THE EFFECT OF DIGITAL TECHNOLOGY IMPLEMENTATION ON THE UNDERSTANDING OF DIGITAL LITERACY IN THE KELUARGA YATIM MUHAMMADIYAH ORPHANAGE

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Abstract

This study aims to determine the effect of digital technology implementation on the understanding of digital literacy in the Muhammadiyah Orphanage by conducting digital literacy research through community service activities HMP Informatics Engineering Education. This activity positively impacts the Muhammadiyah Orphanage on understanding digital literacy. In digital technology learning activities, several types of material are delivered about graphic design and Microsoft Office applications. This type of material is considered to be able to help Muhammadiyah Orphanage Children to improve their skills and abilities in Microsoft Office and graphic design. This type of research is quantitative research with a pre-experimental design method type one group pre-test, namely orphanage children class XI-1 (11-1)) SMK as an experimental class. The data collection method used is the questionnaire and test method (pretest and posttest). Data obtained through quantitative data trials. This quantitative data is in the form of a score to determine the effectiveness of the digital technology learning process. The results of this study were able to understand the function of the main menu in graphic design and Microsoft Office. Therefore, it can improve and encourage students to understand digital literacy as evidenced by the average answer to each question that has been learned during learning activities.

Keywords*: digital literacy; learning; digital technology*

I. Introduction

According to Mardiyati (2022), progress in the field of information technology is currently characterized by all dimensions of human life being influenced by information technology which is almost difficult to stem. The development of the digital era in Indonesia is characterized by the growth of internet users since 1998-2023 in Indonesia has greatly increased.
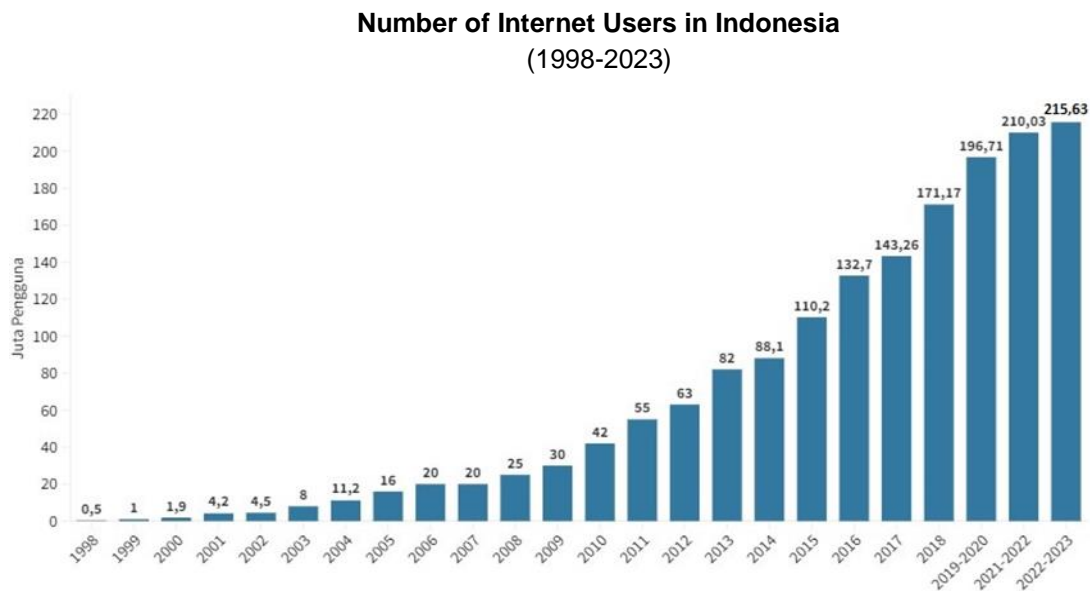
Number of Internet Users in Indonesia
(1998-2023)

Figure 1: APJII Survey Results

The report obtained from the survey results of the distribution of internet usage in Indonesia has reached 215.63 million people in 2022-2023. The number of Internet users in Indonesia reached 210.03 million out of a total population of 275.77 million, which resulted in 78.19% of Indonesians using the Internet (APJII, 2023). The rapid development of the internet will have an impact on the community's unpreparedness for digital literacy which results in misuse of digital media. Therefore, to overcome media abuse in the digital era, it is necessary to have a program to improve the abilities and skills of human resources, one of which is through education by utilizing the implementation of digital technology. (Kurnianingsih, I., Rosini, and Ismayati, 2017). According to Kenton & Blummer (2010) argue that in the digital era, the skills of the society in utilizing digital technology in various activities are ways for a person to develop their potential and abilities. Therefore, it is necessary to utilize digital literacy skills in developing digital literacy competencies such as skills in the use of Microsoft Office and graphic design.

The problem is the weak level of digital literacy of students in Indonesia due to the lack of digital technology implementation programs, especially in learning. This research will explore the lack of digital literacy towards digital technology at the *Keluarga Yatim Muhammadiyah* Orphanage. The benefit of this research is to improve the

understanding of digital literacy towards digital technology at the *Keluarga Yatim Muhammadiyah* Orphanage such as the use of Microsoft Office and graphic design. Media literacy is a person's ability to use their skills and potential such as internet utilization, computer or laptop use, mobile phone or gadget use for their learning activities. One way to achieve digital literacy competence is by implementing digital technology learning according to the needs of the *Keluarga Yatim Muhammadiyah* Orphanage children. However, some problems arose after researchers conducted observations and interviews at the orphanage, such as the absence of technological devices such as computers and laptops, and the lack of understanding of digital technology from the orphans and the caregivers of the orphanage children.

Based on the explanation related to digital technology and digital literacy, especially among students in Indonesia, the researcher is interested in conducting research with the title "The Effect of Digital Technology Implementation on Digital Literacy Understanding at the *Keluarga Yatim Muhammadiyah* Orphanage".

II. Research Methods

The research design used is a quantitative approach with a pre-experimental design method of one group pretest-posttest type. The pre-experimental design method types one group pretest-posttest (Creswell, 2012). In addition, the data in this study are in the form of numbers obtained from the results of observations and tests of children. The research subjects were children from the *Keluarga Yatim Muhammadiyah* Orphanage at the Vocational High School (SMK) level. This research was conducted approximately in September - October 2023.

The data collection method is by giving a pretest, posttest, and observation of digital technology learning activities. Data obtained through quantitative data trials. This quantitative data is in the form of scores to determine the effectiveness of the learning process. In addition, using an observation sheet to obtain data on ongoing learning activities. The data analysis technique used is by collecting pretest value data to determine the initial ability of orphans before being treated. Collecting posttest value data to determine the level of understanding after being given treatment. In addition, it also uses observation sheets to observe ongoing learning activities. The research data obtained was then analyzed.

III. Results and Discussion

This research was conducted from September to October 2023 at the Keluarga Yatim Muhammadiyah Orphanage. The research sample was XI grade students of Vocational High School as the experimental class. This research began with observations at the Keluarga Yatim Muhammadiyah Orphanage, followed by the distribution of pre-test and post-test questions to each child at the orphanage. Based on the results of the questionnaire that has been distributed, the following results were obtained:

1. **Digital Literacy Activity at *Keluarga Yatim Muhammadiyah* Orphanage**

The implementation of this digital literacy activity was carried out at the Keluarga Yatim Muhammadiyah Orphanage. This activity was carried out through the community service activities of the Himpunan Mahasiswa Prodi (HMP) Pendidikan Teknik Informatika or Informatics Engineering Education Student Association. This activity is carried out once a week, namely on Saturday and the duration of each meeting is 2 x 60 minutes of learning.

a. Learning materials used in community service activities of the Informatics Engineering Education Study Program Student Association
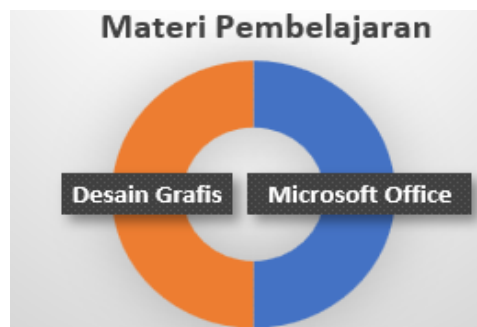

Figure 2. Learning Material Survey

Based on Figure 2, the materials taught to children at the Keluarga Yatim Muhammadiyah Orphanage from the results of the respondents there are two learning materials, namely graphic design and Microsoft Office.
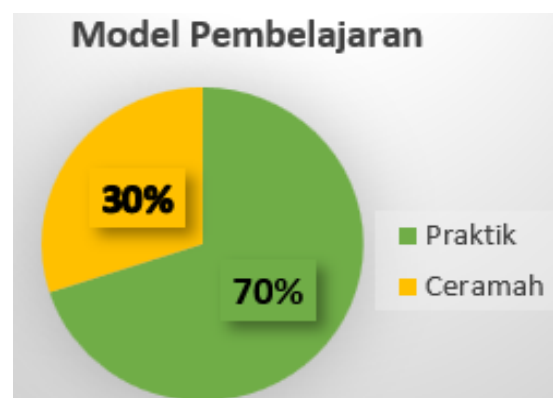
b. The learning model used

Figure 3. Type of Learning Model

Based on the respondent data above, it is stated that the learning models that are often used are practice and lecture. The results obtained were that the practice model dominated students' choices with a percentage of 70%, while the lecture model was only chosen by 30% of students. The reason why the practice model is often used and liked by students is because the practice model can make it easier to gain technical knowledge directly rather than listening to explanations of material presented by the teacher.

2. Enhanced Understanding of Digital Technology

As explained in the previous discussion, there are two types of material studied, namely graphic design and Microsoft Office, when those in the orphanage are able to answer questions about what technology and digital literacy are. In this research activity, orphanage children were taught an introduction to digital technology, such as graphic design and Microsoft Office.

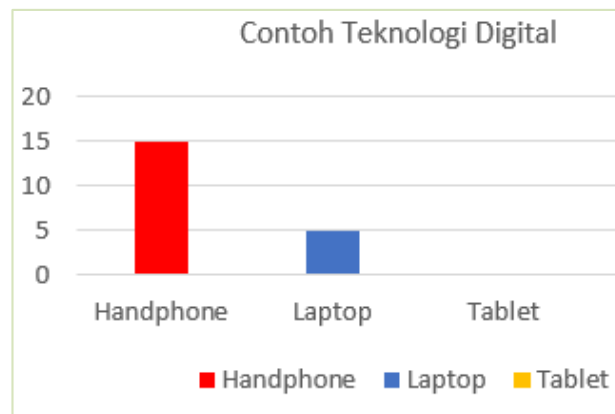a. Examples of digital technology known to students in orphanages

Figure 4. Favorite Digital Technology

After being asked questions about examples of technology that orphanage students know and often use, each student's answer shows that on average students answered their preferred technology, such as cellphones, with a total of 15 students answering. However, 5 students answered laptop and 0 students chose tablet. The reason why cell phones are often preferred is because cell phones are easier to carry everywhere and the price is cheaper so they can help people in various ways.

3. Enhanced Digital Literacy Understanding of Graphic Design

In understanding digital literacy, graphic design has been implemented for children in the Keluarga Yatim Muhammadiyah Orphanage which has obtained several indicators. The indicator of the implementation of digital literacy in graphic design is the use of digital platforms for graphical design and graphic object design. Both indicators have already proved that the orphanage of the Keluarga Yatim Muhammadiyah between September and October has implemented digital literacy in this graphic design. The results look very significant, this is evidenced in the first indicator regarding the use of graphic design digital platforms with the graph below as follows:
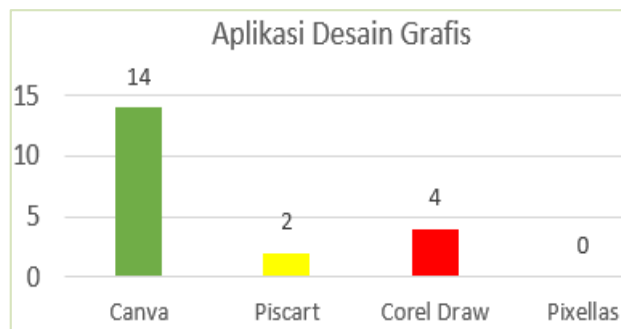
Figure 5. Use of Digital Platforms for Graphic Design

Based on the graph above, it shows that children from the Keluarga Yatim Muhammadiyah Orphanage use 3 digital platforms, namely 14 people use the Canva platform, 2 people use the Piscart platform and 4 people use the Corel Draw platform. Thus, based on the graphical outcomes above the digital platform, the most commonly used and preferred graphic design is the Canva platform which has an advantage over other platforms. The advantages of the Canva platform include the ease of accessing the Canva platform via the website and applications on smartphones, and the many features available (templates, images, backgrounds, photos/videos, as well as downloadable files in PDF/JPG/PNG format).

The second indicator, in understanding the digital literacy of graphic design that has been implemented towards the orphanage children of the Keluarga Yatim Muhammadiyah in the form of types of design objects that are often designed. This type of design object is often designed by the orphanage child of the Keluarga Yatim Muhammadiyah and shows significant success in implementing the digital literacy understanding of graphic design. This, demonstrated by graphic types of design objects that are often designed in the making of the graphical design below are as follows:
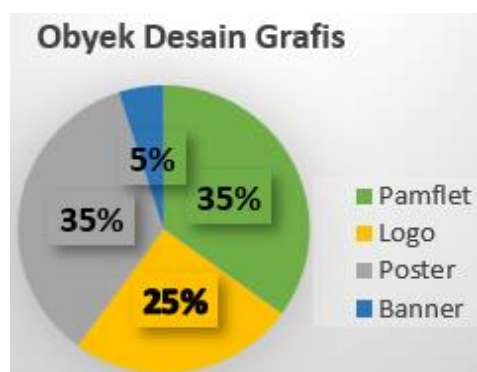

Figure 6. Type of Graphic Design Object

Based on the graph above, shows that children from the Keluarga Yatim Muhammadiyah Orphanage can design 4 graphic design objects. There are several graphic design objects designed by orphanage children, namely pamphlet graphic design objects with a total of 35%, logo graphic design objects with a total of 25%, poster graphic design objects with a total of 35%, and banner graphic design objects with a total of 5%. Therefore, the conclusion from the graphic above is that the type of

graphic design that is frequently done by orphanage children is the graphic design object of pamphlets and posters. The reason why they chose the graphic design objects of pamphlets and posters is because they are designed according to their own creativity in accordance with the specified topic.

4. Enhanced Microsoft Office Digital Literacy Understanding

In understanding digital literacy, Microsoft Office is implemented for children in orphanages from Keluarga Yatim Muhammadiyah Orphanage in the form of using Microsoft Office applications, such as Microsoft Word, Microsoft Excel, and Microsoft PowerPoint. The period from September to October showed significant results. This result is demonstrated by the existence of graphs of usage of the most preferred type of Microsoft Office application is as follows:
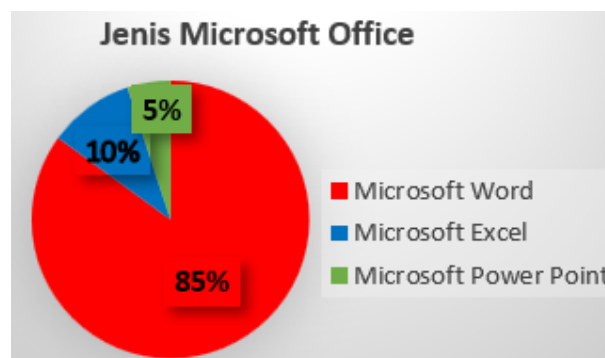

Figure 7. Most Favored Microsoft Office Types

Based on the graph above, shows that children from the Keluarga Yatim Muhammadiyah Orphanage can use 3 types of Microsoft Office. There are several Microsoft Offices that are often used or most liked by children in Keluarga Yatim Muhammadiyah Orphanage, namely Microsoft Word with 85%, Microsoft Excel with 10%, and Microsoft PowerPoint with 5%. In conclusion from the graph above, the type of Microsoft Office most preferred by children in Keluarga Yatim Muhammadiyah Orphanage is Microsoft Word. The reason why we chose Microsoft Word is because the children from the Keluarga Yatim Muhammadiyah Orphanage use Microsoft Word more often and are accustomed to using Microsoft Word compared to other Microsoft Offices.

IV. Conclusion

Based on the presentation of the results in the discussion section above, it can be concluded that this research was successful and effective in increasing the understanding of the digital literacy of children in Keluarga Yatim Muhammadiyah Orphanage. This research has a positive impact on the activeness and increased understanding of digital literacy of students in the Keluarga Yatim Muhammadiyah Orphanage.

This research, was carried out for one month on 20 students who took part in community service activities of the Informatics Engineering Education Study Program

Student Association in class. Based on the data in the discussion section, in this research activity two materials were studied, namely graphic design and Microsoft Office. These two materials were chosen because they are often found in job vacancies. The learning method is used in two ways, namely the lecture method and practice. From the results of the discussion, it is clear that the majority of students in orphanages prefer practical learning compared to lectures because practical learning can provide direct experience of learning the technical aspects of each lesson.

Students at the Keluarga Yatim Muhammadiyah Orphanage successfully followed this research activity. This is proved by students successfully answering questions about digital technology and understanding digital literacy. In this activity, students learn about applications such as Canva, Corel Draw, and Piscart to learn design as well as Microsoft Office applications such as Microsoft Word, Microsoft Excel, and Microsoft Power Point to learn to process, store, and combine data in the form of documents. The results of the questionnaire also showed that students were able to understand the function of the main menu in graphic design and Microsoft Office. Therefore, this can improve and encourage students in understanding digital literacy as well as be proven with an average answer of every question that has been learned during the learning activity.

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