Online Learning during Covid-19 Pandemic in Developing Countries: Does it run well?

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Abstract: Online Learning during Covid-19 Pandemic: Does it run well? **Objectives:** This article was aimed to identify the challenges that occur in the implementation of online learning during Covid-19 pandemic in several developing countries from teachers and students perspectives. **Methods:** We applied a systematic review of literature using search protocol based on the PRISMA recommendation statement. The initial step of the study was the formulation of the research problem, then search of relevant research results from national and international journals with the keyword "Covid online learning" on ScienceDirect, Directory of Open Access Journals and Google Scholar search engine. Then, an analysis of relevant research results was carried out in relation to challenges in the implementation online learning during Covid-19 pandemic in all level of educations. **Findings:** As a result, teachers mostly face challenges on the planning, implementation and evaluation of online learning. Technological challenges are the main challenges that students face in online learning during Covid-19 pandemic. **Conclusion:** There should be further investigations to identity challenges that teachers and students face in online learning.

Keywords: online learning, challenges, covid-19, teachers, students.

Abstrak: Pembelajaran Online pada Masa Pandemi Covid-19: Apakah berjalan dengan baik? *Tujuan: Artikel ini bertujuan untuk menganalisis tantangan yang terjadi dalam pelaksanaan pembelajaran online pada masa pandemi Covid-19 di beberapa negara berkembang. Metode: Penulis menerapkan metode tinjauan pustaka sistematis berdasarkan panduan PRISMA. Langkah awal penelitian adalah perumusan masalah. Lalu dilakukan penelusuran hasil penelitian yang relevan dari jurnal nasional dan internasional dengan kata kunci "Covid online learning" pada mesin pencari ScienceDirect, Directory of Open Access Journals dan Google Scholar. Langkah selanjutnya adalah analisis hasil penelitian yang relevan terkait tantangan dalam pelaksanaan pembelajaran online pada masa pandemi Covid-19 pada semua tingkatan pendidikan. Temuan: Hasil menunjukkan bahwa guru pada umumnya menghadapi tantangan dalam melakukan perencanaan, pelaksanaan dan evaluasi pembelajaran online. Sementara itu, tantangan terkait teknologi merupakan tantangan utama yang dihadapi oleh siswa dalam pembelajaran online di negara berkembang pada masa pandemi Covid-19. Kesimpulan: Harus ada penyelidikan lebih lanjut terhadap tantangan yang dihadapi guru dan siswa dalam pembelajaran online khususnya di negara berkembang pada masa pandemi Covid-19.*

Kata Kunci: pembelajaran online, tantangan, covid-19, guru, siswa.

To cite this article:

Jhon, W., Mustadi, A., & Zubaidah, E. (2020). Online learning during covid-19 pandemic: Does it run well? *Jurnal Pendidikan Progresif. Jurnal Pendidikan Progresif*, 10(2), 440-454. doi:10.23960/jpp.v10.i3.202005

■ INTRODUCTION

Since the detection of cases in Wuhan City on December 2020, many people around the world have been infected and died due to Covid-19 pandemic. The cause is because SARS-CoV-2 is highly transmissible and even more dangerous than seasonal influenza (Biggerstaff et al., 2014; Liu et al., 2020). In response, the World Health Organization (WHO) has recommended social distancing at both the individual and population level to reduce spread of the virus. Following recommendations from WHO, governments in several countries have decided to close schools, ban public events and implement lockdown policy. Educational institution namely schools and universities have also halted their non-essential activities. In order to fill the classroom void and prevent the spreading of infection for students, schools and universities change face to face learning into other modes of learning, such as online-learning based on different platforms. Online communication platforms include Zoom, Microsoft Teams, Skype, WhatsApp, Google Classroom, Google meet, YouTube and others. The existence of online software is really important to continue learning process despite the disruptions of Covid-19 (Choi et al., 2020). Through online learning, we are reminded that education is capable of bringing people together (Gomez et al., 2020).

Online learning may be easily implemented in developed countries such as Saudi Arabia, the United Kingdom, Georgia, Singapore, South Korea and others compared to developing countries such as Indonesia, India, Pakistan and others. The first reason is because they have more experiences and knowledge than developing countries about online teaching even before the Covid-19 pandemic. For example, King Saud University in Saudi Arabia has experienced online teaching and other medias in their courses over ten years ago (Moawad, 2020). In Europe, universities were very quick to adapt to online learning (Tartavulea, 2020). Second reason is because developed countries have adequate facilities such as laptop or gadget, stable internet connection, affordable internet quota, and other supporting technological tools. Based on the information of the National Statistics office of Georgia for July 2019, a total of 79,3% of the Georgian homes have internet connection (Geostat, Share of household with internet access, 2019). Governments in developed countries also support the online learning by conducting socialization to the teachers immediately after they informed the nation that the education system would change from traditional learning to online learning.

Meanwhile, developing countries are still struggling to contain the impact of Covid-19 crisis on economy, health, education and other sectors. Developing countries such as Indonesia, Pakistan, India, Zambia, China, Romania and others faced various challenges. In Indonesia, students often faced challenges related to the lack of facilities, for example, not having smartphone or laptop, adequate internet quota, and good internet connection (Atmojo & Nugroho, 2020). This happens since Indonesia is an archipelago country with various geographical challenges and overpopulation crisis. In India, teachers have little experience and knowledge about online learning e.g., creating online materials, using online platform and others (Rajhans et al., 2020). These problems need to be solved because good pedagogy will be useless without good technology access (Burston, 2014; Cakrawati, 2017).

The role of the teachers and students is really important in the implementation of online learning in developing countries during Covid-19 pandemic. However, the sudden change from traditional to online learning causes many challenges especially for teachers who have little or even no experience in teaching online (Cicco, 2013; McQuiggan, 2012). The reasons are because instructing online needs different

strategies (Shahdad & Shirazin, 2012) and skill set (Frass, Rucker and Washington, 2017). For example, teachers must have good understanding and skills about effective and efficient various tools and online pedagogy. Teachers also need to know how to use new technology (Wilson & Stacey, 2004). If teachers or lecturers do not have technological literacy and competency, good planning and management, then online learning may fail (Rovai & Downey, 2010) and caused psychological stress to teachers (Besser et al., 2020; Savitsky, 2020). Similarly, students should also trust their teachers or lecturers and have motivation to engage and participate in online learning. Therefore, the goal of learning can be achieved.

Researches related to online learning during Covid-19 pandemic mostly focused on applying strategies e.g. (Zayapragassarazan, 2020; Zhao et al., 2020), principle e.g. (Dickinson & Gronseth, 2020), online learning module e.g. (Riley at al., 2020) and technology e.g. (Li et al., 2020) in certain level of education. Meanwhile, other studies only discussed about student's learning habits e.g. (Trung et al., 2020) and role of faculty members e.g. (Varalakshmi & Arunachalam, 2020) during Covid-19. Therefore, it is necessary to increase the study of literature that can provide an overview, information, guidance in carrying out online learning during the Covid-19 pandemic. The purpose of this study is to identify the results of research related to challenges that teachers and students face during the Covid-19 pandemic. Authors also hope that the results of the systematic review in this study can provide benefits, especially for the government, school principals, teachers and other school members related to challenges online learning during Covid-19 pandemic and its solutions.

There are two research questions in this study. First question is what are the challenges that teachers face in online learning in developing countries during the Covid-19 pandemic? Second question is what are the challenges that students face in online learning in developing countries during the Covid-19 pandemic?

■ **METHOD**

This study applied a systematic review of literature using search protocol based on the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) recommendation statement (Moher, Liberati, Tetzlaff, & Altman, 2009). A systematic review can be defined as a review of a clearly formulated question that uses systematic and explicit methods. The goal is to identify, select, and critically appraise relevant research, and also to collect and analyze data from the studies that are included in the review (Moher, Liberati, Tetzlaff, & Altman, 2009).

Firstly, literature search process is done through the search on Science Direct with keyword "Covid online learning". This search resulted in 3 eligible articles about online learning in developing countries during Covid-19 pandemic. We then continued to search in Directory of Open Access Journals search engine which resulted in 8 eligible articles. We also searched on Google Scholar with the keyword "Covid online learning". This search resulted in 8 eligible articles. We also gathered articles from other sources such as journal website which resulted in 5 articles. Authors then read through the full text of each article. Therefore, the total of eligible article that we have gathered is 24 articles.

Regarding eligibility criteria, we applied inclusion criteria in order to select suitable studies and keep the review focused. The inclusion criteria were: 1) Researches were conducted in one of developing countries during the Covid-19 pandemic and the location of the research was in one level of educations ranging from elementary school until postgraduate. Due to the limited researches and references. Therefore, this study only review challenges from countries like

Indonesia, China, India, Pakistan, Romania, Ukraine, Ghana, Zambia and Brazil that are published until July 2020. 2) Articles should provide information about the challenges in online learning in developing countries during the Covid-19 pandemic. Thus, literature study articles were not included. Figure 1 below provides an overview of the search protocol based on the PRISMA statement.

We only included challenges from the results and discussions, and disregarded challenges from the literature review of an article.
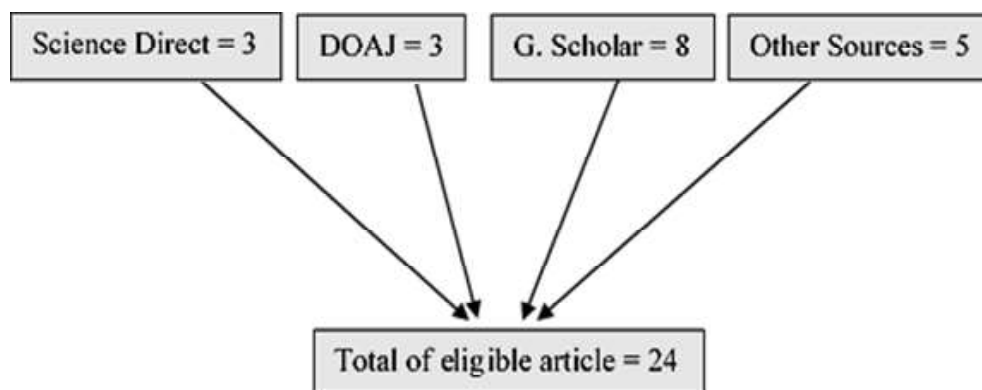

Figure 1. An overview of the search protocol

■ RESULT AND DISCUSSION

This section answers the research questions of this study by discussing various kinds of challenges in online learning during the Covid-19 pandemic. Based on the results of the analysis of 24 relevant research results, the challenges are grouped into 2 categories, namely challenges in online learning during the Covid-19 pandemic from teachers and students perspectives. Then, researchers classify challenges based on categories that have been made. There are 3 challenges from teachers' perspective and 4 challenges from students' perspective.

What are the Challenges that Teachers Face in Online Learning during the Covid-19 Pandemic?

Teachers have important role in the implementation of online learning. The reason is because they are the closest to the students. Table 1 below shows the challenges from teachers' perspective.

There are 3 types of challenges from teachers' perspective. First challenge is technological literacy and competency. Second is technological operational challenge. Third is belief challenge. Based on table 1, first challenges were related to technological literacy and competency.

According to Atmojo & Nugroho (2020), teachers only used low technology applications. There are several reasons. The first reason was the lack of facilities that students face, for example, not having smartphone or laptop, adequate internet quota, and good internet connection. These problems need to be solved because good pedagogy will be useless without good technology access (Burston, 2014; Cakrawati, 2017). Regarding technical issues that may occur during learning process, it is better for teachers to have good planning and alternative strategies with students in advance. For example, In case of students lose internet connection during online learning, teachers can provide the recording of synchronous sessions.

Table 1. Challenges from teachers' perspective in online learning during the Covid-19 pandemic.

Type of challenges	Items	Articles
Technological Literacy and Competency Challenges	Lack of experience and knowledge (e.g., creating online materials, using online platform, explaining materials) Misusage of the functions and technical disturbances in apps Lack of facilities (e.g., laptop, internet connection and internet quota)	(Atmojo & Nugroho, 2020), (Rajhans et al., 2020), (Lathifah et al., 2020), (Purwanto et al., 2020) (Mulenga & Marban, 2020), (Rajhans et al., 2020) (Mulenga & Marban, 2020), (Fauzi & Sastra Khusuma, 2020), (Rajhans et al., 2020), (Purwanto et al., 2020)
Planning, implementation and evaluation challenges	Limited communication, interaction, and number of sessions per day Difficulty to select suitable teaching style Challenge in teaching character value and skills Difficulty to motivate, condition, and control students (e.g., misbehaving , passive students) Challenges related to homework & online assessment (e.g., fraud, homework gap, not in favor of online assessment) 9Difficulty to measure students understanding 7 Challenge in grading and giving routine and immediate feedback 8Lack of confirmation of students understanding 9 Difficulty to teach lower grades	(Atmojo & Nugroho, 2020), (Rajhans et al., 2020), (Purwanto et al., 2020) (Atmojo & Nugroho, 2020), (Rajhans et al., 2020) (Parisi et al., 2020), (Mukhtar et al., 2020), (Atmojo & Nugroho, 2020) (Mukhtar et al., 2020), (Atmojo & Nugroho , 2020), (Lathifah et al., 2020), (Firman & Rahman, 2020) (Mukhtar et al., 2020), (Atmojo & Nugroho, 2020) (Lathifah et al., 2020), (Fauzi & Sastra Khusuma, 2020), (Rajhans et al., 2020)
Belief Challenges	Lack of confidence and readiness Teachers feel burdened, stressful, bored and isolated	(Olga et al., 2020), (Atmojo & Nugroho, 2020) (Nadolu, 2020), (Purwanto et al., 2020)

Therefore, students may have opportunities to learn about the materials provided by teachers. Second reason was the lack of experience and knowledge about technological literacy and competency. Consequently, teachers had difficulties to create suitable materials for students (Atmojo & Nugroho, 2020). Teachers found it difficult to design materials that can be easily understood by students in independent learning since they only used low technology. Ideally, teachers should encourage themselves to actively participate in professional development in order to develop their technological literacy and competency. Regarding difficulties to design and deliver learning materials, teachers can employ games, videos, quizzes, artificial intelligence, augmented reality and virtual reality in online learning (Son, 2018; Atmojo & Nugroho, 2020). More training regarding these topics should be conducted in the current situation (Eachempati & Ramnarayan, 2020). Prior to conduct trainings, it is also important to do internal needs assessment and recent preparedness.

The second challenges were related to planning, implementation and evaluation of online learning. In terms of planning challenges, teachers did not have enough preparation and readiness (Atmojo & Nugroho, 2020). Teachers claimed that the sudden change from face-to-face learning to online learning caused confusion and lack of understanding about distance learning.

Meanwhile, in the implementation of online learning, there were also several problems that occurred. One of them was the lack of interaction and communication between teachers and students (Atmojo & Nugroho, 2020; Adnan & Anwar, 2020). Online learning was considered not as good as face-to-face learning because there was no physical interaction such as smiling, shaking hands and others. Students could not communicate well with teachers when they had problems in understanding the materials. On the other hand, it is also hard for teachers to gather visual cues from all the students in spite of using new technology. This issue lead to the lack of emotional bond between teachers and students (Atmojo & Nugroho, 2020). In addition, teachers also had difficulty to teach skills (Parisi et al., 2020; Mukhtar et al., 2020) and character value on students (Atmojo & Nugroho, 2020). This had become major issue especially lecturers who teach in medical faculty because hands-on sessions such as laboratory and clinical skills teaching have been disrupted. Solutions to this problem can be solved by applying online simulated patients or role plays to teach history taking, clinical reasoning and communication skills (Mukhtar et al., 2020). Providing recorded videos of laboratory and clinical skills demonstration can also be an option to replace hands-on sessions. Related to the challenges in implementation, other challenges were also found such as difficulty to teach students with low cognition, various learning style and low motivation (Atmojo & Nugroho, 2020). Teachers mostly faced challenge in giving routine and immediate feedback (Atmojo & Nugrogo, 2020; Mukhtar et al., 2020). It happened since teachers often found students were late in submitting their works due to poor internet connection. In addition, students also read the feedbacks at different time. Therefore, teachers claimed that limited physical interaction hampered good communication between teachers and students. Furthermore, teachers also had difficulties to evaluate students' understanding (Mukhtar et al., 2020). This was caused by the lack of immediate feedback. Another issue like plagiarism and cheating also occurred during assignment online assessment (Mukhtar et al., 2020). Most assessment activities were conducted in online software and social media apps (Rajhans et al., 2020). However, teachers found students often misbehaved and tried to access online resources during online assessment (Mukhtar et al., 2020). This made teachers concerned about reliability of online assessment.

Therefore, new technologies should be considered for anti-plagiarism and avoiding cheating (Basilaia, Kvavadze, 2020).

The last challenges were related to physical and mental challenges. Mentally, teachers felt isolated and disconnected from their academic community since they missed an on-campus office space. University lectures suffered from psychological stress during online synchronous teaching. It was even higher than the level of psychological stress in face-to-face teaching. Extensive change in life and work forced lecturers and teachers to adapt quickly with the new situation including new teaching mode. This was accompanied by lack of professional development and bad assumptions about online teaching. Some lecturers were not in favour of the implementation of online learning because it disrupted other duties such as responsibilities related to their families or children. Thus, it caused significant increase of psychological stress and disruptions for lecturers and teachers (Flett & Zangeneh, 2020). In addition, teachers were also still insecure and reluctant to teach by using new technology (Olga et al., 2020). This happened due to several factors namely age, specialty, position, material support, motivation and others.

What are the Challenges that Students Face in online learning during the Covid-19 pandemic?

There are 4 types of challenges that students face in online learning during the Covid-19 pandemic, namely self- regulation challenges, physical and mental challenges, technological challenges and challenges from family and school. Each type of challenge consists of several issues that students face.

Based on table 2, first challenges were related to the self-regulation challenges such as lack of discipline and unpunctuality. According to Atmojo & Nugroho (2020), several students were not punctual in attending the online learning and submitting their tasks assigned by the teachers. Some students were even absent. There are two reasons of this challenge. Firstly, technical challenges such as unstable network speed, noisy environment and a lack of professional equipment (Sun et al., 2020). The second reason was due to the lack of understanding about the materials and assignments that teachers had given to them (Atmojo &Nugroho, 2020).

Second challenges were physical and mental challenges. Even though students perceived those assignments as additional burden for them, teachers had different opinion. Teachers assumed that students had misperceptions in their mind. Students thought learning from home is just like holidays. There was also assumption that their tasks would not be assessed by teachers. Therefore, students were lazy to do the assignments given from teachers. In university level, major issue mostly focused on online assessments. Students found online exams inappropriate and unfair. Based on survey conducted at the College of Education (King Saud University), 32 % of the students concerned about the implementation and reliability of the online assessment.

Another issue was the difficulties to find references for the tasks due to technical issues accessing the university's digital library. Meanwhile in senior high school level, problems mostly focused on availability of facilities to support online learning and assessment such as adequate internet quota, internet connection, and suitable smartphone or laptop (Mulyanti et al., 2020). Ideally, learning from home should provide meaningful learning experience without feeling burdened and stressful (Mulyanti et al., 2020).

Table 2. Challenges that students face in online learning during the Covid-19 pandemic

Type of challenges	Items	Articles
Self-regulation challenges	Lack of self-discipline and unpunctuality (doing assignments, joining online discussion)	(Atmojo & Nugroho, 2020), (Sun et al., 2020), (Bao, 2020), (Firman & Rahman, 2020)
Physical and mental challenges	Students feel lazy, stressful, burdened to do their assignments and homework Fatigue, eye strain, depression, feeling of isolation Lack of concentration Lack of interest in online learning	(Mulyanti et al., 2020), (Atmojo & Nugroho, 2020), (Wang & Zhao, 2020), (Atmojo & Nugroho, 2020), (Livana et al., 2020) (Kapasia et al., 2020), (Wang & Zhao, 2020), (Atmojo & Nugroho, 2020), (Livana et al., 2020) (Sun et al., 2020), (Handayani, 2020) (Atmojo & Nugroho, 2020), (Adnan & Anwar, 2020)
Technological challenges	Lack of online learning facilities (smartphone, internet quota, laptop, stable internet connection) Lack of experience (e.g., low digital literacy and competency) Limited number of participants and time of sessions Difficulty to search and understand the learning materials Difficulty to do group assignments Lack of interaction and communication	(Mulyanti et al., 2020), (Atmojo & Nugroho , 2020), (Sun et al., 2020), (Livana et al., 2020), (Firman & Rahman, 2020), (Handayani, 2020) (Mulyanti et al., 2020), (Atmojo & Nugroho, 2020), (Kapasia et al., 2020), (Sun et al., 2020), (Adnan & Anwar, 2020), (Agarwal & Kaushik, 2020), (Suni Astini, 2020) (Agarwal & Kaushik, 2020), (Suni Astini, 2020) (Atmojo & Nugroho, 2020), (Bao, 2020), (Firman & Rahman, 2020), (Handayani, 2020) (Adnan & Anwar, 2020), (Handayani, 2020) (Adnan & Anwar, 2020), (Demuyakor, 2020), (Livana et al., 2020), (Firman & Rahman, 2020), (Handayani, 2020)
School and family challenges	Lack of finance Unfavorable study environment at home	(Atmojo & Nugroho, 2020), (Adnan & Anwar, 2020) (Kapasia et al., 2020), (Sun et al., 2020), (Bao, 2020), (Handayani, 2020)

In this case, the role of teachers is really crucial to bring positive energy during online learning to help student to

combat psychological stress due to quarantine effect. Aside from mental challenges, students also faced physical challenges. Students suffered from sore eyes and fatigue due to excessive use of smartphones and laptops and its radiations (Atmojo & Nugroho, 2020). Solution to improve interest, motivation, and participation from students, teachers need to implement interactive question and answer sessions, tests, presentations and open discussions.

Third challenges were related to technological challenges. Students had difficulties to use new technology due to the lack of online learning facilities (Mulyanti et al., 2020; Atmojo & Nugroho , 2020; Sun et al., 2020). These challenges make it difficult for students to participate in online learning and making them frustrated. In addition, students who live in rural areas will find difficulties to fulfil technical requirements of online learning. On the other hand, the lack of experience and knowledge about online learning also contributed to these issues. Students were also not familiar with online application and platforms such as WhatsApp, Google Classroom and others. According to Atmojo & Nugroho (2020), students did not know how to copy paste and edit text to fill in the attendance list in WhatsApp application. They also did not know how to operate Google Classroom. Therefore, students still needed help and explanation from teachers. However, even after the clear explanation and instruction given by the teachers, students did not put attention fully and lazy to read. This indicated that students had low digital literacy and general literacy.

Another issue were poor internet connection (Mulyanti et al., 2020; Atmojo & Nugroho , 2020; Kapasia et al., 2020) and lack of facilities (Mulyanti et al., 2020; Atmojo & Nugroho, 2020; Sun et al., 2020). Solution to

solve these issues are identifying kinds of technological support that students need in advance so teachers can have reflection and guidance to plan online learning. Therefore, teachers can decide what type of online platforms that is suitable for students. It is better for teachers to use online platforms that require low internet memory or internet connection (Eachempati & Ramnarayan, 2020). In conclusion, technological challenges should not get in the way of the learning process in online learning especially during COVID-19 pandemic. Teachers should make online learning to be simple and comfortable for students in order to give equal opportunities in experiencing online learning.

Fourth challenges were challenges from school and families. These challenges related to role of schools and family to support online learning in the forms of finance, suitable environment, and care. These things are really needed since Covid-19 crisis poses threat to several sectors of life including family's financial status. Students especially those from undeveloped countries such as Pakistan, complained about expensive internet quota and lack of facilities to support online learning because of monetary issues (Adnan & Anwar, 2020). On the other hand, students also faced challenge regarding unfavourable study environment at home (Kapasia et al., 2020; Sun et al., 2020). Some students even did not live at their own home. Some of them lived in relative's home, rented house and mess.

Based on the online survey conducted by Kapasia et al. (2020) to 22 undergraduate and postgraduate students in various colleges and universities of West Bengal, students had issues related to financial (26.5%), food (51%), and health (22.5%). In high school level, the challenge mostly related to the absence of parents' care (Atmojo & Nugroho, 2020). Ideally, students should get support and help from parents while learning from home. However, some parents were

busy and they did not work from home. It happened since most of parents work in informal sectors. Therefore, it is less likely for them to monitor and take care of the needs of children in online learning.

This study discussed the challenges from teachers and students perspective. Figure 2 below showed the taxonomy of challenges in the implementation of online learning in developing countries during Covid-19 pandemic.
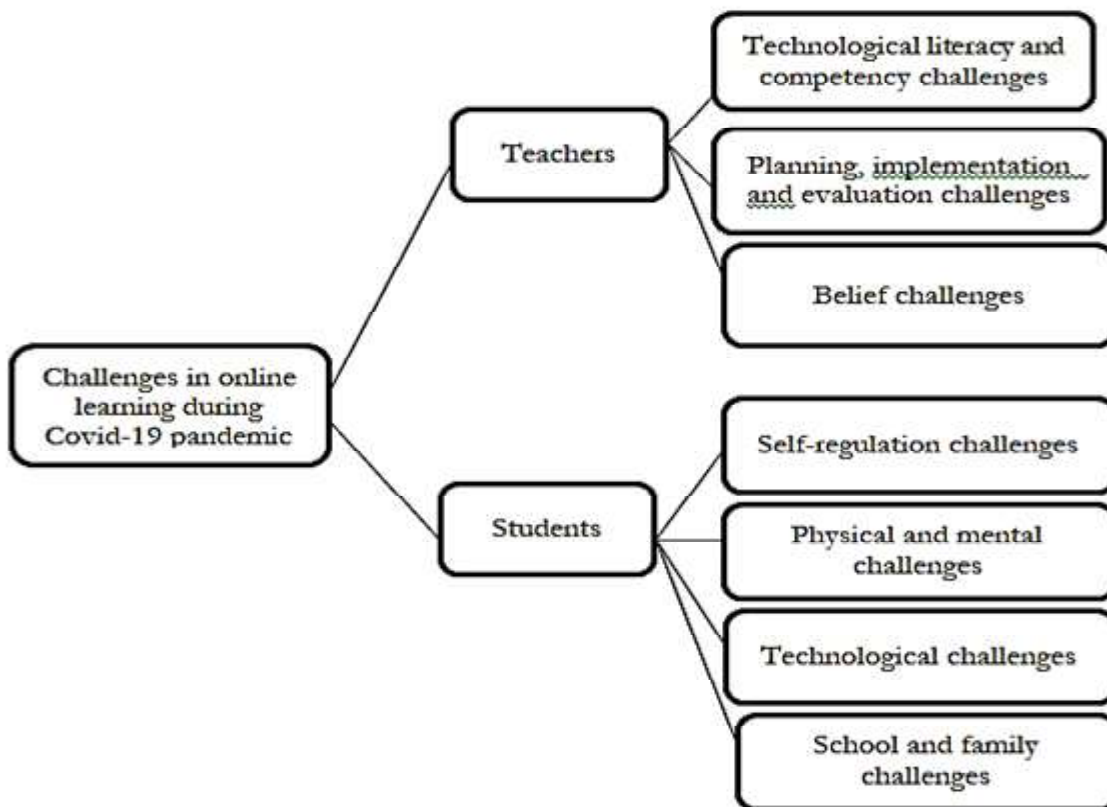

Figure2. Taxonomy of challenges

First, our study found that teachers in developing countries mostly face challenges on the planning, implementation and evaluation of online learning. Teachers claimed that the sudden change from face-to-face learning to online learning caused confusion and lack of understanding about distance learning. The solution to solve this issue is focusing on the teacher professional development in order for them to be updated on effective pedagogical methods with or without the use of online

technologies (Rapanta et al., 2020). Most of the challenges that teachers face point to challenge in giving routine and immediate feedback (Atmojo & Nugrogo, 2020; Mukhtar et al., 2020). Furthermore, teachers claimed that limited physical interaction hampered good communication between students and teachers. Students also read the feedbacks at different time. It happened since teachers often found students were late in submitting their works due to poor internet connection. To overcome the absence

of physical interaction and communication, teachers need to put greater effort into preparing for online courses, innovating and designing lessons that will improve students' engagement and participation in online teaching (Sun et al., 2020). According to Perotta & Bohan (2020), campus gatherings can be a solution to foster connectedness, professional development and to discuss complexities of online teaching. This will be really helpful especially for lectures and teachers who have little to no experience in online teaching. There have been some researches that provided solutions regarding this issue such as training protocol for novice online instructors (Cicco, 2013). The goal of the protocol is to provide a training model for inexperienced online instructors and those who have a commitment to teaching within the online classroom. In conclusion, building an interactive and engaging online environment is the key to achieve successful online learning. Furthermore, teachers also need to learn to adapt with online teaching environment (Sun et al., 2020).

Second, our study discovered challenges from the students in online learning in developing countries mostly related to technological challenges. Students had difficulties to use new technology due to the lack of online learning facilities (Mulyanti et al., 2020; Atmojo & Nugroho, 2020; Sun et al., 2020) and poor internet connection (Mulyanti et al., 2020; Atmojo & Nugroho, 2020; Kapasia et al., 2020; Sun et al., 2020; Adnan & Anwar, 2020). On the other hand, the lack of experience and knowledge about online learning also contributed to these issues. Choi et al. (2020) suggested to robust network connectivity in order to be used confidently. In the near future, Sun et al. (2020) expected that there would be new technology such as 5G and artificial intelligence to maximize online teaching and learning. To minimalize the impact of poor internet connection and increase students' participation, teachers can also combine recorded videos and live courses (Sun et al., 2020). In addition, it is also very important for the teachers to build relationship and increase communication between teachers and parents (Clausen et al., 2020).

Third, our review found that challenges that teachers and students face are not mutually exclusive, they cross boundaries. For example, difficulty faced by teachers in giving routine and immediate feedback is related to the poor internet connection that students face. Similarly, teachers only used low technology applications due to inadequate facilities that students had such as not having smartphone or laptop, adequate internet quota, and good internet connection.

■ CONCLUSION

This article identifies the challenges that occur in the implementation of online learning IN developing countries during Covid-19 pandemic from teachers and students perspectives. We examined 24 relevant researches about challenges in the implementation online learning during Covid-19 pandemic. Even though we have tried to include as many researches as possible from different countries, it is very difficult to identify all the challenges due to the limited researches and references. Therefore, this study only review challenges from countries like Indonesia, China, India, Pakistan, Romania, Ukraine, Ghana, Zambia and Brazil that are published until July 2020. Therefore, we propose future research recommendation about evaluation of online learning during Covid-19 pandemic in all level of educations from around the world.

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