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Assessing Indonesian Teacher's Perspective on the Implementation of Distance Learning due to COVID-19 Based on Online Survey

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ABSTRACT:
On account of preventing transmission of COVID-19 measures, schools worldwide are a closure. This study aimed to assess the teacher's readiness and hardship on the implementation of distance learning due to COVID-19, using a questionnaire survey. The data were collected during school closure through an online survey. The participants of this research were 355 teachers. The results showed that the teacher's main difficulty was the inability to communicate intensively with students, and student participation in every learning session was difficult to monitor and control. Teachers also discussed their desire to know more about how to do an online assessment. Teachers' readiness to implement distance learning in the next semester was only 16.9% that teachers stated they were very ready. Within this study's limitation, 94.6% of teachers showed providing the chance to use distance learning in post-pandemic. The teachers also expected to receive distance learning training and improving technology facilities.

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Introduction

The SARS-COV-2 virus that causes Covid-19 was first identified in Wuhan, China, in December 2019 (Huang et al., 2020). Then it quickly transmitted from human to human (Q. Li et al., 2020; Munster et al., 2020; Paules et al., 2020). In March 2020, Covid-19 had spread throughout the world and is designated as a global pandemic (WHO, 2020). To reduce the spread of this virus, WHO provides recommendations for implementing social distancing (WHO, 2020), which then its implementation forces the closure of schools around the world, affecting nearly one billion students (Abuhammad, 2020b; Jackson et al., 2016).

The school closure policy aimed to reduce the transmission of Covid-19 (Anderson et al., 2020; Moss et al., 2020; Wenham et al., 2020). Research results have shown that school closings lead to a decline in peak viral infection rates (Bin Nafisah et al., 2018). It is reinforced by other research results, which states that students in schools can accelerate the transmission of the virus so that school closures are a rational solution (Hens et al., 2009).

The strategy for closing schools varies in every country. In Indonesia, school closures were not carried out centrally. Still, they are left to regional governments by observing the conditions of the spread of Covid-19 in their regions (Kementerian Pendidikan dan Kebudayaan Republik Indonesia, 2020). The policy also provides parents with an opportunity to prohibit their children from going to school if they are still worried about infecting the Covid-19 virus (Shen et al., 2020). After the

implementation of distance learning, the teaching and learning habits of the students has changed since they stayed at home (Landrum et al., 2020; Tsai et al., 2020).

The closure of schools makes distance learning the only alternative so that students can continue to learn (Singh & Thurman, 2019). It cannot be denied that online learning carried out during the Covid-19 pandemic can accelerate digital transformation in education (Gabryelczyk, 2020). Digital transformation in education is not new and has been in use for several yearsin higher education (Olson, 2001; Xiao, 2019). At the university level, distance learning is one approach that has proven effective to be used (Szecsi et al., 2003; Tibingana-Ahimbisibwe et al., 2020). However, it should be noted that the infrastructure and level of technical mastery in universities and schools are much different.

Implementing technical mastery and teaching experience in is related to teacher self-confidence and perceptions of distance learning. The level of teacher's technical mastery varies with senior teachers are more likely to have low mastery of technology (Saltan & Arslan, 2017). However, senior teachers have higher confidence in implementing online learning because they believe they have more pedagogical experiences (Muñoz Carril et al., 2013). Shea (2019) further explains that teachers who have experience with distance learning have higher motivation. Teachers who have little experience or have never implemented online learning requiremuch more effort to carry out online learning well. Teachers' experience in implementing distance learning also has an impact on the readiness of teachers, technology, and the learning design (Martin et al., 2019).

Online learning is the best choice to fulfill students' rights during the Covid-19 pandemic. However, the implementation of online learning in schools is not always smooth and effective. Schools with limited experience with online learning will certainly experience difficulties, especially when teachers do not understand how to operate the required technology (Zaharah et al., 2020). In addition, to monitor student performance and development, teachers have to ready to understand how to learn and what students need in order to teacheffectively.

So far, research has focused on the difficulties of online learning in pandemics (Mailizar et al., 2020) and tends to be discussed in the context of higher education (Osman, 2020). The main goal of this study is to highlight the barriers to teachers in online learning. The specific purpose of the study was to obtain data on teachers' difficulties in implementing online learning and assessment, teacher advice to facilitate online learning, as well as their readiness and enthusiasm for implementing online learning in the future (post-pandemic). The reason for the need to do this research is to understand the difficulties of teachers during online learning and assessment. With this research, it is hoped that the government, families, and other stakeholders who have a role in education can create a solution to overcome online learning problems so that students can get a proper education.

Methods

Research Design

This study adopted a cross-sectional survey design (Creswell, 2012). The cross-sectional survey design in this research aimed to measure the difficulty of teachers in implementing online learning and assessment. The cross-sectional design was chosen because researchers can take samples from populations with sufficient generalization and survey results can be obtained quickly because the study period is short or only in one time period (at the start of the pandemic) (Wang & Cheng, 2020). In addition, teachers were also asked about their readiness and enthusiasm for continuously implementing online learning in the next semester and after the pandemic.

Participants

This survey was taken in East Java Province, the province with the second largest population in Indonesia. A total of 355 science teachers participated in the study who were secondary school teachers, with nearly three-quarters were working in junior high schools (71.3%). About two-thirds (66.2%) of

them have 10-20 years of teaching experience. More than three-quarters of the participants were female (78%). The complete demographic of the participants presented in Table 1.

Table 1

Demographic Features of the Participants

Criteria	Groups	N	Percentage (%)
Teaching environment	Junior High School	253	71.3
	Senior High School	102	28.7
The teaching experience	≤ 5 years	47	13.2
	5 < x ≤ 10 years	44	12.4
	10 < x ≤ 20 years	116	32.7
	20 < x ≤ 30 years	119	33.5
	≥ 30 years	29	8.2
Gender	Man	78	22
	Woman	277	78

Instrument and Data Collection

The survey was conducted for two months, from June to July 2020. Previously we sent a letter of approval to the East Java education office to conduct survey research for science teachers. Along with the letter, we also explained the research and its purpose. Once the research was approved, we coordinated with teachers who were willing to participate in the research and helped distribute the questionnaire in the same district.

The instrument used in this research was a questionnaire which consists of open and closed statements. The open questionnaire refers to Jaber and Kennedy (2017). For closed statements, we used a 5 point Likert scale, with increasing difficulty 1 to 5. The instrument was developed by referring to the criteria in the questionnaire developed by Muilenburg and Berge (2005) with a reliability value of 0.93. Generally, a questionnaire was designed to determine teachers' difficulties in implementing online learning, readiness to carry out online learning in the next semester, and online learning continuity in the future (post-pandemic). The questionnaire must go through two stages before being used, namely content and face validation by experts and legibility testing for 15 science teachers. The results of these two stages concluded that the sentences in each questionnaire item have a language structure that is easily understood by the respondent so that it can be used to collect data.

The questionnaire was then created in a Google form with a link that was shared with the participants via Whatsapp (WA) social media. The main consideration was that almost all schools have a WA teacher group. The principal researcher distributed the questionnaires to the WA teacher group, and to teachers who were not included in whatsapp groups were distributed through WA private messages. Teachers who have filled in were asked to pass on to other teachers. As an ethical consideration, teachers also have the right not to fill out the questionnaire—filling in the questionnaire was based on teacher volunteerism. The data that has been provided was also kept confidential and anonymous. Thus, the selection of respondents in this study was carried out using the snowball sampling technique.

Data Analysis

The data that has been obtained were checked first, sorted, and discarded if there were two or more identities of the same teacher. In addition, participant data was also issued if the teacher participated from other regions or teachers from non-science subjects. Quantitative data regarding the difficulties of online learning and readiness to carry out online learning in the future were analyzed using descriptive statistics.Meanwhile, as in Bengtsson (2016), qualitative data regarding difficulties in

implementing online assessments was carried out using content analysis, with four main stages.. The coding was done inductively with the help of QSR Nvivo 12 Plus Windows software. The results were expected to determine the tendency of the answers given by the teacher.

Results

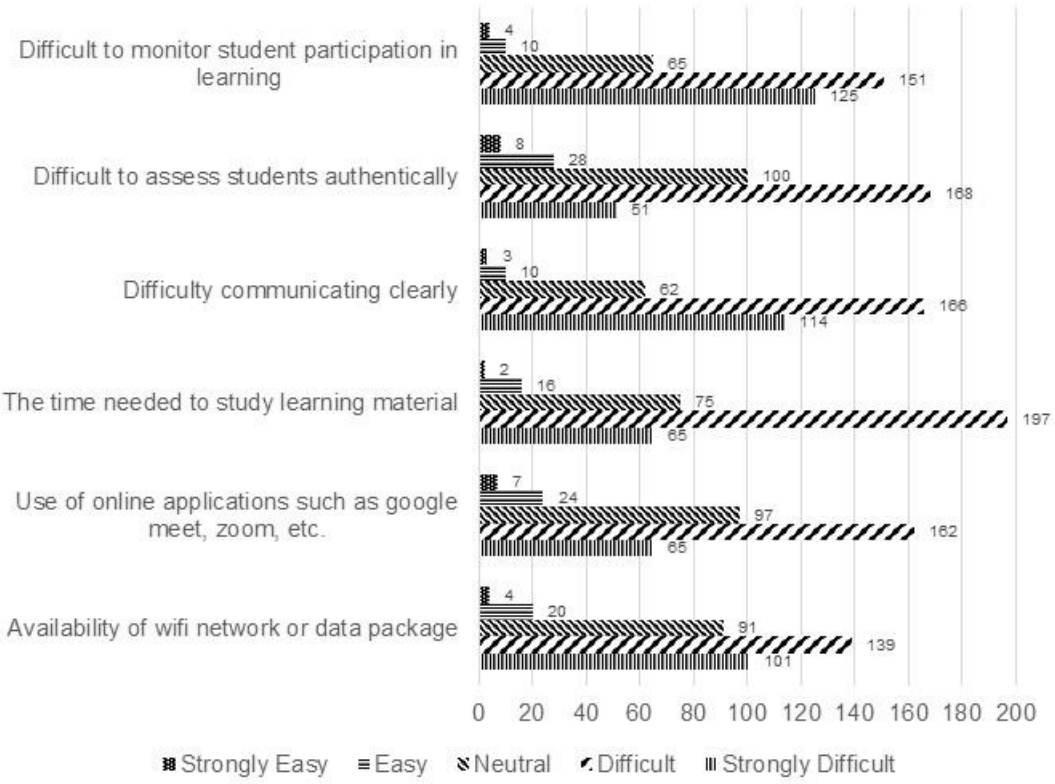
The results were divided into several subs according to the survey objectives, starting from presenting data about teacher difficulties in implementing online learning in general. Then, specified again the topic of teacher difficulties in online assessments accompanied by suggestions or solutions submitted by the teacher. Finally, it was presented regarding teachers' readiness to carry out online learning in the next semester (during a pandemic) and the future (post-pandemic).

Difficulty in Implementing Online Learning

There were six criteria identified as teacher difficulties in implementing online learning during the pandemic. This criterion was adapted from previous researches (Jaber & Kennedy, 2017; Muilenburg & Berge, 2005). The results showed that the limited learning time was what most teachers complained about (n = 197), followed by difficulties with online assessments (n = 168). More details were presented in Figure 1.

Figure 1

Teachers' difficulties in implementing online learning



Difficulty in Carrying Out Online Assessments

After analyzing the teacher's answers using content analysis, we categorized three factors that contributed to teachers' difficulty in carrying out online assessments which were students factors, infrastructure, and family.

Students Factor

Many teachers stated that it was difficult to judge students' honesty and seriousness in assignments given. Sample teacher statements were given below.

> "*It is difficult to apply discipline and a sense of personal responsibility to students because there is no direct supervision and it is not fully supported by parents so that students underestimate online learning*" Teacher#11
> "*Student work results are almost the same as other students*" Teacher#201
> "*Students are not doing their work entirely*" Teacher#256

Infrastructure Factor

Infrastructure is the factor that most impedes online learning in developing countries. These infrastructure facilities are related to the availability of networks and the availability of equipment needed for online learning, for example, smartphones, laptops, tablets, etc. This difficulty was conveyed by several teachers in our research as well, as shown in the following statements.

> "*Facilities and internet access for students who come from middle to lower class families so that some students have to be picked up from school to carry out online tests using school facilities*" Teacher#58
> "*Some students did not submit assignments due to limited internet access*" Teacher#97
> "*Many students do not send assignments; some students do not have smartphones or good networks condition*" Teacher#332

Family Factor

Family is the most influential party in the implementation of online learning by students. Parents' awareness to give their children the freedom to use smartphones is also a particular problem in online learning and assessment. One teacher expressed this.

> "*Students cannot work according to the scheduled time because most students still borrow their parents' smartphones and at the time of the exam schedule, parents are still busy working so that their smartphones are brought*" Teacher#276

In addition, some families helped students to do their assignments. The teacher's statement showed this claim.

> "*Students are less independent in working on questions because many students do not do their work, but are done by one of the other family members*" Teacher#197
> "*The results of student work in the assessment were probably done by their parents or siblings .....*" Teacher#125

Teacher Suggestions to Facilitate Online Learning

To facilitate the implementation of online learning, there were several suggestions given by the teacher. These suggestions were broadly grouped into three main parts which were to improve infrastructure, parental awareness, and training for teachers.

Improvement of Infrastructure

Increasing infrastructure is an urgent need to carry out online learning and assessments effectively. Regarding infrastructure, the teacher provided suggestions for providing internet access and equipment assistance to carry out online learningas shown in the following teacher's statement.

> "*The government needs to prepare online learning infrastructure*" Teacher#22
> "*The government and schools need to facilitate internet quotas for teachers and students*" Teacher#86
> "*Prepare a network system properly, provide qualified smartphone facilities for underprivileged students*" Teacher#156

Increased Parents' Awareness

Parents' awareness to support their children's education has a crucial role in designing online learning. This suggestion was put forward by the teacher, as shown in the following statement.

> "*Educate parents to play an active role in providing online infrastructure for their children*" Teacher#235
> "*Build commitment together with parents and students*" Teacher#335
> "*Collaboration with parents is needed so that learning activities can be effective*" Teacher#351

Training for Teachers

Training for teachers is crucial to increase the skills and capacity of teachers in implementing online learning. Training also needs to be done to improve teachers' mastery of technology. The following statement indicated this need.

> "*There needs to be training for teachers on online learning in each city/district because the existing training is ineffective (too many enthusiasts)*" Teacher#43
> "*There needs to be a lot of training in using online learning systems*" Teacher#166
> "*Need training in online learning development techniques*" Teacher#211

Readiness in Implementing Online Learning in the Following Semester

The survey results on teacher readiness to carry out online learning in the following semester (Figure 2) showed that 73% of teachers were ready to carry out online learning in the next semester. As many as 10.1% of teachers stated they were not ready to carry out online learning. Only 16.9% of teachers stated that they were very ready to carry out online learning.

The Need for Online Learning in the Future (Post-Pandemic)

The results of a survey on teacher opinions regarding the need for implementing online learning after the pandemic was declared over (Figure 3) showed that 94.6% of teachers felt the need to carry out online learning, and 31.8% said it was very necessary. Meanwhile, as many as 5.4% of teachers said there was no necessity to carry out online learning after the pandemic.

Figure 2

Teachers' readiness to conduct online learning in the following semester

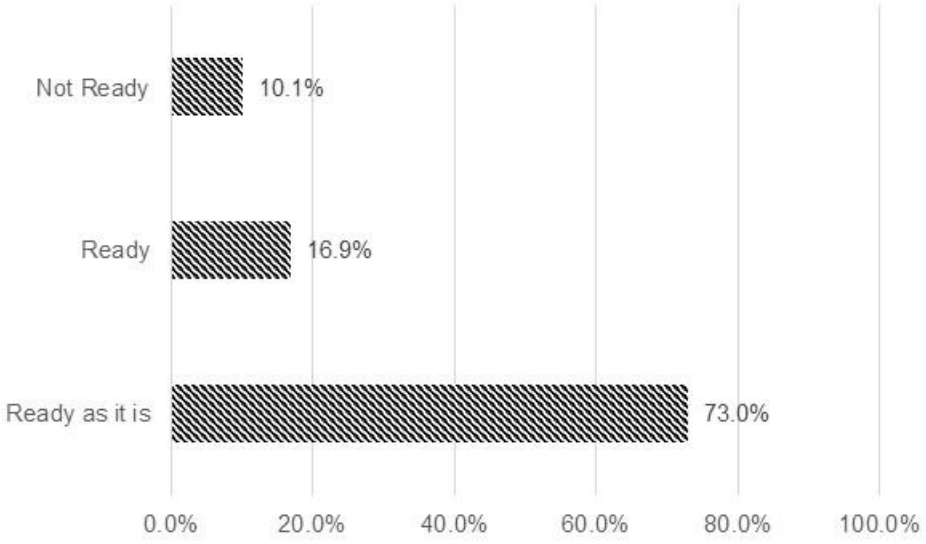
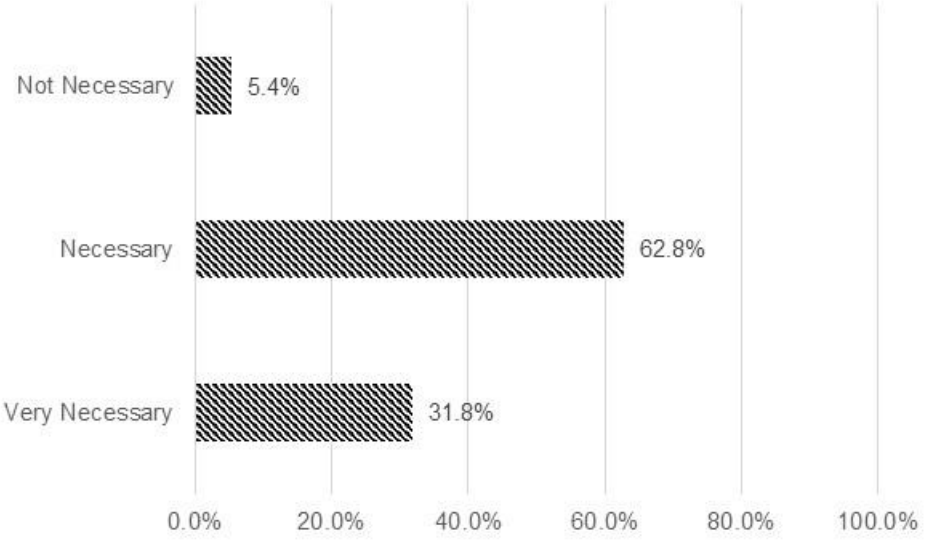


Figure 3

Teacher opinion on the need for online learning after the pandemic



Discussion

Broadly speaking, the main objectives of this study were twofold. The first was to assess the difficulty of teachers in implementing online learning and their contributing factors. This study indicated that the main difficulty of teachers in implementing online learning was the limited duration of learning and the difficulty in assessing students. From the assessment aspect, teacher difficulties were influenced by several factors, namely students, infrastructure, and family. Departing from this difficulty, the teachers also gave suggestions to improve infrastructure, parental awareness, and training for teachers. The second objective was to identify the teacher's readiness to implement online learning in the future. The results showed that only 16.9% of teachers stated that they were ready to

carry out online learning. In connection with the need for post-covid-19 pandemic online learning, almost all (94.6%) teachers felt the need to carry out online learning. This research is important because it has considerable enough potential to provide complete information to education stakeholders to formulate policies and provide the need for implementing online learning. (Adedoyin & Soykan, 2020; Anwaruddin, 2015). Next, we briefly discussed each identified finding.

Difficulty in Implementing Online Learning

We emphasized again that the main difficulty of teachers in online learning is related to limited learning time. This condition causes some learning materials not to be appropriately conveyed or not at all. This difficulty occurs because teachers' low ICT skills (Adedoyin & Soykan, 2020) are accompanied by the chosen ineffective learning model (Xhomara & Bara, 2020). On the other hand, the demand for curriculum during the pandemic period remains high (Köpsén, 2020). These findings indicated that teachers need a long time to get used to using online learning (Yurkofsky et al., 2019). This time limitation did not interfere with students and teachers (Gay, 2016; Yengin et al., 2011). The teacher needed to choose what learning materials need to be taught to students and what materials can be studied independently. The selection of these materials allows the teachers to deliver the material they think is necessary more freely (Susilo & Sudrajat, 2020). Also, from the student perspective, they must manage their study time effectively online so that they can easily complete assignments on time (Adnan & Anwar, 2020).

Difficulty in Carrying Out the Online Assessment

The difficulty of teachers in carrying out online assessments in this research generally consists of three factors: students, infrastructure, and families. In terms of students it is difficult to know the honesty and seriousness of students. In terms of infrastructure, students do not submit assignments due to internet support and gadget ownership. Meanwhile, from the family side, the freedom to use gadgets by students is limited by the family. Assessment is one of the important components in learning to measure learning objectives and student development. Assessment during online learning is a major difficulty encountered and has been confirmed by several studies (Adedoyin & Soykan, 2020; Elzainy et al., 2020; Kaur et al., 2020; Wei et al., 2021). When conducting online assessments, teachers find it challenging to supervise students directly and minimize cheating by students (Arkorful & Abaidoo, 2015). This turned out to have an impact on the credibility of the grades obtained by students. During the Covid-19 pandemic, it was also difficult for teachers to communicate with each other about making ideal assessments (Cutri et al., 2020). From these findings, the teacher needs to make significant changes so that assessments can be carried out optimally during online learning as well as to pay attention to how to ensure student rights are fulfilled during online assessments. Wei et al. (2021) stated that various online learning aspects could be measured by various techniques, such as quizzes, essay tests, assignments, interviews, and observation of recorded learning results. Gay (2016) and Holsapple and Lee-Post (2006) explained that there is a tendency for teachers to be reluctant to carry out written assessments in online learning as a form of pedagogical unpreparedness.

Teacher Suggestions to Facilitate Online Learning

The teachers were also asked for their opinions about what needs to be improved to facilitate online learning and assessment. From the results of inductive coding carried out by researchers, three broad categories were obtained, there are (1) improvement of infrastructure, (2) increased parental awareness, and (3) training for teachers. First, related to facilities and infrastructure. It cannot be denied that the lack of infrastructure in online learning is a problem that is often encountered in developing countries, including Indonesia (Adarkwah, 2020; le Roux et al., 2021; Lock & Redmond, 2021; Pal & Vanijja, 2020). These findings indicated that teachers need to support a stable internet network

connection (Gay, 2016). The availability of fast internet access is crucial in determining online learning success (Hasan & Khan, 2020).

The second result was efforts to increase parental awareness in supporting online learning. This study's findings indicated that parents need to limit their children's use of gadgets for safety reasons (Joosten & Cusatis, 2020). In another research, Dong, Cao, and Li (2020) revealed that many parents believe that frequent use of gadgets can harm their child's development. The implementation of online learning requires cooperation and shared perceptions between teachers and parents to be implemented optimally (Abuhammad, 2020a).

Third result was advice for online training. We need to realize that online learning during this pandemic is being carried out without adequate preparation and training (Kerres, 2020). Meanwhile, online learning readiness is closely related to pedagogical training (Darab & Montazer, 2011; Gay, 2016; Keramati et al., 2011). Thus, the lack of training can be overcome by forming a community to learn together (Lai, 2017). Through a community created by teachers, they can share some beliefs, values, experiences (S. Li et al., 2019; Zhang & Liu, 2019) and reflect on their learning (Anwaruddin, 2015).

Readiness in Implementing Online Learning in the Following Semester

The survey results showed that the teacher's readiness to implement online learning in the following semester is low. Because teachers were not used to implement online-based learning or no e-learning platform is easy to use by teachers (Adarkwah, 2020). The way that can be used so that adaptation to technology can be done well is by increasing instructors' and teachers' self-efficacy in using technology (König et al., 2020). Another way that can be done is to invite them to use technology for fun, such as social media, games, and others (Flavell et al., 2019). The habit of using technological devices can encourage someone to accept technological advances and increase their media literacy (Nowell, 2014).

The development of e-learning that is easy to use by user-in this case teachers and students must be carried out with a good needs analysis (Cook & Dupras, 2004). E-learning development needs to pay attention to teacher teaching styles and student learning styles (Zapalska & Brozik, 2006). In addition, the development of e-learning must also take into account the pedagogical component (Donnelly & O'Rourke, 2007). Online learning must still be done as much as possible so that students' expectations of learning and acquiring knowledge can be fulfilled (Susilo & Sudrajat, 2021). Teachers and students must be considered customers in e-learning, so e-learning must be flexible, lightweight, easy to use so that the learning process can take place effectively (Morrison, 2003). Another important thing that must be considered is that the teacher's presentation and learning material must be adapted to the student's learning style (Osubor & Chiemeke, 2015).

The Need for Online Learning in the Future (Post-Pandemic)

The interesting finding from this study was that teachers' readiness to carry out online learning in the following semester is low (16.9% of teachers stated that they are very ready). Still, teachers' enthusiasm for implementing online learning in the post-pandemic period is high (94.6%). The low teacher readiness was due to "cultural shock" where teachers have to switch from offline learning to online learning. The teacher's high enthusiasm was a form of teacher awareness to accept new things and revise their learning to suit online learning (Cutri et al., 2020). Teachers' high enthusiasm to carry out online learning after the pandemic period needs to be responded to by the government by supporting the existing technological ability to carry out online learning (Gay, 2016) or providing training to teachers (Compton, 2009; Hampel, 2009).

Research Limitation

This study has several limitations. First, the participants were only attended from the province of East Java. However, when viewed from the Human Development Index value, East Java ranks 15th out of 34 provinces (Badan Pusat Statistik, 2018). Still, it is sufficient to represent the condition of education in Indonesia. Second, the survey instrument is designed so that teachers report themselves what the problem is. There was a possibility that teacher did not report honestly so that the data obtained could not reflect the actual conditions. However, online surveys like this are among the most appropriate methods during a pandemic compared to community-based surveys. Third, the interviews we conducted were in Indonesian, but this paper's presentation was in English. From these differences in language, there may be a shift from the true meaning. From these limitations, further research is necessary to determine the difficulties of online learning in Indonesia from various perspectives, such as the government, parents, or the community, using more diverse data collection techniques such as interviews and observations. We also suggest increasing the research sample from other provinces so that the data can be more representative.

Conclusion

Overall, teachers' difficulties while implementing online learning at the beginning of the pandemic affected a "cultural shock" in the world of education. The teacher's difficulties must be used as evaluation material to improve online learning quality in the following semester or year. It needs comprehensive cooperation and support from the government, schools, and parents so that online learning can be done optimally in the future. Various stakeholders need to respond to teachers' enthusiasm to carry out online learning during the post-covid 19 pandemic by increasing technology capabilities or providing training to teachers. However, the Covid-19 pandemic could accelerate the digitalization of learning, especially in developing countries like Indonesia.

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