

Investigation of the Digital Competence of Madrasah Teachers During the Covid-19 Pandemic

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Abstract

The purpose of this research was to investigate the digital competence of madrasah teachers during the covid-19 pandemic. The research used the qualitative method. It explored the phenomenon of madrasah teachers' digital competence. The data were collected through observation and interviews. The study participants involved 1 principal and 9 teachers from grades 1 to 6. Data analysis consisted of data reduction, data presentation, conclusion drawing and triangulation. The study results conclude that the digital competence of madrasa teachers is still low, so that teaching and learning have not used multimedia technology. Therefore, the results of this study recommend the concept of training related to increasing the digital competence of madrasa teachers regularly because it had an important role in supporting the school's educational process.

Abstrak

Tujuan dari penelitian ini adalah untuk mengetahui kompetensi digital guru madrasah di masa pandemi covid-19. Metode penelitian yang digunakan kualitatif. Penelitian ini mengeksplorasi fenomena kompetensi digital guru madrasah. Pengumpulan data dilakukan melalui observasi dan wawancara. Peserta penelitian melibatkan 1 kepala sekolah dan 9 guru dari kelas 1 sampai 6. Analisis data terdiri dari reduksi data, penyajian data, penarikan kesimpulan dan triangulasi. Hasil penelitian menyimpulkan bahwa kompetensi digital guru madrasah masih rendah sehingga proses belajar mengajar belum menggunakan teknologi multimedia. Oleh karena itu, hasil penelitian ini merekomendasikan konsep pelatihan terkait peningkatan kompetensi digital guru madrasah secara berkala karena memiliki peran penting untuk menunjang proses pendidikan di sekolah.

INTRODUCTION

Technology has become an inseparable part of everyday human life. Information and communication technology has been used for educational activities such as teaching and learning activities in the classroom, supervision management, financial management, and even overall school management. Thus, today's technology has had a considerable influence on the implementation of education. Jannah et al. (2020) reported that the technology tools used at schools had increased

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teachers' performance in the learning process. Teachers who have ICT competence in the educational process can use it in the teaching and learning process. Although there is still debate about the formal structure in educational institutions (Sipilä, 2014). It means that ICT has an impact on the education process nowadays. It is easy to use and supports the teaching and learning process.

Especially in the era of the Covid-19 pandemic, with increasingly advanced levels of technological progress and various technological application devices that are increasingly accessible as multimedia technology in schools are also factors that support the importance of digital competence that must be mastered by teachers at madrasa or elementary schools. The impact of the COVID-19 pandemic has affected the education sector on an unprecedented scale, such as loss of learning, dropouts, and the economic cost of lost income for children (AZIMAH et al., 2020; Adnan, 2020; Mansyur, 2020). In comparison, dropouts are more prominent in Pakistan at the primary school level. The results recommend that governments design relevant social protection and distance education strategies to reduce the adverse impact of school closures on children's learning (Khan & Ahmed, 2021). Covid-19 should prompt in-depth reflection in the design of education systems at all levels, influencing effective strategies to reduce the effects of inequality on the use of technology in education. (García-Peñalvo et al., 2021).

Therefore, the Indonesian government, in this case, various madrasas and elementary schools as education providers, must be able to meet the needs of distance learning concepts as a form of achieving learning goals during the Covid-19 pandemic. Various applications and platforms ranging from learning management systems to additional resources are used. However, many problems arise from students, teachers, and parents (Atmojo & Nugroho, 2020). The results of observations and discussions conducted by the researchers with the principal and 6 teachers at Madrasah Ibtidaiyah Al-Ittihadul Islamiyah Ampenan showed that distance learning in the 2020-2021 academic year still had obstacles related to mastering digital technology. This discussion concluded that the digital competence of teachers at Madrasah Ibtidaiyah Al-Ittihadul Islamiyah Ampenan had not been maximized and needs to be improved so that the quality of education through online teaching and learning can be of high quality and educational goals can be achieved. Thus, academic or learning loss does not occur for students today. Moreover, the current crisis has shifted school leadership dramatically towards distributed, collaborative, and networked practices (Harris, 2020).

Like the education system in Spain, which has used a collaborative system in dealing with the impact of the Covid-19 pandemic. There are many reasons why an education system like Spain's is so vulnerable to the effects of Covid-19. It impacts socioeconomic segregation, dropouts and academic failure; poor network and collaboration culture, overcrowded classrooms that hinder the quality of education; outdated curriculum. In addition, consideration of education as a political currency is needed to strengthen bimodal education; and the obligation of teachers to update their digital competencies (Azorín, 2020). This finding becomes a concept relevant to the problems faced in Indonesia and even in the education system around the world. However, from the various problems that arise today, the COVID-19 pandemic has allowed us to pave the way for introducing digital learning (Pokhrel & Chhetri, 2021). Children's schools and education must undergo a broad digital transformation to meet the needs of the younger generation and their digital future (Iivari et al., 2020).

From previous research, it can be concluded that competence had an important role for teachers to support the implementation of teaching and learning. However, research directed at forming a digital competency framework for madrasa teachers related to the quality of 21st-century education has not been widely studied. It was the gap that this research wanted to create. Moreover, learning in madrasas had a different orientation to education in elementary schools. This means that the background and achievement of the goals were to be achieved. The basic principles of madrasa development that were more important are building the principle of equality, reconstructionism, student-oriented education, multicultural education and global education, and delivering students

to become human beings who believe and are pious and have noble character and can master science and technology.

Zhao et al. (2021) concluded that higher education institutions are encouraged to focus on developing students' and teachers' digital competencies, creating relevant learning strategies and using appropriate tools to improve the quality of education. So, universities that produce educators are also prepared to master digital competencies. Meanwhile, Reisoğlu & Çebi (2020) show that digital competency training needs to be implemented effectively where pre-service teachers collaborate on digital issues regardless of their previous experience. So, digital support proposes a new framework to meet the needs of blended learning or online learning (Chiu, 2021). Information and communication technology (ICT) tools, particularly digital teacher competencies and teacher education opportunities to learn digital competencies, play an important role in adapting to online teaching during school closures due to COVID-19 (König et al., 2020). Today's students are digital natives. They acquire digital literacy independently and are adept at using various Information and Communication Technology (ICT) tools to enrich their daily recreational lives. Although previous research has addressed the phenomenon and its relationship to learning in schools, the focus has been largely on students' adoption of ICT tools and facilitating their learning (Ting, 2015). So, today's ICT has given a big role for teachers in conducting online teaching and learning.

Thus, this study aimed to investigate the digital competence of madrasah teachers during the covid-19 pandemic. This research was also expected to make a major contribution to the understanding of schools in improving teacher digital competence because today's digital and global era education has demanded mastery of technology, creativity, and innovation of teachers in managing the classroom.

METHOD

The research activity was carried out at Madrasah Ibtidaiyah Al-Ittihadul Islamiyah Ampenan. This study used a qualitative method to explore the needs of the digital competence development of madrasa teachers by today's global challenges. In qualitative research, researchers can observe various phenomena that occur in the field by the context and real events (Creswell, 2012). So this study analyzed the perception of data obtained from teachers and principals to find out the right teacher digital competency development framework to improve the quality of education at Madrasah Ibtidaiyah (MI) Al-Ittihadul Islamiyah Ampenan.

Data were taken through observation and interviews. The participants involved in the research were 1 principal and 9 teachers from grades 1 to 6. The teachers who did the teaching and learning activity must report to the principal. While the principal always evaluated teachers' teaching activity to increase the teaching education quality. Observations were conducted during the online learning process for the even semester of the 2020-2021 academic year. Observation activities are directed at the use of multimedia technology used by teachers during teaching. This observation is stated in an observation form related to the level of mastery of the digital technology used. Then, interviews were conducted with principals and teachers. The interview questions are related to the need for a madrasa teacher digital competency development framework. It did use by video call. The data that has been collected is analyzed using the stages, namely data reduction, data presentation, conclusion drawing and triangulation (Miles & Huberman, 1994).

FINDING AND DISCUSSION

The results of data analysis of observations and interviews concluded that Madrasah Ibtidaiyah (MI) Al-Ittihadul Islamiyah Ampenan must develop teacher digital competencies through various activities. The interview used is related to the implementation of digital technology in teaching (Caena & Redecker, 2019). The results of the interviews are summarized in the following table.

Table 1. Implementing digital technology in teaching

| Item | Questions | Answer | |
|------|--|--------|-----|
| | | Yes | No |
| 1 | Do you use technology applications in teaching? | 30% | 70% |
| 2 | Do you use social media as a form of disseminating information in teaching and learning activities? | 10% | 90% |
| 3 | Do you always use technology learning resources as a medium for teaching and learning activities? | 20% | 80% |
| 4 | Do you make learning videos that students use to study? | 10% | 90% |
| 5 | Do you plan and implement digital tools and resources in the teaching process; to increase teaching effectiveness? | 10% | 90% |
| 6 | Do you manage digital teaching interventions appropriately? | 40% | 60% |
| 7 | Do you experiment with and develop new formats and pedagogical methods for teaching? | 20% | 80% |
| 8 | Do you rarely use digital technology in teaching and learning activities? | 60% | 40% |
| 9 | Do you use the basic digital technology available for teaching? | 30% | 70% |
| 10 | Do you meaningfully integrate available digital technologies into the teaching process? | 40% | 60% |
| 11 | Are you using digital technology intentionally to improve pedagogic strategies? | 20% | 80% |
| 12 | Do you manage, monitor, and flexibly adapt the use of digital technology to improve pedagogic strategies? | 30% | 70% |
| 13 | Do you use digital technology to innovate your teaching strategies? | 30% | 70% |
| 14 | Do you use technology applications or technology tools to assess student learning outcomes? | 40% | 60% |
| 15 | Do you actively involve the students in digital activities? | 30% | 70% |

From the questionnaire data presented through the percentages in table 1, it can be seen that teachers' overall level of mastery of digital technology is still low. This can be seen in the distribution of questions related to digital competence, which has a low percentage level. Online learning activities have not fully utilized multimedia technology in teaching material. The teachers also have a low level of ability to design instructional videos. So, teachers need various activities that can improve digital competence. From the data distribution, most teachers use digital technology to carry out learning. From the results of interviews with teachers, it is concluded that they use several applications that the government has set in providing practice questions or exams. However, the provision of digital teaching materials has not yet been carried out because they have not mastered how to design learning videos. While, digital resources and digital media are an important part of teachers' daily practice (Gudmundsdottir & Hatlevik, 2018). In addition, the demands of the digital era are forcing teacher educators to re-examine their professional identity in technology-integrated teaching. Institutional support is essential for constructing professional identity (Avidov-Ungar & Forkosh-Baruch, 2018). "Digital competence" is a seemingly elusive concept in which preconditions, opportunities and challenges, as well as contextual circumstances and society, change. Concepts can be used differently in different contexts and by different actors. It also depends on what one wants to highlight or whether it is conceptualized in a narrow or broad sense (Olofsson et al., 2020).

The results of the analysis of the interviews concluded that According to the principal, "teachers still need activities to increase digital competence such as workshops or training. It is known that they have not innovated to make learning videos or technology-based teaching materials". Meanwhile, according to the teachers, "they find it difficult to develop digital-based teaching materials. Online learning is carried out by using the *gedu* application for student training activities. Meanwhile, the material is taught through video calls to google meet or through voice notes distributed to WA groups." Thus, it can be seen that schools must plan various digital competency improvement activities related to the need for using technology for teaching and learning activities. Moreover, digital technology has transformed the world of education at this time.

Digital transformation has implications for how and what to teach. Technology as a teaching tool and as a teaching content (Guggemos & Seufert, 2021). Teachers actively seek to resolve demanding situations by going beyond their current Professional Digital Competencies through

engagement in various forms of digital transformative agency (Brevik et al., 2019). The interpretation of the concepts of digital competence and digital literacy has undergone long-term development. Its contemporary appearance is characterized by complexity and focuses not only on technological skills but also on the cognitive and attitudinal components of personality. Digital competency development, whether implemented in primary schools, in other forms of early education, or even further education, is targeted at the respective educational impact entities and appropriate levels of digital literacy (Rambousek et al., 2016). There is a need for greater theoretical elaboration in the field and provides some recommendations for investigating understanding and designing educational curricula and activities that support the development of digital media literacy (Manca et al., 2021). Several studies have shown that students have positive attitudes towards the use of the internet as a learning tool (Goulão & Fombona, 2012). Today, ICT plays an important role in our society. Education is not spared from this transformation because in a globalized world, when everything is changing, there is a need to continue education, recycle and expand it to provide answers to the challenges ahead. Computer literacy is an important competency in the 21st century.

The results of data analysis concluded that teachers have not comprehensively used technological advances for teaching and learning activities. Several things were found that 1) teachers have not used social media, 2) teachers are not used to making learning videos, 3) teachers have not included the use of technology devices or multimedia technology in planning learning activities, 4) teachers have not combined digital technology with classroom learning strategies, and 5) students have not been actively involved in the class. This finding recommends several things for schools to develop various activities that can improve the digital competence of madrasa teachers, including; 1) training in making learning videos, 2) utilizing technology applications for practice questions and distributing material to students, 3) training related to current technological developments regularly, and 4) schools can facilitate the needs of teachers to provide technology tools.

CONCLUSION

The findings of this study conclude that teachers have not fully used technology applications in the teaching and learning process. The teacher used social media only, the WhatsApp group, to provide information on teaching materials to students. Sources of teaching materials are also taken from books that have been used so far at school. So, they need various training activities to improve their ability to develop digital teaching materials such as learning videos. In addition, internet network constraints are also a consideration for teachers to do the zoom activities as a substitute for face-to-face. So, the teacher made an innovation in explaining the material through voice messages that were shared in the WA group. The results of this study recommend that schools carry out various activities to improve teachers' digital competence so that teaching activities become more qualified.

This research is still limited to analyzing the needs of madrasah teachers digital competence development. So, research results can still be developed with learning and teaching evaluation strategies or a combination of appropriate teaching strategies with multimedia technology. This study also provides an understanding of the importance of managing the resources of educators in madrasas. The next researcher can develop this study from multimedia technology and students' achievement.

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