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# Experiences and Challenges of Distance Learning During Covid-19 Pandemic From Educators' Point of View: A Review

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## Abstract

COVID-19 pandemic has affected many sectors of life including education. Many countries had implemented the policy on distance learning. Distance education denotes the physical separation of the learner from the instructor, both by time and space. Information and communication technologies (ICTs) including online media are used to bridge the educators and the learners. The distance learning system forced the teacher to shift the traditional teaching method of face-to-face teaching to no-physical contact teaching in all stages of educations such as primary and secondary education, higher and vocational education, and special education. We found that teachers have been applied different strategies based on the unique challenges they faced. According to the COVID-19 situation, teachers from all stages of education have gathered all the solutions that could be applied. So that, it could help students to adapt to distance learning by transforming the traditional learning system to mandate distance learning system like nowadays when COVID-19 positive case could be controlled by contactless only.

**Keywords:** Distance Learning, Covid-19, Educations

## 1. Introduction

### 1.1 COVID-19 affect learning system for all stages of educations

COVID-19 pandemic had affected many sectors of life including education. Many countries have implemented policies on distance learning. The concept of distance learning differs from *online learning* or *e-learning*.

Distance education denotes a physical separation of the learner from the instructor, both by time and space. Information and communication technologies (ICTs) including online media are used to bridge the educators and the learners. Meanwhile, online learning or e-learning is utilization of internet-based technologies by educators and learners which can be done when they are or are not occupying the same place (Guri-Rosenblit 2005). The condition forced teachers to shift the traditional teaching method of face-to-face teaching to no-physical contact teaching in all stages of educations.

Generally, stages of educations are classified into 4 categories: early childhood education, primary education, secondary education, and tertiary education as framed by International Standard Classification of Education (ISCED) 2011. The classification is based on children's age of development. The curriculum and outcome for every stage are different and lead to a more complex and specified content leading to professional qualifications (United Nations Educational, Scientific, and Cultural Organization 2011). Thereby, the challenges in every stage differ one another. Educators hold an important role in delivering effective and efficient learning processes. So it is important to know perspectives, challenges, and suggestions from educators' points of view in distance learning implementation during COVID-19 pandemic to improve the education system. This review gives a comprehensive educators' point of view from each stage of educations.

## **2. Theoretical Framework**

This study is made by using the literature review method. The method works by selecting, gathering, and assembling specific information from various previously published studies according to the topic we want to discuss (Denney and Tewksbury, 2013). All research that was used as the source of information and references in this study is obtained from various online journals. The references are searched through Research Gate and Google Scholar sites. The keywords used to find the references material are e-learning, teaching, and distance learning during the Covid-19 pandemic. These keywords are then combined with various levels of education that you want to discuss. In this paper, the education levels discussed are primary and secondary education, higher and vocational education, and education for disabilities. In this study, we used teacher's point of view which is described in three topics namely, teaching experiences, challenges, and strategies for the implementation of distance learning for each level of education..

## **3. Review of Educators Point of View From Each Stages of Educations**

### *3.1 PRE-SCHOOL AND EARLY EDUCATION*

Age 0-6 years or preschool age is known as the golden age in children's development. Children in this age are egocentric, have high curiosity and imagination, fast-learning, and have short-term concentration. They are active learner thereby the learning process has to involve daily-life activities, observation, and playing. Playing is an effective media for children to apply their newly gained skills as well as to develop their social and emotional intelligence. In this period, motoric aspect of children is highly developed and has to be continuously trained (Suryana and Mahyudin 2013). Preschool education program aims to support every aspect of development including language, cognitive, socio emotional, gross and fine motoric, moral and behavior, art, and necessary life skills for children and preparation for participation in school and society. Every child has their own unique characteristics, so it is important for the educators to know them personally to deliver an effective education and training programs as well as to communicate and provide guiding for parents (Kuset et al 2021).

### 3.1.1 Teachers' Perspective and Experiences

Teachers were aware of their families' and pupil's health and safety, and thereby they can accept the decision of distance education. However, they were also worried about their professional life for long-term financial and employability issues. Many early childhood education centers are run privately. Their incomes are depended on tuition fees and do not receive any financial grants from the government. Teachers were worried that parents would stop paying tuition fees for the next semester (Alan, 2021; Dayal and Tiko 2020).

They also felt some negative effects regarding to distance learning including difficulties in teaching basic concepts (Dayal and Tiko 2020, Kruzewska et al. 2020, Yildirim 2021, Hartatik and Bi'ayuni 2020) and the need of extra effort (Kuset et al. 2021). Some still consider online-based media teaching as something luxurious and difficult to start (Syarah et al. 2020).

In study by Kuset et al. (2021), only 31% teachers thought that distance learning is efficient, however 63% stated that it was sufficient to prevent children from leaving school. Teachers also thought that distance learning resulted in negative emotional and mental development of pupils and/or insufficient social environment (Yildirim 2021, Kuset et al 2021), hinder their preparation for primary school and school adaptation (Yildirim 2021).

Despite of negative perceptions, teachers also reported a positive impact of distance learning. First, their pupils were interested with the new interactive online-based technology and learned to use ICT (Dayal and Tiko 2020, Kuset et al. 2021). Second, online learning led to time efficiency where they did not spend time commuting to the workplace, work at their own pace, and more time for their family. Third, they felt improvement in using ICT (Information and Communication Technologies) (Kruzewska et al. 2020). Moreover, some teachers felt an increase in parent-pupil interaction and parental engagement in their children's education (Yildirim 2021, Kuset et al. 2021). Some other positive opinions are related to children development where there was an increased sense of responsibility and self-assessment skills (Kuset et al. 2021).

### 3.1.2 Challenges

Several challenges have been reported and can be classified into technical problems, pedagogical problems, and participation problems. Teachers reported one of the most significant technical challenges faced during distance learning is internet connectivity issue (Yildirim 2021, Syarah et al. 2020). Some also reported a lack of adequate facilities such as laptops or Internet (Dayal and Tiko 2020, Kruzewska et al. 2020, Syarah et al. 2020). About 15% teachers reported limited access to teaching sources or platforms such as the required material was not fully accessible (Kruzewska et al. 2020, Yildirim 2021, Syarah et al. 2020).

In pedagogical aspect, the most significant challenge is lack of digital competencies, especially when teachers are unfamiliar with or using new online-based educational programs to prepare materials (Alan 2021, Yildirim 2021, Syarah et al. 2020), lack of experience in distance learning which resulted in overload with the preparation of teaching materials and difficulties in explaining new materials (Kruzewska et al. 2020, Yildirim 2021, Kuset et al. 2021, Syarah et al. 2020).

Teachers had to spend more time for personal counseling (Hartatik and Bia'yuni 2020). Moreover, teachers also realized the negative impact of lack of direct contact between pupils and teachers as well as pupils and their peers which is necessary for early age as their communication and socioemotional behavior is developing in this age (Kruzewska et al. 2020, Yildirim 2021). Lack of contact had been related to children's negative emotional

development (Yildirim 2021). Direct contact is also necessary for teachers to supervise children when performing tasks and parents counseling (Kruzewska et al 2020). Indirect teaching made it difficult for teachers to assess children's performance as at home, there might be parents' involvement when children performing their task (Kruzewska et al 2020, Yildirim 2021, Kuset et al. 2021, Syarah et al. 2020).

Participation problems mainly arose because parents didn't have Internet, computer, laptop, or gadget, printer, and inquired platforms or were unaware of how to use them (Dayal and Tiko 2020, Kruzewska et al. 2020, Yildirim 2021, Hartatik and Bia'yuni 2020, Kuset et al. 2021). Limitations also appeared from working parents where their children had to use their gadgets and this can be done once the parents were home (Hartatik and Bia'yuni 2020, Kuset et al. 2021). They also reported that some parents didn't have props to perform necessary at home activities (Yildirim 2021). Some teachers also reported lack of parents' help in child's learning, including directing children when performing activities and giving feedback to teachers in activities (Kruzewska et al. 2020, Yildirim 2021). Moreover, some parents didn't want to be contacted and were reluctant about distance learning (Yildirim 2021).

Another challenges come from student origin including pupil's difficulties with motivation to learn (Kruzewska et al. 2020, Yildirim 2021), lack of concentration (Yildirim 2021), and students speaking at the same time during lessons (Yildirim 2021). In a study by Syarah et al. (2020), 54% teachers were unable to motivate children through online media.

### 3.1.3 Teachers' Strategies

In terms of technical issues, teachers in Siga Lilai had interesting strategies. Despite having single laptop and Internet modem, teachers took turns to deliver lessons at different times (Dayal and Tiko 2020). In terms of pedagogical strategies, teachers' first and immediate strategy was online learning on literacy and numeracy using play-based learning at home. Teachers send a link of materials including worksheets/ songs/hands-on activities through e-mail (Dayal and Tiko 2020), chatting applications such as WhatsApp (Hartatik et al. 2020, Solekhah et al. 2020, Yildirim 2021), Viber (Dayal and Tiko, 2020), video conferences such as zoom (Dayal and Tiko 2020, or web-based platform such as Web 2.0 tools (Alan 2021). Teachers' strategies for evaluation were by asking photos of activities and parent's feedback (Yildirim 2021). In Siga Lilai, teachers delivered lessons from classroom to familiarize children with in-class learning environment. They were also aware of children's health regarding to long-term exposure to screens, so they asked children for a virtual house tour (Dayal and Tiko 2020).

To increase student's participation, teachers keeping in touch with their pupils through WhatsApp or online conferences and communicating with parents (Yildirim 2021). They also provided easy-to-download or easily accessible materials (Yildirim 2021). To resolve the limitation of gadget access in working parents, teachers made video calls with pupils when the parents were home in the evening (Hartatik and Bia'yuni 2020).

### 3.1.4 Teachers' Suggestions

For technical issues, some teachers suggest schools to make computer equipment available to children/pupils and to teachers who need it (Kruzewska et al. 2020). Teachers also suggest free internet access for parents and teachers who need it (Yildirim 2021).

For pedagogical issues, priority is to give teachers training related to skills and competencies on using ICT and management or techniques to deliver distance learning (Kruzewska et al. 2020, Yildirim 2021, Syarah et al.

2020). Secondly, teachers suggested to enrich educational resources for government-provided online teaching media. For example, expand and vary guide books and activity books or thematic animations, games, audio visual children's books (Alan 2021, Kruzewska et al. 2020, Syarah et al. 2020). They also suggested a more children-friendly platform which developed specifically for preschool teachers, students, and families (Alan 2021). Some teachers also suggested government to prepare programs for outbreaks and creating TV shows for preschool education (Yildirim 2021). In the future, they hoped that government will include 'distance learning teaching method' as part of faculty curricula to prepare teachers when facing pandemics (Yildirim 2021, Syarah et al. 2020). Less than 50% teachers had difficulties in evaluating the work of pupils in distance learning and they suggest development of criteria for evaluation and parents' active involvement to give honest feedback and videos on home activities (Kruzewska et al. 2020, Yildirim 2021).

For participation aspect, teachers viewed the need of parents' cooperation to guide their children during distance learning and the need to informing, involving, and increasing parent-student interaction (Alan 2021, Yildirim 2021). In that case, teachers suggested various resources such as leaflets, booklets, or public service announcements to raise the awareness of important role of parents in early education (Alan, 2021).

### 3.2 PRIMARY AND SECONDARY SCHOOL

Primary school is the first stage of basic education. It bridges between early childhood education to formal school education. The programs are typically designed to provide students with fundamental skills in literacy (reading and writing) and mathematics and to establish a solid foundation for learning. According to ISCED classification, primary education normally starts between the ages of 5-8 (1<sup>st</sup> to 3<sup>rd</sup> grade). However, in many countries, primary school starts from 5-12 age (1<sup>st</sup> to 6<sup>th</sup> grade). In ISCED classification, 4<sup>th</sup> to 6<sup>th</sup> grade are considered as lower secondary education where in this stage, students are though with a more subject-oriented curriculum (United Nations Educational, Scientific, and Cultural Organization 2011). The basic competencies to achieve in primary school are native language (spoken language, reading and writing, vocabulary development), English as secondary language, numeration and mathematics, basic science, social studies (geography, history), art and music, physical education, religious or ethical education which is almost the same in many countries (Kementerian Pendidikan dan Kebudayaan 2012, UK Department of Education 2013, Organization for Economic Co-Operation and Development 2016).

Secondary education prepares students for tertiary or higher education and/or providing skills relevant to employment. Usually with an increased subject options and streams (United Nations Educational, Scientific, and Cultural Organization 2011). In this stage, the competencies achieved in primary school are developed in more detail. In addition to mandatory subjects, students choose 'electives' (optional subjects) which supplement their future education and career plans in some countries, one of them is USA (Corsi-Bunker). In Indonesia, students are directed to choose natural science and technology, social science, or language specialization in high school (Kementerian Pendidikan dan Kebudayaan 2012). Foreign languages (other than English) are also added as part of curriculum in some high schools (Corsi-Bunker, Kementerian Pendidikan dan Kebudayaan 2012).

#### 3.2.1 Teacher's Perspective

In study by Fauzi and Khusuma (2020), 82.5% teachers agreed that online learning helped to teach processes during pandemics. However, 73.9% considered that online learning was not very effective to be applied in the learning process. Half of them felt that it was hard to access by students. Majority of the teachers (80%) felt dissatisfied with online learning. In another study by Mailazi et al. (2020), about 50% teachers were not confident in using e-learning, inconvenient in using this method, and thought that this modality of teaching is not useful. The perception towards distance learning is probably affected by challenges posed by teachers which are

also affected by their backgrounds. In contrary to the abovementioned studies, which were conducted in Indonesia, 70% teachers in Finland thought that distance teaching went excellent, but they still felt that many valuable elements that normal school life could provide lacked in distance learning (Niemi and Kousa 2020). Another negative perception is that distance learning will make it difficult to guarantee the full participation of students due to heavy reliance on technology. Meanwhile, teachers felt the positive impact of distance learning was quality resources for teaching and learning, more objective records can be retrieved, and more forms of interactions. Students were more active because they didn't need to show themselves as in traditional classroom (Gao and Zhang 2020).

Level of stress arose as teachers were pressured to ensure students succeeded in their examination in combination with sudden changes in learning method. Teacher's anxiety about new and unfamiliar form of teaching highly affected their perception on distance learning. Nevertheless, some teachers saw an opportunity to create something new like using simulations in online learning or introducing concepts using daily activities (Niemi and Kousan 2020, Aldon et al. 2021, Gao and Zhang 2020).

Students-teachers' communication became more intense. Some teachers perceived this as a positive impact, while other teachers felt disturbed where they had trouble relaxing (Aldon et al. 2021).

### 3.2.2 Challenges

In technical aspect, the major problems are still the same with preschool teachers, related to internet connectivity, quota availability and extra expenses for quota, and gadget ownership (Pramana et al. 2021, Rasmitadila 2020, Fauzi and Khusuma 2020, Devilla and Manalo 2020, Mailazi et al. 2020, Gao and Zhang 2020). However, in study by Niemi and Kousa (2020), teachers didn't felt connection as significant hurdle.

In pedagogical aspect, low ICT ability and unfamiliar with online teaching method is still become the major hurdle (Pramana et al. 2021, Rasmitadila 2020, Fauzi and Khusuma 2020, De Villa and Manalo 2020, Mailazi et al. 2020, Gao and Zhang 2020). Next most reported problem is class management. Teachers must be able to use limited time to deliver instructional objectives and learning assessments. Mainly, limited time was reported due to application time limitations. Moreover, teachers had to master different applications in order to deliver effective and interesting learning conditions (Rasmitadila et al. 2020, De Villa and Manalo 2020). They had to invest more time to prepare teaching materials and delivery methods. This increase teachers' workload and stress level (Rasmitadila et al. 2020, Fauzi et al. 2020, De Villa and Manalo 2020, Mailazi et al. 2020, Gao and Zhang 2020).

Different from preschool class where people had to work with a small groups of children, in primary and secondary school, teachers had to deliver teaching materials to big classes This makes differentiation to make individualized lessons difficult. It was even harder to cope with struggling children which needed further support and assistance (De Villa and Manalo 2020, Gao and Zhang 2020).

Physical interaction was still felt important. Even though some teaches thought that participation fluency, and communication increased, almost half of the teachers said that they had difficulties in creating real interactive relationships with all students. They were worried that students were not really participating because the camera was turned off. They worried if students didn't understand anything and could not alarm students who were in danger to falling behind in their course work (Niemi and Kousa 2020). Physical contact was felt important to observe students and give timely feedback through non-verbal means such as eye contact (Aldin et al. 2021, Gao and Zhang 2020). The lack of physical interaction had led to declining in the enthusiasm to teach (Rasmitadila et al. 2020).

Traditional learning method using in-class textbook reading cannot be done with e-learning method (Mailizar et al. 2020). Therefore, teacher had to think of another method to deliver subjects. Some teachers also thought that several subjects are difficult to be taught using e-learning method, one of them is mathematics (Mailizar et al. 2020, Aldon et al. 2021). For mathematics, it is easier for teacher to teach face to face as they can provide math solutions instantly on board. Also it was very hard to perform assistance for students in difficulty (Aldon et al. 2021).

In case to teach foreign language, semantic and socio-language barriers became a huge problem. Communication barriers that often occur are delays in processing the instructions intended by the teacher (Hiayudi and Art-In 2020). Moreover, in case to achieve language fluency, students need a continuous and intensive training, mainly through interaction especially for speaking ability (Hiayudi and Art-In 2020, Gao and Zhang 2020). Teachers also marked decrease in learning foreign languages as students didn't need it for their daily activities (Hiayudi and Art-In 2020).

In case of physical education, links between students and teachers is highly important to ensure the learning takes place. Face-to-face scenario will help to prevent the negative social, physical and mental health consequences of inactivity due to quarantine. However, strict health protocols have to be applied to limit transmission of COVID-19. Teachers and students should have access to water and soap and disposable paper towels, wash their hands before and after activity. In case of doing the activity in school's gym, it is an obligatory for students to wear mask while performing physical activity which may lead to other health problems due to shortness of breath. If full distance learning is applied, the challenge is to ensure that students did movements correctly, students motivations, and student's house space limitation (Filiz and Konukman 2020).

Another challenge raise in the method of assessment. Firstly, the intervention of parents especially in the primary education causes bias in measuring students' understanding of the materials (Rasmitadila et al. 2020, Fauzi and Khusuma 2020, De Villa and Manallo 2020). The take home test cannot be reliable to assess student's performane because they can get help from friends or textbook aid which are prohibited during on-site examination (Niemi and Kousa 2020, Aldon et al. 2021). Another challenge also arose to give summative scoring with previous scores before distance learning (Aldon et al. 2021). However, this challenge was last seen in psychomotor aspect such as singing or practicing specific movement because these abilities are self-done without parents' intervention. Secondly, the discipline of turning-in assignments on time and not delaying the completion of the task at hand is significantly affected by students' internet connectivity and gadget availability. Thirdly, the affective component cannot be easily evaluated due to different behavior shown by students at home and at school (Rasmitadila et al. 2020).

In participation aspect, gadget ownership, internet connectivity, and inability to buy extra quotas are the major problem which mainly faced by economically disadvantaged families (Pramana et al. 2021, Rasmitadila et al. 2020, Fauzi and Khusuma 2020, De Villa and Manallo 2020, Mailizar et al. 2020, Gao and Zhang 2020). Disturbances during classes also arise from students' home environment for example when their younger siblings ask them to play. Other disturbances came from other students where they talked to other students with topics that were unrelated to the subject being studied which made the class crowded and uncondusive (Rasmitadila et al. 2020). The internal challenge that came from students was their decline in enthusiasm and motivation to learn (Rasmitadila et al. 2020). On contrary with the need of physical interaction, in study by Niemi and Kousa (2020), teachers felt that students were more responsible, hard-working and motivated. Aldon et al. (2021) stated that new relationship was built where the participation of students who were usually withdraw increase and they were brave to communicate.



### *Challenge related to Teachers' Background*

No correlation between teachers' gender and education background (undergraduate, post-graduate, certificated, non-certificated) towards pedagogical aspect challenges (Mailazi et al. 2020). Different time spent to plan distance teaching is affected by distance teaching experience, where 80% of newly experienced teachers need extra time while only 40% of experienced teachers did (Niemi and Kousa 2020).

### 3.2.3 Teachers' Strategies

To overcome with technical problems, some schools already provided facilities including e-learning media (Pramana et al. 2021, Haiyudi and Art-In 2020) and data packages for teachers (Pramana et al. 2021).

Teaching were mainly delivered through WhatsApp (Pramana et al. 2021, Rasmitadila et al. 2020, Fauzi and Khusuma 2020, Aldin et al. 2021) or other chatting applications (Gao and Zhang 2020), zoom meetings (Pramana et al. 2021, Fauzi and Khusuma 2020), and YouTube videos (Pramana et al. 2021, Rasmitadila et al. 2020, Fauzi and Khusuma 2020, Haiyudi and Art-In 2020), Google Forms and Worksheet (Rasmitadila et al. 2020, Fauzi and Khusuma 2020), Microsoft Teams (Niemi and Kousan 2020, Aldin et al. 2021), or other web-based/phone applications specialized for education (Fauzi and Khusuma 2020, Aldin et al. 2021, Gao and Zhang 2020). Teachers explored different teaching online media to better suit the needs and capacity of students (De Villa and Manallo 2020, Gao and Zhang 2020).

To teach mathematics, teachers shot videos on whiteboards of the lessons, methods, and corrections for student's exercise. Assessments were sent in pdf formats. The main objectives of assessment were to monitor students understanding and giving feedback. Teachers also applied classroom discussions and applied group discussion for scaffolding function (exchange of information and mutualize skills). Another strategy was to group students according to their level of understanding and sent different kinds of video clips. Special website, Calcul@TICE, was used to brought the lesson. Teachers also applied games and open questions to trigger students' problem solving and reasoning abilities (Aldon et al. 2021).

In foreign language class, teachers adapted a strategy of pre-recorded videos (Gao and Zhang 2020, Haiyudi and Art-In 2020) and asked students to fill in worksheet and open discussion after students watching the uploaded videos (Gao and Zhang 2020) or asked students to record video producing similar vocabularies or short conversations as teachers did in the uploaded videos (Haiyudi and Art-In 2020).

In case of physical education, for face-to-face scenarios, number limitation, shortening the duration of lesson and rotation will be one solution. Teachers may also consider exercising in open public spaces if possible. They also have to keep social distancing during the activity, so team games and sports that require close contact cannot be applied. In distance education, documents can be provided for students to follow and applied as individual programs and students have to update also apply them regularly (Filiz and Konukman 2020).

Some schools already provided an online-teaching course for teachers to increase digital literacy (Pramana et al 2021). Moreover, some teachers also watched online tutorials in order to use online platforms (De Villa and Manallo 2020, Gao and Zhang 2020).

To increase students' participation and performance, teachers spent more time for questions and answer as well as giving feedback through chatting platforms (Aldin et al. 2021, Gao and Zhang 2020). Teachers also did

personal research on student's conditions before starting online classes and take form of accessible platforms for students. With clear understanding of students' learning needs, teachers made a neat choice of teaching materials and methods (Gao and Zhang 2020).

Above all, teachers' positive thinking highly boosting their self-confidence, improves academic performance and promotes social and emotional progress among students. Teachers attitude toward shifting teaching method to distance learning and their time management plays important role to their enthusiasm of teaching (De Villa and Manalo 2020). Support from peers and headmasters also played important role and can be one solution. Support from peers includes psychological encouragement, technical assistance, and coordination of classroom materials (Rasmitadila et al. 2020, De Villa and Manalo 2020, Aldin et al. 2021, Gao and Zhang 2020). Support from headmasters can be in the form of motivations, increasing teacher readiness through workshops, and procurement of learning facilities and infrastructures (Rasmitadila et al. 2020). The gap in limited resources can be resolved by continuous support through community engagement and partnership with stakeholders (De Villa and Manalo 2020).

### 3.3 HIGHER EDUCATION AND VOCATIONAL EDUCATION

Vocational education can be considered as post-secondary non-tertiary education. The aim of the program is to provide learning experiences that build on secondary education and prepare for labor market entry and/or tertiary education. The content is broader than secondary but not as complex as tertiary education. Higher education is considered as tertiary education, provides academic and/or professional knowledge, skills and competencies with more advanced research programs and professions with higher skills requirements (United Nations Educational, Scientific, and Cultural Organization 2011). The key differences in higher education and vocational education compared to primary and secondary education is skills-oriented and preparation to face professional world which demanded practical work as part of the curriculum.

#### 3.3.1 Teachers' Perspective and Experiences

##### *Technical Issues and Virtual Classroom*

Different from teachers from preschool, primary and secondary education, educators in higher education tend to have sufficient ICT skills and knowledge and have more confidence and readiness to deliver distance teaching (Almazova et al. 2020). Internet connection issues were reported varies between countries [31% in Saudi Arabia pharmaceutical departments (Alqurshi 2020), 82% in Algeria, Egypt, Palestine, and Iraq (Lassoued et al. 2020)].

Nevertheless, some educators still need to adapt with online teaching as they had limited previous experience in use. They still felt preparation of electronic education is time consuming and also they still faced troubles designing learning materials for the electronic environment (Almazova et al. 2020, Alqurshi 2020, Garcia-Alberti et al. 2021, Huang 2020 Lassoued et al. 2020). However, this hurdle and their personal motivation to master online technologies had motivated educators to participate in online education (Almazova et al. 2020).

In the pedagogical process, one of the advantages felt by educators was the opportunity to use different online platforms to upload study material, multimedia resources, set deadlines, conduct different kinds of activities, and communicate with students 24/7 (Almazova et al. 2020, Garcia-Alberti et al. 2021). Online teaching also reduced the time for delivering lectures (i.e. 50 minutes in traditional face-to-face system to 35 minutes) due to pre-recorded videos, and hence this method was felt more time-efficient (Garcia Alberti et al. 2021, Huang 2020).

However, face-to-face communication was still felt more effective in some cases as in humanitarian and foreign language subject (Almazova et al 2020) or teaching scientific concepts (Alqurshi 2020, Garcia-Alberti et al. 2021, Huang 2020) particularly when using scientific symbols (Gregori and Martinez 2021) or delivering explanations on chemical reactions (Huang 2020, Danjou 2020). Face-to-face interaction also benefited educators as they could see students' feedback by looking at their facial expressions (Huang 2020).

Majority of the respondents were satisfied with the online teaching (Alqurshi 2020, Garcia-Alberti et al. 2021, Huang 2020). However more than 70% still prefer teaching in a classroom (Alqurshi 2020, Huang 2020, Lassoued et al. 2020).

### *Course Learning Outcomes*

Surprisingly, more than 60% educators agree that course learning outcomes could be covered through online education (Alqurshi 2020, Huang 2020). Nevertheless, they felt that psychomotor and skills learning outcomes could not be achieved through online courses (Alqurshi 2020, Garcia-Alberti et al. 2021, Huang 2020, Elhaty et al. 2020). More than 75% of educators from science and social departments both suggested using pre-recorded experimental videos and simulation software as temporary solutions for practical works during distance learning. They also preferred to give practical work after this pandemic once the campus could already be accessed (Elhaty et al. 2020).

### *Assessment*

More than 50% of educators felt that online exams were quite practical (Alqurshi 2020, Lassoued et al. 2020) but conventional grading systems and multiple-choice questions were less accurate to reflect students' performance and skills in online examinations as felt by more than 80% educators (Alqurshi 2020, Garcia-Alberti et al. 2021). Another major challenge was to ensure honesty, probity, confidentiality, authorship and equal opportunities for exam takers (Garcia-Alberti et al. 2021, Huang 2020).

### 3.2.3. Challenges

Regardless of the sufficient knowledge and IT skills the students had, educators reported that most of the students still fail to meet deadlines and lack motivation to study online (Almazova et al. 2020, Garcia-Alberti et al. 2021). As for lab works and students' research, distance learning could lead to potential loss of interest due to the lack of practical engagement (Qiang et al. 2020). Technical issues were varied between countries. Only few students faced internet connectivity issues, limitation of quotas, and facilities insufficiencies in Saudi Arabia (Almazova et al. 2020), Spain (Garcia-Alberti et al. 2021), China (Huang 2020). In contrast in Egypt, Palestine, and Iraq internet connectivity issue was still has become the major hurdle for students' participation (Lassoued et al. 2020).

### 3.3.3 Teachers' Strategies

#### *Teaching Methods*

The online education process was mainly conducted through Microsoft Teams (Almazova et al. 2020, Alqurshi 2020, Garcia-Alberti et al. 2021), BlackBoard (Alqurshi 2020, Garcia-Alberti et al. 2021) or Zoom (Garcia-Alberti et al. 2021). In delivering engineering or courses involving mathematical expressions, educators recorded

videos of solved handwritten problems which were later scanned and inserted into slide presentation or uploaded videos (Garcia-Alberti et al. 2021, Gregori and Martinez 2021, Huang 2020, Danjou 2020). Another approach was by live-video while teachers were explaining and writing mathematical expressions on paper, blackboards, or tablets. However, several challenges arrived through this method including lighting, video camera angles, or delay due to internet connection (Gregori and Martinez 2021).

### *Alternative Assessment*

Weekly evaluations were conducted through weekly exercises, short quizzes (Garcia-Alberti et al. 2021). To increase students' satisfaction, universities encouraged lecturers to implement ongoing assessment methods to reduce the weight of final exam. Assessments were redirected to 80% coursework related activities including reports, essays and student presentations, while 20% was allocated to final assessments including oral examinations, open book examinations, and online multiple-choice questions (Alqurshi 2020, Garcia-Alberti et al. 2021). More than 70% educators believed that this mode of assessment could enhance students' overall skills, concepts understanding, and problem solving (Alqurshi 2020).

To Avoid cheating during examination, students were required to turn on video during examination (Garcia-Alberti et al. 2021). The examination time was very tight to ensure that responses were resulted from reasoning, relating concepts, and demonstrating, arguing, or deriving arguments and expressions also this attempt was purposed to avoid cheating (Garcia-Alberti et al. 2021).

### *Practical Works and Students' Research*

The main goal of higher education is to achieve not only conceptual and theoretical knowledge, but also practical skills. During distance learning, several approach had been made to overcome this problem. First was by watching some specific lab or work sites documentaries and to analyze the involved processes and workflows (Garcia-Alberti et al. 2021, Huang 2020, Qiang et al. 2020). Second, by developing virtual labs where students could conduct experiments through online simulations (Garcia-Alberti et al. 2021, Huang 2020, Qiang et al. 2020). Third, some educators also creatively provided ideas of simple experiments that can be done at home. Later students were asked to develop a step-by-step procedure for this experiments, record the experiment, and report their observations (Qiang et al. 2020).

### *Increasing Students' Participations*

Educators were active and eager to motivate students' participation in studying by transforming traditional curriculum. They hoped that students didn't attain class just as formality but productively gaining knowledge (Almazova et al. 2020). Some educators used this unideal condition to teach life philosophy as rapid change can sometimes happen during their professional career so they have to be able to adapt accordingly and quickly (Qiang et al. 2020).

University students also encouraged to do scientific research as perquisite for their graduation. To motivate students from dropping out for this core course, educators' strategies were firstly to engage students in research group meetings and scientific webinars. They also challenged students by giving research questions instead of topics and students were asked to review literatures to get research ideas (Qiang et al. 2020).

### *University Supports*

Ministry of education and university managerial teams had important role in giving online education system guidance as most universities' study programs didn't have contingency plan for sudden distance learning teaching method (Alqurshi 2020).

Universities are more ready to give technical support compared to schools and educators felt satisfied with the IT support. Educators also felt that platforms chosen by the university are easy to use (Almazova et al. 2020, Huang 2020). Universities had provided free internet data and other necessities to help students during distance learning (Huang 2020).

### *3.4 SPECIAL EDUCATION*

The distance learning that were enforced during the Covid-19 pandemic in order to control the incidence of positive cases, in fact have an impact on students, especially students with disabilities. For students with disabilities, distance learning has an impact on learning loss, because the learning materials sometimes cannot be accessed independently by students with disabilities especially if they didn't have any study assistants at home. For example if the materials was made in the form of video it didn't equipped with written transcripts which will make it difficult for students with hearing disabilities. And learning materials that are not equipped with audio will make it difficult for students with visual disabilities. With the diversity of disabilities that exist and access to education that hasn't facilitated, the limitations that students with disabilities have, they feel that they will be left behind compared to their peers without disabilities (Catalano, 2014).

#### *3.4.1 Teachers' Perspective and Experiences*

During Covid-19 situation distance learning system had been used for students with disabilities. The Teachers conducts teaching with curriculum standards, learning materials, and assessments that have been set by the school curriculum. During distance learning system, teachers find it difficult to modify learning materials. This is important to do because in distance learning for students with disabilities there are limitations, namely assistance that is often needed by students, but when changes in the learning system occur, students cannot have it again. The learning content provided by the school curriculum often does not facilitate children with special needs. Such as the lack of media, or media that cannot be reached independently by students due to their disability conditions. This will also get worse with the supervision and assistance of parents who for one reason or another are lacking. Teachers with disabilities hope that if distance learning is carried out for their students, teachers have the right to collaborate with the curriculum section to present educational content that can be accessed by anyone, including with disabilities, even in conditions without assistance. This is to increase student learning motivation and reduce the anxiety level of students with disabilities who feel they will be left behind by the distance learning system (Crouse et al., 2018).

#### *3.4.2 Challenges*

The challenge of teaching remotely from a teacher's point of view for students with disabilities in a covid-19 pandemic situation. One of the biggest challenges faced by teaching students with disabilities in implementing a distance learning system is the lack of limitations in learning models that can support the education of students with disabilities in remote area situations (Barbour, 2016). In addition, teachers also have limited experience in conducting distance teaching for students with disabilities (Barbour, 2016). This has led to a situation where the Covid-29 pandemic requires emergency change, some teachers who have students with disabilities admit to

having difficulties when delivering teaching materials due to the different interfaces that teachers have learned with the special Covid-19 situation. This is because teachers with a specialization in education with disabilities have additional learning points, namely student behavior management, basic training in social skills with students, and special teaching to train students in direct direction processing which will be difficult to do if the learning system is carried out remotely.

### 3.4.3 Teachers' Strategies

The teaching strategies recommended not only for students with disabilities but also for students without disabilities who are in a distance learning condition are Universal Design for Learning (UDL) (Frumos, 2020). UDL is a concept of a teaching method that is suitable for long-distance conditions because UDL has a framework that are flexible and easily accessible to all students. This is because in UDL there are three aspects of education and teaching methods that are applicable but can accommodate the differences that students have, one of which is a special condition with disabilities. This is indicated by the structure of the UDL which 1) provides multiple means of engagement; 2) providing multiple means of representation; 3) Providing various actions and expressions in teaching and learning activities (Providing multiple means of actions) (Rogers-Shaw et al., 2017). UDL is suitable to be used as an emergency strategy in the conditions of the Covid-19 pandemic, which forces the adaptation of new habits to change the face-to-face education system into a distance education system. This condition is possible because UDL focuses on providing essential choices for students with various choices of teaching media that can be used and accessed by students with disabilities and non-disabled alike. The provision of these options is realized with clear learning goals, media that accommodates various needs such as providing audio along with text material, providing written text in learning videos, providing teaching materials in the form of graphics, tables, symbols, images encoded with audio graphic explanations, tables, symbols, pictures etc. Also teaching materials and assignments that can be printed independently or zoomed in/out (Hitchcock, et al., 2002). The components contained in UDL facilitate the needs of students with disabilities because the choice of media can be accessed by students independently from anywhere, especially when the assistance that is usually obtained in face-to-face schools cannot be obtained in a distance learning system.

#### *Teacher suggestion regarding distance learning in a COVID-19 pandemic situation*

Teachers with disabilities hope that the curriculum will include opinions or input from teachers regarding the distance learning curriculum that is being carried out. Given this situation, the educational curriculum is made with the standard of educators who have plenty of room to get teaching input for students with disabilities. This is in line with Kennedy & Archambault (2014), who said that teachers hope to have the opportunity to collaborate with educators regarding the addition, reduction and modification of teaching materials to suit and accommodate the needs of students with disabilities.

#### *TEACHERS' PSYCHOLOGY AND WELL BEINGS*

Several studies had shown educators' perception and negative feeling because of the pandemic related to their profession including long-term career, financial, ambivalence, being ignored related to their professions (Alan 2021, Dayal and Tiko 2020).

Emotional atmosphere was also reported by preschool teachers when their pupils genuinely asked about school re-opening (Dayal and Tiko 2020, as preschool teachers had deeper relationships with their pupils compared to teacher from higher education level.

Health-related problems including back and spine pains, eye pains had also been reported by preschool teachers (Kruzewska et al. 2020) especially by older teachers.

They viewed a need of psychological support to ensure psychological well-beings (Alan 2021, Kruzewskal et al. 2020). Some teachers also suggest a conditions for exchange of information and experience between schools and peer supports (Kruzewskal et al. 2020)

#### 4. Conclusion

COVID-19 pandemic had affected all stages of education. By shifting the traditional based learning system to distance learning, it could prevent from spreading of the virus. This change has made a tremendous change in the learning system for both teachers and students. To give students their needs on education, teachers have gathered all strategy that could be applied to provide students needs on learning during Covid-19 pandemic situation.

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