

The Role of School Leader in Improving Teacher's Digital Competence for Improving Learning Quality in COVID-19 Pandemic

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Abstract— *The COVID-19 pandemic has changed the learning process of the world and Indonesia in particular. One of these changes is the use of digital media in learning (e-learning). E-learning demands that teachers now can use digital devices in learning. This research aims to look at the role of school leaders in improving teacher's digital competence for improving the quality of e-learning in the COVID-19 pandemic. For this major purpose, it was conducted qualitative research with the active participation of 23 teacher schools of Mardi Yuana Catholic foundation, Cianjur Regency, West Java Province, Indonesia. Results of qualitative content analysis (QCA) and cross case analysis with NVivo 12 Pro software show that School leaders improve teachers' digital competence by supervision and information communication technology training.*

Keywords— *Digital Competence, E-Learning Quality, Pandemic COVID-19*

INTRODUCTION

The Covid-19 pandemic has had an impact on the learning process in the world and in Indonesia in particular. Many studies have been conducted to see the impact of the COVID-19 pandemic. Jena (2020) describes the positive and negative effects of the COVID-19 pandemic on education. Positively the COVID-19 pandemic has increased the use of blended learning and enhanced digital literacy, while negatively the online teaching method during the COVID-19 pandemic may enhance the gap between the rich/poor and urban/rural area access to the digital world [1]. Meanwhile, Aji (2020) found that school closures as a result of the COVID-19 pandemic had an impact on the psychology of students and decreased quality of skills [2]. A literature study of primary research on the impact of COVID-19 on education conducted by Amalia and Sa'adah (2020) concluded that teaching and learning activities in several schools in Indonesia were mostly going well. Nevertheless, there are still shortcomings due to constraints, namely limited adaptability and mastery of information technology by teachers and students,

inadequate facilities and infrastructure, limited internet access, lack of willingness to budget [3].

Learning researches in the pandemic era show that there has been a learning loss during this pandemic. Engzell et al (2021) found that students made little or no progress while learning from home and suggest losses even larger in countries with weaker infrastructure or longer school closures [4]. Research conducted by Khan and Ahmed (2021) in Pakistan also found the effect of COVID-19 on learning loss, school dropout and the economic costs in term of foreign earnings. The study found a substantial decrease in Learning Adjusted Years of Schooling (LAYS) with worsening consequences for girls than boys [5].

Educational problems during this pandemic were caused by changes in learning methods namely from offline learning to online learning (learning from home). The concept of e-learning grows along with the growth of ICT (information and communication technology) as the main supporting factor of the implementation of e-learning. García-Peñalvo & Seoane-Pardo, (2015) state that the emergence of e-learning is closely related to the evolution of the web. Henderson in Horton (2003) explains that e-learning is a web-based learning that can be accessed from the internet [6]. According to Umam (2020) the factors causing the ineffectiveness of distance learning are network, dataware, brainware (human resources, digital literacy), inadequate hardware and software [7].

In practice, e-learning requires teacher's digital competence. Digital competence is the most recent concept describing technology-related skills [8]. Digital competence is one of the eight key competencies and refers to the confident and critical usage of the full range of digital technologies for information, communication and basic problem solving in all aspects of life [9]. There are other terms that have the same meaning, namely ICT skills, technology skills, information technology skills, 21st century skills, information literacy, digital literacy, and digital skills. In Scandinavian studies on ICT in education, digital competence is defined as 'skills,

knowledge, creativity, and attitudes that everybody needs in order to use digital media for learning and functioning in the knowledge society [10]

Teachers' lack of competence in the use of ICT has hampered all or, at least, many of its possibilities. Technology is still not well integrated either in the day-to-day teaching strategies in the classroom or online [11]. Research conducted by Kholid (2020) at the elementary school level found that digital literacy or the ability to integrate information technology in learning activities is still very low [12].

To improve the quality of online learning requires quality in 1) devices and internet access. Schools need to help students get the tools and internet access they need to learn and teach. 2) e-learning platforms. e-learning platform is a digital form of schools, classrooms, administrative and student systems. Learning certainly will not run well without a quality platform. 3) online learning methods. Online learning will not be optimal if schools only apply the assignment and presentation method. Teachers and schools must be more creative in designing interesting and meaningful interactive learning methods for students [13].

With qualitative research method and with a literature study approach Khairudin (2020) found that e-learning carried out during this pandemic required the creativity of school principals and became a good motivator to design curriculum and learning in accordance with the emergency conditions of the Covid-19 disaster. through optimizing the use of technology for all parties in the school in the implementation of online learning models using media such as WhatsApp, google classroom, zoom meetings and so on so as to create students who have the ability and educational goals to be achieved [14].

There are a number of previous studies on principals and teacher digital literacy. First, the studies conducted by Edi Slamet, et al (2021) found that there was a significant effect of teacher digital literacy and principal's motivation on the success of learning from home [15]. The study conducted by Landa et al (2021) found that teacher digital literacy had a greater influence than learning management on students' interest in learning [16].

From these studies we conclude that to achieve quality education in the midst of online learning teachers must have digital literacy and principals have a role in improving teacher literacy skills. This study focuses on what is the role of principals in improving teacher digital literacy. This research was conducted at the Mardi Yuana Education Foundation, an Educational Foundation managed by the Catholic Church.

RESEARCH METHODOLOGY

This study uses a qualitative approach, with a phenomenological research design. Bandur (2019) says that a Phenomenology research design includes several aspects: participants, situations, data collection techniques, description procedures and data analysis [17]. The participants in this study were 23 teachers of the Mardi Yuana Schools in Cianjur. The respondents have carried out learning from home during the pandemic following government instructions. Data were collected by giving open ended questions to respondents which were answered via google form.

To explore participants' experiences about the role of school principals, several questions were asked about 1) the obstacles in online learning 2) how does the principal help them in implementing online learning? 3) how Principals improve teacher digital competence? And 4) what do teacher expect from a school principal to improve teacher digital competence?

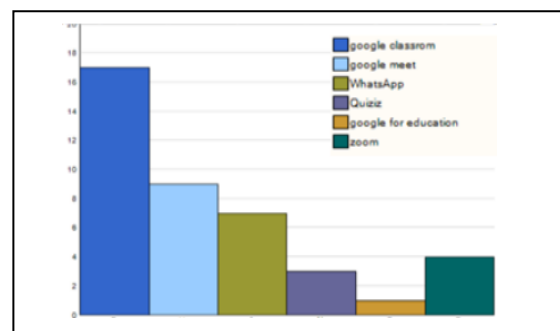
Participants' answers were analyzed using qualitative content analysis techniques using NVivo 12 Plus software. In this analysis, the researcher 1) collects data from the respondents' answers in a folder. 2) perform exploratory analysis of the data using skimming technique. 3) from the answers of the participants, the researchers made concept categories and concept sub-categories (node systems). 4) coding, namely the process of filling nodes with information related to the category of concepts that are already in the form of nodes. 5) perform data reduction. 6) carry out the construction of the main themes and visualization and finally 7) provide meaning or meaning from the results of data analysis [18].

RESULT

a. Online Learning Platform

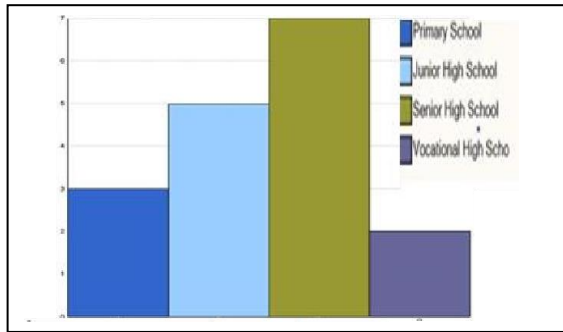
Educational institutions do not specify a single platform in this online learning. Every teacher is free to choose to use these platforms. Of these seven platforms, the majority of teachers use Google Classroom, Google Meet and WhatsApp.

Fig. 1. e-learning platforms



Based on cross case analysis, the majority of Google Classroom users are high school unit teachers. While Google Meet is mostly used by elementary school teachers. And WhatsApp is mostly used by elementary school teachers.

Fig. 2. User Google Classroom

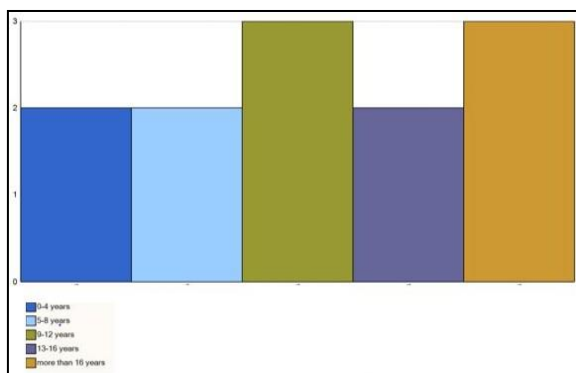


The reason for choosing a platform is based on three considerations: efficient, effective and ease of use. The majority of teachers choose based on the ease of using the platform.

b. Hinderances

Barriers to online learning come from two factors, namely internal factors from within the teacher itself and external factors. There are four obstacles that come from within the teacher to carry out online learning, namely lack of IT capability, lack of IT Knowledge, Financial support and lack of IT Skills. The majority of teachers experience a lack of IT Skills. The majority of teachers who experience problems in IT Skills are teachers who have been teaching for more than 16 years.

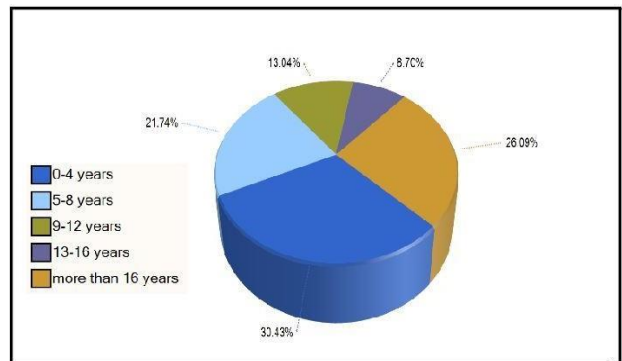
Fig. 3. Lack of information, communication and technology skills



External factors include bandwidth, lost learning, unsupportive environment, financial support. And the biggest obstacle is bandwidth and financial

support. Through cross case analysis, we can find out that bandwidth is widely expressed by teachers who teach 5-8 and 0-4 years. This is understandable because the younger generation of teachers are already familiar with information technology.

Fig. 4. bandwidth obstacles



c. Principal's role

The principal's role is carried out by conducting supervision, ICT training and improving ICT infrastructure in schools. During this pandemic, teachers feel the great role of school principals. The principal has carried out the role of supervisor and manager in educational institutions in the midst of COVID-19 pandemic. The role of supervision is mostly conveyed by teachers who have been teaching for 9-12 years; the role of ICT training is delivered by teachers who have taught 0-4 years, while infrastructure improvements are mostly delivered by teachers aged 0-4 years and over 16 years.

Based on the transcript of the teacher's answer to the role of the principal, the researcher got this answer that the principal periodically checked online learning outcomes (Respondent 1). Another respondent said: the principal provides direction and guidance to teachers on a regular basis, giving encouragement to make power points (Respondent 19).

Principals also improve the digital literacy of teachers through trainings. In the transcript of the answers to this research question, the researcher received answers from the respondents: the principal involved teachers in online training (R4), held ICT training for teachers (Respondent 1), held online learning training (Respondent 12), shared learning fellow teachers (7).

Fig. 5 Principals' roles

II. DISCUSSIONS

Like other educational institutions in Indonesia, the Mardi Yuana schools run distance learning. This policy is based on government policy through the ministry of education. The purpose of this study is to explore the experiences of teachers regarding the phenomenon of the principal's role in improving teachers' digital literacy competencies. The results of the study show that teachers have used several learning platforms and school principals have played a role in improving teachers' digital literacy competencies. This role has been carried out by school principals by conducting training and through supervision. From the results of qualitative content analysis and cross case analysis, there are some points to be discussed.

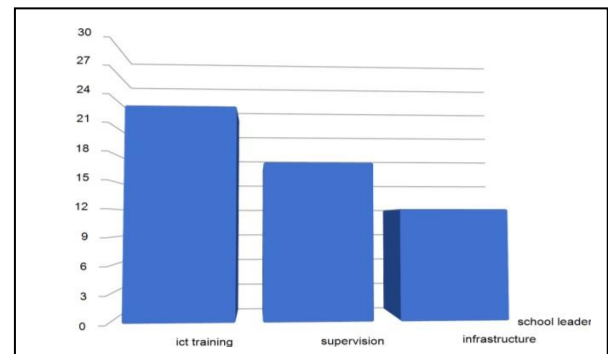
a. Literacy Digital Competence

The implementation of online learning or learning to learn from home that occurred during the COVID-19 pandemic is the government's effort to maintain the quality of education. The implementation of online learning experiences various obstacles: computer network; internet signal, expensive data package prices, some teachers who are not well versed in information technology and computers, adequate cellphones, and application software used. To deal with these problems, a teacher must have digital literacy competence. a teacher's digital literacy is an ability to integrate cyber technology in learning. Digital literacy is a skill to access the internet, find, and manage and edit digital information; join in communication, and engage in online information and communication networks.

Javorcik and Havlaskova (2021) emphasized that in the future teachers must have digital literacy. Only by having good digital literacy the application of technology in learning can help achieve educational goals. Modern era teachers are not enough to only master the basics of pedagogical science or psychology but also have digital skills (digital skills) [19].

This study also found differences in the barriers experienced by senior teachers and junior teachers in online learning. The obstacles for senior teachers are related to IT skills, while the obstacles for junior teachers are closely related to the internet network. This is understandable because of the differences in the educational climate experienced by these two generations. Providing opportunities for teachers to use the learning platform according to their abilities is a good step so that learning can continue. Of course, we believe that digital literacy is not only about "the ability to use digital technology, but also the ability to locate, organize,

understand, and evaluate, and analyze information using



digital technology [20].”

b. Principal's Roles

The principal is an educational leader. Educational leader means someone who has the ability to influence all individuals in educational institutions to achieve educational goals. The duties and roles of the principal as an educational leader are educator, manager, administrator, supervisor, leader, innovator, motivator. Rahman and Subiyantoro (2021) regarding the leadership role of school principals in online learning during the COVID-19 pandemic found four leadership roles, namely a) optimization and deliberation with teachers, b) providing education and training on online learning platforms (online) c) providing appreciation and motivation to teachers, students and guardians of students, d) coordination and multi-way communication [21].

This study found that principals have played a role in increasing teacher digital competence. This role is generally carried out through supervision, IT training for teachers and improving the online learning infrastructure in schools. Training is an urgent matter for principals to do, because teachers experience problems in ICT. In addition, supervision is carried out in the field of technology utilization. Teachers acknowledged that the principal gave encouraging them to pay attention to the quality of learning.

In the industrial era 4.0 these roles must be further enhanced by the principal as the person who has a central role in the quality of learning, and they must be more creative in efforts to increase the digital competence of teachers.

CONCLUSION

This research shows that the pandemic that has swept the world is changing learning methods. On the one hand, this change has accelerated the use of technology in learning with the e-learning method, on the other

hand, teachers are the cornerstone of educational quality in dealing with digital literacy issues. As a result, teachers do not use many platforms. The chosen platform is a platform that is easy to operate.

The principal has a role in improving the teacher's digital competence. This role can be carried out through supervising and conducting information technology training for teachers. In addition, the principal also needs to ensure the availability of information technology facilities and infrastructure in schools.

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