The Urgency of 21st Century Teacher Competencies in Facing Educational Challenges in the Digital Era

(Case Study at SMK Al-Wafa Boarding School Ciwidey)

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A B S T R A C T

A R T I C L E   I N F O

This research is based on the condition of education in Indonesia which is facing the challenge of digitalization which of course affects the quality of Indonesian education. One of the causes of the low quality of education in Indonesia is because teacher resources are still low. The research method used is a descriptive method with a qualitative approach. The informants in this research were the principal, deputy principal for curriculum and teachers at Vocational School of Al-Wafa Boarding School Ciwidey. The research results found that the importance of 21st century teacher competence in supporting digital-based learning processes. Teachers in the 21st century are adaptive teachers who are able to develop their competencies by utilizing technological developments in carrying out learning in schools. This is certainly the answer for the world of education in facing the era of digitalization in order to improve the quality of education in Indonesia

1. INTRODUCTION

One of the factors supporting the rapid development of a country is the provision of quality education in that country. Based on the results of the PISA (*Program for International Student Assessment*) assessment in 2018, it has shown that Indonesia is in 72nd place with a score of 371. In the results of the PISA assessment for the next three years, namely in 2022, Indonesia experienced an increase in ranking, namely being ranked 1st. -67. However, the score achieved that year decreased by 12 points to 359. This was because the international average score also decreased (Napitupulu, 2023). The two PISA assessment results show a low level of understanding of literacy, mathematics and science among the younger generation in Indonesia (Faizatul Amalia, dkk., 2020). Apart from that, according to a survey conducted by PERC (*Political and Economic Risk Consultant*), the quality of education in Indonesia is in last place, namely 12th out of 12 countries in Asia (Dewi Ayu Wisnu Wardani, dkk, 2023).

The results of the assessment above strongly indicate that the quality of education in Indonesia is still very low. One of the factors causing the low quality of education in Indonesia is that the competence of teachers in Indonesia is still below standard. This is based on official data released by the Indonesian Ministry of Education and Culture which states that the Teacher Competency Test (UKG) score data in 2022 has an average score of 54.05. The average value still does not reach the minimum standard value set by the Ministry of Education and Culture, namely 55 (Kinanti Geminastiti Hilmiatussadiah, dkk, 2024).

The results of the research above should build enthusiasm for teachers in Indonesia to carry out self-reflection and continuous improvement. Teachers as the spearhead in the implementation of the educational process play an important role in determining the quality of education. The competencies possessed by a teacher will have an impact on the teacher's performance in the teaching process and will influence increasing student learning motivation. The more the teacher's competence develops, the more quality the student output will be because they have gone through a quality educational process (Rahman, 2022). This shows how important the role of teachers is in improving the quality of education in a country. In laws of the Republic Indonesia No. 14 of 2005 and Government Regulations No. 74 of 2004 concerning teachers and lecturers explains that there are four competencies that a teacher must have, namely pedagogical competence, professional competence, personality competence and social competence. Even though there are four different types of competencies, these four competencies are interrelated and complement each other in realizing the ideal teacher model (Dewi Ayu Wisnu Wardani, dkk, 2023).

As the main actor in the world of education, teachers are required to always be creative, innovative and transformative in every current development. Facing the era of society 5.0, Indonesia is presented with various digital transformation challenges in the education sector. The challenges faced by teachers in developing their competencies in the 21st century include changes in teaching methods with a shift in the teacher paradigm from

transmitter of information to facilitator as well as demands for the development of learning innovations and skills that are relevant to future needs (Judijanto, 2024). Therefore, it is necessary to develop 21st century teacher competencies in responding to these challenges to maintain the quality of education in the era of digitalization.

2. METHOD

This research is a case study with a qualitative approach that focuses on the urgency of the role of teachers with 21st century competencies in facing the challenges of the digitalization era in order to realize school digitalization at Vocational School of Al-Wafa Boarding School. This research was conducted at Vocational School of Al-Wafa Boarding School Ciwidey, Bandung Regency in May – July 2024. The subjects of this research were informants who provided information related to the urgency of 21st century teacher competency in facing educational challenges in the digital era, including school principals, deputy principals' schools in the field of curriculum and teachers. The selection of informants in this research was obtained using the *snowball sampling technique*. This research prioritizes direct data from informants and observations made in the field.

This research data was obtained by researchers conducting interviews through direct meetings with the principal, deputy principal for curriculum, one person and one teacher. This data collection method functions as a source of information in the form of questions related to the importance of the role of teachers in developing 21st century competencies in providing digital-based education in schools. In this research, documentation studies were used to obtain general description data regarding school development plans as well as data on the completeness of school facilities and infrastructure.

The research data was analyzed by reducing the data, displaying the data and drawing conclusions from the collected data. Data reduction is carried out by selecting, loading and simplifying data in the form of detailed descriptions or reports. Data reduction begins by summarizing each data so that it is easy to understand, discarding data that is considered unimportant and all data is grouped based on the categories and problems studied. The data that has been reduced is then displayed by combining the information arranged in a form that is easy to see for study. Next, conclusions are drawn by studying patterns, themes, similarities, differences and the things that arise most often.

3. RESULTS AND DISCUSSION

As an effort to answer the challenges above, one of them can be overcome by developing 21st century teacher competencies. The existence of technology should be a very useful tool as a learning medium that can make it easier for teachers to convey learning material while providing more creative, innovative and enjoyable learning. Of the four competencies mentioned above, one indicator of teacher professional competence is being able to utilize technology in the learning process to answer the challenges of the times. This

is very in line with the competency of 21ˢᵗ century teachers, namely having good digital skills and literacy (Oktifa, 2022).

Vocational School of Al-Wafa Boarding School is one of the digital-based schools in Bandung Regency. As an effort to answer the challenges of digitalization, this school has carried out digital transformation since 2018 before the Covid-19 pandemic occurred. In the initial stage, the Principal collaborates with the School Foundation to establish a digital-based school by completing supporting facilities and infrastructure first. In line with the ongoing provision of adequate facilities and infrastructure, the Principal is recruiting teachers who are competent in the field of information technology. In the next stage, teachers who are competent in the field of information technology are the ones who provide prior *training* to teachers who are less competent in the field of information technology so that they can adapt and get used to using technology. Until now, Vocational School of Al-Wafa Boarding School is one of the *Sekolah Pusat Keunggulan* in Bandung Regency. Some of the teaching staff at the school are *guru penggerak*. Therefore, as an effort to increase teacher competency, the knowledge gained by driving teachers and from teachers who already have certification is disseminated back to all teachers in workshop activities or also in-house training.

The results of efforts to increase the competency of 21ˢᵗ century teachers at Vocational School of Al-Wafa Boarding School are that teachers at Al-Wafa Vocational School carry out all elements of learning using digital technology, starting from lesson planning, learning implementation to learning assessments carried out using digital technology. This school has an LMS (*Learning Management System*) which can be utilized by all school members. In each classroom, there is a projector, LED TV and WiFi access that can be accessed by all students. Since 2022, this school has implemented learning using interactive media technology such as metaverse, AR (*Augmented Reality*) and VR (*Virtual Reality*). For example, in one of the courses in the pharmacy department, the teacher uses metaverse interaction media technology in a pharmacy simulation.

The use of digital technology facilities in the learning process is certainly very useful in carrying out a quality learning process. The Minister of Education and Culture, Nadiem Makarim, explained that digitalization of education is not to replace teachers as the spearhead of educators in schools, but with digitalization, teachers can use technology as a learning medium to make it easier for teachers to convey learning material, as well as making it easier for students to absorb it. learning materials and to strengthen teachers' professional potential and competence by going through the digital technology-based educational transformation stage (Ghivarianto, 2020).

4. DISCUSSION
4.1. 21ˢᵗ Century Teacher Competencies

In accordance with Law of the Republic of Indonesia Number 41 of 2005 Article 8, teacher competence includes pedagogical competence, social competence, professional competence and personality competence. In the 21ˢᵗ century, teacher competency is not

only focused on the four competencies stated in the law. However, 21st century teachers are demanding additional competencies based on technology, critical thinking, creativity and innovation (Aryana, Subyantoro, & Pristiwati, 2022).

In learning in the 21st century, the need for 21st century competencies is very necessary as an effort to adapt to developments in digital technology. One of them is teacher competence in operating and utilizing digital learning media, whether physical or non-physical, which can be used as an intermediary between teachers and students in understanding subject matter to be more effective and efficient (Yusuf M. , 2022).

Meanwhile, the 21st century teacher is not only a teacher who is able to apply learning methods by utilizing digital technology as a learning medium, but he must also have the skills to collaborate between the quality of learning, technology and learning materials (Ofita & Sururi, 2023). Therefore, the four competencies listed in the law must still be possessed by a teacher. However, as time goes by, these four competencies must also adapt to changes.

Pedagogical competence is a teacher's skill in transforming knowledge to students. Pedagogical competence includes teacher skills in designing learning plans, implementing learning, and evaluating student learning outcomes according to the level of education and development of students (Aryana, Subyantoro, & Pristiwati, 2022). In meeting the demands of 21st century competence, a teacher with his pedagogical competence must be able to utilize technology in planning, implementing and evaluating learning.

Social competence means a teacher's ability to socialize and communicate well and effectively with students, fellow teachers, parents and the surrounding community. More deeply, teacher social competence includes the teacher's ability to adapt to the surrounding environment while still paying attention to his ethics as a teacher (Yusuf M. , 2022). In this era of globalization, various information can be easily and quickly accessed. Therefore, in applying their social competence, 21st century teachers are required to be thorough and communicative in order to avoid inappropriate information. 21st century teachers must be good at operating technology, such as being smart in using social media to keep up with current developments.

Professional competence is a teacher's ability related to broad and in-depth mastery of learning material which includes mastery of school subject curriculum material and the scientific substance that covers the material (Notanubun, 2019). In this competency, 21st century teachers are required to be more creative, innovative and develop critical thinking patterns in realizing and developing students to have 21st century abilities. In this case, 21st century teachers are required to have the ability to operate and always be *updated* with developments in digital technology to balance with the development of students who are increasingly mastering technology.

Personality competency is a personal ability that reflects a personality that is steady, stable, mature, wise, dignified and has noble character (Notanubun, 2019). In this case, the teacher will always be a role model for each student. Therefore, in the era of globalization, the flow of developments in values and culture is entering Indonesia very quickly and the condition of society is not yet ready to accept it, so 21st century teachers are required to

remain stable and control themselves in facing cultural developments and continue to maintain their authority as a teacher. Teachers must maintain their values, norms and ethics. 21ˢᵗ century teachers must have self-stability and teacher personality integrity.

These four teacher competencies will continue to develop according to the pace of development of the times so that teachers are accustomed to adapting to future generations in the next era (Ofita & Sururi, 2023).

4.2. The Urgency of 21ˢᵗ Century Teacher Competencies in Facing Educational Challenges in the Digital Era

21ˢᵗ century learning requires teachers to continue to hone their competencies and abilities in presenting the learning process. Students in the 21ˢᵗ century are those who are familiar with the internet and are very enthusiastic about digital and technological things. Facing this, teachers in the 21ˢᵗ century must transform quickly, upgrade *themselves* and adapt as professionals in the era of fast-paced spread of technology and information (Sitompul, 2022).

Likewise, in a hadith, the Messenger of Allah said, "*Educate your children according to their time, because they live in their time, not yours*" (HR Ali bin Abi Talib). In accordance with the hadith quote, teachers in the 21st century must have competencies and skills that are appropriate to the times that students are facing. Students in the 21st century are those who must hone critical thinking skills, the ability to communicate effectively, innovate and solve problems through negotiation and collaboration (Tarihoran, 2019). Therefore, this must be balanced with the competence and skills of teachers in the 21st century.

The role of a teacher in the 21st century is no longer as someone who transfers knowledge to their students, but their role has changed to become a facilitator who provides stimulus through learning strategies, learning methods, as well as providing guidance and assistance to students in solving a problem (Mulyono, 2021). Teachers in the 21st century are active, creative, innovative, critical, transformative teachers regarding current developments, technology and teaching (Starkey, 2019). Teachers' abilities in the 21st century must be more *updated* than their students' ability to understand digital technology. The teacher competencies needed to face the 21st century are not only focused on four components such as pedagogical, professional, social and personality but must have additional competencies, namely mastery of *Technological Pedagogical Content Knowledge* (TPACK), *Critical Thinking, Communication, Collaboration, Creativity and Innovation* (4C), *Higher Order Thinking Skills* (HOTs), *Massive Open Online Courses* (MOOCs) and multi-literacy culture (Suhud Aryana, dkk., 2022).

The gap between teachers and students in utilizing digital technology must be a challenge that must be immediately overcome in facing changes towards the digital era as an effort to improve and increase the quality of education in Indonesia (Sitompul, 2022). The development of the digital world is gradually not only a change that affects the times but will become a lifestyle. Therefore, in the world of education we need competent teachers who truly master digital technology. This is because teachers are the only

spearhead of education, through their competence, teachers can carry out a quality learning process so that it will have an impact on the quality of school graduates. This also includes the provision of school facilities and infrastructure that support the realization of the learning process by utilizing digital technology as a learning medium. However, no matter how great technology is, it will not replace the role of teachers in organizing the education and teaching process for students at school. Likewise, no matter how fast the world develops in the field of technology, it will not be of benefit to the world of education if teachers themselves are unable to master it and will ultimately be left behind.

5. CONCLUSION

Providing quality education cannot be separated from teachers as the main actors in implementing a quality learning process. The development of technology is an opportunity for teachers to maximize its use in the learning process. Technology is presented to make things easier for humanity, as well as in the world of education, technology can be used to make it easier for teachers and students to carry out a more effective and efficient learning process. Vocational School of Al-Wafa Boarding School is one of the schools that has utilized the presence of digital technology in all dimensions of the implementation of education in schools. This school has utilized various technological features such as the use of the metaverse in education. This is strengthened by the development of teacher competence towards 21st century teacher competence. Digital literacy is a capability that is very much needed in 21st century competence. Teachers in the 21st century must have abilities that are adaptive to current developments, able to operate and utilize digital technology well and wisely, and has the ability to be an innovative and creative facilitator in organizing the learning process as an effort to improve the quality of education.

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