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The Principal Management in Digital Literacy Empowerment of Elementary School Teachers

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Abstract: This study aims to describe the principal's management in empowering teachers' digital literacy in elementary schools. This study uses a qualitative descriptive approach. The subjects used in this study were principals of public elementary schools in Simo Boyolali, Indonesia. The total subjects who participated were eight principals. Data collection techniques are used in the interview, questionnaire, observation, and documentation studies. The discussion in the preliminary study, interview, and observation are to find out the problems of managing principals' digital literacy and digital literacy problems for teachers in online learning. The data analysis technique in this study uses Miles and Hubarman' analysis techniques, data reduction, data presentation, and conclusion. The data validation used source triangulation and technique triangulation. The results show that, first, the need for principals in digital literacy with the highest acquisition of ICT indicators in principal management is 57.53%; indicators for accessing information from the internet in the leadership process are 56.22%, and indicators for teacher support in using ICT are 54.87%. Second, the principle of empowering teachers' digital literacy requires steps: identifying, planning, organizing, actuating, and controlling. This research implies that digital literacy skills have an important impact on improving the professionalism of teachers, especially in the online learning process.

Keywords: *the principal management; digital literacy; teachers; elementary school; empowerment.*

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Introduction

The pandemic that occurred in early 2020 caused the WHO to declare that the Covid-19 outbreak was a dangerous virus that attacks the respiratory tract and caused many fatalities (Lupia et al., 2020). According to WHO, the COVID-19 virus is more susceptible to attacking adults aged 60 years and children (Cuong et al., 2020). The government has declared a policy for all sectors that work remotely, including companies and educational institutions (Sarwar et al., 2021). This pandemic has also affected Indonesia in various sectors, especially the education sector. The impact on the education sector makes the government intervene in making policies to pay attention to the education sector and urges to carry out online learning (Amalia & Sa'adah, 2020). Online learning is learning by conveying messages through the help of software or applications (Hergüner et al., 2020). The implementation of online learning is considered effective enough to prevent transmission and break the chain of the Covid-19 virus. This makes each school design learning effectively so that teachers are required to have skills in the field of digital-based media so that online learning can be carried out properly. This is one of the benefits of implementing online learning during the pandemic which affects education in the Industrial Revolution 4.0 era so that the quality of education is still fulfilled and realized through educational institutions including schools.

Quality in school-level educational institutions is the responsibility of the principal in carrying out his leadership. Signs of improving the quality of school quality can be observed through existing human resources, so school principals need teachers who are skilled in digital literacy in the current digitalization era. Human resource competencies required at the level of teacher personnel include 1) flexibility, as the ability to see change as an opportunity; 2) information seeking, motivation, and ability to learn, as the ability to seek learning opportunities regarding technical skills; 3) achievement motivation, which is the ability to innovate to increase productivity; 4) work motivation under time pressure, as the ability to hold and complete work; 5) collaborativeness, as the ability to work in groups; and 6) customer service orientation, where the ability to serve (Pianda, 2018:39)

The influence of the quality of education is a challenge for both principals and teachers in changing the education system by developing the curiosity of students so that the learning process will be student center learning that can be achieved even though it is in an online form (Trevallion

& Cusanelli, 2021). In addition, the school management is largely determined by the principal, whether his performance is visionary and can be a form of change or vice versa. If the principal supports both the vision, direction, and goals to be achieved, he tends to be active, caring, creative, innovative and pays serious attention to the performance of other school members. The principal will act as a giver of values to be achieved by the school, act as a figure of change, and dare to take risks. Efforts to achieve the vision and goals of good results as a basis for improving the performance of other school members, especially the teachers themselves (Winingsih et al., 2019).

The problem of principals in carrying out their leadership to improve the quality of education depends on various aspects, namely the environment, human resource support, accurate and clear institutions in the organizational structure in schools, facilities, and infrastructure in supporting teachers to develop learning creativity and implementation in managing and improving school quality (Nai & Wijayanti, 2018). The role of the principal is the most important in making decisions, directing, realizing the school's vision and mission, and seeking to improve the quality of education in schools. Barriers or problems faced by school principals are the conditions of human resources who are less skilled with digital literacy or are not yet "literate" in technology in knowing the need of implementing online learning (Fitrah, 2017). The role of the principal in a professional manner is to be able to empower human resources in the school environment by providing quality education in online learning in a fulfilled manner. The principal must also be able or skilled in knowing the need for digital literacy to improve the quality of education in schools.

The National Education Association identified that the impact of globalization on 21st-century skills teachers is to form skills that include critical thinking, creativity, communication, and collaboration (Redhana, 2019). The Industrial Revolution 4.0 has an important influence on the education system in Indonesia, because it is a challenge to create quality education in educating and teaching students for teachers (Hamid et al., 2020). In line with this, teachers are required to have skills in terms of technology in educating students in the 4.0 industrial revolution era during the pandemic. The reason for this is due to changes in learning that started from face-to-face learning to online learning. This condition is under teachers' required knowledge, skills, and understanding in utilizing digital-based media called digital literacy (Anisimova, 2020). Digital literacy is the ability to combine technology and provide digital information and the media used (Anggeraini et al., 2019). One of the benefits of digital literacy in the era of the industrial revolution 4.0 in the field of education is that it can

streamline and complement the 2013 curriculum in finding sources of information for teaching and educating students. There are three models of digital literacy that can be developed by teachers, namely universal literacy, creative literacy, and literacy across disciplines. First, namely universal literacy where teachers can use software and browsers to choose the right use in learning to be used; second, creative literacy, namely teachers have skills in producing the content of the material to be delivered by creative students so that messages conveyed through selected digital-based media can effectively improve student learning outcomes; the last is literacy across disciplines, namely teachers as educators and teachers can combine skills, knowledge and student psychology in making material to be delivered through online learning (Becker et al., 2017). Digital literacy has a source of information and can achieve student learning achievement targets. The problems faced by teachers and principals of elementary schools in Simo District are: they have not been able to apply the three models of digital literacy to the fullest in the learning process at Simo Elementary School.

The three digital literacy models cannot be implemented optimally in the learning process at Simo Elementary School. In universal literacy, teachers have not been able to fully use software for the teaching process in the classroom. The teacher is only limited to operating it, not like how to handle if the software is an error, not responding, or for example using other features. In creative literacy, the teacher's ability to create materials is still conventional, leading to digitalization, and it is still difficult to produce. Teachers prefer to use certain software or platform that is ready so that the teaching is only related to the material in it without any creation from the teacher creating it. In literacy across disciplines, teachers still have difficulty in combining aspects of skills, knowledge, and psychology of students during online learning. Teachers must be directly involved in observing and monitoring efforts to be able to make the material presented. All teachers must be technology literate because learning is carried out online. However, what happens in the field is that there are teachers, especially seniors who are not proficient with IT, such as operating a laptop. Senior teachers rely more on operators in schools because they are easy to run and have mastered. On the other hand, the use of social media or internet access for teachers has been smooth. However, in its use it does not pay attention to the learning process, it is still limited to taking it but not yet reaching the process of creating material.

The research was conducted only at elementary schools in the Simo sub-district, based on the results of a needs analysis that described the problems faced by the respondents. the respondents consisted of teachers

and school principals. The limitation of this research is the scope which is still specific to elementary schools in the Simo Boyolali sub-district, Central Java. So that the results of this study cannot be generalized widely, and only apply to research areas. however, the results of the research can provide direct benefits to teachers and principals of elementary schools in the Simo sub-district.

The importance of digital literacy that must be developed by school principals so that the quality of education is achieved is that it requires human resources, especially principals and teachers who are competent in terms of digital literacy. These needs are needed by the principal as a leader in the school. The results of observations and interviews of preliminary studies show that out of 8 principals, only 3 principals have digital literacy competence in developing the quality of education. This is indicated by browsing activities on search engines and the use of hardware such as laptops in carrying out their activities. The reason why school principals are less competent in the IT field is the lack of supporting facilities related to digital literacy for school principals in developing the quality of education. This is due to inadequate technological facilities such as computers and projectors in schools. It is proven that the principal's activities can communicate via WhatsApp in providing information and using email at work for teachers. The hope is that the principal has competence in the IT field, but the reality in the field is that the principal still needs the help of teachers who have IT expertise. This is an implication that the principal's competence is still in the developing stage and has an impact on teachers in using IT in online learning and developing the quality of education in the Simo Elementary School area.

Research related to principals' leadership in digital literacy teachers or principals has been done. There is research on the role of school principals in increasing digital literacy in online learning during the COVID-19 pandemic in elementary schools in Sukoharjo District, Pringsewu, Lampung. This study reviews the implementation of online learning which requires both teachers and students to be mutually literate in technology and the role of school principals who must be able to facilitate these digital literacy needs. The results of the study state that the full role and support of the principal are needed to motivate teachers to improve their digital literacy skills (Suhendra, 2020). Several studies that have been presented illustrate that the current and future conditions of the urgency of digital literacy skills by teachers and school principals are needed to support the learning process and improve the quality of education. However, these various studies, it has only shown that there is a link between digital literacy and the abilities of

teachers and school principals, no determination or steps have been applied to achieve this goal. The principal's leadership so far only refers to conventional, therefore the novelty of this research is a step or program for the principal's leadership through empowering digital literacy to improve the quality of teachers quality in schools.

Based on the description of the problem, it is necessary to take action because public elementary schools in rural areas are still in the development stage of using computer technology in implementing learning. In addition, the leadership role of school principals has not been able to mobilize teachers in improving digital literacy during the COVID-19 pandemic. The purpose of this study was to identify the principal's leadership steps in empowering school digital literacy for teachers.

Literature Review

Principal leadership is a skill in fostering governance in schools to improve the quality and quality of education in the schools they lead. The success of the principal as a leader is very important to continuously develop these leadership abilities and skills. To improve these skills, school principals can hold a meeting with various other principals to improve their leadership professionalism (Strand & Emstad, 2020). Such leadership will bring good school governance, built on the principles of transparency, responsibility, accountability, fairness, and participation. Realizing this requires the ability to make the right decisions by the principal himself (Supriadi et al., 2021).

Related research on principal leadership in digital literacy empowerment was conducted on principals' leadership research to improve teacher performance. Successful principals are those who understand the existence of the school as a complex organization. Principals can instill or improve mental, moral, and physical values in teachers and other school members through exemplary examples (Iskandar, 2013). Another research regarding the analysis of teacher digital literacy competencies in the implementation of online learning during the Covid-19 pandemic discusses digital literacy skills to take online learning arrangements. The results of this study indicate that most teachers still have a basic level of digital literacy competence (Rosmalah, 2021). Furthermore, there is research on the influence of teacher digital literacy and principal's motivation on the success of learning at home which is carried out at public elementary schools in Tungkal Ilir sub-district, Banyuasin, South Sumatra. Various factors lead to a successful learning process even though it is carried out from home, one of which is by using an online system and digital literacy skills. By using

quantitative research methods, the results of this study show that there is a significant influence between teachers' digital literacy and principals' motivation on the success of learning from home (Slamet & Sulistyaningsih, 2021).

Methodology

Subject

The subjects of this research are eight principals in public elementary schools in Simo, Boyolali, Central Java, Indonesia. This research decided on the participants because they are the executors of the implementation of literacy culture programs at schools. The total subjects who participated were eight principals.

Research design

The research design used is descriptive and qualitative. According to Johnson and Christensen (2019), qualitative research is research that relies on data collection. Qualitative research is a planned activity in analyzing the events that occur that are describing and revealing the meaning of these events in detail (Sugiyono, 2015). This study uses descriptive analysis by analyzing what happened and describing it using the scientific method used in a study. descriptive qualitative research, namely the research method uses the process of analyzing meaning in a social context by using a new method, to obtain in-depth and meaningful data (Surendra, 2018). The data used are the results of preliminary study interviews and initial observations to determine the location of the problems that occur, and a questionnaire to determine the principal's understanding of digital literacy. Questionnaire to determine the need for principal management to improve teacher digital literacy and study documentation. This study uses data sources, namely teachers and school principals as subjects of preliminary studies and activities related to the analysis of school quality management models to improve teacher digital literacy.

Instrument

The instruments used in data collection are (1) Preliminary study interviews, interviews are one of the techniques in collecting data by giving open and semi-structured questions orally so that they can obtain various data through the intended respondents (Sugiyono, 2015); (2) Initial observations to determine the location of the problem; (3) The questionnaire used is divided into two, namely the principal's digital literacy questionnaire

and the school quality management model questionnaire to improve teachers' digital literacy. This study used a purposive sampling technique with 8 principals because they were considered to have known the research objectives and were following the criteria of the study. This study uses data analysis techniques, namely the interactive model adaptation by Miles and Huberman. Data analysis techniques in this study used data reduction, data presentation, and conclusion (Miles & Huberman, 1994). This study tested the validity of the data using source triangulation techniques and triangulation techniques.

Results and Discussion

a. Initial conditions

Teaching and learning activities at Simo Boyolali Elementary School which were originally carried out face-to-face are now carried out with an online system due to the impact of the global Covid-19 pandemic. In this online learning system, the learning process is not optimal, especially for the basic education level. Teachers have difficulty teaching material to students because of limited circumstances that do not allow face-to-face. All learning processes more or less use an IT base. The assignment given is also considered less effective because the process cannot be monitored directly by the teacher. In terms of the accuracy of the assignment, it is still doubtful because when the task is carried out it is still assisted by the parents or guardians of the students concerned.

b. Identify the needs of principals in empowering digital literacy in teachers

The data in this study were collected through preliminary study interviews, observations, questionnaires, and documentation regarding the needs of principals in identifying and empowering digital literacy teachers at Simo Boyolali Elementary School. This research was started by using data collected in the form of semi-structured preliminary study interviews and observations of eight principals at Simo Boyolali Elementary School. Researchers conducted interviews with school principals by asking questions about digital devices used in carrying out daily tasks as principals and other activities that support increasing digital literacy.

The results of the questionnaire show that from the eight principals, three principals are already using digital devices, while the other 5 principals have not used digital devices. This can happen due to the lack of understanding of the principal in the concept of information literacy and the

lack of confidence in contributing to teachers related to information literacy developed. This condition causes school principals to not be maximal in motivating teachers about the importance of digital literacy for 21st-century learning, especially in online learning in this pandemic era. In addition, the principal has not provided socialization to teachers, students, and parents in the use of digital literacy during online learning during the pandemic.

Next, the researcher distributed a questionnaire to the principal using seven indicators in filling out the questionnaire. The first indicator is the experience of using ICT in the leadership process, namely the principal can physically operate digital devices and operate the software. The second indicator is accessing internet information in the leadership process by browsing, searching in obtaining information, evaluating data, and managing data related to principal leadership information. The third indicator is teacher support in using ICT. The fourth indicator, activities, and materials based on ICT for top management consist of interaction, sharing, collaboration, ethics on the internet, and being involved in citizenship through digital technology to support top management. The fifth indicator is the barriers to using ICT in the leadership process, which consists of internal and external factors. The sixth indicator is the skills of the principal, such as operating digital technology and interpreting data related to principal management and the leadership process. The seventh indicator is ICT in principal management which consists of utilization in managing school administration and managing the leadership process.

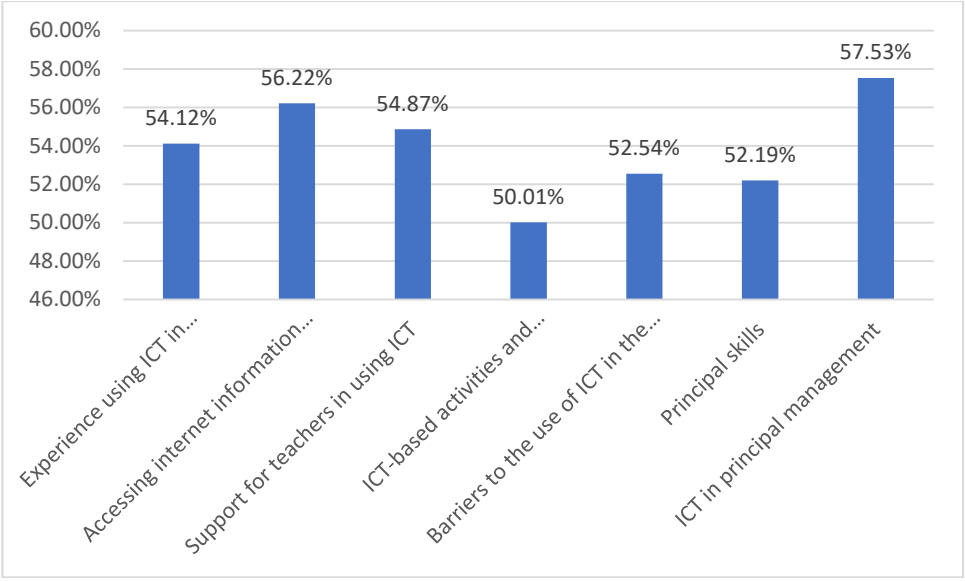


Figure 1 Results of the Principal's Digital Literacy Questionnaire

The highest indicator is the ICT indicator in principal management 57.53%. The results of eight principal only three principals can use the internet in managing school administration such as student data and teacher recruitment data and can manage the management of the principal as the highest leader such as being able to plan, manage and coordinate human resources to improve school quality so that school goals can be achieved. The second highest indicator is accessing internet information in the leadership process, getting 56.22% only three principals can access and conduct meetings via the internet and school principals can encourage teachers to carry out tasks with the help of ICT to make it easier to do assignments. The instability of the internet in accessing information and the limited skills of school principals are constraining factors (Wahyuningsih & Baalwi, 2021) The third highest indicator is the experience of using ICT in the leadership process, in this case, three principals have implemented the use of ICT in leadership such as moving teaching materials and IT media as learning resources applied by teachers to students so that online learning at three Elementary Schools under the leadership of the three principals has implemented digital literacy and the quality of these schools is better than other schools in the Simo area.

The lowest indicator is ICT-based activities and materials for principal management obtaining 50.01%. This is because the five principals have not implemented ICT-based activities, so the objectives that have been implemented have not been achieved optimally. The next lowest indicator, namely the skill of the principal, got 52.19%. The reason is the age factor, of the five principals who are over 50 years old, so they have difficulty operating IT equipment. In addition, the principal's focus on improving the quality of schools still depends on teacher resources. The principal's inability to operate a computer is an obstacle to his digital skills. The third lowest indicator, namely barriers to the use of ICT in the leadership process, got 52.54%. This is due to a lack of knowledge and insight into using digital technology. The five principals experiencing difficulties because there is no motivation in learning the use of Microsoft Office and matters relating to the management of school administration. In addition, there has been no training program on digital literacy and there has been no evaluation of the running of the principal's leadership process. Accordingly, the principal has less insight and creative space used by the principal (Sahelatua, 2018).

c. Principal leadership in improving teacher digital literacy.

Based on the results of interviews with the principal of SDN 1 Simo, in improving digital literacy, school teachers create IT training programs using online learning platforms. After the training, mentoring was held for teachers along with school operators who already had the basics in running or operating related to digitalization. This is under the principal's strategy in empowering digital literacy including a) maximizing the use of facilities and infrastructure to support digital literacy activities or increasing the purchase of tools such as wifi, internets, computers, laptops, and various supporting KITs; b) implementing digital literacy strengthening through a sustainable form of literacy programs that have been running previously by strengthening e-learning using online media to find and add information; c) increasing teacher competence to increase professionalism through digital literacy by participating in various pieces of training, technical guidance, seminars, webinars or workshops that have been provided both from the Education Office and the private sector, with the hope of getting a good impact for the school or the teachers themselves (Agustini et al., 2020).

Meanwhile, according to the results of interviews with the principal of SDN Blagung, the principal to improve the digital literacy of teachers is carried out by habituating the use of various platforms at every opportunity for the implementation of learning. For example, using Kahoott in making quizzes or multiple-choice questions that can be accessed via the web.

Kahoott itself is a new and practical formative assessment tool concerning the implementation of fun learning, thus making students motivated in learning (Ismail & Mohammad, 2017). Web-based learning can increase students' creativity in solving problems, be flexible in learning time, increase interaction with fellow friends, and stimulate students' creative potential thinking (Lin & Wu, 2016). In addition, there are also several other applications such as Zoom, Google Meet, and WhatsApp in support of the empowerment of digital literacy. Principals in managing management effectively through digital assistance and can adapt according to technological developments (Kholid, 2020). This requires leadership with a style that emphasizes the involvement of others. In increasing this awareness, professional development is needed such as providing programs, conducting courses, and workshops to instill leadership values. The implementation of these programs must show deficiencies or misconceptions of several aspects of leadership so that evaluation can be carried out. (Gonaim, 2019).

According to the principle of SDN Pelem, the obstacles faced by school principals in the context of empowering digital literacy for teachers are: 1) Senior teachers find it difficult to accept changes around them; 2) Limited facilities and infrastructure in schools, including wifi access; 3) Not all teachers have laptops and devices that are suitable or compatible; 4) Teachers are not familiar with using IT or digital operations during the learning process; 5) Limited school funds. This makes it a challenge for school principals to prepare human resources who are proficient in technology and learning so that online learning using digital devices during a pandemic can achieve school goals in improving school quality towards digital literacy (Rosyadi, 2015). Principals can provide policies to maximize teacher programs and resources in improving the quality of education in the schools they lead. Principals as managers and leaders of schools in terms of improving school quality should plan programs and detail the needs of principal management to facilitate programs to improve digital literacy (Wibowo et al., 2020). To overcome these obstacles, concrete steps taken by school principals in increasing teacher digital literacy according to the Principal of SDN 1 Tempuran are 1) holding training or workshops on digital literacy; 2) Addition of facilities and infrastructure such as laptops, computer labs, installation of wifi, etc.; 3) conducting periodic monitoring of learning evaluations; 4) disseminate the teacher's digital literacy program to policymakers.

Conclusion

The importance of digital literacy has an impact on the quality of school management. In Simo District, Boyolali, there are only a few schools that empower digital literacy to improve school quality. This is based on the age of the principal, limitations in the use of digital devices, and the lack of digital literacy in connecting the school leadership process. The principal as a leader to realize the vision, mission and educational goals have not been able to support digital literacy fully. Principals in the Simo Boyolali area are still having difficulties with ICT in carrying out their duties as school principals. In addition, there is no principal support for teachers related to preparing teachers for digital literacy in online learning. Principals need digital literacy in achieving the school's vision, mission, and goals to improve school quality, especially teacher digital literacy.

Principal leadership in efforts to empower digital literacy requires the maximum use of facilities and infrastructure to support digital literacy activities. Strengthening digital literacy through a sustainable form of literacy programs that have been running previously must be supported by the addition of teacher competencies to increase professionalism through digital literacy by participating in various training or technical guidance in the hope of getting a good impact on the school or the teachers themselves.

This research belongs to qualitative research so the finding cannot be generalized into wider contexts. It is recommended that future research is supposed to carry out with a larger sample size by following quantitative research.

Limitations

Based on the researcher's direct experience in this research process, there are several limitations experienced and can be several factors to be more concern for future researchers in further refining their research because this research still has shortcomings that need to be corrected in future studies. Some of the limitations of the study include:

1. The number of respondents is only eight principals, of course, it is still insufficient to describe the real situation.

2. The object of research is only focused on empowering teachers' digital literacy, which is only one of many human resource empowerments in digital literacy studies

3. This research is limited to the topic of principal management in the context of the digital literacy empowerment of teachers in the scope of elementary schools in the city of Boyolali, Indonesia.

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