

Revitalizing 21st-Century Education Through Technology-Based Learning Management at SD Negeri 54 Banda Aceh

Akmaluddin¹, Siti Mayang Sari²

Universitas Bina Bangsa Getsempena, Banda Aceh^{1,2}

akmaluddin@bbg.ac.id¹, mayang@bbg.ac.id²

ABSTRACT

This research aims to analyze and explain technology-based learning management at State Elementary School 54 Banda Aceh to support the revitalization of 21st century education. Revitalization of education is a necessity to accommodate the challenges that arise along with technological developments. Learning management plays an important role in creating changes that support the revitalization of education that is able to respond to the dynamics of current developments. This research was carried out at State Elementary School 54 Banda Aceh. This research use descriptive qualitative approach. The results of the research show that the Principal of State Elementary School 54 Banda Aceh has carried out good management and supervision regarding the challenges and benefits of implementing technology-based learning. This aims to support the revitalization of 21st century education with a focus on 21st century learning and technology that emphasizes students' 4C skills and the activities carried out need to be controlled according to plan so that learning objectives are achieved. Management of technology-based learning at State Elementary School 54 Banda Aceh includes planning, organizing, coordinating and supervising carried out by the school principal.

Keywords:

Revitalizing 21st
Century Education;
Learning
Management;
Technology

INTRODUCTION

The utilization of management functions in the learning process, involving planning, organization, implementation, and control, is a strategy for managing, controlling, communicating, and utilizing available resources to achieve goals effectively and efficiently (Erwinsyah, 2017). This learning management becomes a series of learning processes aiming for the success of students in grasping learning materials, while teachers are required to create conditions that allow students to feel comfortable and enjoy learning in the classroom. This can be achieved through the implementation of effective learning management. (Saifulloh & Darwis, 2020) state that good learning management has a positive impact on the effectiveness of learning objectives.

According to (Irawana & Desyandri, 2019), learning can be defined as a designed and planned event to stimulate and support the learning activities of students in a learning process. In the view of (Rahayu & Haq, 2021), the implementation of activities in the field of education, especially in the learning process, requires facilities and infrastructure, including infrastructure and human resources. This includes the presence of competent educators, classrooms, libraries, fields, school health units, as well as curriculum, teaching materials, and learning media. One innovation in learning activities is the use of technology, acknowledged by (Aka, 2017) as an element that transforms teaching from traditional paper-based to technology-based. Technology, both in hardware and software forms, has a significant impact on the effectiveness, joy, and engagement of students in learning. This technology involves computers as hardware and various applications as software. Data and information generated by

technology include text, graphics, still images, photos, films, animations, and simulations, and their communication can be done virtually.

The use of information and communication technology in learning benefits the education sector by providing broader access to knowledge and information technology, ensuring effective, high-quality, and enjoyable education. The use of information and communication technology in learning can also stimulate student participation, increase their interest in the learning process, and therefore, enhance student motivation and attention (Rasam et al., 2018). Technology in education offers significant advantages, especially in developing distance learning systems, allowing learners to access lesson modules online, participate in learning activities from home, and engage in distance schooling or courses without limitations of distance, space, and time. The use of technology also assists learners in seeking information and data as supporting sources of learning at school and completing assignments.

The development of technology also provides impacts and opportunities for education, such as a shift from training to performance, from classrooms to anytime, anywhere flexibility, from paper-based materials to online materials, and from physical facilities to network facilities (Simanjuntak, 2019). The functions of technology, as mentioned by (Aka, 2017), provide convenience for teachers in administrative work, preparing teaching materials using multimedia, learning management, technical support, and knowledge improvement through the internet and social media.

Despite the significant benefits, most schools in Indonesia have not fully maximized technology-based learning due to various obstacles and challenges. This aligns with the research by (Kurniawan, 2019) indicating that schools face obstacles such as a lack of technology experts and high dependence on electricity from the national grid without backup power generators. Additionally, some teachers face barriers to maximizing technology use due to their limited capabilities.

Several relevant studies, including research conducted by (Handayani & Hasrul, 2021), elaborate on their research findings. In their research, they describe the role of technology in learning, including (a) facilitating collaboration between educators and learners and overcoming space, distance, and time limitations, (b) sharing information to accelerate the development of knowledge, and (c) providing easily accessible learning through virtual school, containing various school-related information. Research by (Maria & Sediyo, 2017) shows that the technology-based learning management model in elementary schools is not yet effective, requiring support from the school in terms of readiness for human resources, infrastructure, and students. For teachers, cooperation and internal and external communication are needed to enhance technological capabilities. School principals need to improve supervision related to the implementation of technology-based learning, form IT teams, and plan strategies to prepare funding for technology infrastructure improvement.

Research by (Nurvitasari & Asmaningrum, 2018) shows that most teachers have utilized technology in learning but still face challenges such as limited technology facilities and the lack of knowledge and skills of teachers and students in utilizing technology, making the use of technology in the learning process in Merauke District suboptimal. Research by (Bali, 2019) shows that the use of technology in distance learning is very helpful, using various communication media such as audio or video tapes, multimedia, internet networks, and others. This technology provides convenience in delivering materials, periodic assignments, semester exams, and

assessments using portfolio assessments and integrated assessments. Research by (Partono, 2020), based on interpretation and research results, concludes that schools that effectively utilize technology can achieve effective school management in accordance with National Education Standards. The use of technology includes effective planning, implementation, control, and evaluation in school management.

In line with the programs and policies implemented by the central government, the city of Banda Aceh, through the Education Department, also embraces challenges and programs related to technology-based learning by mapping schools with the potential and learning processes ready to respond to the Society 5.0 revolution through the use of technology-based learning to support the revitalization of 21st-century education. Based on the review that SD Negeri 54 Banda Aceh has an accreditation grade A with NPSN 10107290 and is one of the schools sincerely implementing technology-based learning. Various efforts have been made by the school, ranging from completing infrastructure, human resources, systems, and cooperation with external parties to support and implement technology-based learning at SD Negeri 54 Banda Aceh. Some efforts that have been and are being made include the availability of a computer laboratory, and providing training on creating learning media as well as some skills related to technology-based learning that teachers need to possess. Moreover, there are many other aspects related to technology-based learning at SD Negeri 54 Banda Aceh.

Based on the above presentation, it can be stated that there is a need for research on the management of technology utilization in the learning process because it has the potential to support the revitalization of 21st-century education through the use of technology-based learning. Thus, the researcher is interested in conducting research that further explores technology-based learning management. Therefore, this research aims to analyze and explain technology-based learning management at SD Negeri 54 Banda Aceh to support the revitalization of 21st-century education.

METHOD

This research adopts a descriptive qualitative approach, which, according to Bogdan and Taylor, is a research method that produces descriptive data in the form of written or oral words from people and observable behaviors (Moleong & J, 2017). Qualitative methodology, as defined by Sugiyono, is a type of research in which researchers obtain data from the natural setting holistically to determine, describe, and test the truth of knowledge through scientific methods expressed in the form of words, sentences, or pictures that exist or are spoken by people or behaviors that are the object of research (Sugiyono, 2013).

By employing a descriptive qualitative research approach, the researcher investigates how the school principal's strategies support the utilization of technology-based learning and the extent of teachers' readiness to utilize technology-based learning. The researcher conducted a series of data collection activities using various instruments, such as the researcher themselves, information from colleagues who are educators at SD Negeri 54 Banda Aceh, notebooks, and recording tools. To obtain data from primary and secondary sources, the researcher conducted observations, interviews, and documentation, which would then be analyzed using the Mils and Hubemeni analysis method. Once the data was collected, the researcher understood, examined, and then interpreted the meaning of the findings in the field. The researcher

sought information from all sources encountered in the field to support the collected data. All obtained data would be studied and recorded by the researcher.

RESULTS AND DISCUSSION

The influence of technological advancements in the current era of globalization, particularly since the 21st century, has permeated all aspects of life. The rapid growth of technology and resources, coupled with increasingly sophisticated and instant information and communication, has presented various opportunities and challenges in adopting technology across different life domains. Technological developments have significantly impacted the field of education.

Research findings regarding school principal management related to planning, organizing, coordinating, and supervising to optimize technology-based learning at SD Negeri 54 Banda Aceh indicate that the school principal's responsibility includes fulfilling infrastructure needs, especially in technology-based learning, through both short-term and long-term planning. In fact, the implementation of technology-based learning has been successfully carried out.

According to (Damayani et al., 2021), the school principal plays a role as a driving force in realizing the school's vision, mission, goals, and objectives through well-planned and phased programs. Rivayanti et al., (2020) state that good managerial abilities are expected to enable school principals to provide guidance, act as motivators, and enforce discipline among teachers to demonstrate professionalism in their roles through the school principal's program planning. Research by (Banamtuan & Baun, 2021) shows that school principals play a role in providing school infrastructure, especially in technology utilization. They facilitate and equip facilities while providing infrastructure to support technology-based learning through quality school development programs.



Figure 1. Learning Activity using Technology

Source: Author Documentation, 2024

In addition to meeting the needs of technological facilities and infrastructure, the school principal at SD Negeri 54 Banda Aceh also supports human resources (HR), including educators and students, to enthusiastically adopt technology-based learning. Support for HR is done through organization by placing individuals in positions according to their responsibilities and abilities, as well as coordinating in organizing training related to technology utilization in the learning process. Support is also provided to students, as seen in digital literacy campaigns and the organization of digital literacy competitions.

In the field of education, strong human resource management support and the school principal's commitment are essential for the overall success of the organization.

This is crucial for developing and implementing efforts to achieve competitive advantages and improve the quality of education (Utamy et al., 2020). In addition to providing facilities for technology-based learning, in line with the research findings of (Darim, 2020), the school principal must also be active in organizing and coordinating to improve human resources (HR), including education staff, teachers, and students. This ensures they can utilize learning facilities based on technology and apply technology as a learning medium and resource. Improving the skills and capabilities of educators and students is considered an essential prerequisite, with a focus on changing the teacher's mindset, the teacher's culture in learning, and the student's culture in learning to be more open to technology utilization in the learning process.

Research findings on the opportunities and benefits of technology-based learning at SD Negeri 54 Banda Aceh show that the school principal acknowledges various opportunities and uses various technological products. These innovations and conveniences are evident in school activities, particularly in the learning process. The school principal emphasizes that various technological products facilitate information dissemination and communication for the school's benefit, such as internal/external meetings, school data storage, and more. This is consistent with the research findings of (Rahma et al., 2021), which explain that technology utilization involves all technical equipment to process data and deliver information. Technology encompasses two aspects: information technology and communication technology. Information technology includes everything related to the process and use of technological products as tools, manipulation, and management of information in the form of hardware. Meanwhile, communication technology includes everything related to the use of software tools to process and transfer data, which is then communicated from one device to another.

Based on the findings of the research on technology utilization in the learning process, it can be concluded that technology involvement opens opportunities to facilitate classroom management. This includes creating learning tools, syllabi, teaching modules, and managing student grades through the use of computers or laptops. The use of various technological products can also serve as learning resources for educators and students. This finding aligns with the research by (Aprilyan, 2019), which explains that technology-based classroom management involves three stages: preparation, implementation, and evaluation. Preparation involves preparing learning tools using hardware such as computers or laptops. Implementation involves learning by selecting technology programs as learning media. Evaluation involves reflection on the implementation of the teaching and learning process with a technological approach.

Subsequent research findings on technology-based learning at SD Negeri 54 Banda Aceh show that teachers utilize technology in the learning process, such as creating presentation slides with PowerPoint programs projected through an LCD projector. The use of attractive images, audiovisual elements, and more supports students in gaining a more engaging and enjoyable learning experience. This aligns with other research, such as the study by (Amalida & Halimah, 2023), which shows that the use of LCD projector media with PowerPoint programs positively influences students' mathematics learning outcomes. Furthermore, the research by (Alfiani et al., 2021) states that learning activities with a projector positively affect student learning motivation, create a conducive classroom atmosphere, and enhance teacher creativity in delivering course material.

The research findings on the constraints in technology-based learning at SD Negeri 54 Banda Aceh suggest that implementing technology-based learning is not an easy task and often faces challenges. These constraints include the expensive and not always readily available technology infrastructure. Therefore, a long-term program is needed to fulfill the necessary technology infrastructure needs for the implementation of technology-based learning. This finding is in line with the research by (Nurvitasari & Asmaningrum, 2018), which emphasizes the importance of serious attention from relevant authorities through well-planned programs to ensure the availability of adequate technology device facilities in every school. Monitoring and procuring technology devices are also considered essential to support a more optimal learning process.

From the research findings on the constraints in technology-based learning at SD Negeri 54 Banda Aceh, it can be concluded that many teachers still lack an understanding of how to implement engaging technology-based learning. Additionally, students are not accustomed to using technology as a learning resource. This conclusion aligns with the findings of (Suriansyah, 2015), stating that most teachers are not fully skilled in operating technology, resulting in the ineffective implementation of innovative technology-based learning strategies. The use of technology tends to be more of a medium than a learning resource. Even if students use technology, it is more often used as a medium rather than a tool to explore the latest learning resources.

CONCLUSION

From the results and discussions above, it can be concluded that the headmaster of SD Negeri 54 Banda Aceh has conducted good management and supervision related to the challenges and benefits of implementing technology-based learning. This is aimed at supporting the revitalization of 21st-century education with a focus on 21st-century learning and technology that emphasizes the 4C skills of students, and the conducted activities need to be controlled in accordance with the learning objectives. Technology-based learning management at SD Negeri 54 Banda Aceh involves planning, organizing, coordinating, and supervising carried out by the headmaster. The headmaster is responsible for ensuring the availability of infrastructure that supports technology-based learning processes. In addition, the headmaster provides support to educators (teachers) and educational staff through the organization of training related to the use of technology in learning. The use of technology in learning facilitates classroom management, including the creation of learning tools, syllabi, and teaching modules. The management of student grades can also be done using a computer or laptop. Technology provides many products that can be used as learning resources for educators and students. Although the use of technology-based learning offers various advantages, there are obstacles in implementing it at school. These obstacles include meeting the expensive needs of technology infrastructure, the ability of teachers to optimally implement technology-based learning, and the tendency to use technology as a medium rather than a source of learning.

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