



Analytical Study: the Use of Digital Technology-Based Learning Media at Alam Surya Mentari Elementary School

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ABSTRACT

The use of digital technology-based learning media is important for teachers to use in the current 4.0 era for supporting learning activities as a tool used by teachers in learning activities. Therefore, this research aims to describe the use of digital technology-based learning media that teachers have used during learning activities with students at Alam Surya Mentari elementary school, because basically the school is a natural school that adheres to a direct learning system with nature. This research uses qualitative research methods, with a case study design. The data that has been collected in this research was carried out using interview data, observation and documentation. The analysis technique uses three stages, namely data reduction, data presentation and drawing conclusions. The results of this research show that teachers at Alam Surya Mentari elementary school Mentari have carried out teaching and learning activities using digital technology-based learning media as a tool if learning material media for students cannot be obtained directly around the school. So from this research it is concluded that learning media with a learning system with nature remains the main media for Alam Surya Mentari Elementary School teachers, while learning media based on digital technology is only used to support visual material.

Keywords: digital technology; learning media; natural school

ABSTRAK

Penggunaan media pembelajaran berbasis teknologi digital penting digunakan guru di era 4.0 saat ini untuk menunjang kegiatan pembelajaran sebagai alat yang digunakan guru dalam kegiatan pembelajaran. Oleh karena itu, penelitian ini bertujuan untuk mendeskripsikan penggunaan media pembelajaran berbasis teknologi digital yang digunakan guru pada saat kegiatan pembelajaran bersama siswa di SD Alam Surya Mentari, karena pada dasarnya sekolah tersebut merupakan sekolah alam yang menganut sistem pembelajaran langsung dengan alam. Penelitian ini menggunakan metode penelitian kualitatif, dengan desain studi kasus. Data yang dikumpulkan dalam penelitian ini dilakukan dengan menggunakan data wawancara, observasi dan dokumentasi. Teknik analisisnya menggunakan tiga tahap yaitu reduksi data, penyajian data dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa guru di SD Alam Surya Mentari Mentari telah melaksanakan kegiatan belajar mengajar dengan menggunakan media pembelajaran berbasis teknologi digital sebagai alat bantu apabila media materi pembelajaran untuk siswa tidak dapat diperoleh langsung di sekitar sekolah. Maka dari penelitian ini disimpulkan bahwa media pembelajaran dengan sistem pembelajaran dengan alam tetap menjadi media utama bagi guru SD Alam Surya Mentari, sedangkan media pembelajaran berbasis teknologi digital hanya digunakan untuk menunjang materi visual.

Kata Kunci: Teknologi Digital; Media Pembelajaran; Sekolah Alam

INTRODUCTION

Technology comes from the Greek word *technologia*, *techno* meaning 'skill' and *logia* meaning 'knowledge.' According to Megahantara (2017) technology is an applied science that includes hardware and software that has usually been further developed. Technology can help create an interactive and engaging learning environment, which can improve understanding and retention of information (Rukmana et al., 2023). One of the technologies that supports the continuity and convenience of human life is digital technology (Partono et al., 2021). Digital technology includes internet devices, online games, artificial intelligence, robotics, and 3D printing, new information tools in the current era (Hidayat & Khotimah, 2019).

In education, advances in digital technology support learning because by using them, students can find the information they want to obtain for more up-to-date knowledge (Sarbaini et al., 2022). The use of advances in digital technology in learning activities can enable students to enrich their knowledge by adding material that will be delivered with interactive moving images and sound, thereby making learning more interesting for students (Fajrie et al., 2024). Digital information technology can be accessed via the internet network, where all information can be known to students as learning material. This is in line with the opinion of Julita & Purnasari (2022) that digital technology is shown as a reference that can drive the development of the world of educational science. Technology in education is also an essential reference in analyzing and solving learning problems for students, and teachers can use digital technology as a means of learning media for students (Ihsan et al., 2021).

One of the teacher's duties is to develop knowledge and use digital technology according to a teacher's level of professionalism (Herliani & Wahyudin, 2018). Digital technology itself can create appropriate learning media for students. Therefore, teachers must know how to use and develop digital technology to make it a meaningful learning medium (Ersila et al., 2023). Learning media is a means of delivering material effectively in order to create a conducive learning environment (Budianti & Azisabdul, 2023). Meanwhile, Farida (2019) said that digital learning media is an alternative media that is in great demand and is suitable for children because it contains various exciting features that can make children easily able to understand the lessons taught by the teacher. Digital media has become integral to today's education and is in line with curriculum developments in various educational institutions Noer et al. (2022) including Alam Surya Elementary School. In modern curricula, there is an increasing emphasis on using technology as a learning tool. Currently, students generally prefer electronic media in the form of gadgets to find learning material that they consider easy to understand (Rostiani et al., 2023).

In research Kuntandi & Hidayat (2022), the authors focused on impact and found that using technology-based media increased children's activeness and curiosity in learning. In contrast to research by Taufik et al. (2021), it tends to discuss the diversity of media used by elementary schools during the Covid-19 period, especially in Indonesian language subjects. Not much different from research Puspitasari et al. (2018), where the author studied the development of information technology which focused on the use of web-based learning as a learning medium in the world of vocational education; researchers found that the use of the

web was the most widely used media. The difference between this research and previous research is that the researcher focuses on the results and the challenges teachers face in using media. This research provides input and suggestions for overcoming difficulties in using digital technology-based learning media.

One of the natural schools that has yet to use digital technology-based learning media to support learning activities entirely is SD Alam Surya Mentari. This research aims to analyze and describe the implementation and obstacles to using digital technology-based learning media at SD Alam Surya Mentari in the teaching and learning process carried out by teachers for students.

METHODS

Type and Design

This research uses qualitative research originating from an inductive mindset, which can be based on objective, participatory observation of a social symptom (phenomenon) (Harahap, 2020). Fadli (2021) said that qualitative research aims to understand human and social environmental problems in-depth. This research aims to determine how digital technology-based learning media is used at SD Alam Surya Mentari because the school is designated as a natural school.

A case studies are explanatory descriptions for real-life investigations of contemporary phenomena from an individual, group, organization (community), program, and social situation (Nur'aini, 2020). In this research, the case study looks at teachers and schools utilizing digital technology-based learning media in education at natural schools.

Data and Data Sources

The subjects of this research were the principal, deputy head of school curriculum, second-grade teachers, and fifth-grade teachers at SD Alam Surya Mentari. The object of this research is the use of learning media by teachers in teaching and learning activities based on digital technology at SD Alam Surya Mentari, where the school is designated as a natural school.

Data collection technique

In this research, researchers will obtain various primary data through interview techniques. Data collection will also be supported by supporting techniques, namely documentation and observation.

1. Interview

In the interview process in this research, researchers conducted interviews with the school principal, deputy head of school curriculum, grade 2 teachers, and grade 5 teachers.

2. Documentation

In this research, documentation will be obtained regarding observations of teachers' learning implementation plans (RPP) when carrying out teaching and learning activities with students.

3. Observation

Observation is an observation in the form of factual data, which can usually measure the level of process or behavior of each individual or group in activities that can be observed (Putri et al., 2021). In this research, researchers will later observe learning activities at SD Alam Surya

Mentari in teaching and learning activities using digital technology-based learning media to support students' learning activities and increase learning motivation.

Data analysis

In this research, According to Rijali (2018), the analysis in this research begins by collecting data from observations, interviews, and documentation carried out by researchers. The researcher then conducted data reduction and presentation to obtain conclusions from the data received. Data analysis in this research is inductive, where the study is based on the data obtained and then developed further to become a hypothesis or temporary answer.

RESULTS AND DISCUSSION

In the SD Alam Surya Mentari learning process, not all teachers use digital technology-based learning media daily. According to the results of interviews, teachers at SD Alam Surya Mentari more often use learning media such as books and blackboards and most often use environmental media as a means of supporting learning because SD Alam Surya Mentari is a natural school where the learning process refers to the curriculum created. The difference is that you learn directly from the natural surroundings. Teachers will use digital technology-based learning media if the learning material that students will study cannot be studied directly.

The following is a table of observation data results that have been carried out directly at SD Alam Surya Mentari:

Table 1. Observation of Learning Methods Implemented by Teachers

No	Aspek	Keterangan
1	The use of digital technology-based learning media used by teachers during classroom learning.	<ul style="list-style-type: none"> - Media is easy to see from all sides. - Media is able to attract students' attention. - The material in the media is easy to understand - Media is useful for understanding material - The media used makes sense - The media is arranged coherently
2	Changes in students' knowledge, attitudes and skills when teachers use digital technology-based learning media.	Students are very enthusiastic when teachers use digital technology-based learning media. Students have new knowledge about the description or visualization of material delivered by the teacher where the learning material cannot be seen directly.
3	Availability of facilities and infrastructure to support teaching and learning activities using digital technology-based learning media.	<ul style="list-style-type: none"> - 3 Projectors, still usable - 2 projectors, still usable - Computer 7, still usable - There is wifi, but it's not good enough.

From Table 1, created during the SD Alam Surya Mentari observation process, the school has complete facilities and infrastructure, but only some classes do. Facilities and infrastructure must be used alternately if several teachers are using them simultaneously. Based on interviews regarding the use of digital technology-based learning media at SD Alam Surya Mentari, the following results were obtained:

1. Principal

a. Learning philosophy of SD Alam Surya Mentari

The learning philosophy applied at SD Alam Surya Mentari covers four main aspects, including the following:

1) Morals

At SD Alam Surya Mentari, learning is carefully designed to ensure students understand the importance of morals in everyday life. They are taught how to submit to the creator and reflect the righteous character in their actions. Apart from that, the importance of fostering good relationships between people is also emphasized, with the hope that students will grow into individuals who have a sense of caring, empathy, and love for the Koran and are able to apply knowledge and charity in everyday life.

2) Logic

Students are taught to develop a scientific attitude, which includes a love of learning, critical thinking, and the courage to innovate. In this way, students are prepared to become critical thinkers who can see the natural world around them with a deep understanding and broad knowledge.

3) Leadership

The learning philosophy at SD Alam Surya Mentari also includes teaching about leadership. Students are taught how to become khalifatullah on earth and become humans who benefit fellow living creatures. In this leadership teaching, it is hoped that students can understand leadership values and be able to apply them in everyday life.

4) Entrepreneurship

Students are also taught how to seek halal sustenance and become independent entrepreneurs in the economic sector. Students are taught the basics of business and entrepreneurship and how to apply this knowledge in real life.

b. The development of digital technology in the 4.0 era in the world of education

Industrial Era 4.0 is a general term used to denote an era with various technologies that result in the physical, biological, and digital dimensions coming together in an indistinguishable combination (Putrawangsa & Hasanah, 2018). The rapid development of technology in the era of revolution 4.0 requires all fields to adapt quickly to use it. One area that must be able to keep up with digital developments in the 4.0 era is education. The development of the digital era in education has a huge role and responsibility, which can shape future generations to use and utilize technology well and optimally (Safitri et al., 2023).

2. Deputy Head of School Curriculum

a. Definition of digital technology-based learning media

Digital technology-based learning media is learning that utilizes various digital technology devices, such as laptops and gadgets, to support the learning process so that it is

easier to reach anywhere. This understanding is in line with the opinion of Moto (2019) dan Mardati (2021) which states that tools to make it easier for teachers to improve the quality of education are in the form of communication media to provide clarity on the information conveyed during learning activities with students to make it more effective and efficient.

b. The aims and benefits of using digital technology-based learning media

Digital technology-based learning media has goals and benefits in supporting learning in the classroom. Here are some of the benefits mentioned:

1) As a media of supporting learning

Digital technology-based learning media allows teachers to provide illustrations in images that are difficult to see directly. The language used is everyday language, making it easier for students to understand (Izhar et al., 2022). For example, in learning about the solar system, digital technology can be used to display animations or simulations that show how the planets move around the sun.

2) As a media of communication

Digital technology-based learning media can effectively communicate effectively between teachers and students (Mustafidah et al., 2018). Teachers can use digital platforms to share lesson materials and provide assignments to students. Students can also use this platform to discuss synchronously or asynchronously with their teachers or classmates.

3) Creating enjoyable learning

To create a more exciting and interactive learning environment, teachers can use the help of digital technology such as videos, animations, or educational games, and teachers can make learning material exciting and easy to understand.

c. Use of digital technology-based learning media at SD Alam Surya Mentari

Learning media is a means teachers use to carry out the learning process both inside and outside the classroom, and one of the practical learning media is digital technology-based learning media (Riana Aprianti et al., 2023). SD Alam Surya Mentari teachers can use digital technology-based learning media for learning activities. However, this technology must be used in the material taught to students. This shows that using technology in learning must be relevant and oriented towards learning goals.

3. 2nd-grade Teacher

a. Definition of digital technology-based learning media

The main task of a teacher in carrying out the teaching and learning process is to educate, teach, and facilitate students to achieve ability in intelligence, character, and processing of existing skills (Khusna et al., 2017). Teachers can support teaching and learning activities with students by using learning media according to the material to be taught. One type of learning media that teachers can use when carrying out teaching and learning activities with students is digital technology-based learning media. Digital technology-based learning media can be optimized to help visualize the material so that it can be studied correctly. (Isnaeni et al., 2021).

b. Various types of digital technology-based learning media have been used

The various types of digital technology-based learning media used include various platforms and applications that have been integrated with digital technology, such as Google Forms (Gform), Canva, PowerPoint (PPT), YouTube, Microsoft Office (Word, Excel), and Audio.

In practice, teachers have tried to use various digital technology-based learning media with students in learning activities. For example, they have used PowerPoint to create exciting and informative presentations, LCD and Projectors to display learning material visually in class, Canva to create attractive graphic designs that make it easier to understand, YouTube to display educational videos that are relevant to the material being taught, and Audio to support explanation of material with sound or music. The documentation for the availability of LCDs at SD Alam Surya Mentari can be seen in Figure 1.



Figure 1. Learning activities using digital technology-based learning media.

Figure 1 shows the implementation of learning using digital technology-based learning media in the classroom carried out by the teacher. Teachers use digital technology-based learning media to support learning where they can display the learning material studied through PPT.

The digital technology-based learning media, such as PPT, shows how digital technology can be utilized in education to create a more interactive and exciting learning experience for students. However, it is also essential to ensure that students have equal access to this technology and sufficient understanding to use it effectively. This means that digital education is about using technology and ensuring learners have the digital skills necessary to utilize that technology.

c. Benefits of digital technology-based learning media

One of the supporting tools in teaching and learning activities is digital technology-based learning media. One of the main reasons digital technology-based learning media is viral is because it has significant benefits for student learning, including students being able to think critically and be creative with the media used. This question is supported by Sayekti et al. (2022), who says that students must have a sense of creativity within themselves because this is one of the competencies that always coexists with students' critical thinking, collaborative, and communicative abilities.

d. Teachers' obstacles in using digital technology-based learning media

Teachers experience several obstacles when using digital technology-based learning media. These obstacles show that although digital technology has great potential in supporting teaching and learning activities, challenges still need to be overcome.

The main obstacle faced is the limited internet network. In today's digital era, a stable and fast internet connection is essential for utilizing digital technology in education. For example, if a teacher wants to show educational videos or use interactive applications in class, a poor

internet connection can disrupt the flow of information and hinder the student's learning process.

4. 5th -garde Teacher

a. Definition of digital technology-based learning media

Digital technology-based learning media are various tools and platforms that use digital devices as practical tools to attract student's attention and increase their involvement in the learning process.

The definition of digital technology-based learning media is in line with the opinion of Jannah & Atmojo (2022), who say that what is meant by digital technology-based learning media is learning media that can be accessed through digital technology devices and includes digital learning materials such as images, audio, videos and animations that enable teachers and students to learn anytime and anywhere without having to worry about limitations of distance, space or time.

b. Various types of digital technology-based learning media have been used

Various digital technology-based learning media are known and used in teaching and learning, including various platforms and applications integrated with digital technology, such as Canva, PowerPoint (PPT), YouTube, and Google. This is the opinion of Fauzan (2020), who states that there are seven types of digital media: (1) Mobile audio-visual digital media such as sound films, video cassettes, moving images, and television. (2) Silent audio-visual digital media such as sound films and pages. (3) Semi-motion audio, for example, remote text with sound. (4) Video media moves like a silent film. (5) Silent visual media such as printed pages, photos, microphones, and silent slides. (6) Audio media such as radio, telephone, and cassettes. And finally, (7) print media such as books, modules, and independent study materials. Many other forms of digital media, including websites, social media, images, digital video, and digital audio, can be used with or without a projector.

In practice, teachers and students teaching and learning activities have tried to use various digital technology-based learning media. For example, Canva can be used to create attractive graphic designs, PPT can be used to create informative presentations, YouTube can display educational videos relevant to the material being taught, and Google Docs and Slides can be used for collaboration and assignments.

c. Benefits of digital technology-based learning media

The usefulness of digital technology-based learning media to support learning activities in the classroom. Learning media based on digital technology provides a platform for teachers to create and innovate in the teaching and learning process. The benefits that can be felt in using digital technology-based learning media include (Julita & Purnasari, 2022) :

- 1) Improving the quality of teaching and learning for students to make it more meaningful.
- 2) Provide more comprehensive access to students to support the implementation of learning activities.
- 3) Can make it easier for teachers and students to carry out teaching and learning activities anywhere.
- 4) Change the teacher's perspective in implementing learning in a more active, productive, and creative direction.

- 5) Learning media can also increase and direct students' attention to increase learning motivation in a more meaningful direction directly between students and their learning environment; this also depends on their abilities and interests.

Digital technology-based learning media is essential to help teachers create a practical and attractive learning environment for students.

d. Teachers' obstacles in using digital technology-based learning media

Teachers feel several obstacles in using digital technology-based learning media. The main obstacle is that teachers need to be sufficiently stimulated by training in this media. With adequate training, teachers may find it easier to adapt to current developments, especially in using technology to support learning. This includes an understanding of various digital tools and platforms and how best to integrate them into their curriculum and teaching strategies.

Teachers who cannot keep up with developments, especially in the digital realm, are increasingly left behind, so as a consequence, teachers can no longer play their professional role more optimally (Septiana et al., 2022). If teachers understand more about developing technology as a learning medium for students, it can undoubtedly support implementing a practical and easy-to-understand learning process (Isnaeni et al., 2021). Teachers who need help to keep up with current developments, especially in the digital realm, will be increasingly left behind. Consequently, teachers will no longer be able to play their professional role optimally (Pratiwi et al., 2020). In today's digital era, students often have a better and more intuitive understanding of technology than teachers. If teachers need more understanding of technology, they may find it easier to teach and interact with students already familiar with technology. This can create a gap between teachers and students, ultimately hindering the teaching and learning process.

CONCLUSION

The digital technology-based learning media used by teachers at Alam Surya Mentari Elementary School has been adapted to the material that students will study. Learning at SD Alam Surya Mentari mainly refers to learning media found in the natural surroundings. Teachers use digital technology-based learning media if learning material cannot be obtained directly in the natural surroundings. Teachers need the help of digital technology-based learning media to visualize students' study material. However, in its use, teachers feel several obstacles when using digital technology-based learning media, including internet access, which could be smoother, and training for teachers in using the media, which can prevent classroom learning from being less effective.

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