in each of these stages, there are literacy skills that students must have. With good digital literacy, students will try to find and select important information, understand the information, and be able to convey that information through digital platforms correctly

Keywords: digital literacy, pandemic, infographic

1. INTRODUCTION

The Covid-19 pandemic that has been going on since the beginning of 2020 until now has made many changes in various aspects of life. One of them is the world of education. In an instant, the teaching pattern that prioritizes face-to-face as has been done for years turned into a distance learning pattern using digital devices. This change has indirectly contributed to the acceleration of digital transformation in education. Because this situation causes teachers and students to be able to use digital tools to communicate and exchange information during the learning process [1].

With the development of information and communication technology, the education system has undergone a transformation from conventional methods to digital. Moreover, during the Covid-19 pandemic like this, digital technology is the main weapon to keep education running well. Through distance learning using online methods, face-to-face meetings are replaced by virtual meetings, while the way to get information, which was originally only based on books and teacher delivery, has now been replaced by e-books, online journals, virtual discussions, and so on [2]

This online learning model eventually became one of the factors that made internet usage rise dramatically during the pandemic. A content management service site *Hootsuite (we are social)*, released data in January 2021 regarding the number of internet users in Indonesia, which rose 73.7 percent from Indonesia's population of 274.9 million or through 202.6 million users. In other words, over the past year, there has been an addition of 27 million users. The time spent accessing the internet also increased, from 7 hours 59 minutes to 8 hours 52 minutes. With use for chat (96.5%), social networking (96.3%), shopping (78.2%), financial services (39.2%), entertainment (86.2%) and others.

The implementation of distance learning requires a process as a new form of adaptation from the old model of education that tends to be textual into education that uses digital platforms, such as social media, online learning sites, and educational TV which indirectly requires students to be able to learn independently. Activities carried out by students in learning activities like this will be successful if accompanied by good literacy skills. With digital literacy skills, students not only can read and write but also have

the ability to communicate well, be able to analyze information obtained from digital media, and use information wisely. That's why digital literacy is one of the life skills that students must have in the 21st century. With digital literacy skills, students will be able to thrive in a dynamic digital environment like today.

This paper offers an idea as an effort to strengthen digital literacy for high school students through the application of infographic-making procedures. By applying the procedure for making this infographic, students are expected to be able to search for the right information, be able to process the information obtained by using digital tools under their control and be able to present information well in an attractive display that makes the information easy to understand.

2. LITERATURE

The world is currently still amid the COVID-19 pandemic. The result of this pandemic is a change in the form of learning from face-to-face learning to online learning. This of course requires teachers and students to be ready for these changes. One of the abilities that must be possessed by teachers and students to face the era of the digital revolution and the covid-19 pandemic is the ability of Digital Literacy.[3]

The rapid development of information and communication technology makes the internet easy to access. With various digital platforms, various information can be obtained freely in the virtual world without limits. Therefore, policies are needed from users to be able to sort and analyze all forms of information obtained from the internet to avoid mistakes in understanding information. This ability is known as literacy. As Colin Lankshear wrote in his article on digital literacy, he mentions the definition of digital literacy as "the ability to understand and use information in various formats from a variety of sources when presented via computers and, in particular, via the Internet" [4].

Digital literacy involves learning through multiple skillsets, not through the use of tools or technology. Therefore, the approach to cultivating digital literacy must incorporate techniques and strategies that simultaneously improve not only digital literacy but also critical thinking skills.[5]

Meanwhile, according to UNESCO, digital literacy is "the ability to use information and communication technology (ICT) to find, evaluate, utilize, create and communicate content or information with cognitive, ethical, social-emotional and technical aspects or technology skills".

Digital literacy can also be considered as a competency possessed by individuals to apply digital tools well in the digital era, easily accessing, applying, evaluating, analyzing, and synthesizing data, as well as creating new knowledge. With it, students will be able to communicate and present content through various digital technologies.[6]

Digital literacy can be said as a series of competencies possessed by individuals who aim to apply digital tools well in the digital era to easily access, apply, evaluate, analyze and synthesize data and create new knowledge. With this competency, students will be able to communicate and present content through various digital technologies.[3]

From the statements regarding digital literacy above, it can be concluded that digital literacy is the ability to find correct information, evaluate the results of the discovery of such information, process it by utilizing digital technology, and

communicate information that can be justified through digital media.

Infographics in today's digital era can be used by various individuals and organizations, educational institutions, and companies to improve communication and make information more interesting. Infographics are very easy to find in various media, both conventional such as magazines and newspapers, and digital such as website portals or social media.[7]

Infographics come from the word Infographics in English which is a combination of the words Information + Graphics. Meanwhile, according to the term, infographics are defined as a form of data visualization or ideas that can convey comprehensive information to the reader, thus the information is easier and faster to understand.[8]

Infographics are techniques for presenting information visually so that it is easily understood by readers. By making an infographic, students inevitably have to do literacy to present information that is easy to understand and can be justified. Good quality infographics according to content standards are created by meeting the following criteria [9].

1. Goal-oriented infographics
2. Based on research and reliable sources and production date as a reference for actuality
3. Relevance to the needs of readers
4. Harmonious and attractive visual structure
5. Readability
6. Elements of persuasion
7. Straightforward (Simplicity)
8. Consistency with brand guidelines
9. Ease of sharing (Shareability)

3. RESEARCH METHOD

The method of analysis in writing this article uses a literature review. The literature review step consists of 4 steps, namely selecting topics to be reviewed, searching for and selecting articles related to the topic, analyzing and synthesizing literature, and organizing writings. The focus of the discussion topic in this article consists of a literature review on digital literacy from various perspectives and theories. Another focus of the literature review is related to the topic of infographics. The two topics that are the focus of the study will lead to the presentation of efforts to strengthen digital literacy for high school students through the application of infographic-making procedures.

4. RESULT AND DISCUSSION

4.1. Digital literacy in distance learning

The implementation of distance learning requires students to be digitally literate. Digital literacy doesn't mean sliding the screen and reading online or just subscribing to ebooks. But wider than that. Digital literacy ability is the ability to use communication and information technology to find, evaluate, create and

communicate information that requires cognitive abilities and technical skills.

Students who have good digital literacy will be able to utilize and manage technology systems with all their devices, thus distance learning can be carried out properly, starting from the learning process, assignments, assessments to the process of interaction and collaboration between teachers and students. Furthermore, digital literacy will also shape students to have a responsible attitude when using technology, and prioritize ethics in interaction, communication, and collaboration during the distance learning process.[10]

4.2. Competence in digital literacy

Ferrari states in its publications that competencies in digital literacy include the knowledge, skills, and attitudes required when using ICT tools and social media to perform tasks, solve problems, convey and manage information, collaborate, create and share content and build knowledge effectively, efficiently, and effectively. appropriate, critical, creative, independent, flexible, ethical, and reflective. Meanwhile, according to the European Parliament and the European Council (European Parliament and the European Council), 2014, digital literacy competencies include the knowledge, skills, attitudes, strategies, and awareness needed when using ICT tools and digital media to solve problems, convey and manage information, create and share content and build critical knowledge. Basic skills include using computer devices to retrieve, access, store, produce, present, and exchange information, and to communicate and participate in collaborative networks over the Internet.

4.3. Infographic creation

The steps for making infographics that students do indirectly make students apply digital competencies to complete an infographic. The reason for making infographics is inseparable from the use of the Internet network and the digital devices used to create them. Digital literacy competence can be applied in several stages as follows: Accessing, selecting, understanding, analyzing, verifying, evaluating, distributing, producing, participating, and collaborating.[2]

a. Access

In this stage of accessing information from cyberspace, the initial competence of digital literacy is competence related to technical skills in using media. Here students must have the ability to operate a computer or smartphone, before uploading or downloading information media. And when searching for information in cyberspace, students need to understand the right keywords from the information to be searched.

b. Selecting

After accessing information, students are required to have the ability to select information. Namely by sorting out valid and accountable information, by looking at the source from where and who the author is. To find out a valid source of information, it can be seen from the website address, for example, information on the world of education can be seen from the domain extension / top-level domain using .edu, .ac.id, or .sch.id. For example, the State University of Surabaya has a website address.

unesa.ac.id, by paying attention to the domain, students can find out if the information on the site is valid and can be accounted for because the source is clear.

c. Understand

At this stage, students' ability to understand the meaning of content accessed from digital media is important. When students can understand the meaning of the content or information obtained, they will not misinterpret and can avoid hoaxes or slanderous information. In this case, understanding can be interpreted as recognizing how technology affects behavior, perceptions, beliefs, and feelings about the world around us. Examples of understanding other people's opinions that are conveyed across platforms such as videos, blogs, websites, Facebook, and other social media, and also understanding the meaning of emoticons or symbols on social media.

d. Analyze

Text or information obtained from digital media such as social media has been designed with a specific purpose, so the information is often subjective. The way to read a text or analyze the information received can be seen from the language used, the genre, to the characteristics, symbols, or codes used. Therefore, students must be able to analyze the information obtained, whether the content is correct or there is still subjectivity from the content creator.

e. Verify

At this stage students can verify content in digital media with a clear point of view, meaning that they can find out the meaning of the information content received. When getting information, students must be able to compare the information they receive from a source with similar information from different sources. If you have verified, students will be able to minimize hoax news.

f. Evaluate

At this stage, the related literacy competence evaluates to a higher level than the previous stage. At this stage students must be able to be critical of the information content in digital media. To raise a critical attitude, one must have the ability to interpret content in digital media by following the latest issues such as politics, economics, law, ideology and others. At this stage students must also have the ability to make decisions. For example, students are asked to disseminate certain information through social media, then after conducting an evaluation, they can then decide

whether the information they receive can be disseminated or not.

- g. **Distribute**
At this stage, a student is not only required to be able to distribute messages but includes the ability to use the build-in function on social media such as giving likes/dislikes to the ability to assess a product. It can be concluded that the important point at this stage is being able to search, synthesize, and disseminate information through digital media or internet media.
- h. **Produce**
At this stage a student must be able to create their content in various forms, ranging from writing on social media such as Facebook, writing on blogs or websites, making video clips using images or audio, or other forms of content. This competence is like the ability to adapt what we produce for various contexts. So for students who have this ability, they will not only become consumptive content connoisseurs but also can create their content that can be uploaded to various digital media.
- i. **Participate**
The stages of participating are usually carried out on certain media platforms such as chatrooms, skype, Facebook, blogs, forums, and others. If you want to master this competency, students must have the ability to be actively and interactively involved and critically in a digital media platform environment. If you are involved and exchange ideas with the general public, you will get broader knowledge.
- j. **Collaborate**
This is the stage where students are expected to have the ability to collaborate with the wider community to create a literacy movement that has a wide impact. So through this collaboration, digital literacy will be easier to implement because it is done collectively.

The steps for making infographics can be explained as follows. :[7]

1. Prepare data/information to be presented in infographics. Understand well the meaning that is in each data/information so that it can properly illustrate the data/information in a graphic.
2. Determine the purpose of the infographic. As with communication in general, the purpose of making infographics can be to convey information, change perceptions, persuade, or take an action. Goal setting will affect the presentation of the infographic that will be made.
3. Conduct a preliminary study on the need for data visualization, identify who the audience is and read some references.
4. Discuss the findings, choose the type of infographic and discuss the process of making infographics.
5. Create an infographic design and select infographic tools.
6. Define the information structure clearly, based on the selected information architecture.

7. Discuss the results of the infographic design.
8. Get started with infographics. Make graphics according to existing data/information, don't try to cover up data/information weaknesses with interesting data visualizations.
9. Design an infographic as attractive as possible by paying attention to:
 - a. The right size, so it can be displayed in one complete view.
 - b. Don't add too many attributes that can distract the graphics focus.
 - c. Use appropriate icons to describe data/information. Photos and other illustrations can be added to make the infographic more attractive and easy to understand.
 - d. Add sound or motion pictures if needed.
 - e. Combining types of visualizations can be done to make infographics more attractive.
 - f. Include a full text link so that it can be accessed by those who want to see the data/information presented in the infographic in its entirety.
 - g. Include the source of the quote, if the data/information included is a quote.
 - h. List copyright ownership clearly.
10. Provide an assessment of the infographics that have been made. An effective infographic is one that can visualize data/information quickly, easy to understand and attractive
11. Fixed infographics.
12. Share infographics with related parties through appropriate platforms

5. CONCLUSION

The COVID-19 pandemic which causes learning patterns to be carried out online has a considerable influence on students today, especially high school students, they rely on search engines such as Google to find information. This allows them to get various forms and types of information, regardless of whether the information they need or not. This diversity of forms and types of information should encourage students to be more selective and able to maximize the use of the results of advances in information technology.

Online learning requires students to be independent and collaborative. Students no longer depend on the teacher as the main source of learning, but students extract information from various sources, especially those from the internet. Therefore, students need to have the ability to manage digital platforms as learning resources. Because these learning resources are available on various websites.

By carrying out the stages of making infographics indirectly hone students' digital literacy competencies because here students are required to be able to use digital devices, retrieve and store information obtained from search results and those sourced from digital media, use digital applications to produce and present information, and to communicate and participate in collaborative

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