

Information Technology Innovation in Community Learning

Rochani¹, Bangun Yoga Wibowo²

Guidance and Counseling Program, Faculty of Teacher Training and Education, Sultan Ageng Tirtayasa University, Serang, Indonesia

E-mail : ¹ rochani1966@untirta.ac.id, ² bangunyogawibowo@untirta.ac.id

Abstract

This research was conducted for examining how Information Technology Innovation is implemented in Community Learning, as well as analyzing the impact of the use of technology on actual learning, especially regarding the effectiveness and efficiency of learning. Apart from this research also aimed to identify factors that hinder the process of utilizing information technology. The research method used qualitative method with a regular analysis approach. The data collected in this research is the result of a review of research journals that have been published on the Google Scholar platform, Sinta Kemendikbud, ProQuest and E-Books. The results of this research are; 1) Definition of community learning, 2) Community Learning of Information Technology Innovation concept, 3) Implementation of Community Learning in Information Technology Innovation, 5) The Urgency of Community Learning in Information Technology Innovation, and 6) Influence of Community Learning in Information Technology Innovation. This research provided more comprehensive understanding of how information technology is involved in community learning to further optimize interaction, activeness and achievement of learning goals. So we able to provide useful information to create learning that is more creative, innovative, flexible and able to face challenges in this digital era through this research.

Keywords: *Community Learning, Technological Innovation, Information Technology*

INTRODUCTION

The development of information technology has greatly changed life structure, as well as its various aspects. The development of information technology (IT) has greatly changed people's way of life, perspective and mindset. Currently, Indonesia is at a transition stage towards the era of *industry 5.0* or can be said to be *humanity*, where humans are starting to utilize technology in their daily lives. *The industry 5.0* era is not only related to the world of industry and business, but is also related to how education is developed and distributed. Implementing information technology in learning is how to enrich the concept of learning by involving technology on it to support the effectiveness of learning and improve the quality of education, it isn't replace the role of teachers and change educational goals.

Education experience quite rapid development along with the use of technology in it, various learning methods are increasingly enriched by the use of technology. Various studies show that the use of technological innovation in learning process has been proven effectively to increase student activity, involvement learning process and student learning outcomes. In a research journal entitled *Digital Game-Based Learning to Improve Mathematical Problem Solving Abilities* by Edi Susanto and Arif Usman resumed that digital game-based learning in mathematics subjects can be a fun learning method, and can change children's perspectives on mathematics. By this method, children will not judge that mathematics re scary and boring subject, instead learning becomes more focused and connected to the goals of mathematics learning (Ormsby et al., 2011; Sung & Hwang, 2013; Tan et al., 2020) such as *concept understanding, critical thinking, problem solving and co-operation*. However, many research being developed is limited to the positive impact of using technology in learning process and there is still limited research development related to inhibiting factors in the use of learning process technology.

Background, this research aims to examine how Information Technology Innovation is implemented in the Community Learning process, as well as analyzing the impact of technology on actual learning, especially regarding the effectiveness and learning efficiency. It also aims to identify factors that hinder the process of utilizing information technology.

WRITING METHOD

This research uses qualitative methods with a systematic literature review to examine how Information Technology Innovation is implemented in the Community Learning process. Literature analysis was carried out to study, analyze and carry out evaluations to provide a comprehensive description regarding Community Learning, Innovation of Information Technology and all its supporting aspects.

RESULTS AND DISCUSSION

Dsefinition of Community Learning in Information Technology Innovation

Community learning is a learning process that occurs a discourse involving organizations and discourse communities. In this discourse, some people talk and write about innovation, some people learn by listening and reading, and some people do both speaking and writing. This process allows the organization to learn about IT innovations and the discourse community to learn from the organization's experiences, in a cycle that allows the knowledge gained by the organization and the discourse community to be expanded and refined on an ongoing basis (Wang & Ramiller, 2009).

Community learning can also be seen as a learning process that occurs before an organization materially adopts IT innovation. In this process, organizations learn about IT innovations by creating insights obtained from external information, such as business partners, consultants, media, and universities. This information helps organizations to understand the innovation's characteristics, potential benefits, and challenges faced in implementing and using the innovation (Wang & Ramiller, 2009).

Another definition of community learning is the process by which an organizational community encodes knowledge into their discourse. Community learning occurs when: First, reflecting on the constitution and diffusion of information technology innovations, Swanson and Ramiller (1997) propose that diverse internal organization communities create and use an organizing vision, which they define as a collective view for implementing new IT in the organization. An organizing vision helps facilitate the spread of innovation by interpreting and legitimizing it, as well as mobilizing related material resources. An organizing vision is a discursive construction: The community generates and maintains an organizing vision through ongoing conversations. Although organizing vision theory does not specifically address the community learning process, an organizing vision, as a set of ideas created and modified collectively by community members, clearly requires learning. In contrast, for any organization seeking to learn about IT innovation, the organizing vision offers, in broad terms, collectively constructed knowledge. Broadly, it built knowledge about benefits, costs, and implementation approaches collectively (Wang & Ramiller, 2004).

, *Community Learning in Information Technology Innovation* means an educational approach based on information and communication technology to streamline teaching and learning activities and advances the quality of education through interaction and collaboration between community members. Through the application of various innovative strategies, ideas and tools, community-based learning aims to achieve educational goals and address existing problems in the education system.

In the educational context, Information Technology (IT) Innovation can also be understood as the application and integration of information and communication technology (ICT) in the education system with the aim of improving the quality, effectiveness and accessibility of education. This includes hardware and software usage, as well as internet-based services and applications, specifically designed to enhance teaching and learning process. IT innovation in education includes various new strategies, ideas and tools applied in education. The main goal is to achieve educational targets that have been set or to overcome obstacles encountered in the education system. This may involve introducing new teaching methods, improving ICT

infrastructure in educational institutions, or developing innovative digital educational platforms and tools (Zen, 2019).

The use of Information and Communication Technology (ICT) in learning is an important element to support 21st century education. The main educational demand in 21st century is the integration of technology as a learning media to improve learning skills. Students must learn how to use technology effectively and ethically in their life. Additionally, teaching should be designed in such a way as to enhance creative thinking skills, effective communication, productivity, and spirituality (Rahayu, et al., 2022).

1. Community Learning in Information Technology Innovation Concept

Community learning is an educational approach that emphasizes the active participation of the community in teaching and learning process. This concept is based on the principle that every member of the community has valuable knowledge and experience that can be shared with others. In *community learning*, learning is not only carried out in the classroom, but learning can also be carried out in various places and communities, such as parks, community centers, or even at home. The community is encouraged to engage in various learning activities, such as group discussions, joint projects, and action research. A learning community in the context of information technology innovation refers to a group of individuals who have a common interest and goal in studying, developing, and implementing new information technology. These communities can consist of IT professionals, academics, students, or other individuals interested in this field. Basically, the concept of a learning community in information technology innovation is a collaborative approach where groups of individuals with the same interest or goals in information technology come together to share knowledge, skills and resources. These learning communities serve as platforms where members can exchange knowledge and experiences. This encourages collaboration and learning from each other, whether through live discussions, online forums, or face-to-face meetings. Interaction within a learning community encourages innovation because new ideas often emerge from shared discussion and brainstorming. Members can explore new solutions to existing problems and develop new technologies collectively.

2. Implementation of Community Learning in Information Technology Innovation

Applying learning models or variations, such as *blended learning*, *project-based learning*, *discovery inquiry learning*, *flipped classroom*, *educational games*, collaborative learning, and self-organized learning environment / SOLE, are some of learning innovations that can be carried out in technology-based learning. These various learning innovation models are applied in more detail.

1. Blended Learning

One hybrid learning method that combines face-to-face and virtual instruction is blended learning (Pratiwi, 2022). The aim of blended learning is to reduce time for students to spend studying directly in the classroom and increase active independent learning. So it combines various elements such as audio streaming, video, web-based learning and communication through conventional learning systems such as methodology, learning theory and pedagogical dimensions, blended learning is the latest issue in the evolution of education (Nasution et al., 2019).

2. Project-Based Learning

Project-based learning (PjBL) offers the opportunity to work freely and creatively, encourages the application of information and skills, and offers the opportunity to increase knowledge through original and creative problem solving and research. Project work is a type of work that requires students to develop, solve problems, make choices, conduct research, and operate independently. This task is a complicated task based on difficult questions (Made Wena, 2015: 14). PBL emphasizes solving real-world problems and producing projects or goods in building ideas. Project-based learning, according to (EE. Junaedi Sastradiharja, 2023), is a learning paradigm that begins with identifying problems, formulating problem solutions through project activities, identifying the best alternative solutions, publishing to get feedback, and then carrying out evaluations.

3. Discovery Inquiry Learning

Conceptually, *discovery-inquiry* is a series of actions to obtain a reasonable explanation for events that they suspect, according to Marimuthu (2005:6), this idea is basis for the *discovery-inquiry teaching approach*, which encourages a series of student activities intended

to give them basic ideas for understanding concepts, principles and issues of subject matter. *Discovery learning* is constructive because it allows students to create their own knowledge and increases the significance of learning actively. (Mulyati et al., 2018).

4. *Flipped Classroom*

According to McKnight (2013), *the flipped classroom* is information technology-based learning. The latest revolutionary video-based learning approach, called the “*flipped classroom*”, is seen as the answer to this problem. Tolks et al. (2020) stated that because *flipped classroom learning* has adaptable features that allow it to be used both in person and virtually, this approach can be used during and after the pandemic. When using the *flipped classroom approach*, students are instructed to study independently by watching instructional videos that the teacher has posted online before entering class, and then meet in person to discuss the information they have learned (Rusnawati, 2020).

5. *Educational Games*

Even without any changes, the use of games in the learning process can improve student performance. *Online game-* based learning can help students and community members to achieve their learning goals, including those related to psychological interests and other learning activities. (Asep Saepudin, 2016)

6. Collaborative Learning (*collaborative learning*)

According to several studies, student success and learning outcomes are influenced by collaborative learning (according to Mahendra et al. (2018), Marhamah et al. (2017), and Muttaqin et al. (2018)). Because students' curiosity can be provoked through collaborative learning through inquiry, namely increasing their understanding of literature and concepts (Siri, 2020). (Nurkamilah, 2017). A substitute for student-focused learning is collaborative learning (Susanti et al, 2017). This learning attempts to transform the classroom into a collaborative and interactive environment that offers a variety of educational benefits.

7. *Self-Organized Learning Environment /SOLE*

By using SOLE learning, teachers can take advantage of students' natural curiosity to find out how well they understand the subject matter. *Self Organized Learning Environment* or SOLE, focuses on how students learn independently by utilizing their smart devices and conducting online research to find and understand content (Pulungan, 2023).

3. *The Urgency of Community Learning in Information Technology Innovation*

The current digital era, information technology innovation plays an important role in learning to empower society's potential. The presence of information technology innovation needs to be understood as providing convenience to various aspects of human life. Basically, the potential in every community is ready to be developed and empowered. However, learning and empowerment influenced by encouragement that exists both internally and externally, or it's usually called motivation, internal motivation (*soft skills*) and external motivation (support from other people, environment, facilities, media, community structure, culture and so on). . The urgency in *community learning in information technology innovation* in learning is:

1. Improved quality and learning outcomes.
2. Providing broad access and penetrating various sectors.
3. Able to face global challenges

The development of technology which often spoil humans with all its conveniences is a clear example of the successful use of technology. However, there are often several obstacles that arise, which sometimes become obstacles to the use of this technology. According to Susanto (in Haryanto 2012) there are four interrelated factors that will determine the success of using information technology. When there is one component whose presence is less than optimal, it can become a factor that hinders the system from functioning properly. The four components in question are:

1. *Technoware (object-embodied technology)*, this component includes technology that is tangible or physical, such as devices, electronics, machines and other means that are connected and related.
2. *Humanware (person-embodied technology)*, this component includes the quality of human resources, as well as management skills, starting from maintenance, operation, arrangement, to repair.

3. *Orgaware (intuition-embodied technology)*, this component relates to technology that is realized in the context of organizations, communities or educational institutions. Orgaware covers how technology and how it is managed in an institution. Such as the correlation between individual, joint, departmental and larger environmental relationships (Industrial, local, international).
4. *Infoware (document-embodied technology)*, this component relates to the form of information as well as its characteristics, application, classification, methods of obtaining data, and other activities related to data acquisition in order to produce data effectively.

4. Impact of Community Learning in Information Technology Innovation

As a result of the impacts previously explained, here are several examples of IT innovation in *community learning*:

1) New Application Software Development

For example, an organization that wants to develop an application to manage company resources can learn from the experiences of other organizations that have developed similar applications. In this way, organizations can learn from other experiences and improve their capabilities in developing applications that compatible (Wang & Ramiller, 2009).

2) IT Infrastructure Development

For example, organizations that want to develop IT infrastructure to improve the quality of products and services can learn from the experiences of other organizations that have developed similar IT infrastructure.

3) Hardware and Process Development

For example, hardware development by an organization and processes to improve the quality of products and services can learn from the experiences of other organizations that have done. They can learn how other organizations develop hardware and processes, how they implement hardware and processes, and how they use hardware and processes to improve efficiency and quality of products and services.

4) Mobile Application Development

For example, organizations that want to develop mobile applications to improve the quality of products and services can learn from the experiences of other organizations that have developed similar mobile applications. They can learn how other organizations develop mobile applications, how they implement mobile applications, and how they use mobile applications to improve efficiency and quality of products and services.

5. Development of Big Data and Analytics

For example, organizations that want to develop big data and *analytics* to improve the quality of products and services can learn from the experiences of other organizations that have developed similar big data and *analytics*.

CONCLUSION

Community learning is a learning process that occurs in a discourse involving organizations and discourse communities. This discourse, some people talk and write about innovation, some people learn by listening and reading, and some people do both speaking and writing. Community Learning in Information Technology Innovation is an educational approach based on information and communication technology to streamline teaching and learning activities and advance education quality through interaction and collaboration between community members. Through the application of various innovative strategies, ideas and tools, community-based learning aims to achieve educational goals and address problems that exist in the education system

In its implementation, information technology innovation can be applied as a learning method or learning support system such as online games, digital libraries, augmented reality, and others. Implementation of Community Learning in Information technology Innovation can be seen in the existence of several learning innovation models such as *Blended Learning*, *Project-Based Learning*, *Discovery Inquiry Learning*, *Flipped Classroom*, and *Collaborative Learning*. Along with its development, there are several indicators that must be considered in order to improve the

quality of learning and use of technology, including: *Technoware, Humanware, Orgaware, and Infoware* .

The current digital era, information technology innovation plays an important role in learning to empower society's potential. The presence of information technology innovation needs to be understood as providing convenience to various aspects of human life. Basically, the potential in every community is ready to be developed and empowered. However, learning and empowerment are influenced by encouragement that exists both internally and externally, or what is usually called motivation, internal motivation (*soft skills*) and external motivation (the support of other people, the environment, facilities, media, community structure, culture and so on) .

The education sector, teachers get benefit from technological uses. Teachers are being easier to create interesting and innovative lessons using various media and learning techniques. Then, wider community sector, advances in information technology can be utilized for various areas of life's needs. For example, people can access digital platforms (the internet) to look for job vacancies, or use them to look for basic food needs (*e-commerce*), and can even be used to earn income by opening an online business.

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