

## THE ROLE OF TECHNOLOGY TO ENHANCE LEARNING AWARENESS IN SCHOOLS: LITERATURE REVIEW

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### Abstract

Global needs require that the world of education continue to pursue technological developments in efforts to improve the quality of education, including the use of information technology and communication education, especially in the learning process. The process of teaching and learning is essentially a communication process, namely the process of transmission of messages from the source of the message to the recipient of the message. The paper aims to look at the role of technology in increasing awareness of learning in schools. This research uses a biographical approach and the type of research used is library research, namely collecting data or scientific writing aimed at research objects or collecting data of a library nature. The data collection technique used is library research. Literature study is a data collection technique used in research by collecting data and research sources through books, journals, magazines, newspapers and others. Technology was created to make all human activities easier in everyday life. Basically, technology plays an important role in fulfilling all human needs, including information and communication. In this case, the need for information is increasingly significant considering technological advances that are currently developing rapidly. The role of information and communication technology is a need that must be met. Information available in various contexts can make it easier for people to fulfill all their needs, one of which is education.

**Keywords:** Technology, Study, School

## **Introduction**

Education is an effective means of supporting the development and improvement of human resources in a more positive direction. The progress of a country depends on the quality of human resources, and the quality of human resources is very dependent on education. As written in Law Number 20 of 2003 concerning the National Education System, one of its contents discusses that education is a conscious and planned effort to create a learning atmosphere and learning process that allows students to actively develop their potential and have religious spiritual strength. Self – control, personality, wisdom, noble morals and skills needed by the self, nation and state. There are two educational pathways in Indonesia, namely formal education and non-formal education. Formal education is education carried out in schools through teaching and learning activities in stages and continuously (Winangun 2017). Non-formal education is education that takes place outside of school, in the family environment, in study institutions, skills courses and educational units (Juwita 2020).

Education has an important role in human life, because education is an investment for future survival (Arifin and Nurjaman 2022). Rapid changes in times have an impact on all fields, including education. Providing education, both formal and informal, is a necessity to create a framework that is national and responsive to global challenges. In this case, formal education provides a large role for individuals in academic matters. Therefore, to answer development challenges, the quality of education must be developed in an educational way. Education is a process of coaching and guidance that is always carried out so that students achieve their educational goals (Nurrita 2021). The educational process is a journey that never stops throughout human life and is a very significant thing in human life (Sampurna 2020). The aim of education is to develop capabilities, form a worthy national character and civilization, educate the life of the nation and develop the potential of students so that they become human beings who believe in God Almighty and have a noble character. Become a citizen of noble character, knowledgeable, capable, independent, democratic and responsible.

The increasingly rapid development of Information Technology in the era of globalization can no longer be avoided in people's lives today. Technological developments are also very influential in the world of education (Budiman 2017);(Ngongo, Hidayat, and Wijayanto 2019). Global needs require that the world of education continue to pursue technological developments in efforts to improve the quality of education, including the use of information technology and communication education, especially in the learning process. The process of teaching and learning is essentially a communication process, namely the process of transmission of messages from the source of the message to the recipient of the message (Samura 2015). Sometimes there are obstacles in the process of conveying messages led by educators to students, which can disrupt the level of students' understanding of what the teacher conveys. Problems that arise in the teaching process and are caused by a lack of appropriate methods in delivering material to students.

## **METHOD**

The paper applies a biographical approach or library research. According to Zed, (2008) Library study can be interpreted as a series of activities relating to methods of collecting library data, reading and taking notes and processing research materials. Or a study carried out to solve a problem which is basically focused on a critical and in-depth study of relevant library materials

### **Data Collection Technique**

The paper applies library research. It is a data collection technique that collects data and research sources through books, journals, magazines, newspapers, etc. for research purposes. Library research is carried out by collecting existing data, then understanding each conclusion, and using the data source as literature and reference to understand and analyze the research.

## **RESULTS AND DISCUSSION**

Digital technology has become increasingly important in the 21st century and inspires students to learn and innovate. Effective use of digital technology can speed up the search for information, improve life skills as working capital, and make it easier for teachers to create teaching materials. In order to realize new courses and online systems and advance education towards "Creative Indonesia 2045", the Ministry of Education and Culture of the Republic of Indonesia has indicated that digital

technology must be applied in the current education sector. Adaptations are made to adapt ideas to the abilities of students and the expertise of educators and education staff.

How Indonesia as a developing country can utilize digital technology such as the internet through internet cafes and cellphones with various features such as blogging, email, and so on (Muhassim 2017). All human activities can be made easier with digital technology, and anyone can access various kinds of information, including information about education

### **Digital Technology**

Literally, the word "technology" comes from the French phrase "La Technique", which refers to an idea developed in the process of rational realization. Here, rational understanding is a procedure that can be applied repeatedly or frequently. Technology is an adaptation of natural technology created by humans, which is then transformed into media according to their specific needs.

Digital technology is technology that is managed through a computerized system; The system is based on the form of information in the form of numeric values 0 and 1 which indicate the on and off buttons (Priyatna 2023). In terms of connecting to media as a message carrier, digital technology can also be called wireless technology because it uses signals. The advantage of using digital signals over analog signals is that they can travel faster than the speed of light.

Digital technology is an effective means of delivering communication from a more dynamic perspective without being limited by time and geography (Setyaningsih 2020). Communication carried out through internet media is a good example of how digital technology has improved social interaction (Aksenta 2023). Various online programs offer video chat and two-way communication tools. However, in essence, technology-based communication produces analog results. It is worth mentioning that although technology functions as a channel for transmitting written information and through signal waves, the end result through the receiver is analog and also through our five senses.

### **The Role of Technology to Increase Awareness of Learning in Schools**

Although technology supports learning, it is a false assumption that using technology automatically increases student engagement. Several studies show that sometimes technology can actually disrupt learning, divert students' focus, create discomfort in using it and use outdated technology. These contradictory results certainly require a conclusion regarding the role of technology and its influence in increasing student involvement in learning. The conclusion can be seen at Journal of Educational, Health, and Community Psychology with title The Use of Technology at the Higher Education Level and Student Engagement: A Meta-Analysis.

Student learning outcomes are always a benchmark for the success of the learning process. It can almost be said that if students' academic achievement is low, it means that educators have low teaching abilities. This seems to be one of the reasons why educators always try as much as possible to improve learning outcomes. Therefore, teaching staff are needed who have adequate academic and professional skills, strong character, and an appreciation for their profession as educators. The teaching profession is an activity that requires skills, and these skills require training, both in limited skills and comprehensive independent skills (Wahyuni et al. 2023);(Syah 2023). The training of educational professionalism capabilities requires a functional between theory, practice and material as the delivery methodology.

The capacity of learning is a complex act which constitutes complete integration of various components of the capacity (Pratiwi, 2021);(Anwar 2023). The components of these abilities are knowledge, attitudes and skills. The formation of basic learning skills requires field experience which is carried out in stages, systematically starting from familiarization with the terrain (Ah 2016). Skills training is limited to the implementation and appreciation of educational tasks completely and actually. Simarmata et al., (2022) explains that the task of educators is to educate, teach and train. The act of conveying educational messages to obtain behavioral changes in students is a multifaceted process that involves the integration of various skills. The goal is so that learning messages can be received effectively and so that students can align their behavior with predetermined goals. The integration of these skills is guided by a collection of theories and based on insight, while the application is unique due to the influence of various learning elements. These elements include the desired results, the message conveyed, the students themselves, the resources available, the learning environment, and the educator.

Technology was created to make all human activities easier in everyday life. Basically, technology plays an important role in fulfilling all human needs, including information and communication (Farhatun 2023). In this case, the need for information is increasingly significant considering technological advances that are currently developing rapidly. The role of information and communication technology is a need that must be met. Information available in various contexts can make it easier for people to fulfill all their needs, one of which is education (Al Giffary, Siregar, and Utomo 2021). The development of information and communication technology media is currently being intensively implemented in the world of education. Therefore, it is necessary to master adequate skills to utilize ICT as a supporting medium for learning.

The Indonesian government is currently placing special emphasis on the integration of technology in education. In addition, the importance of having highly skilled educators is also considered important to provide a quality learning experience. However, in reality there are still some teachers who have not developed their ICT competencies to the maximum. These teachers are spread across various regions, causing the distribution of expertise, especially in the field of education, to be inadequate. One of the areas that deserves attention is the Remote, Frontier, Disadvantaged (3T) areas. These areas, collectively referred to as the 3Ts, present challenges in ensuring effective and equitable learning opportunities. Even though various efforts have been made, there are still several aspects that have not been fulfilled, especially due to limited access to remote locations, which hinders the learning process.

The Center for Information and Communication Technology (Pustekkom), is a government institution under the auspices of the Indonesian Ministry of Education and Culture, which was formed to harmonize and provide all information and communication needs, especially those related to education in Indonesia (Ahmadi 2018). Several educational programs created by Pustekkom aim to meet the information technology needs of students throughout Indonesia, by presenting several learning platforms that can be accessed anytime and anywhere.

In 2017, the Telecommunications and Informatics Financing Provision and Management Agency (BPPPTI KOMINFO) underwent a transformation from an echelon unit to a non-echelon technical implementation unit. This change was made to increase flexibility, effectiveness and productivity in carrying out its responsibilities and functions. A new financial management pattern based on the Public Service Agency (BLU) of the Ministry of Communication and Information Technology was implemented to encourage accountability and effectiveness in the management of the Universal Telecommunications and Information Technology Service Obligation program. This program has undergone a redesign since 2015. The transformation of BPPPTI is guided by Minister of Communication and Information Technology Regulation Number 2 of 2017 which outlines the organization and work procedures for organizing and managing telecommunications and information technology financing. The changes made are changes to the organizational structure, from a structure based on processes (process-based), to being based on service output (output-based), namely infrastructure and ecosystem. However, it still applies the Public Service Agency Financial Management Pattern. The role of technology has become so prominent in supporting reform efforts. The government and society have realized that the function and role of technology is very necessary in the world of education in schools (Latifa and Pribadi 2022). A modern society must start from education in schools, therefore activities in schools must run in balance and harmony with the needs, aspirations and norms in society (Syakirun 2018). Computers act as managers in the learning process known as Computer Managed Instruction (CMI). The role of the computer is also as an additional aid in learning, its use includes presenting information on the content of lesson material, exercises, or both, which is known as Computer Assisted Instruction (CAI)

A research conducted by Isong, (2014) entitled "A Methodology for Teaching Computer Programming: first year students' perspective", states that the factors that greatly influence the teaching and learning of computer programs are none other than the student's perspective, but also due to the teacher's experience. Although programming is considered difficult, this assumption is not always true, as a teacher's poor teaching methodology will encourage student participation. As a result, it affects the teaching and learning process. If a teaching methodology is found to be unproductive, then students will also not be productive, unless they use the approach introduced. The problems currently facing the Indonesian people in the field of education are inequality of opportunity to access

education for all, differences between education in the country and in urban areas, the large population, the low productivity of its citizens and the urgent need itself. At the same time, it is also estimated that there is a shortage, both in terms of facilities and especially the number of qualified teachers. The education budget required is very limited, it is difficult to find professional teachers depending on the field of education.

### **Technology and its Relationship to Learning Methodology**

The word technology is usually understood by the layman as something in the form of a machine or something related to a machine, but in fact educational technology has a much broader meaning as educational technology is a combination of human elements, machines, ideas, procedures and management (Kusumawati 2023). This understanding will then become clearer if one understands technology is essentially the application of science or organized knowledge to practical tasks (Suryadi 2019). The existence of technology must be interpreted as one aimed at increasing effectiveness and efficiency and technology can be separated from problems, because technology is and developed to solve the problems faced by (Anih 2016). In this regard, educational technology can also be like a product and a process. As an educational technological product, it is easy to understand because it is more concrete in nature, such as radio, television, projector, OHP, etc.

The concept of educational technology is intangible and conceptual. It encompasses a comprehensive and interconnected process that involves individuals, methodologies, concepts, tools, and institutions to address challenges, devise strategies to overcome them, execute, assess, and administer solutions to issues that encompass every facet of human existence and education (Akbar and Noviani 2019). Along the same lines, the existence of technology arose from educational problems. The educational issues currently emerging include the distribution of educational opportunities, improving the quality, relevance and effectiveness of education (Marryono Jamun 2018). A serious problem that still faces education, from basic education to higher education, is the problem of which can of course be solved through educational technology.

### **CONCLUSION**

It can be deemed that technology is a science. In this case, technology is part of science that students must master. Various universities offer programs that focus on computer technology, including computer science, information management, and computer engineering. Within the realm of education, students are required to utilize their skills in subjects related to science. Technology serves as both a material and a tool for learning. Specifically, technology is utilized as a learning tool and as a means for acquiring proficiency in a specific skill through the use of a computer. The computer is programmed to guide students through a step-by-step process, employing deep learning principles to ensure mastery of the skill. In this context, technology assumes a role similar to that of a teacher, acting as a facilitator, transmitter, and evaluator.

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