

## IMPLEMENTATION OF TECHNOLOGY IN LEARNING

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### Abstract

Technological developments that continue from time to time provide media products that can be used in educational aspects. Whatever type of technology and media is used, the most important thing that must be prioritized is how the two-way interaction between students and their educators must be reciprocal with each other. The choice of type of technology used will usually be adjusted to the needs of education and training providers. Because, there is no technology that is best than each other, but technology that can adapt and be fun, so that it can achieve effective learning goals. The purpose of this study is to provide an overview of how technology is used in education. Research in which the research object is examined using a variety of library resources is known as library data collecting. This research is characterized by descriptive analysis, which entails routinely analyzing the collected data and then offering clarification and insight to ensure the reader understands it fully. The internet is used by the data gathering approach to look up different book references and earlier research publications that are relevant to the study discussion issue. The conclusion of this research is that technology facilitates the development of critical skills, creativity and problem solving needed to face the demands of an increasingly digital world of work. One of the roles of technology in teaching is to facilitate teacher and student access to various teaching and educational resources.

**Keywords:** Implementation, technology, learning

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## INTRODUCTION

Information technology is developing and progressing at a very rapid pace these days. The quality and cost of conveying and storing data are improving in tandem with the advancement of information technology (Sitopu et al., 2024; Afni et al., 2024; Antika et al., 2024). Governments, organizations, and people are all attempting in different ways to benefit from information technology advancements. It is time for us to utilize information technology even in the Indonesian educational system. Furthermore, all elements of educational institutions must get ready by building the necessary infrastructure in order to benefit from advancements in information technology, thanks to the school net program, jardiknas, and other initiatives. This information technology provides added value in the learning process. This is related to the increasing need for scientific and technological information, not all of which is obtained in the school environment. Likewise, when exchanging data and information between schools, schools and communities, schools and regional and central governments, etc., everything will be more effective and efficient if you utilize information technology (Muna Hadisi, 2015).

An increasing number of technology advancements have been applied in our global age to a variety of disciplines, including education (Tubagus et al., 2023; Aslan & Shiong, 2023; Muharrom et al., 2023). Because education plays a crucial function that technology cannot ignore. Aside from that, we value education much, thus the purpose of this discussion on technical advancements in the field of education is to help readers or students comprehend the connection between education and technology after all, technology was first influenced by education (Nurhayati et al., 2023; Nurdiana et al., 2023; Erwan et al., 2023). There are many things that change the process or manufacture of doing something from something that was very simple to easier, that is what is called technological change. Likewise with education, at first you don't know, after studying it you become aware. Apart from that, students can understand and understand more deeply about technology and use technology to support education itself (Husni Idris, 2018).

Technology has a very influential role in human life. The use of technology is a means for humans to carry out all activities. In this era of development, technology has progressed rapidly and globally (Sarmila et al., 2023; Sulastri et al., 2023). This progress affects various aspects of life in the fields of politics, economics, culture and even education. The influence of technological advances certainly cannot be separated from advances in science. With the existence of science, every innovation created will have a beneficial impact on humans. This can be seen in the innovations that have emerged in recent years, the benefits of which have been enjoyed by many groups. Because technology is the result of the development of science. So, in implementing education itself, it is appropriate to utilize technology. With the rapid development of this

technology, it can make it easier for people to search for various information from various unlimited information sources. This is what makes technology have an important influence in educational development in this era. Because there is a need for educational services that can reach the entire community without borders. Education is a field that has been greatly impacted by the development of technology. Essentially, education is a process of information sharing and communication between teaching staff and students that includes educational information. Teachers can serve as sources of information, and media can be used to present ideas, thoughts, and educational materials in addition to the students themselves. (M Husaini, 2014).

The application of technology in the world of education is something that can no longer be avoided, in fact it has become a necessity. The existence of technology really helps students in learning, they have more sources of information obtained through communication and information technology (Haddar et al., 2023; Tuhuteru et al., 2023). Likewise for educators, it is easier for them to obtain learning materials by accessing these materials via the internet and can make it easier for education to convey material to students through the application of learning technology. An increasing number of technology advancements have been applied in our global age to a variety of disciplines, including education. Because education plays a crucial function that technology cannot ignore.

## **RESEARCH METHOD**

This study employed library research as its methodology. inquiry activities that involve gathering information from books, journals, and the findings of earlier studies pertaining to the subject of this inquiry are referred to as library research. The internet is used by the data gathering approach to look up different book references and earlier research publications that are relevant to the study discussion issue.

In conducting the literature search for this comprehensive review, a systematic and iterative approach was taken to gather a thorough understanding of topics related to the Implementation of technology in learning. The initial steps include clearly defining the scope of the literature review, determining main themes such as theoretical framework, impact assessment, optimization strategies, technology and innovation, social and cultural factors, as well as recommendations for practical implementation (Paré & Kitsiou, 2015).

To query academic databases effectively, relevant keywords and search terms are identified. Terms such as “Implementation,” “technology,” “learning,” and variations thereof were selected to ensure a comprehensive search. Searches were conducted in leading academic databases, including PubMed, Google Scholar, ERIC, and PsycINFO. Boolean operators (AND, OR) increase the precision of search queries, improving the retrieval of relevant literature (Lambert et al., 2014).

Important information from selected studies, including main findings, methodology, and conclusions, was systematically extracted. This data extraction

process aims to gather essential information to synthesize a coherent narrative and identify overarching trends in the literature. The synthesis and analysis phase involves organizing the collected data to build a cohesive narrative that answers the research questions and objectives (Mukaet al., 2004). The literature search and review process was iterative, allowing for continuous refinement and validation of findings. When new insights emerged during the synthesis, additional searches were conducted to incorporate the latest research and ensure the most up-to-date information was included in the review.

## **RESULT AND DISCUSSION**

### **Application of Technology in the Learning Process**

With the aid of digital technology, educators can produce all the necessary instructional materials that will be sent to students, and students can use the internet to research and add to existing knowledge on the subject. Online textbooks, including e-books, and other pertinent information from online sources are available to educators and learners. Technology can be used to deliver interactive multimedia to students when it comes to using it in the education sector. Well-prepared graphics, photos, and videos can be included in this interactive multimedia so that students can actively watch and consider the content. By improving student motivation for learning, this interactive multimedia can also improve student learning (M Isman, 2017).

Educational technology has generally changed conventional ways of learning to non-conventional. Educational Technology is a system that can be put into practice by facilitating learning and improving performance between teachers, students and school staff by creating, utilizing and managing existing learning resources. The development of educational technology is currently experiencing changes and developments so rapidly that it requires mastery of the use of technological, information and communication devices implemented in learning (Nurkholis, 2013).

Technological developments that continue from time to time provide media products that can be used in educational aspects. Whatever type of technology and media is used, the most important thing that must be prioritized is how the two-way interaction between students and their educators must be reciprocal with each other. The choice of type of technology used will usually be adjusted to the needs of education and training providers. Because, there is no technology that is the best compared to each other, but technology that can be adapted and fun, so that it can achieve effective learning goals (Endang Switri, 2019).

Technology is used to support successful learning. Implementation of technology in education, namely, in learning media and learning resources. Learning media is something that is used to channel a message or learning material so that it can stimulate students' attention, interest, thoughts and feelings in learning activities to achieve learning goals. With this technology, it is hoped that students will have an

interest in learning so that learning will become more effective and efficient (Yaumi, 2018).

The technology that can be used by educators is computer technology and the internet. With technology, educators can create learning plans and compile the materials that will be presented. Likewise, students can also easily use technology as a learning resource to access all types of information related to learning material. These conveniences can be obtained in this era with e-books. Learning materials can be accessed anywhere and at any time to broaden students' insight. They don't need to buy books in a bookstore to get learning resources. What they can do is just download e-books with the help of digital technology.

1. Make Learning More Fun

As technology advances, we have access to a variety of educational games that are not only fun but also effective as learning tools. For example, through math or history games, students can learn difficult concepts in a more interactive and challenging way.

2. Enrich the Learning Experience

E-books provide easy access to various learning materials anywhere and at any time. Digital books allow students to read and study material more flexibly, eliminating the physical limitations of conventional books. The lesson material is delivered via video in a cool and easy to understand way. By using video technology, students can understand complex concepts better through engaging visualizations and explanations.

3. Make Learning Active

Through an active learning approach like this, students are not just passive spectators, but actors who are directly involved in the learning process. Educational games and simulation technology not only convey information, but also build student engagement, making learning more lively, fun, and easier to remember.

4. Online Collaboration: Increasing Collaboration in Online Learning

In the era of online learning, online collaboration through collaborative platforms and video conferencing is not just an alternative, but is a key element in forming a dynamic online learning community. They help bridge physical distances, giving students and teachers the opportunity to stay connected and engaged in the learning process despite being far apart.

5. Technology-Based Assessment: Changing the Way We Evaluate Learning

By adopting technology-based assessments, education is increasingly moving towards fairness and transparency. This online system simplifies the assessment process, gives students easier access, and provides quicker feedback, creating an environment that supports growth and continuous improvement in learning.

The development of science brings technology brings digital technology. The role of digital technology can support students in their cognitive thinking processes to be more creative and critical. The media that exists in digital technology is the internet. The use of the internet as a medium has given rise to various kinds of innovations such as e-learning and web-learning. Interestingly, all types of learning innovations are carried out online, so learning will feel much more flexible. Students and educators will have freedom to access the information in it. This is why digital technology-based learning will make students free to innovate and think.

### **Use of Online Learning Platforms**

Digital platforms are a form of educational technology that provides solutions to support and enrich the learning process. Digital platforms are applications that have been designed in a modern way and are used in learning practices. The benefits of digital platforms include being able to add information, improving learning abilities, facilitating learning access (teachers can provide learning materials or assignments via email), more interesting material (varied and modern) and increasing interest in learning (Bilfaqih, 2015).

Here are some examples of digital platforms and social media used for learning:

1. Google Classroom, a virtual learning platform provided by Google. Teachers can create online classes, assign assignments, share materials, and interact with students via Google Classroom. Students can also submit assignments and participate in online discussions (Iftakhar, 2016).
2. Moodle is an open-source learning management platform widely used by educational institutions. It provides various features including delivery of learning materials, assignment collection, discussion forums, and online tests (Hakim, 2016).
3. Edmodo is a social learning platform that allows teachers, students, and parents to connect and interact online. Teachers can distribute assignments, provide feedback, and deliver learning materials through Edmodo (Enriquez, 2014).
4. Khan Academy is an online learning platform that provides learning videos and interactive exercises in various subjects. Students can study independently and track their progress.
5. YouTube is not only a source of entertainment, but also a source of learning. There are many YouTube channels dedicated to learning, such as Khan Academy, Crash Course, TED-Ed, and many more (Damayani, 2021).
6. LinkedIn Learning offers thousands of online courses in a variety of fields, including technology, business, design, and more. These courses are created by industry experts and can help students and professionals to improve their skills (Gikas & Grant, 2013).

7. Twitter is a social media platform, many educators and educational institutions use Twitter to share information, discuss educational topics, and follow the latest developments in the world of education.
8. Instagram is also used in a learning context. Several teachers or educational institutions use this platform to share learning materials in the form of images, short videos and stories.
9. TikTok is generally known as a social media platform for short videos, there is also learning content spread across this platform. Some educators use TikTok to package learning materials in an interesting and interactive format.

The use of platforms in learning activities provides benefits and convenience for users, where the benefits obtained are being able to increase information and knowledge about the use of technology, can improve learning abilities, can facilitate access to learning because teachers can provide material or assignments through the platform used, the material is more interesting because it is more varied and modern, and can increase students' interest in learning. Using this platform can certainly increase knowledge and abilities in the field of technology so that over time the education system in Indonesia will increasingly develop because it is followed by the application of technology in learning activities.

### **Integration of Technology with Learning Strategies**

The integration of technology in learning is actually an inevitability that we cannot avoid. However, we cannot close our eyes to the fact that technological developments are so rapid. For us as educators, technology is able to provide access to a variety of educational resources, allows learning to be adapted to students' pace and learning styles, and enables collaboration between teachers and students in various locations (Anfrianto Daud, 2019).

Meanwhile, for students, technology facilitates the development of critical skills, creativity and problem solving needed to face the demands of the increasingly digital world of work. One of the roles of technology in teaching is to facilitate teacher and student access to various educational resources (Yohannes Maryono Jamun, 2018).

#### **1. Careful Planning**

Before using new technology in teaching and learning, we must first have a thorough plan. What are the learning objectives? What technology is appropriate for the learning objectives? How do we integrate technology into lesson plans? As far as developing materials and evaluating learning, we must pay attention to all of this.

#### **2. Training and Development**

Don't hesitate to take part in training in using the latest technological tools so that we can maximize their benefits in the learning process, Smart Teacher. Technology, Information and Communication (ICT) equipment such as laptops and computers

should not be new in teaching and learning activities in the classroom. The use of ICT by teachers can facilitate access to learning content, facilitate more interesting learning, while improving the skills of teachers and students in using technology.

### 3. Use of Appropriate Technology

The use of smart whiteboards is an example of technology integration in the classroom that is not exactly new. Different brands of smart whiteboards may require different operating methods, but in essence teachers don't have to leave the whiteboard while teaching. Smart Teacher wants to explain, add, or delete material? All can be done without having to leave the whiteboard.

### 4. Collaboration and Student Involvement

Apart from the use of ICT by teachers, another principle of 21st century learning is "anyone is a teacher, anyone is a student, and anywhere is a class." The learning model that is relevant in today's digital era is no longer teacher-centered. Therefore, we must be able to encourage students to be actively involved in the learning process.

Thus, the use of technology can make a positive contribution in improving students' learning experiences in the classroom. Through the integration of technology in learning, we not only facilitate the teaching and learning process, but also create a learning environment that is inspiring, interactive, and appropriate to students' learning styles. Technology plays a key role in transforming traditional approaches into more dynamic and enjoyable learning experiences (Sicat, 2015).

The integration of technology in learning is very important considering that almost all students have a device in their hands. They cannot be separated from their device screens. In class, while learning is taking place, some students open their devices to just check notifications or messages. When teachers are careless, quite a few students steal time by opening social media or playing online games. Based on this, teachers need to plan learning that utilizes devices so that students use devices according to classroom learning.

Recently, many platforms have been developed specifically for education. Teachers can use this platform as a means of supporting successful learning. Teachers can create learning media in the form of presentation slides such as PowerPoint, Canva, Slideshare, and many more. Or by making learning videos that are uploaded to YouTube. You can also develop educational games through educandy. To provide trigger questions as student worksheets, teachers can use online LKPD such as liveworksheet, wizer.me, topworksheet, etc. Finally, teachers can design assessments through the Kahoot, Quizizz, Google Form platforms, etc. (Debra McGregor, 2007).

When implementing technology in education, problems often arise in the field, including: First, the lack of human resources from educators in mastering the technology itself. Of course this is not just about having a laptop or similar device.

However, how do they operate it and maximize the device for the learning process. Second, there is still low awareness of the importance of digital technology in the learning process. Some educators think that technology is only an option to use or not. This is of course also related to the lack of support from the organizing institution to improve the quality of education within it. Third, the expensive procurement and use of technological facilities. This problem is usually seen in rural areas or areas far from cities. Unequal allocation of funds causes uneven improvement in the quality of education in all regions. Fourth, used multimedia devices are still used in educational institutions in rural areas. These used multimedia devices of course still use outdated specifications, so their use is unable to compete with the rapid pace of ICT development (Molinda, 2005).

A possible solution is to hold workshops related to the use and introduction of digital technology. Assistance provided by implementing digital media applications together with students. As well as providing tests to regulate the effectiveness of digital technology and feedback from educators.

## **CONCLUSION**

There are several important points related to the implementation of technology in learning, namely:

1. Application of technology in learning
2. Use of online learning platforms
3. Integration of technology with learning strategies

The integration of technology in learning is actually an inevitability that we cannot avoid. For teaching staff, technology is able to provide access to a variety of educational resources, allows learning to be adapted to students' pace and learning styles, and enables collaboration between teachers and students. Meanwhile, for students, technology facilitates the development of critical skills, creativity and problem solving needed to face the demands of the increasingly digital world of work. One of the roles of technology in teaching is to facilitate teacher and student access to various educational resources.

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