



Analysis of the Implementation of Technology-Based School Management in Elementary Schools in the Kupang Region

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Abstract. Current technological developments are moving towards the forefront and have a significant influence on all sectors, one of which is the implementation of school management. The implementation of school management by utilizing technology provides convenience and difficulty if viewed from the habit and implementation that occurs quickly due to COVID-19. The aim of this research is to find out and analyze how technology-based school management has been implemented in elementary schools in the Kupang area, NTT. The research method used is qualitative research with a case study research design in several elementary schools in the Kupang area. The results of the research show that the school has implemented technology-based school management, one of which is that the administration process and learning management processes in the classroom have utilized technology. School principals feel the benefits of using technology in the school management process. The challenge that needs to be faced is how to increase the competence of teachers to be able to optimize the use of the latest technology.

Keywords: school management, technology, elementary schools, school principals

1 Introduction

School management plays a very important role in shaping educational goals [1], [2]. According to [3] careful and high-performing management can effectively improve the quality of education through wise management of resource allocation,

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supervision of curriculum implementation, and selection of qualified teaching staff. The positive impact of this skillful management is reflected in the positive development of educational indicators, including increased literacy rates, active participation of students in the teaching-learning process, and improvements in the Human Development Index [4]–[6]. Efficient education management has also been instrumental in expanding education accessibility to remote areas of Indonesia through the implementation of inclusion programs and education gap reduction efforts [7]–[9].

A successful management approach also has a positive effect on students' personal development by providing support, guidance and a supportive learning atmosphere [10], [11]. Students' progress in various competitions in academic and non-academic fields is a clear indicator of the positive contribution of school management [12]. In formal education units, management at the basic education level has a very important role in the development of individual education as the initial foundation in shaping students' personalities [13], [14]. The primary school education level is key in forming the basis of knowledge, skills and values that will guide students throughout life [9].

The essential conditions in establishing strong school management include (1) strong and effective leadership is required from the school principal; (2) smart resource management is needed; (3) active participation and support from the school community, parents, and other stakeholders; (4) collaboration with the local community and external stakeholders can improve accessibility, financial support, and understanding of school goals; (5) continuous monitoring and evaluation of educational processes and outcomes must be implemented [12], [13], [15]–[17]. The emphasis on internalizing the use of culture in shaping the school curriculum is a factor that has a positive impact on student development [18]. One area that is very rich in culture and has elementary school education is Kupang, East Nusa Tenggara [18].

School management at the primary school level in Kupang, East Nusa Tenggara is unique. Stakeholders agreed to integrate local culture and values into the curriculum and school activities, with the aim of strengthening identity and understanding regional cultural heritage [18]. The local wisdom-based curriculum includes traditional elements such as agriculture, handicrafts, dance, music and other local values [19]. Good school management can involve local communities to support character building and strengthening moral values. The use of multicultural-based school management has a close relationship between education and cultural heritage [20].

The development of technology is a challenge and opportunity in the development of school management [21], [22]. In this context, it should be noted that information and communication technology has become an integral part of modern education. The implementation of technology-based school management becomes relevant. The presence of technology in school management has the potential to improve the efficiency, quality and accessibility of education [23], [24]. However, in

the context of education in the Kupang region of East Nusa Tenggara, there are specific challenges such as accessibility to technology infrastructure and the level of professionalism of teachers in using technology.

Various studies related to school management at the elementary school education level, especially in Kupang, still focus on the development of multicultural-based school management. In fact, the full use of technology was also applied in the student learning process during the Covid-19 pandemic [6], [25]. Is the use of technology in basic education school management still being used or is it back to using the traditional multicultural-based school management system? This question becomes an objective in this study to reveal the implementation of technology-based school management in elementary schools in the Kupang region of East Nusa Tenggara.

2 Method

The research uses a qualitative approach with a research design using case study research [26], [27]. Data collection was carried out several times to find out how it was implemented in the field and analyzed so that a new theory or new knowledge was developed. In carrying out research that focuses on how technology is applied in implementing school management, researchers act as research instruments as well as individuals who collect data. Furthermore, this is done so that data collectors can interact directly with the subjects and capture the meaning of what is conveyed at different research locations. This research was carried out in the Kupang region, East Nusa Tenggara (NTT) with a focus on elementary school principals with a total of 10 elementary school principals.

The data collection process was carried out using snowball sampling techniques with data collection techniques using interviews. The data collected is related to technology-based school management with a focus on: characteristics, objectives, challenges and implementation processes. The data that has been obtained is then analyzed using the suitability analysis model according to Milles and Huberman. Overall data obtained in the field with analysis stages including (1) networking the data obtained; (2) presentation of the data obtained; and (3) decision making based on data exposure [28]. The list of questions asked in conducting data collection interviews is in the table 1.

Table 1. List Question

No	Questions
1	Do you use technology in school management, how is it implemented?
2	What kind of technology is applied in the administrative process?
3	What kind of technology do you apply in implementing learning?
4	What obstacles did you experience in the process of implementing technology-based school management?
5	What advantages do you currently experience of technology-based school management?

3 Result and Discussion

The development of the times, especially the development of technology and information which has moved so quickly recently, especially in the context of the post-Covid-19 pandemic, has had a tremendous impact on the habits of every individual. One of the sectors affected by technological developments is the education sector which needs to be updated in accordance with the characteristics of the times and the characteristics of students. [29]. The technological changes that are currently occurring are the use of technology in the daily life processes of individuals, both in administrative processes, buying and selling processes through e-commerce and digital payment processes.

This context is of particular concern in the world of education today, how to bring the administration and learning processes so that they are not left behind by developments over time, one of which is the use of technology [30]. The results of related research show that in current conditions the use of technology in the school management process is very necessary, this aims to facilitate the implementation of school management and facilitate access to the latest scientific sources for students [7], [31]. The use of technology in the school management process supports the process of achieving educational goals.

3.1 Use of Technology in School Management

In this section, we will examine how school management is implemented by utilizing technology. This concept is in line with current developments where all activities utilize technology to simplify the process of human life. Based on the ten elementary school principals who were interviewed, they all answered that the school had implemented information technology-based school management to facilitate the implementation of school management.

"Replacing the role of humans, namely by automating a task or process. Strengthening the human role, namely presenting information, tasks, or processes. "Restructuring or making changes to a task or process, especially the use of a computer or laptop" (TWH/SGN/1/110923).

"Use of technology according to the environmental conditions where our school is located, such as laptops, cellphones and other electronic media" (MS/SILK/10/110923)

"The use of technology in school management aims to support various activities in schools, especially technology as an aid to the school management process" (YT/SO/9/110923)

The use of technology in school management aims to simplify the regulatory process carried out by school principals in carrying out management at schools, especially in administrative governance [32]. The technology used is expected to help carry out the archiving process, administrative management and regulatory processes in school management.

Technology can act as a substitute for energy in this context, namely helping teachers do their jobs so that teachers can do other more important tasks or tasks that cannot be done with the help of technology. This is in accordance with the conditions or characteristics of elementary schools in the Kupang area, where not all schools have a deputy principal who assists the principal in the school management process. Apart from that, by utilizing technology that teachers carry every day or cellphones, teachers can actually be assisted in the communication process and carry out the process of archiving files online.

3.2 Use of Technology in the Learning Process in the Classroom

The management process in schools also includes how to manage or manage in the classroom so that the use of technology is not only limited to the school management process but how classroom management can utilize technology in learning. [33].

"Using technology in the learning process in our elementary school uses Google Form, Zoom Meeting, social media and other applications which are used as other learning supports" (SH/SIP/5/110923).

"In class we use the Pyoktor LCD to display power point media with devices connected to the internet" (HLL/SAKB/7/110923).

"Learning in class uses related multimedia devices" (RMK/SKMB/2/110923)

Full use of technology began because of the urgent need due to the Covid-19 pandemic so that school principals and teachers were required to be able to adapt quickly to the use of technology in school management processes and technology-based learning management processes. [34], [35]. In this condition, it was revealed that teachers took advantage of the administration and learning process by using applications such as: Google Form, Google Meet, Zoom Meeting, Google Classroom and even social media and other applications.

3.3 Advantages of Using Technology in School Management

The use of technology certainly makes a significant contribution to the implementation of school management at the elementary school level.

"It makes it easier for teachers to learn, makes it easier for students to utilize existing technology" (TWH/SGN/1/110923).

"Making it easier for teachers to complete assignments and work" (ENH/SN/3/110923)

"Can help teachers in the learning process at school" (AT/SIN/8/110923)

This is in line with the current phenomenon that technological developments make it easier for humans to carry out their daily lives, of course it does not rule out the possibility that implementation in schools is also helped by existing technological developments. [36]. Technology is not an obstacle to work if it is used properly according to needs [37].

Social media applications within the scope of school management function as a media to connect the communication process between school principals, teachers, school staff, committees, students and even parents. The use of social media with media in the form of videos and images as technology in the school management process is still very important and easy [38]. If in the past inviting people required visiting the person being invited, now you only need to send an invitation digitally or invite them by sending a message online.

3.4 Obstacles to the Use of Technology in School Management

However, in this condition, there are obstacles in the process of implementing technology in the school management process in elementary school units.

"The obstacle experienced in the field is that teachers themselves have not mastered existing technology so they only focus on that technology. The technological media used are not innovative " (TWH/SGN/1//110923).

"Mastery of the latest applications, and internet interference, apart from that the level of technology mastery of teachers is still low" (SH/SIP/5/110923)

"Problems related to the lack of infrastructure owned by schools provide obstacles to the process of utilizing technology" (VGJD/SO/6/110923)

The basic obstacle or challenge in using technology in the management process in schools is the competence of teachers. Data in the field shows that currently there are still many teachers who have not been able to utilize technology optimally in implementing school management or the teaching and learning process in the classroom.

In fact, by making optimal use of technology, teachers will feel helped and the learning process in the classroom will become more active and innovative [39], [40]. The use of technology in school management can be applied starting from the program planning stages, program implementation and through to the process of evaluating and supervising programs that have been implemented.

4. Conclusion

Technology-based school management is a step in utilizing technology with the aim of assisting the process of implementing management in schools. Proper application of technology will contribute to the implementation of effective and efficient school management. Optimal changes and the benefits of technology in school management were felt when the Covid-19 pandemic occurred until now. School

principals feel a significant impact regarding the use of technology, not only in school management but on the learning process in the classroom. The obstacles faced in implementing technology in schools refer to the greater competence of teachers in utilizing the latest technology. Therefore, it is necessary to develop further competencies for teachers in the management and use of technology in the implementation of school management and further management of innovative classroom learning processes.

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