Technology Knowledge (TK) Teacher in Post Online Learning at Surakarta State Elementary School

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Abstract. Technlogical Knowledge (TK) is one of the TPACK concepts consisting of three main concepts in learning, namely technological knowledge, content knowledge and pedagogy knowledge. Educational technology acts as a multimedia for creating new konten. The object of this research is the teachers of the Surakarta State Elementary School. This research aims to determine the technological abilities of Surakarta public elementary school teachers in post-online learning. This research uses descriptive qualitative method. Data collecte was data from observation, interviews, and documentation. Based on data analysis, the results of the study show that the technological abilities of Surakarta State Elementary School teachers after online learning are that teachers know the use of laptop hardware, mobile phones and LCD projectors as learning media. As well as the use of software in the form of Quizziz e-learning applications, Google forms , Gogle Classroom and Wordwall.

Keywords: Teacher's Technology Knowledge, Post Online

1 Introduction

In 2019 there was an outbreak of the corona virus origaniting from China, to be precise in the city of Wuhan Covid-19 became an event that attacked public health in general and shocked the world. Even the World Health Organization (WHO) has declared Covid-19 a public health emergency that has become an international concern. Covid-19 is a new disease in humans that has never been identified before. Acute respiratory problems such as fever, cough and, shortness of breath are common symptoms of COVID-19 infection. With COVID-19, people are advised to keep their distance and limit travel as often as possible. Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policy in the Emergency Period of the Spread of Corona Virus Disease 2019 (COVID-19) and Circular of the Secretary General of the Ministry of Education and Culture Number 15 of 2020 concerning Guidelines for Implementing Learning from Home in the Emergency Period of Corona Virus Spread Disease 2019 (COVID-19). In this circular, the government requires all students and teaching staff to carry out teaching and learning activities remotely from home or can be said to be online learning. This is to help break the chain of the spread of the corona virus which is currently

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endemic in Indonesia and this has an impact on all sectors of life without exception to the education sector [1]

Education is the main sector in the development of the Indonesian nation so the implementation of the educational process during the pandemic must not stop and education in Indonesia must continue to be carried out and this distance or online learning method is an alternative so that the educational process continues during the pandemic with the help of various communication media. According to the Minister of Education and Culture No. 109/2013 Distance learning is a process of teaching and learning activities carried out remotely through the use of various communication media such as mobile phones, computers, laptops and so on . The transition from the learning process that was originally carried out face-to-face to virtual and online is a new adaptation that inevitably has to be implemented for everyone involved in the educational process. The sudden implementation of the online learning process requires all teachers and students to switch to using technology and take advantage of the internet network.. Technology, information, and communication literacy are important factors in online learning during the Covid-19 pandemic. Competence and literacy in using computers and surfing in cyberspace are the basic skills needed in implementing online learning [2]. States that competence and level of ICT literacy affect the effectiveness and efficiency of the teaching and learning process [3]. Meanwhile, technological literacy is more specific in the use of digital media. In the context of implementing online learning that is taking place, differences in generations and ages between teachers and students can be an obstacle to the smooth implementation of online learning.

Implementation of Learning from Home is carried out with a Distance Learning system. Law No. 20 of 2003 concerning the National Education System article 1 paragraph 15, says that Distance Learning is education in which students are separated from educators and their learning uses various learning resources through communication technology, information and other media. Meanwhile, in practice, Distance Learning is divided into two approaches, namely online or online distance learning and offline or offline distance learning [4]. Implementation of online learning is carried out between teachers and students together, at the same time, using various e-learning applications such as whatsapp, telegram, zoom meeting, google meet, google classroom, quiepped school, teacher room and other applications that can support sustainability online learning. Online learning is a learning activity carried out by utilizing the internet network as a place to channel knowledge. The learning process is carried out using various features in digital technology, such as whatsapp, google meet, zoom, google classroom, video conference, live chat, and various other internet-based digital technology features [5]. Learning is flexible because it can be done anywhere and anytime, depending on the agreement between the two parties. Online learning is learning that is carried out in a network to reach a larger and wider target group, therefore online learning can be done anywhere for free or for a fee. Based on several explanations from the researchers, it can be concluded that online learning is a learning activity that utilizes software technology in the form of video conferencing applications as the main means of communication. Online learning has the advantage of being able to do it at any time, so that teachers and students are free to use their free time as best they can [6].

Since the beginning of 2022 schools have started face-to-face learning. This is based on the issuance of the latest 4 joint ministerial decrees concerning guidelines for implementing learning during the Covid 19 pandemic. According to the regulations of the minister of education and culture face-to-face learning is permitted, but there are several rules that must be obeyed, such as the obligation to wear masks for all school members, students, teachers, staff, security guards and janitors. The maximum body temperature is 37 degrees Celsius, the distance between students is at least 1.5 to 2 meters, washing hands diligently, the school canteen is not yet

allowed to operate, and is not allowed to shake hands. It can be concluded that post-online learning is the start of face-to- face learning again by strictly implementing health protocols, where previously learning was carried out online (in network/online) due to the co-19 pandemic.

Based on the results of a survey that researchers conducted on May 17, 2022 that the teacher's TPACK competency at one of the Surakarta State Elementary Schools, namely at Cemara II State Elementary School, during post-online learning activities the teacher reduces the use of technology, especially the use of online learning applications such as Zoom and Google form . However, technology is still used, especially the use of LCD projectors to display powerpoint and YouTube. Teachers also use Google to find references to learning media. This can be seen when the teacher makes PPPK boards as teaching media for Civics subjects, with Pancasila material. Thus this is the empirical basis for the teacher's TPACK. Based on Ismail and Immawan's research (2021) that the Technological, Pedagogical, and Content Knowledge (TPACK) framework can be used as a framework for integrating ICT. The results of the second survey that the researchers conducted on May 18 2022 at SD Negeri Manahan showed that teachers' implementation of Technological, Pedagogical, and Content Knowledge (TPACK) in online post-learning can be seen when teachers use the Quizzizz application as a student learning medium. Students are divided into 5 groups where each group consists of 5-6 students. Each group must bring 1 cellphone. The teacher made questions on the Quizzizz application the previous day, then the link was shared on the class WhatsApp group. Each student in the group answers questions using a cell phone through the Quizzizz application in turn and the score will automatically appear on the LCD screen. Students seem cooperative when working on the questions, while the teacher directly enters the value of each group in the word application which will later be integrated into students' cognitive values. Technology in learning can increase student attention, concentration, motivation and independence [7].

Education 4.0 requires teachers to master technology to be integrated into the learning process. Competence in the field of Information and Communication Technology functions to develop oneself and to support the learning process. Based on the regulation of the minister of education and culture number 22 of 2016 in the process standard that learning has a principle if the teacher needs to use supporting technology as a medium of communication so that learning is efficient and effective [8].The development requires of technology in learning requires the teacher's ability to master it.The benefits of technology in the learning process, namely, 1) for students it increases attention, concentration, motivation, and independence, 2) for teachers it can reduce the use of time for delivering material, making student learning experiences more enjoyable, designing material more attractive , and encourage teachers to increase their knowledge and skills about computers [9]. In connection with technological developments in learning and demands for professionalism, teachers need to understand the conceptual framework - *Technological Content Knowledge* (TCK) to fulfill learning through technological assistance. According to Chai CS et al.one of the problems that is often encountered in preparing teachers to use technology and computer devices is the lack of creative innovation such as changing a summary of the content of the material into an animated video that students can easily understand because it is contextual. Then the lack of availability of facilities and infrastructure such as LCDs which often have errors and weak internet access in school [10].

2 Literature Review

2.1 Technological Pedagogical Content and Knowledge (TPACK)

TPACK (Technology Pedagogy and Content Knowledge) is part of the knowledge and framework used to analyze teachers' abilities to use technology in appropriate pedagogy. TPACK (Technological Pedagogical Content Knowledge) has seven domains of knowledge that are interrelated with the application of the education system in using technology through certain content during learning. The importance of educational technology equips the ability to design, develop, utilize, use, manage, and evaluate learning using various technologies as processes, tools, and resources in learning. The use of learning strategies that are part of learning is an effort to integrate the development of TPACK in learning related to content. The use of learning strategies in the entire teacher education program is a more comprehensive step for integrating TPACK into the teacher education curriculum. TPACK development must also be carried out on specific content. The development will be less optimal if you combine various contents. The selection of the TPACK development method is adjusted to the needs, goals and context of each. The development of TPACK is commonly carried out in ongoing research and development, starting with measuring TPACK first, then developing it. The need for technology studies is very influential in the future, so that the application of current technology must be interrelated with student learning [11]. Various ways can be done to develop TPACK, including; 1) attend lectures related to educational technology; 2) using learning strategies that are part of lectures; and 3) using learning strategies in the entire teacher education program [12]. The development of the times requires teachers to be well- established in utilizing technology. The interaction between teachers and students in the 21st century is carried out in a learning environment that will be rich in technology. Technology does not only act as a tool, but as a process and source of learning. The framework described by Koehler and Mishra (2009), it can be explained about the 7 components in TPACK. An explanation of the 7 components and their definitions can be seen in Table 1 below

Table 1. Definition of competence TPACK

Competence	**Definition**
Technological Knowledge (TK)	Knowledge about technology that can support learning
Content Knowledge (CK)	Knowledge of a subject but not consider method teach him
Pedagogical Knowledge (PK)	In-depth knowledge of processes and practices in conveying the material to be studied

Pedagogical Content Knowledge (PCK)	Effective teaching requires more than the separation of content understanding and pedagogy
Technological Content Knowledge (PCK)	Knowledge of how technology can create a new image in a particular material
Technological Pedagogical Knowledge (TPK)	Teach and study with technology including knowledge about the existence, components and abilities of various technology and on the contrary, knowing how teaching could changed as result of from use technology certain
Technological Pedagogical Content and Knowledge (TPACK)	Knowledge and understanding of the interplay between CK, PK and TK when using technology to teach and learn. It includes an understanding of the complexities of the relationship between students, teachers, content, practice and technology

Source: Rahmawati [13]

2.2 Technological Knowledge (TK)

The TPACK framework helps teachers in the process of developing better teaching techniques in the form of content, pedagogy, and technology into one coherent concept. In addition, the TPACK framework offers several possibilities for teacher education research needs, teacher professional development, and teacher use of technology. *Technological Knowledge* (TK) is teacher knowledge about technology that can support learning Rahmawati: 2019 (Mishra and Koehler, 2006). Technological knowledge (TK) or technological knowledge is knowledge about various types of technology as tools, processes, and resources. Teachers must be able to determine, master and apply technology-based teaching media according to the material, while the advantages of choosing technology as a medium in learning are (1) more efficient, (2) arousing student learning motivation (3) increasing student effectiveness (4) create fun learning and (5) make it easier for students to understand the material [14]. Technology Knowledge (TK) includes teachers' understanding of how to use computer software and hardware, presentation equipment such as presentation documents, and other technologies in an educational context. In addition to having knowledge of technology, a teacher must also have the ability to adapt and learn new technology. The existence of this ability needs to be owned by teachers considering the development and changes in technology are continuously developing [15]. The use of technology in learning has many benefits, one of which is that it can increase student learning

motivation, and can visualize material [16]. .Information technology services in the learning environment aim as a result of careful innovation in the learning integration process [17]. In addition, technology can change the work design of the teacher and the activities that will be carried out in the classroom [18].With the teacher's learning design, the teacher can understand the characteristics of the digital teaching materials that will be taught. Government regulation of education and culture no 22 of 2016 in process standards namely the learning principle used is that teachers must be able to utilize information and communication technology to increase the efficiency and effectiveness of learning. The quality of teaching can be seen from the teacher"s ability to create a good learning that supports students to increase their potential. Teacher can use technology as a supporting medium in learning [19].

Based on the results of research by Wijaya et al: 2020 teachers use software technology as a learning tool or media. The use of hawgent dynamic mathematics application-based software technology in the form of moving animation. This got a good response from students, students felt it was easy to understand the concept of triangles with the help of the hawgent dynamic mathematics application. However, the problem is that teachers have not been able to use the software in other materials, so teachers need to carry out ongoing training to develop Hawgent Dynamic Mathematics Software applications in other materials according to students' wishes and to improve students' mathematical abilities at various levels of education [20]. Meanwhile, from the research of Nevrita et al (2020) in learning activities, most teachers utilize hardware technology in the form of laptops and LCD projectors by varying powerpoints which contain summaries of teaching materials. Susanti (2014) explains some of the advantages of PowerPoint media are: (1) easy to use, (2) can be produced by the teacher himself, (3) can be used individually, (4) more efficient, (5) affordable, (6) has power. tensile, (7) flexible (8) can be used many times. Audiovisual media is also used by teachers in learning, but the intensity of its use is less. The obstacle is that most teachers admit that there is still a lack of training or workshops in developing IT-based learning media [21]. The teacher explains that the media used is only downloading from internet pages.

3 Research Methods

In this study used qualitative research with descriptive research methods. Descriptive research is research aimed at describing or describing existing phenomena, both natural phenomena and human engineering. In this study, researchers described the *Technological Knowledge* (TK) abilities of teachers after online learning at Surakarta State Elementary School. The subjects in this study were only conducted at Surakarta State Elementary School.

3.1 Data Collection Instruments and Procedures

The data collection process in this study was carried out in three steps, namely observation, interviews, and documentation. This study used research instruments in the form of field notes, interview guidelines, and observation guidelines. The grid for the interview material was prepared based on research by Angeli & Valanides (2005), Chai et al. (2010) and Schmidt et al. (2009) all of whom examined *Technological Pedagogical Content Knowledge* (TPACK).

Table 2. Indicators of Research Instruments

Aspect	Question Code	Indicator

	Use of Technology	
Respondent's knowledgeof hardware	TK 1	The hardware used during learning
Respondents' knowledge of the Software	TK 2	The software used during learning Accuracy in selecting learning applications Implementation of applications in accordance with current technological developments

Source: Fuada, Z., Soepriyanto, Y, & Susilaningsih, S. [22]

3.2 Data analysis

The analysis was carried out during implementation and after the data was obtained from the field. Data collection in the form of observations, interviews and documentation will be analyzed and sorted according to the needs of this research. At this stage three activities were carried out, namely data reduction, data presentation, and drawing conclusions. Data reduction in this study was carried out by collecting, summarizing, choosing the main things, and focusing on the important things. Data reduction was carried out by analyzing interview transcripts, observations, field notes, and documentation. After data reduction, then the main data as a result of the reduction is presented in the form of a description. This description concerns the perceptions of the informants, *Technological Knowledge (TK)* abilities, and learning experiences related to technology and content. The last stage is drawing conclusions. Data regarding the technological knowledge (TK) of Surakarta public elementary school teacher which contains answers to the formulation of the problems that have been obtained and described are then concluded in the presentation of the data.

3.3 Data Validity

Testing the validity of the contents of research instruments using expert judgment in a practical sense is the considerations/opinions of experts/experienced people. Triangulation in this credibility test is interpreted as checking data from various sources in various ways, and at various times as follows according [23]. Triangulation in this credibility test is interpreted as checking data from various sources in various ways, and at various times as follows: 1) Triangulation with sources to test the credibility of the data is done by checking the data that has been obtained through several sources. In this study, researchers used source triangulation and technical triangulation. Source triangulation is done by comparing and checking the data obtained from one source to another. For example, comparing the results of interviews between teachers A, B, and C. 2) Triangulation Techniques to test the credibility of the data is done by checking the data with different techniques. In this study, the researcher compared the research results obtained from interviews with fifth grade teachers from five public elementary schools in Surakarta.

4 Result and Discussion

4.1 Results

After conducting interviews with informants, the presentation of research results on each aspect of *Technology Knowledge* (TK) is described as follows:

Technological Knowledge 1 - Knowledge of Surakarta public elementary school teachers on the use of hardware, namely being able to use hardware in the form of laptops, smartphones and LCD projectors.

Technology Knowledge 2 - Knowledge of post-online learning Surakarta public elementary school teachers on the use of software in the form of learning applications such as *Google Form, Google Classroom, Quizziz* and *Wordwall.* During offline learning students are allowed to bring laptops or cellphones as learning tools to carry out assessments at the end of learning. Teachers offer these applications based on student competency as a consideration for ease of use by students who have used them during online learning. To overcome the technical difficulties experienced by students, the teacher made an application tutorial that was broadcast using an LCD projector. The intensity of using the application is at least once a week.

4.2 Analysis

Due to the COVID-19 pandemic, all schools were closed to prevent the spread of the virus. Teachers continue to conduct online learning so that students continue to carry out learning activities at home and do not forget their main tasks as students. Online classes strongly encourage collaboration and engagement which can be a tool and motivation for students and learners. Vide conferencibg applications are used as the main medium when learning is carried out remotely or not face to face. Online learning provides a wider learning space and easily accesible to many people (Handarini and Wulandari: 2020). Educational effectiveness is a dimension of success in a process of interaction between students or with teachers in an educative atmosphere to achieve educational goals. The effectiveness of education can be interpreted as learning that functions and aims for students which allow students to learn certain abilities, science and behavior easily, and pleasantly, and can solve educational goals according to expectations. And the effectiveness of education can be said to be successful if the learning process reaches the desired target, both in terms of educational goals and optimal student achievement [24]. With the development of science and technology in the world of education, now it guarantees a distance learning system or by using internet media that can connect educators and students. The application as a link for distance learning actiities used by teachers and students is *zoom meeting*. The *Zoom Meeting* application is a new application that can support success in online learning or business processes. The *Zoom Meeting* application has a sophistication that can display videos, images, animations, slides, and others. Science and technology have been very rapid in various fields, one of which is in the world of education. All forms of the learning process can be done easily [25]. Since the beginning of 2022 schools has started face-to-face learning. This is based on the issuance of the latest 4 ministerial joint decrees concerning guidelines for organizing learning during the Covid 19 pandemic. According to the regulations of the minister of education and culture, face-to-face learning is permitted, but there are several rules that must be obeyed, such as the obligation to wear masks for all school members, students, teachers, staff, security guards and janitors.

The notion of technology actually comes from the French language, namely "La Teknique" which means "all processes carried out in an effort to realize something rationally". Jaques Ellul

stated that "technology is a method that rationally leads and has characteristics of efficiency in every field of human strength. In the world of education, technology plays a role as a means of media in conveying learning material. Therefore, it is important for teachers to increase their knowledge of technology. There is a classification of the use of ICT into three types, namely: first, as a medium or educational aid, namely only as a complement to clarify the descriptions presented. Second, as a source, namely as a source of information and seeking information [26]. Third, as a learning system" Entering the era of the industrial revolution 4.0, the teacher's task is not getting lighter, at least the teacher must be able to prepare and improve the skills he has well in dealing with that era, there are at least 4 efforts that must be carried out, as stated by Wardiman Djojonegoro, namely: 1) Have the ability in mastering expertise in a field related to science and technology, 2) Able to work professionally with quality and excellence authorities, 3) Producing superior works that are able to compete globally as a result of expertise and professionalism and in the 4.0, 4 era) Has the characteristics of a technological society, civil society which as a whole influences the vision, mission and goals of education. Technological growth will affect the ways and forms of human life [27]. *E-learning* software (applications) will increase. *E-learning* is a learning process that uses internet media, intranets, or media in networks that guarantee the delivery of learning materials or materials to students In connection with technological developments in learning and demands for teacher professionalism, teachers therefore need to understand the conceptual framework of *Technological Knowledge* to fulfill learning through technological assistance. Teachers are required to understand the factors of teacher competence that make it easier to increase their professionalism, so that they can utilize technology as a form of readiness in facing global challenges.

Surakarta State Elementary School teachers to the use of technology when teaching, namely, teachers using laptop hardware technology, mobile phones and LCD projectors. The use of laptops is used by teachers for several activities and school assignments, namely making learning plans using Microsoft Word based on basic competencies from the 2013 curriculum syllabus. In addition to making student learning plans, teachers use laptops to process student grades with Microsoft Excel, make content summaries with Microsoft powerpoint and look for learning references. Laptops information technology and interactive learning media can make students more active, and creative, learning is fun, not boring and increases student learning interest. So it is necessary to exist for more supportive in formation active, insightful individuals keep up with the times. Use of media in the process learning is one effort to create more learning meaningful and quality. Media learning is a process tool learn how to teach. There is internal media real learn to for stimulate learning activities and increase student interest in learning [28]. The teacher's knowledge of other hardware devices is the LCD Projector. The teacher knows how to use an LCD projector to display PowerPoint by connecting a VGA/HDMI cable. The learning process from this media is material and exercises presented in the form of slides. Microsoft power point is a multimedia-based program. This software provides facilities in the form of slides that can help in preparing an effective, professional, and also easy presentation. So that it allows school teachers to use it as a learning medium [29]. In Power Point there are also many interesting features such as text processing capabilities, being able to insert images, audio, animation, and effects that can be adjusted according to the tastes of the usser, so that students will be interested in what is displayed in PowerPoint [30]. Other hardware devices are mobile phones. The teacher's knowledge of the use of *mobile phones* is as a means of communication with students using the *WhatsApp* application. In classroom learning, the use of mobile phones is used by the teacher as a documentation medium when students carry out practical activities to be used as evidence in portfolio assessment. The use of laptop hardware and LCD projectors has been in use for a long time, long before there was a pandemic.

Surakarta State Elementary School teachers to the use of software technology during online post-learning is being able to operate e-learning applications used during online learning, namely *Google Meet, Zoom Could Meeting, google forms, google classroom* and *Quizziz.* The use of google meet application, *zoom could meeting* is still used by teachers to conduct online training with fellow teachers. The teacher's knowledge of the application, the teacher is able to schedule meetings, create access links with keywords, display slide shows, write in the comments column, turn off the sound, create classes and remove all meeting participants (if the meeting is over). The teacher's knowledge of the *Google form* application is that the teacher is able to create a new form, determine the name of the document and the form data along with the description, create questions, determine the form of answers (multiple choice or essay), add questions, determine which questions must be filled in, preview the existing forms. has been made, share the *google form link* in email and whatsApp . Google Form is a component of the Google Docs service, for an academic. Google Forms can be used to conduct online quizzes, and surveys on teaching effectiveness, collect answers to open-ended questions and so on. This application is perfect for various groups of students, teachers, lecturers, and professionals who like to make quizzes, forms and online surveys. Some of the functions of Google Form for education are as follows: 1) Providing training assignments or online tests via website pages, 2) Collecting other people's opinions via website pages, 3) Collecting various student or lecturer data via website pages, 4) Creating forms online registration for schools, 5) Distributing questionnaires to people online [31].

Furthermore, in addition to the Zoom application and Google Form, the knowledge of Surakarta State Elementary School teachers regarding application software is the Google Classroom application. The teacher's knowledge of the Google classroom application is that the teacher is able to create a class by entering the class name, and adding a short description such as the name of the subject and class level. The teacher is also able to invite students by distributing class codes, the teacher is able to make assignments by attaching files, determine the terms of the assignment and determine the deadline for completion. Google Classroom is a free web- based tool developed by Google. It was introduced on 12th August 2014. This app is used by both teachers and students, to share files between them. In Google Classroom, teachers can create assignments for students, and can also collect work from them. Here are some things that can be done while studying online with Google Classroom: 1). Sharing subject matter/syllabus 2). Giving/sending assignments 3). Hold an interactive question-and-answer test/quiz 4). View upcoming tasks via Google Calendar.The Google Classroom apllication acts as an online communication link between teacher and student. Teachers can create assignments, send announcements, and start class discussions right away. Students can share materials with each other and interact in class streams or via email. Teachers can also quickly see who has and hasn't completed an assignment, and immediately provide real-time grades and feedback. Last but not least, Google Classroom is affordable and secure, provided free of charge to schools, non-profits, and individuals and contains no advertising, and never uses user content or student data for advertising purposes [32]. The google classroom application is currently still used even though online learning is no longer carried out, with an intensity of usage time at least once a week. Students are allowed to bring hardware laptops or cell phones. The use of this application is used at least once a week. Based on the results of observations, students look enthusiastic, because student learning styles tend to be audio-visual learning styles. The meaning of audio-visual learning style is a learning style that focuses on sight and hearing.

The Technology knowledge of Surakarta public elementary school teachers regarding e-learning applications after online learning is the Quizziz application. The teacher's knowledge of the

Quizziz application is that the teacher is able to make questions by understanding each of the steps, namely 1) entering the name of the quiz, 2) choosing the language to be used in the quiz, 3) entering an image for the quiz, 4) choosing the type of answer (single answer or multi-select), 5) delete choices, 6) add answer options, 7) set answer time, 8) provide question links to students. The Quizizz page is a technological innovation that makes learning interactive and interesting and helps teachers make assessment evaluations of students. The device is designed based on students learning styles and characteristics. Student compete in a healty manner because the main system in this media is learning and playing [33]. In addition, the online quiz model on the Quizizz page in the ability to compete and collaborate can influence children's social-emotional development. The use of Quizizz media in addition to helping students recall the material that has been given can also create competition among students so that they are challenged to be the best in class. The scores obtained by students will be displayed on the LCD screen after answering each question, this is able to encourage students to compete with each other to get the best possible grades. Quizizz online quizzes not only provide individual game models but also provide group game models. Learning with a group system can make students communicate and discuss with each other in exchanging ideas [34]. The Quizziz application is still often used during face-to-face learning for evaluation activities. This application is used with the intensity of its use once a week. The teacher emphasized that the use of applications in learning is adjusted to the level of student competence.

Wordwall is an interesting application on the browser. This app specifically aims to be a fun learning resource, media, and assessment tool for students. The wordwall page also provides examples of teacher creations so that new users get an idea of what kind of creations they will create [35]. The knowledge of Surakarta public elementary school teachers regarding the use of wordwall applications is: 1) creating activities by selecting the templates provided, 2) writing titles and descriptions, 3) choosing content according to the type of game. Wordwall is an application that can be used as learning media, learning resource, as well as an assessment tool for teachers and students. Wordwall also provides several examples of teacher creations that can help new users in creating. This learning media can also be interpreted as a web application that is used to make fun quiz-based games. In addition, wordwalls can also be used to design and review assessments in learning [36]. Wordwall application which is unique as an evaluation tool in the form of multiple choice questions (quiz), crossword puzzles (crossword), choosing cards or pictures according to their pairs (matching pairs), pairing the right answers (find the match) and others so that the evaluation tool is used for the Daily Assessment. This is in line with the opinion according to Sari & Yarza, (2021) wordwall is an application that can be used as a learning tool, learning resource or online evaluation that is interesting for students. Another uniqueness in the wordwall compared to other online. Educational game applications is that the teacher can see the level of difficulty of each item, and there is a percentage value so that the most difficult to the easiest questions can be identified. The wordwall application is a type of interactive learning media in the form of a game that can be accessed easily online via wordwall.net with an attractive and varied appearance, which will be answered by students, so as to motivate students [37].

The technological knowledge of Surakarta State Elementary School teachers is still fairly simple. The use of software used by teacher is selected on the basis of consideration of teaching needs and effectivenes. The use of the application used by student in learning has been used when online learning used to be so that student are used to using them. The use of information and communication technology is to be able to present learning information in a consistent, quality, and reusable way according to teaching and learning needs (

https://ditsmp.kemdikbud.go.id/). The intensity of the use of technology, especially laptops and LCDs, is used by teachers every day during lessons. However, the use of supporting applications *Quizziz, Google forms* and *Google Classroom* as media for assessment is used at least once a week because not all students have facilities that can support the learning process such as computers, laptops or smartphones. If there are facilities such as smartphones, most of these smartphones are owned by parents so students have to take turns to be able to use them. The problem is if the student's parents are working when students have to carry out learning. Another obstacle felt by teachers is the difficulty of accessing the internet due to the weak availability of school Wi-Fi and LCD that sometimes don't *connect* (errors) so teachers always use personal cellular data. In addition, the teacher's ability to create content with PowerPoint is less attractive, so students feel bored. So this needs to be reviewed, the teacher should provide learning content according to the characteristics and learning styles of students. The characteristics and learning style of students of Surakarta Public Elementary School is audio-visual, that is, a learning style that relies on visual and hearing abilities. The use of audio-visual media is able to attract students' attention in learning and can provide learning motivation and convenience for students to understand the material presented by the teacher, by means of the teacher displaying motivational videos and learning videos, as well as through the presentation of Microsoft PowerPoint related to the material being discussed. The teacher's efforts to facilitate the delivery of information in learning need interesting learning media for students. Managed learning pays attention to aspects of the development of science and technology [37]. Mastery of the material and the teacher's ability to prepare evaluations is are good. Combining elements of material and technology in developing multimedia requires procedures. There is a needs analysis before bringing multimedia to students.

5 Conclusion

From the research that has been carried out and the results of the research that has been analyzed, it can be concluded that the technical knowledge of Surakarta State Elementary School teachers in using technology in learning can be seen from both hardware and software. The teacher utilzation of the use of technology in teaching activities, teacher are required to be able to utilize technology to develop curriculum so as to improve good and quality learning. The school has facilitated classes by providing LCD in each class, Wi-Fi and speakers to support good learning continuity, and to create interactive learning. The teacher creates learning content by utilizing the PowerPoint application. However, there are still deficiencies in designing content that is still very plain and does not attract students' attention. Based on the conclusions from the research results, there are several suggestions, namely teachers should need to improve content management from an artistic point of view so that it doesn't seem monotonous, this becomes an attraction for students to focus on learning. The teacher"s need to understand content management is also needed so that learning is well managed. Management of learning content with technological media needs to be improved by teachers. So teachers need to conduct training related to the use of interesting learning media technology.

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