13. Utilization of Information and Communication Technology on the Learning Process in Elementary School

by Febrina Dafit

Utilization of Information and Communication Technology on the Learning Process in Elementary School

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ABSTRAK

Permasalahan yang terjadi selama ini sekolah belum memanfaatankan teknologi informasi dan komunikasi dikelas secara maksimal. Guru baru sebatas menggunakan sarana dan prasarana yang berbasis teknologi informasi dan komunikasi baru sebatas untuk pembelajaran selama daring. Tujuan dari penelitian ini adalah mampu menganalisis fungsi TIK bagi guru di sekolah dasar serta mampu untuk menganalisis kompetensi penguasaan TIK yang harus dikuasai oleh guru SD, mampu menganalisis pemanfaatan TIK sebagai sumber dan media pembelajaran di sekolah dasar. Jenis penelitian ini menggunkan jenis penelitian skriptif. Sedangkan desain penelitian ini menggunakan pendekatan kualitatif. Dalam penelitian ini bermaksud untuk membahas fakta dan mampu menceritakan hal-hal yang berhubungan dengan pemanfaatan TIK dalam melaksanakan kegitan di sekolah dasar. Instrumen penelitian dalam penyaian data adalah peneliti sendiri yang akan menetapkan pokok penelitian serta memilih informasi sebagai sumber data melakukan pengumpulan data serta membandingkan nilai hasil data dan menafsirkan data serta mampu menganalisis data dan mengaitkan hasil. Berdasarkan hasil dan pembahasan mengenai pemanfaatan TIK, di sekolah dasar sudah menggunakan TIK baik tenaga pendidiknya maupun siswa. Dalam pemanfaatan TIK disekolah dasar tenaga pendidik perlu memperhatikan kompetensi dalam penguasaan TIK yang harus dikuasai oleh guru SD. Guru memanfaatkan TIK ini sebagai sumber dan media pembelajaran di sekolah dasar.

ABSTRACT

The problems so far are that schools have not utilized information and communication technology in class optimally. Teachers are only limited to using information and communication technology-based facilities and infrastructure for online learning. The purpose of this study is to be able to analyze the function of ICT for teachers in elementary schools and to be able to analyze the competence of ICT mastery that must be mastered by elementary school teachers, able to analyze the use of ICT as a source and medium of learning in elementary schools. This type of research uses a descriptive type of research. At the same time, the design of this study used a qualitative approach. This study intends to discuss facts and be able to tell things related to the use of ICT in carrying out activities in elementary schools. The research instrument in presenting the data is the researcher himself, who will determine the subject of the research and select information as a data source, collect data and compare the value of the data results and interpret the data and be able to analyze the data relate the results. Based on the results and discussion on ICT use, elementary schools have used ICT, both educators and students. In using ICT in elementary schools, educators need to pay attention to competencies in ICT mastery that elementary school teachers must master. Teachers use this ICT as a source and medium of learning in elementary schools.

1. INTRODUCTION

In the learning process in elementary school, teachers are required to make the best use of ICT. Whereas in 2013, teachers were required to be able to master literacy towards the use of information and communication technology. In the learning process, it is necessary to use learning through ICT. Teachers and students need the help of ICT as a means of education during organizing online learning (Novilanti, 2021; Prehanto et al., 2021). school for teachers and students to use ICT according to opinions (Bagou & Suking, 2020; Kurniawan et al., 2021). Teachers believe in the use of ICT in public elementary schools 21 Peknbaru to improve the quality of education. Because by using ICT, students and teachers will be wider in finding information (Fathurrochman, 2021). In addition, qualified students can still apply 5S to teachers and their peers (Ramawati, 2021). The function of ICT for elementary school teachers is essential, coupled with distance learning, as at this time, teachers urgently need the encouragement of students to learn using ICT (Suharyanto & Mailangkay, 2018; Widyastuti & Novita, 2021). Technology can help humans work, both in education and the world of companies. Technology can make it easier for humans to carry out work

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(Maritsa et al., 2021; Puspitarini, 2022). Educators urgently need technology as a tool in learning during a pandemic like today.

Learning relationships in elementary schools during this pandemic are expected that students can continue to improve their academic achievements (Lasut, 2021; Zulaiha & Rohman, 2020). In contrast, the benefits of ICT itself in the learning process are that it can support students' learning process from home (Arthana et al., 2018; Kuswanto et al., 2021). In addition, ICT is also very helpful for teachers in conducting online learning programs, assisting teachers in completing assignments, processing student grades, processing data. TIK is also very helpful for students in finding tasks that have been given by teachers at school (Kuswanto, 2021). In addition to helping teachers and students, there are several problems in this ICT itself, where ICT in elementary schools is very rarely used optimally (N. R. Dewi et al., 2020). not only because of inadequate facilities and infrastructure but the lack of experts in the field of ICT is also one of them. Therefore, the government must be more able to pay attention to such mistakes in areas far from people's reach, such as rural areas and far from crowded centres (Akbar & Noviani, 2019).

In the world of education, ICT can change the system of educating teachers that used to be conventionally old-fashioned paper-based but is now ICT-based. The emergence of ICT in an educational world requires the creation of successful, satisfying, and enthusiastically connecting students. ICT skills in delivering messages are recognized as very meaningful. ICT can change the model of storing lesson study materials for students in education. One example of using ICT in education is to use technology such as computers/laptops, internet networks, and smartphones as learning media for students. The use of information and communication technology in the world of education can be done by: the use of Audio Visual Aid (AVA) practice tools. The use of computer systems, both in-class learning and general education and internet networks, can support the implementation of education and learn more effectively. The use is really to provide changes that positively impact education progress in Indonesia. Therefore, if this is done continuously, it is likely that Indonesia will be able to compete internationally in education (Cholik, 2017).

An ICT function for teachers is an information technology, and commune can be used in helping administrative activities (Word processor & Basic Level Mandatory needs, Spreadsheet). Information and communication technology can be used to carry out teaching materials (Multimedia) intermediate-level needs. Third, information and communication technologists can be used to support management procedures in the study (e-learning, advanced needs, etc.). Information and communication technology can be used as technical assistance and expand expertise to realize self-creation (antivirus, tools, networks, internet, etc.) (Aka, 2017; Ering, 2021). During the pandemic, we feel today that learning is required to be carried out remotely between students and teachers (Khikmawati et al., 2021). Where distance learning, of course, has shortcomings and benefits. The advantages of this learning include making teachers and learners innovate each other and using technology in every study. The weaknesses themselves lie in economic constraints and the unevenness of satisfactory information and communication technology. The study must also be carried out continuously so that learners can understand well and correctly (Salsabila et al., 2020). In addition to remote study with advantages and disadvantages, the remote study can use media such as computers, smartphones, laptops, and tablets (Sholihatun & Utanto, 2020). This application is also an instrument that can be used to carry out remote communication in the form of conversations, either using writing, images, sounds or in the form of video or website (Habibah et al., 2020; Princess & Suripah, 2021).

Along with the rapid advancement of ICT, educators still have some problems related to ICT competence in elementary schools. A) Projectors available in the classroom and in the office are rarely used. The reason educators do not use projectors is because of hassle fear of damage. Students become riotous when using projectors do not have digital teaching materials to present. This is reinforced by the opinion that most teachers have not utilized the facilities and infrastructure related to technology in schools to the maximum (Basri, 2018; Faridh, 2020). In addition, teachers cannot make media PowerPoint and cannot connect the projector to a laptop. B) Implementing computer laboratories and languages in elementary schools is also not optimal. The reason teachers do not use the laboratory is that teachers are already happy with learning verbal learning methods and have not been comfortable with learning using ICT tools. Computers that have indirect damage are repaired so that the number of computers that can be used is less than the number of learners who will use them (Coal, 2017).

ICT can be utilized at all levels of education, one of which is sorting elementary schools with educational levels located in the educators. In contrast to junior and high school educators, elementary school teachers are classroom teachers who must cover all subjects (except religion and health workers). In terms of using ICT, it awakens elementary school teachers to be more creative in innovating ICT because the characteristics of each subject are not the same. It is well known that learning tends to be still conceptual personality, unsatisfactory grades such as grades 1, 2, and 3. So, methods in using ICT and various animus learning results can expand student awareness. The class teacher is a term for elementary school teachers

because most of the learning process in elementary school is managed by class teachers. Then, class teachers have an essential function in the use of ICT. Classroom teachers can be a direct example of ICT devices in other learning processes such as computers, LCDs, the internet, learning CDs, E-mails, and PowerPoint presentations (S. Z. Dewi & Hilman, 2019).

Based on an interview with a Va class teacher at the 21 Pekanbaru state elementary school regarding ICT use, he said ICT is very helpful in the learning process. Not only that, but Information Technology also supports educators in carrying out teaching and learning mottos online. In ICT, the learning process can be designed to make it easier for educators to carry out the learning process. Learning media used in online learning at 21 Pekanbaru State Elementary School Va class guardians use the WhatsApp Group application and learning media in videos downloaded from youtube and then shared into the class grub. Where in the use of ICT, teachers realize that they must be demanded to be active and creative in using this ICT. In today's global era, teachers must be more creative than before in operating ICT to create engaging, cool and fun learning. Educators also deserve to always actively motivate students in learning using this ICT so that students can understand the learning materials that teachers have conveyed. This research aims to analyze ICT functions for teachers in elementary schools and analyze ICT mastery competencies that must be mastered by elementary school teachers, able to analyze the use of ICT as a source and medium of learning in elementary schools.

2. METHOD

This research uses a qualitative research approach with descriptive methods. The method was chosen by the problem characteristics and the main purpose of analyzing ICT utilization in elementary schools. This research intends to explore facts related to the use of ICT in the implementation of learning in elementary school. The results of this study were presented descriptively, namely explaining the use of ICT in elementary schools. This research was conducted at 21 Pekanbaru State Elementary School located at Jalan Pahlawan Kerja No.13A, Maharatu, Kec. Marpoyan Damai Pekanbaru city, Riau 28125. The subjects that became the data source in this study were teachers at SD Negeri 21 Pekanbaru. The data collection process in this study used to interview and observation methods. The data collection instruments used were interview guidance instruments and observation guideline instruments. The instrument grid containing indicators and sub-indicators is presented in Table 1.

Table 1. Research Instrument Grid

Indicator	Sub Indicator
ICT function for teachers	Assist with administrative work
	Help pack teaching material
	Assisting the learning management process
	As technical support and increase knowledge to realize *Self-running creation*
ICT mastery competencies that elementary school teachers must master	Operating a personal computer and its parallels (supporting devices)
	Assemble, install, set up, maintain and track and troubleshoot *problems* on personal computers
	Perform computer programming with one of the object-oriented programming languages
	Processing words (*word processing*) with a personal computer
	Process worksheets (*spreadsheets)* and graphs with a personal computer
	Processing a database (*database)* with a personal computer or server computer
	Assist interactive presentations that meet the rules of visual and interpersonal communication.
Utilization of ICT as a source and medium of learning	Elementary teachers are required to be more creative in innovating ICT
	ICT can improve students' understanding

(Aka, 2017)

The data that has been collected is then analyzed and interpreted to be able to obtain research conclusions (Nurdiana, S, 2016). According to Miles and Huberman, the analysis process carried out in this study follows the flow of data analysis as presented in Figure 1.
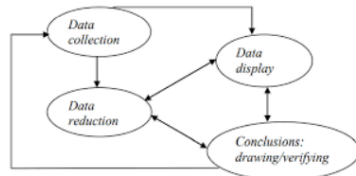
Figure 1. Cycle Table 1 Data analysis(Rijali, 2018)

3.   RESULT AND DISCUSSION

Result

Based on the results of interviews and observations that have been carried out, information was obtained that the Covid-19 pandemic caused a change in conventional learning to technology-based distance learning. There are many forms of ICT utilization in distance learning. The form of ICT utilization used in the Va SDN 21 Pekanbaru class uses the WhattApp Group and YouTube applications to support the implementation of distance learning. The research findings on ICT functions for Va SDN 21 Pekanbaru class teachers are presented below. First, others can help in the learning process. ICT can also help administrative work. The results of ICT interviews can support the administrative work of teachers in completing teaching materials such as sending assignments through the WhatsApp Group application. Conducting distance learning, or what was currently called the term "ONLINE", input student data such as student grades and making student attendance lists. The media used in creating ICT teaching materials include teachers using applications in the form of Microsoft word and Microsoft excel. Second, ICT can help teachers in packing teaching materials. It is explained that ICT is very helpful for teachers in packaging teaching materials such as making learning media used during online learning hours. In addition to helping teachers pack teaching materials, ICT can also help teachers carry out the teaching and learning process, and ICT can process information holistically during online learning. Attendance of students, list of student to-do grades, list of report grades, and test scores.

Third, Pada SDN 21 Pekanbaru, especially in class Va, the learning process uses WhatsApp Group as a medium used in online learning. Online that was done in each other's homes. In distance learning or the so-called "ONLINE" WhatsApp Group was utilized by Va class teachers as an intermediary in communicating and learning during a pandemic like this. In WhatsApp Group, teachers sent videos that have been downloaded from youtube and then shared them into WhatsApp Group as a learning medium used during distance learning. After sharing the media to provide understanding to students about the video. Then continued by giving assignments to students with the aim that students continue to study at home. After that, it was carried out with the motivation of learning spirit so that students remain enthusiastic about learning even though it was done virtually. Fourth, based on the results of research interviews with resource persons. In Public Elementary School 21 Pekanbaru, especially in this Va class, teachers have not been able to realize self-running creation because elementary school students still need exceptional guidance and supervision in using ICT. This is in line with the opinion that information and communication technology serves as a tool and a science (Suripah, 2017; Agustian & Salsabila, 2021) . Information technology becomes a material and device for a process in doing the learning. Information and communication technology is an unlimited source of information. Therefore, the internet network is needed in education and has become one of the sources of learning in the world of education (Rasman, 2021). During the Covid-19 pandemic, learning was needed with this information and communication technology as a source, media, and tool in the course of learning. At this time, various sectors are experiencing changes and are required to adjust to the current situation, wherein the current conditions, distance learning is in dire need of ICT (Atsani, 2020).

Related to the use of ICT in the learning process, some findings related to competencies that must be mastered by Va class in SDN 21 Pekanbaru class teachers in utilizing ICT in the learning process are as follows. First, operate a personal computer. The use of ICT in Public Elementary School 21 Pekanbaru already has supporting devices in the form of several computer units as a supporting tool for the learning process. In addition, computer devices are also very helpful in learning in operating personal computers. As can be seen, when making observations, researchers see directly that computer devices can run as well as they should. This computer device is used by students, especially class V, in conducting ANBK simulations. From the researchers' observations, it can be concluded that ICT at 21 Pekanbaru State Elementary School

itself has been running well, and supporting devices such as computers can be used well according to the needs of students. Therefore, teachers need to have basic competencies that can be seen from the indicators, including (1) mastery of materials, (2) the ability of basic competency and competency standards, (3) improvement of learning materials, (4) improvement of professionalism and (5) utilization of ICT for self-development (Bagou & Suking, 2020). Competence can also be interpreted as individual activity skills that include aspects of knowledge and work attitude skills by the standards that have been applied (Rahmadhon et al., 2021).

Second, teachers must have the competence to assemble, install, provide, maintain and track and solve problems (Troubleshooting) on personal computers. However, for the elementary school level, it was still rare for elementary schools that have special teachers for ICT itself. Utilizing ICT itself was still combined with classroom teachers, and the use of ICT here is only limited to online learning helps teachers input—student data only. As for teachers, can Assemble, install, set up, maintain and track and solve problems on this personal computer itself has not been able to be done. The possibility of teachers can do in a way that teachers at 21 Pekanbaru State Elementary School can learn self-taught or take pieces of training to create expected competencies and boost ICT progress in the world of education. The cause of teachers not being able to master the above competencies was the lack of information about training related to ICT use at the elementary school level. So for the elementary school level, teachers themselves were still very hungry for information about the use of MORE IN-DEPTH ICT. Third, conduct computer programming with one of the object-oriented programming languages. In this competency itself, teachers of 21-week-old Public Elementary Schools have not been able to apply it. To do computer programming with one of the object-oriented programming languages, teachers can learn as self-taught or take part in training to create expected competencies and boost ICT progress in the world of education. The cause of teachers not being able to master the above competencies is the lack of information about training related to ICT use at the elementary school level. So for the elementary school level, teachers themselves are still very hungry for information about ICT use.

Fourth, use the word (word processing) with a personal computer. In this competency itself, teachers of 21-week-old Public Elementary Schools have not been able to apply it. The cause of teachers not being able to master the above competencies is the lack of information about training related to ICT use at the elementary school level. So for the elementary school level, teachers themselves are still very hungry for information about the use of MORE IN-DEPTH ICT. Fifth, create worksheets (spreadsheets) and graphs with a personal computer. In this competency itself, teachers of 21-week-old Public Elementary Schools have not been able to apply it. To do computer programming with one of the object-oriented programming languages teachers can learn as self-taught or can also take part in training to create competencies that are expected and can boost ICT progress in the world of education. The cause of teachers not being able to master the above competencies is the lack of information about training related to ICT use at the elementary school level. So for the elementary school level, teachers themselves are still very hungry for information about ICT use.

Sixth, create a database (database) with a personal computer or server computer. In processing the database using a personal computer or server computer, it was beneficial for teachers to process student grades such as attitude scores, student latian scores, test scores, and student attendance lists. Teachers make attitude scores, student heart grades, test scores, and student attendance lists using applications on computers called Microsoft word and Microsoft excel. Seventh, provide interactive presentations that meet the rules of visual and interpersonal communication. In carrying out the ICT, the learning process can help interactive presentations that meet the rules of visual and interpersonal communication rules. The interactive presentation applied in the learning process at 21 Pekanbaru State Elementary School was in the form of a learning video downloaded from Youtube and then shared through the WhatsApp Group. The teacher continues to explain and strengthen the video shared and carried out by assigning students to keep students at-home learning. We can conclude together that the professional competence of teachers plays an essential role in online learning. Teachers must be able to design learning by existing situations and conditions (Husain & Muslim, 2021). At the same time, other opinions suggest that professional competence is an ability that is by the expertise possessed by individuals (Sujarwo, 2021). The concentration of ICT teachers in Indonesia is still very low (Shahid et al., 2021).

ICT use as a source and learning media in the Va SDN 21 Pekanbaru class is as follows. First, an elementary school teacher was required to be more creative in innovating ICT. Based on the results of the researcher's interview with the Va class guardian of Public Elementary School 21 Pekanbaru regarding the response of elementary school teachers. It is required to be more creative in innovating ICT. In the current era of globalization, teachers must be more creative in operating ICT to create attractive, cool, and fun learning for elementary school students and not get bored quickly in doing learning activities. Teachers were required to be able to motivate learning using ICT to arouse students' enthusiasm in learning. So that

students can know that ICT can not only be used for playing games and learning online but also ICT can be used by students in finding assignments. Adding insight, knowledge, and learning Sources that can be accessed by students such as Google and Youtube and under the supervision of parents so that students were not wrong in opening sites that should not be opened. Because the fundamental elementary school level child's curiosity is higher, he will find new things if not supervised by parents. Second, ICT can improve the understanding of students of Va SDN 21 Pekanbaru class. In using ICT as a source and learning media, Va class teachers always associate every learning using ICT. Understanding associated with ICT was one of thematic learning where teachers associate this thematic learning with ICT. The resources obtained in this thematic learning are from Youtube as a medium in online learning. ICT itself can be believed that ICT can improve students' understanding. In addition, ICT can help teachers in the learning process. With ICT, students can be allowed in doing assignments or look for information. Therefore, the Va class teachers of Public Elementary School 21 Pekanbaru always associate ICT in every learning activity and task.

Discussion

The things that have been explained above are in line with the opinion that ICT has benefits that can improve teacher performance in learning and allow all teacher activities to be coordinated quickly, precisely and accurately and can increase work productivity (Japar, 2018; Magdalena et al., 2021). Especially at this time, ICT was needed in the continuity of distance learning. Distance learning was an indirect learning system in a classroom, so teachers with students cannot interact directly like face-to-face learning (Munir, 2009). Especially at this time, getting internet access is very easy. By mobile phone, teachers can take advantage of internet services (Ardiansyah, 2021; Susanti & Suripah, 2021). At a time of normal ICT conditions in the world of education can serve as a storehouse of knowledge and can also be useful in conducting learning and educational facilities, competency standards, administrative and school management tools, and as an educational infrastructure (Ibrahim, 2021). At the same time, the learning media itself has a function as a carrier of information and resources in learning (Fahyuni, 2017). At this time, technological developments can be used by the general public and educators as a means of education, including the media provided in the technology (Febrialismanto, 2020). Therefore, students can obtain information in a comprehensive environment from various sources through the internet and youtube media using their mobile phones (Rasman, 2021). In addition, students can increase interest and achievement in learning through using applications and technologies used by teachers (Aholongan et al., 2021).

In the world of education, ICT can change the system of educating teachers that used to be conventionally old-fashioned paper-based but is now ICT-based. The emergence of ICT in an educational world requires the creation of successful, satisfying, and enthusiastically connecting students. ICT skills in delivering messages were recognized as very meaningful. ICT can change the model of storing lesson study materials for students in education. One example of using ICT in education is to use technology such as computers/laptops, internet networks, and smartphones as learning media for students. The use of information and communication technology in the world of education can be done by: the use of Audio Visual Aid (AVA) practice tools. The use of computer systems, both in-class learning and general teaching and internet networks, can support the implementation of education and help learn more effectively. The benefit was really to provide changes that positively impact education progress in Indonesia. Therefore, if this is done continuously, it is likely that Indonesia will be able to compete internationally in education (Cholik, 2017).

There is an ICT function for teachers is an information technology and commune can be used in helping administrative activities (Word processor & Basic Level Mandatory needs, Spreadsheet), information and communication technology can be used as a tool in carrying out teaching materials (Multimedia) intermediate-level needs. Third, information and communication technologists can be used to support management procedures in the study (e-learning, advanced needs, etc.). Information and communication technology can be used as technical assistance and can expand expertise to realize self-creation (antivirus, tools, networks, internet, etc.) (Aka, 2017; Ering, 2021). Today, we feel that learning must be carried out remotely between students and teachers (Khikmawati et al., 2021). Where distance learning, of course, has shortcomings and benefits. The advantages of this learning include making teachers and learners innovate each other and using technology in every study. The weaknesses lie in economic constraints and the unevenness of satisfactory information and communication technology. The study must also be carried out continuously so that learners can understand well and correctly (Salsabila et al., 2020). In addition to remote study with advantages and disadvantages, the remote study can use media such as computers, smartphones, laptops, and tablets (Sholihatun & Utanto, 2020). This application is also an instrument that can be used to carry out remote communication in the form of conversations, either using writing, images, sounds or in the form of video or website (Habibah et al., 2020; Princess & Suripah, 2021).

4. CONCLUSION

The benefits of ICT, in elementary schools already used ICT both educators and students. In using ICT in elementary schools, educators need to pay attention to competencies in ICT mastery that elementary school teachers must master. Teachers used this ICT as a source and medium of learning in elementary schools, and ICT in this basic area has been utilized properly. Still, the results were less than optimal due to the limitations of inadequate facilities and infrastructure that make the process in ICT learning less run perfectly.

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