Reflection Online Learning During Pandemic and New Normal: Barriers, Readiness, Solutions, and Teacher Innovation

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Abstract

This study aims to reflect online learning when Covid-19 spread include what happened, how obstacles, teacher readiness, solutions, and teacher innovations to improving learning. The mixed-method research was conducted on 30 SD/MI and SMP/MTs teachers in various fields. Data collection was carried out by survey using google form and interviews. Teacher readiness data is calculated quantitatively using percentages. Qualitative data (constraints, solutions, and innovations) were analyzed qualitatively. The results showed barriers to online learning came from teachers, schools, students, and material content; The percentage in new normal teacher readiness to do online learning is 73,49 (moderate category); Solutions in form of improving online learning infrastructure, providing quotas, teachers not only assigning tasks but activities, improving teacher skills in the field of IT. Teacher innovation is planning blended learning in the new normal and designing learning using internet applications, and empowering teacher working groups. The results of reflection show that online learning which is done suddenly produces many obstacles. Online learning planning needs to be done by improving teacher skills in the internet technology field, providing online learning facilities and infrastructure, understanding the characteristics of the material, and familiarizing students with technology following global demands. For this reason, it is necessary to initiate blended learning, namely a combination of online and face-to-face in facing global challenges.

Keywords: Online Learning, Teacher Readiness, Barriers and Solutions

1. Introduction

Online learning during the Covid-19 outbreak was carried out suddenly so it encountered many obstacles (Poe, 2020). Barriers come from students, schools, and the curriculum (Amit et al., 2020). The barriers that teachers and students experience vary, especially in low grade primary schools (Bubb & Jones, 2020; Garbe et al., 2020; Panaoura, 2021). Some students sometimes cannot read and write so that the teacher in face-to-face learning can guide students. The availability of learning facilities is also limited (Yusuf, 2020). The internet can be accessed for free, not automatically online learning runs smoothly without problems. Learning during the pandemic is unplanned and emergency as schools close suddenly so teachers don't have time to plan online lessons. In many countries also are not ready for online learning (Doghonadze et al., 2020). Online learning constraints due to unstable networks, especially in remote areas (Rahiem, 2020). The results of research in tertiary institutions only 50% of respondents stated that the online system increases understanding. However, the stability of the internet network is only 23%, the quota limitation is 21% so that it affects the psychology of the respondents (> 90%) (Jamaluddin et al., 2020). This obstacle must have occurred at lower levels of education. In tertiary institutions, internet quotas and practicum implementation hinder online learning (Hariyanti et al., 2020). The knowledge and skills of teachers in the IT field are low, especially teachers in the 80s (Nopiyanto et al., 2020). As in Indonesia, in Kuwait the factors that hinder digital learning are time constraints, knowledge and skills, infrastructure, and technical support (Al-Awidi & Aldhafeeri, 2017).

Barriers to learning online also come from students (Mailizar et al., 2020b). Students are not familiar with online learning, especially elementary school students who rarely use

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Android-based technology. The difficulty of students comes from the inability of parents to purchase online learning support facilities (Greenhow et al., 2020). Initially online learning during the pandemic was very urgent without the preparation of teachers or students, and infrastructure. Students actually enjoy learning online because they are playing. In Australia students prefer online learning (Chen et al., 2020). The use of the internet as a learning medium has been widely practiced in schools (Akgunduz & Akinoglu, 2016). In Indonesia, during the pandemic, the government has provided various online learning facilities such as learning houses that can be accessed for elementary to high school levels. Online learning sites are also available on the internet for free. The low ability of IT-based teaching teachers and students not accustomed to learning via the internet is an obstacle to online learning. Difficult materials such as mathematics, physics, and chemistry that require calculations will make it difficult for teachers to plan online learning. Lessons that require practicum and calculation such as science and mathematics are generally difficult to teach online rather than face-to-face. Teachers who have low IT skills make it more difficult to teach these materials.

Several local governments have allowed face-to-face learning in schools, especially in green zone areas. Students prefer face-to-face learning to online learning (Viola et al., 2019). There are also schools that run face-to-face systems and online learning. Such learning is called blended learning or hybrid learning. Blended learning is learning that combines face-to-face learning and online learning (Akgunduz & Akinoglu, 2016). Hybrid learning must be well planned so that face-to-face learning and online learning are planned by considering several factors that support it. Online learning in Indonesia has been going on for nine months. The spread of covid-19 is still high. Teachers, students, schools, parents, and the government must adapt to this condition so that everyone enters a new normal era using online and hybrid learning systems. Learning must continue at the new normal, so there must be a change in the way teachers teach and the quality of learning must remain good even in new ways (Aristovnik et al., 2020).Technological developments make changes in teaching implementation. The development of science and technology is a challenge for educational institutions to organize online learning during the Covid-19 pandemic. The development of information technology encourages the development of online learning even though the pandemic has ended (Baturay & Yukselturk, 2015). Learning with hybrid methods has been carried out in many countries. Internet technology can be used as a learning medium, information source, and reference search (Wekke & Hamid, 2013). The learning is in accordance with global developments and demands so that learning in the new normal requires the readiness of teachers, students, and schools.

The government and related parties always try to keep the earning going well so it is necessary to know the readiness of teachers in facing learning in the new normal. The readiness of students, lecturers, and online learning facilities in tertiary institutions is high (Legowo, 2020; Liunardi et al., 2020), but readiness in school is still minimal. Teacher readiness of a vocational school in Sumatra is in the high category (4.2 out of 5) (Jamal, 2020). At the kindergarten level, only 6 out of 10 teachers are ready to do online learning (Ayuni et al., 2020). Readiness research in SD and Kindergarten has not been well defined, it only describes that the teacher is ready to do online learning (Sidqi & Auliya, 2020).

Research on online learning during the pandemic is limited to a specific study program on campus or a case study at a school. The implementation of online learning in certain subjects has been carried out during the pandemic with all its shortcomings (Naserly, 2020; Ningsih, 2020; Purwanti & Krisnadi, 2020).There is still little research on a large scale discussing barriers and solutions. In the new normal era, there is a need for comprehensive information about teacher readiness and innovation in implementing online learning. It is necessary to reflect on online learning that has been carried out suddenly during the outbreak. Reflection refers to the activity of finding out what happened, obstacles, how prepared are teachers in schools to carry out online learning, and how teachers make innovations as a follow-up. Along with the demands and increasing needs of teachers to develop and plan virtual learning, constraints, readiness, and what teachers have done need to be known in a wider area so that they become a reflection of online learning during the

pandemic and the new normal. This study aims to determine what factors are hindering online learning during a pandemic. In addition, it is to describe how the teacher's readiness to do online learning today and future so that it is a reflection of what happened and what must be prepared. This research also digs up information from the teacher of solutions and innovations that he does, in various fields of study and education levels in East Java to support online learning programs so that an overview of online learning during the pandemic and new normal can be obtained.

2. Method

This study uses a mixed method. Mixed method is a research design for data collection, analyzing which mixes quantitative and qualitative research to answer research problems (Creswell, 2007). There were 30 teachers who participated in this study from five districts of East Java (Surabaya, Mojokerto, Jombang, Pasuruan, Sidoarjo). Consisting of 7 men and 22 women. These teachers teach in science subjects, Islamic Religious Education, MI class teachers, Physical Education, English, mathematics, Al-Qur'an hadith and Arabic language. Quantitative data collection was carried out by surveying teachers at the primary and secondary levels to collect demographic data (gender, teaching experience, certification, residence, field of study taught). The instrument in the form of a questionnaire contains questions on the google form. Questions are used to collect data on the knowledge, attitudes, skills, and habits of teachers towards the application of online learning. This is done in order to determine the readiness of teachers to use digital learning (Parasuraman, 2000). Quantitative methods to explore data about the obstacles experienced by teachers during online learning and teacher readiness in learning during the Covid-19 and New Normal outbreaks. Semi-structured interviews were conducted to obtain data about the innovations made by teachers in online learning during the outbreak. Educational experts validate instruments related to content and constructs. Cronbach's Alpha was used to measure instrument reliability (George & Mallery, 2003). Interview techniques to identify participants' feelings, opinions, beliefs, and perceptions (Yildirim & Şimşek, 2015). This technique is used to confirm the data from the questionnaire and get an in-depth understanding of teacher readiness, innovations that teachers make during online learning and factors that influence it.

Data were analyzed using quantitative statistics with the percentage of teacher readiness in online learning. Data on obstacles, solutions and innovations made by teachers are discussed qualitatively. The percentage of readiness assessed in 3 categories 1.00 to 2.49 indicates a low level of readiness, 2.50 to 3.49 indicates a moderate level of readiness, and 3.50 - 5.00 indicates a high level of readiness. Interview transcripts were analyzed according to research objectives (Uzuntiryaki & Aydin, 2009). To improve the quality and credibility, the questionnaire and interview data were evaluated. Interview data were coded, categorized, and evaluated based on the objectives, namely readiness, innovation by the teacher and factors supporting and inhibiting online learning. The qualitative data analysis technique in this study refers to the research problem, namely data reduction, data display and conclusion drawing. Reliability is calculated the Kappa value to determine the consistency between assessors. A Kappa value of 0.60 indicates a good agreement (Pallant, 2007).

3. Result and Discussion

Results
Barriers to Online Learning

Based on the results of data collection through questionnaires and interviews, there are several obstacles to online learning that originate from students, teachers, schools, and the curriculum. The results of research on the barriers to online learning are shown in Table 1 below.

Table 1. Barriers to Online Learning and Forms of Barriers

No	Barriers	Form of Barriers
1	Student	- Students do not have cellphones
		- Students are not familiar with internet applications
		- Internet quota is expensive
2	Teacher	- Low IT skills
		- Lack of teaching preparation
3	School	- Availability of online learning facilities and infrastructure
4	curriculum	- Practical learning, difficult to do online
		- Unable to judge skills
		- Calculation material preparation requires special skills

Teacher readiness for online learning

Teacher readiness to conduct online learning is measured from several indicators, including IT training for teachers, teacher knowledge about the new normal order, teacher knowledge about online learning, availability of internet networks in schools, the strength of internet networks, online learning facilities and infrastructure, assessment systems in online learning, the ability of teachers to prepare online learning, and the skills of teachers to use the internet. The percentage of each readiness indicator is shown in the following Figure 1.
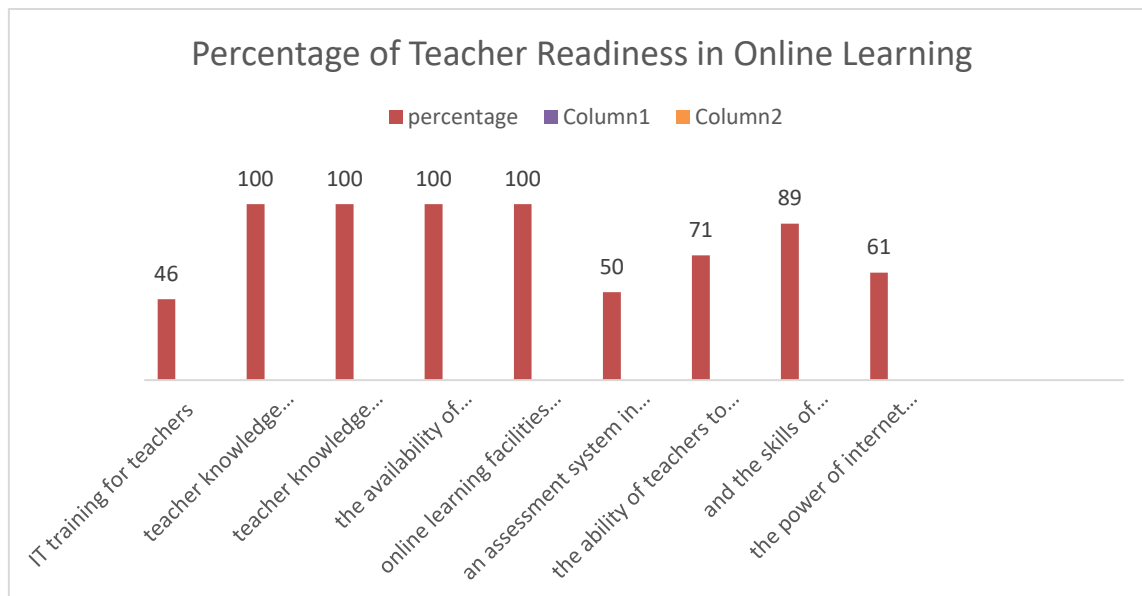

Figure 1. Percentage of Teacher Preparation Indicators in Online Learning Teacher solutions and innovations in online learning

The development of science and technology encourages teachers to apply transformative learning. Transformative learning, among others, relates to traditional teaching materials to digital teaching materials. Teachers need to have the skills to access and use information from information technology and have good pedagogical knowledge so that they can integrate digital resource technology and be more innovative so that learning is more effective and efficient, especially during the COVID-19 pandemic (Al-Awidi & Aldhafeeri, 2017). Based on the existing obstacles, the teacher is looking for solutions to reduce barriers to online learning and the innovations carried out as in Figure 2.
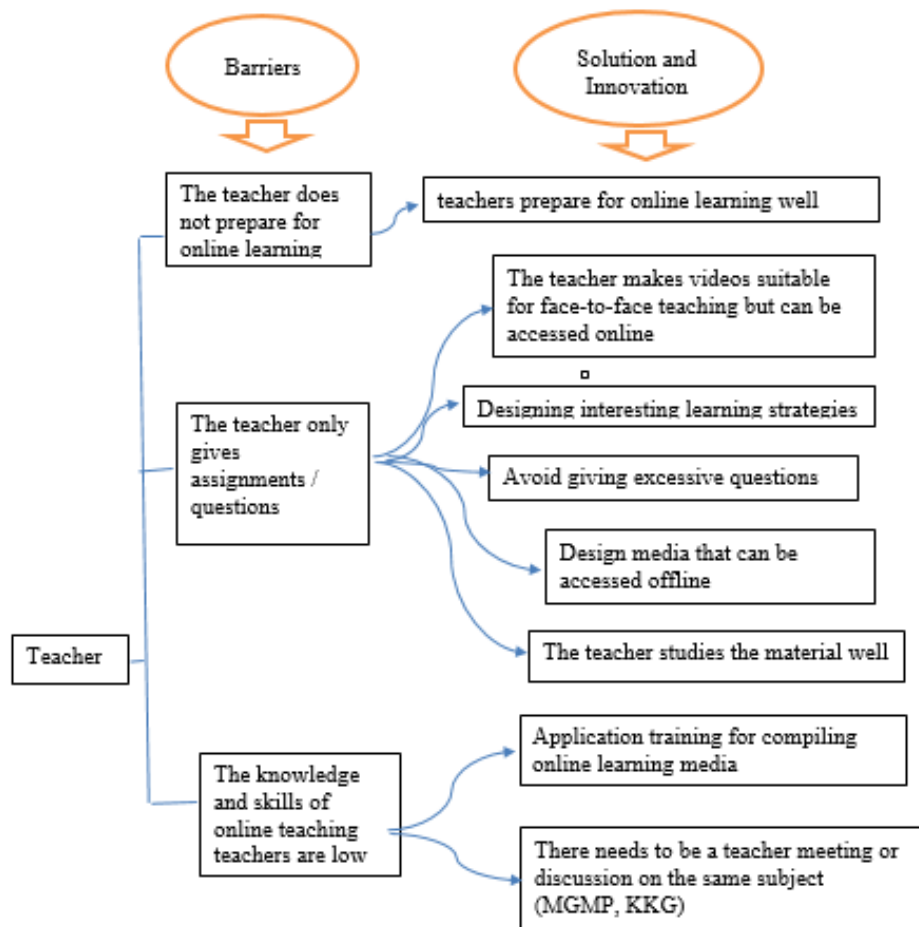
Figure 2. Teacher Innovations and Solutions for Online Learning Outbreak Period and New Normal

Discussion

The results of research on the implementation of online learning during the Covid-19 pandemic experienced several obstacles. Obstacles to online learning in the field are basically similar to the obstacles, namely from students, teachers, schools, and the curriculum (Mailizar et al., 2020a; Onyema, 2020). The results of questionnaires and interviews with teachers in various fields of study show that online learning using social media can help students get their rights in the field of education. However, some teachers argue that online learning is difficult because in terms of students who have different characteristics, they cannot be given lessons online without student-teacher interaction, especially in low-level primary schools. Online learning reduces the physical activity of primary school students (Roe et al., 2021). Constraints faced by students' communication facilities (Eze et al., 2020; Napsawati, 2020). Students do not have cellphones or laptops. If each house only has 1 parent's cellphone and is brought to work, students cannot participate in online learning using google meet or zoom. If the number of children is more than 1 the problem is more complicated. This shows that parents have not supported online learning. The same thing happened in Zambia (Sintema & Singogo, 2020). Many teachers complain that students do not do assignments because cellphones are brought to work. Based on the results of the interview, the teacher provided a solution by giving time to collect assignments until 21.00 WIB.

Students' IT abilities become an obstacle to online learning (Suryaman et al., 2020). Students are not familiar with using the HP application. The challenge of online learning is the ability to use IT (Carolan, 2020; Yusuf, 2020). It is easier for students to learn technology

than teachers. Parents who are busy or less knowledgeable give less encouragement to their children to study independently at home properly. Parents assume that teachers have a responsibility to teach for whatever reason so that working parents have a duty to earn money and teachers must be able to teach lesson material well to their children. The attitude of parents who pay less attention to their children becomes an obstacle in online learning. Parents do not provide opportunities for children to do assignments or do not help their children with their chores. Cooperation between parents and teachers is important to overcome the problem of students' lack of IT skills. Networking is one of the obstacles to learning online. In certain areas, providers are less supportive so that the network is weak and there is no signal so that the online learning process. Network instability can seriously interfere with internet usage. Internet data packages in Indonesia are still relatively expensive, even though online learning absolutely uses internet data. The high cost of internet data is also an obstacle to online learning (Mahardini, 2020). During the pandemic, the parents of students were unstable. Many parents of students are affected by cases of termination of employment. Small traders and mobile food vendors have decreased their income due to restrictions on the movement of residents. Economic difficulties plus the burden of buying pulses have become obstacles to online learning during a pandemic, even when new is normal. The same thing happened in other countries (Agormedah et al., 2020; Doghonadze et al., 2020). The government provides a solution to the problem of expensive internet data by sending internet data directly to the student's cellphone or the student's parents. Some providers also provide cheap internet promos for online learning. This is necessary to increase the online learning quota (Purwanto et al., 2020).

Teachers are not used to planning online learning using video applications or learning strategies using technology. This happens to senior teachers born before 1980 (Nopiyanto et al., 2020). Increasing the ability of teachers and students needs to be improved. The time it takes for teachers to plan the learning process online is more than face-to-face learning. Teachers must learn to plan lessons, create IT-based media and compile questions that can be accessed by students. Teachers also have to assess students online. This assessment is quite complicated for teachers because they have to download student assignments. Many students don't do assignments because their cellphones are brought to work. Sometimes parents of students forget that their children get assignments from the teacher so that students don't do them. This factor is also an obstacle when assessing online learning. Increasing teachers in planning technology-based learning needs to be done so that teachers can make IT-based learning media even though the pandemic has ended. Learning using technology can improve student learning outcomes (Masruroh et al., 2020).

Online learning at universities has actually been done long before the pandemic, namely using internet-based distance learning. Online learning methods are provided for students whose homes are far from campus, work, and have difficulty costs (Hannay & Newvine, 2006). Online learning in the world of education has undergone changes for three generations. The first generation uses printed materials and communication by post and telephone. The second generation uses distance learning by audio recording. The third generation of distance learning systems in the form of interactive video, email, and the Web (Katz & Yablon, 2003). In Indonesia, distance learning has long been practiced in open universities. The learning is indeed well designed and has been tested before being used as a learning method by completing the supporting facilities and infrastructure. Online learning must be supported by facilities and infrastructure (Hrastinski, 2009).

What happened to online learning during the Covid-19 outbreak was not optimal. The reason is that online learning facilities and infrastructure are not yet ready. Online learning has not been optimal in a pandemic condition because learning is carried out suddenly and there is no preparation from teachers, students, parents, schools so that online learning at the primary school to college level experiences difficulties. It is necessary to improve the facilities and infrastructure to support online learning so that learning at home can be carried out properly. Schools and the government have made efforts to meet online learning facilities and infrastructure so that network and quota constraints are no longer a problem. To overcome barriers to online learning and survive to learn in a situation with the Covid 19

outbreak, there must be participation from parents, teachers, schools, government, and the community. Important factors that influence effective learning are the leadership of the principal, information and transparency from the government, and the participation of parents and the community in the success of online learning (Lee et al., 2020).

Working students feel comfortable with online learning because they can manage study time and save money (Hannay & Newvine, 2006). For elementary and middle school students, online learning that is done suddenly causes stress because of many tasks. Lack of interaction time with the teacher causes students to be confused about assignments. Online learning is essentially a complex learning process that is participatory. Participation takes the form of being active in learning and collaborating with other students. Learning must enable interaction students and teachers (Hrastinski, 2009). Online learning must consider the psychological aspects of teachers and students. Teachers who are not psychologically prepared to teach will be uncomfortable when teaching, let alone online learning. Students will not be comfortable because there is no interaction with the teacher, especially because parents are unable to teach students. The first and second generation of distance learning methods are designed to be as efficient as possible so that there is interaction between teachers and students. The learning module is easy to learn and there is good interaction like a traditional class (Katz & Yablon, 2003). The teacher must prepare modules, student activity sheets, and learning videos during new normal so student are psychologically ready for independent learning. The development of science and technology forces teachers to prepare for online learning even though the pandemic has ended.

The result of calculating the average percentage of teacher readiness in online preparation is 73,4 % (moderate category). The results of the analysis show that the teacher is ready to carry out online learning during the pandemic and the new normal. However, several indicators need to be improved, such as network improvement, improving teacher IT skills, the ability of teachers to plan online learning, increasing the ability of teachers to use internet-based learning applications. The ability of teachers to compile and use learning management systems (LMS) such as google classrooms needs to be improved so that teachers can translate the curriculum into e-learning (Cahapay, 2020). The lessons that are most suitable for teaching material during a pandemic are power points combined with video. According to the teacher, this learning can overcome obstacles to online learning. Students can get material from two directions, namely visual and auditory. This is a form of scaffolding (Wakhidah, 2016) and in accordance with the dual effect theory that students who get subject matter from two sources, namely visual and auditory can improve understanding (Mayer & Moreno, 2003). Learning with interactive video provides opportunities for students to interact so as to increase understanding (Brame, 2016). Videos can also be used in blended learning. Making interactive videos is worth it because it can be used during face-to-face learning. Learning using video has many advantages, besides being able to be used in offline learning, it can be seen anytime and anywhere. Video learning media can be repeated according to the speed of student understanding. Learning using video media is more effective than other teaching media (Stockwell et al., 2015). The teacher made appropriate videos while teaching face-to-face explaining in stages according to teaching as usual before the outbreak (Daniati, 2020).

The use of Google class rooms is also an innovation made by teachers to reduce barriers to online learning. Zoom application allows students and teachers to interact well. Teachers can share material that students are learning. This application has several problems, including requiring a large credit or data package and sometimes the G suite even though not all schools have a G suite. The use of the zoom application also requires a good and stable internet network so that students and teachers can interact well. Teachers should prepare online learning properly so that students can understand it by involving parents (Zulaiha & Rohman, 2020). The disadvantages of distance learning are that students do not understand things that are technical in nature, limited interactions affect student learning experiences, it is difficult to measure what students learn, including discussion activities. It is necessary to introduce "hybrid learning" or blended learning so that students are responsible for learning based on their experiences working with fast, flexible time. Blended learning

improves academic achievement and laboratory skills. Blended learning can teach students to ask questions, design experiments, analysis, interpret, and communicate (Hinampas et al., 2018; Rajab et al., 2020). Blended learning can improve understanding (Oktarina et al., 2019). Face to face is done to build learning communities and in-depth discussions with teachers and friends.

4. Conclusions and Suggestions

Barriers to online learning from students include students not having cellphones, unstable signals, expensive internet packages, lack of parental roles. From the teacher's point of view, low internet competence and insufficient online learning knowledge. From a school perspective, this includes a lack of support facilities for online learning in schools and a lack of teacher training. The constraint in terms of the curriculum is the difficulty of online learning on materials that require practice and calculation. Generally, teacher readiness is in the medium category. The high category in the aspect of teacher knowledge about the new normal, teacher knowledge about online learning, the availability of internet networks in schools, the power of internet networks, online learning facilities and infrastructure, assessment systems in online learning, the ability of teachers to prepare online learning, and the skills of teachers to use the internet. Solutions and innovations include conducting internet technology training, providing online learning facilities and infrastructure, designing blended learning, teachers preparing for learning well, teachers reviewing materials and teaching methods through teacher working groups. The results of reflection show that online learning which is done suddenly produces many obstacles. Online learning planning needs to be done by improving teacher skills in the internet technology field, providing online learning facilities and infrastructure, understanding the characteristics of the material, and familiarizing students with technology following global demands. For this reason, it is necessary to initiate blended learning, namely a combination of online and face-to-face in facing global challenges.

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