Covid - 19 Impact in Indonesia's Education Sector: Challenges and Strategy

Chairil Faif Pasani*, Faculty of Teacher Training and Education, Lambung Mangkurat University, Banjarmasin, South Kalimantan, Indonesia. E-mail: chfaifp@ulm.ac.id

Rizky Amelia, Faculty of Teacher Training and Education, Lambung Mangkurat University, Banjarmasin, South Kalimantan, Indonesia.

Zainudin Hassan, School of Education, Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia, Skudai, Johor, Malaysia.

Abstract--- The spread of the Novel Coronavirus pandemic (COVID-19) disrupts the nost critical aspects of human life, including education. For instance, most learning institutions have been forced to temporarily close and implement the Learning from Home system (LFH). According to UNESCO, 1.7 billion children from 191 countries felt the effects of this temporary shutdown. These institutions respond to this situation differently, depending on choices available to students, teachers, and parents, as well as material and human resources. Most policies use innovative digital and cellular technology combined with traditional technology, radio, and TV to offer continuous education. Depending on distance and technological facilities, such as internet and Wi-Fi, LFH increases the access gap in gaining a quality education. This article analyzes the impact of COVID-19 on the education system in Indonesia. It examines the opportunities and challenges presented by the pandemic in the education system technology. The pandemic seriously affects student learning and welfare. It widens the gap between fortunate and less fortunate students in accessing quality education. Furthermore, Indonesia has formulated several long-term policies related to ICT and education. However, challenges experienced increased after the advent of COVID-19 because of the gradual implementation strategy and the inability to implement the policy. This article provides a further discussion on challenges and potential management strategies.

Keywords--- COVID-19, Pandemics, Continuous Education, Indonesian Education.

I. Introduction

Historical records show several major pandemics, including smallpox, cholera, plague, dengue fever, AIDS, influenza, acute respiratory syndrome (SARS), and tuberculosis. Influenza pandemics are erratic but, repetitive, occurrence and have severe consequences for people. They have struck about three times in every century since the 1500s, approximately every 10-50 years. In the 20th century, there were 3 influenza pandemics: "Spanish flu" in Indonesia 1918-1919, "Asian Flu" in 1957-1958, and "Hong Kong Flu" in 1968-1969 (Worobey, Rambaut, Pybus, & Robertson, 2002) (Snacken, Kendal, Haaheim, & Wood, 1999).

Every pandemic affects human life and economic development. For example, the "Spanish flu" killed more than 20 million people globally. It was perceived as the most devastating epidemic in world history (Organization, 2011). Recently, six large-scale outbreaks of lung-hanta virus syndrome, severe acute respiratory syndrome, H5N1 influenza, H1N1 influenza, Middle East respiratory syndrome and the epidemic of Ebola virus disease have been recorded (Gostin et al., 2016). The 2009 H1N1 influenza virus (A / 2009 / H1N1) was the first pandemic in the 21st Century. It affected the entire world, causing more than 18,000 deaths (Rewar, Midwife & Rewar, 2015). According to the World Bank, 11,000 people died due to ebola, with a world economic harm worth more than $ 2 billion (Maurice, 2016). The 2016 Zika virus spread and threatened people's health in 34 countries (Troncoso, 2016). These outbreaks make scientists and governments worry about the extent of economic and educational destruction.

Education is the foundation of every nation's development (Asalu, 2014). Therefore, sustainability is vital for national growth and development. It has been hit by various challenges in previous centuries, ranging from school curriculum changes, student and staff demonstrations, epidemics, and government instability (Burgess & Sievertsen, 2020). The Indonesian education system adopted the Curriculum 2013 (K13), resulting in challenges in teaching materials. Similarly, certain epidemics have led to school closures.

The Coronavirus pandemic has affected the education system throughout the world. For instance, there have been widespread school closures. On March 28, 2020, more than 1.7 billion students commenced the LFH system to stop the COVID-19 distribution chain. More than 100 countries have implemented national closures, affecting nearly 90% of the world's student population (UNESCO, 2020). The closures not only affect students, teachers, and

families, but also have significant economic and social consequences, including student difficulties, digital learning, food insecurity and homelessness, childcare accessibility, health care, housing, internet, and infirmities (Lindzon, 2020; Jamerson, Josh, & Joshua, 2020; Karp & McGowan, 2020; Ngumbi, 2020; Dooley, Bandealy, & Tschudy, 2020; Feuer, 2020; Barrett, 2020; Jordan, 2020; Jalali, Shahabi, Bagheri Lankarani, Kamali, & Mojgani, 2020).

Previous outbreaks of infectious diseases resulted in schools closing with varying effectiveness throughout the world (Esposito & Principi, 2020). In the 1918-1919 influenza pandemic in the United States, school closures and a prohibition of public meetings resulted in lower total death rates (Jhaveri, 2020). The cities implementing the intervention observed a delay in peaking the mortality rates (Markel et al., 2007). One study showed that schools were closed for 4 weeks from 43 US cities during the Spanish Flu (Markel et al., 2007).

School closures reduced the impact of Asian flu by 90% during 1957-1958 (Chin, Foley, Doto, Gravelle, & Weston, 1960). Similarly, it controlled up to 50% of influenza in the US in 2004-2008 (Wheeler, Erhart, & Jehn, 2010). Several countries minimized the spread of infection through school closure during the 2009 H1N1 Flu pandemic. In Oita city, Japan, the closures reduced infection among students' peak (Kawano & Kakehashi, 2015). Health protocols must be implemented through physical distancing, which results in a 29% to 37% reduction in the transmission level. Early school closures in the United States delayed the 2009 H1N1 Flu pandemic (Jhung & Nelson, 2015). During the 2009 swine flu outbreak in the UK, epidemiologists supported the closures to disrupt the infection, slowing down the spread and increasing time for research and vaccine production.

Global epidemics in the last two decades have significantly impacted the world's economy and education. The World Health Organization (WHO) uses the term 2019 Novel Coronavirus (2019-nCoV) to refer to coronavirus diagnosed from the lower respiratory tract of pneumonia patients in Wuhan, China, on December 29, 2019 (Li et al., 2020). The human viral infection originated from the local South China Seafood Huanan Market in Wuhan, Hubei Province, China (Zhu et al., 2020). On January 26, 2020, China took steps to slow the spread of COVID-19 by extending the Spring Festival holiday.

Universities and schools throughout the country are closed (S. Zhang, Diao, Duan, Lin, & Chen, 2020). The Iranian Ministry of Health announced the closure of universities, higher education institutions, and schools in several cities and provinces on February 23, 2020, to slow the spread and mortality rate of the virus (Ghafari et al., 2020). On March 3, 2020, UNESCO released the first global figures on school closures and affected students. Accordingly, 13 countries have imposed preventive measures, including temporary school and university closures, affecting 290.5 million students worldwide (Draissi & ZhanYong, 2020). In response, UNESCO asked countries to support and facilitate large scale inclusive distance learning programs.

The Italian government ordered a nationwide closure of schools and universities on March 4, 2020, after 100 deaths (Boccia, Ricciardi, & Ioannidis, 2020). Italy is, therefore, among 22 countries on three continents that have implemented school closures (de Oliveira Araújo, de Lima, Cidade, Nobre, & Neto, 2020). On March 5, 2020, China had 233 million students affected by COVID-19, followed by Japan and Iran with 16.5 14.5 million students, respectively. On March 10, one in five students around the world stayed away from school to the COVID-19 crisis. On March 13, 2020, governments from 49 countries implemented school closures. Similarly, 39 countries closed schools nationally, while 22 implemented local closures. On March 16, 2020, according to UNESCO, school closures increased from 49 to 73 countries, among them Indonesia. Furthermore, 50% of students worldwide were affected by the closures on March 19, 2020, to help minimize the spread of the virus. On March 20, 2020, more than 70% of the world's students from 124 countries were affected. On March 23, all schools, markets, and companies in Nigeria were closed, and children barred from leaving houses by their parents. All schools and universities in New Zealand were closed on March 26, 2020 (Pather et al., 2020).

The school's closure has led to problems in access to education and socio-economic problems (UNESCO, 2020). On March 29, 2020, about 90% of the world's students were affected by the closure (UNESCO, 2020). It causes high social-economic costs as well as disrupting learning among students. The disruption has a severe impact on disadvantaged students, impaired child nutrition, childcare problems, and economic cost consequences for unemployed families (UNESCO, 2020). Working parents lose their jobs when schools close to care for their children at home. This results in lost wages, negatively impacting productivity (UNESCO, 2020).

Indonesia recorded the first import case on March 2, 2020. The cases began to increase, and the President of the Republic of Indonesia began executing several interventions, closing schools in the first and second cycles and tertiary institutions on March 15, 2020. Parents and education stakeholders welcomed this directive as a step towards protecting students from contracting the virus. However, it encounters challenges among the student

population. This study investigates the challenges due to COVID-19 in the Indonesian education system, focusing on LFH. It suggests strategies for solving challenges in the education system to anticipate the next outbreak.

II. International Efforts to Manage the Impact of Covid-19 in Education

Almost all countries have adopted various strategies to respond to the COVID-19 pandemic, depending on available resources. Technologically advanced countries such as Italy, France, Germany, Australia, the United Kingdom, and the US, have adopted distance learning by quickly improving e-learning platforms such as Moodle, LMS, and cloud systems. These platforms are used by students to access e-content and storage through mobile devices. All stakeholders, institutions, teachers, publishers, and parents have collaborated to create digital resources, including textbooks and learning materials for delivery in virtual classrooms (Azzi-Huck & Shmis, 2020).

China and India have established national e-learning portals accessible by parents, teachers, students, and education administrators. India has provided access to thousands of courses in various languages (Bhat et al., 2020). China has mobilized all online platforms and telecommunication service providers, increased the bandwidth of major digital platforms, and mobilized human and material resources throughout the community, to ensure smooth learning. Subsequently, it has adopted flexible online learning methodologies to facilitate remote learning. Furthermore, the government has strengthened online learning safety through collaboration with service providers by creating psycho-social support provisions to ensure 100% of online learning runs perfectly (S. Zhang et al., 2020) (W. Zhang, Wang, Yang, & Wang, 2020).

Countries with inadequate infrastructure turn to traditional technologies, such as radio and TV, to compensate for losses. South American countries such as Argentina, Chile, and Brazil have used these approaches with limited access to internet connectivity. Each ministry has used a new combination of digital and traditional technology to deliver lessons from a national education portal coordinated with students, teachers, managers, and parents. Radio, television, YouTube channels, recorded lessons, and digital learning materials are combined to provide lessons for students with limited internet access (Cimerman, Chebabo, da Cunha, & Rodríguez-Morales, 2020).

Adopting a similar approach, Indonesia and Malaysia mobilized all major technology and internet providers and TV communication channels to collaborate with their ministries in providing direct education programs for students and teachers. In Indonesia, TV Education, 'Rumah Belajar,' and Oline Program learning systems provide access to learning resources, digital learning management systems, electronic textbooks, and practice assessment tools in line with the curriculum. Malaysia has launched a new TV channel, providing education for all students, especially those with internet inaccessibility. These programs are broadcasted live on the Ministry's online learning platform.

III. The Impact of Covid-19 on Education in Indonesia

The COVID-19 pandemic has led to the production of technology-based education design. Understanding the fundamental differences in the 'new normal' in education is quite essential. The impacts include community divorced, which involves taking students away from school, and community embedded, specifically learning from home (LFH) (Bloom, Reid, Cassady, Gandhi, & Lorrance, 2020). Based on the parents' social, economic, linguistic, and educational backgrounds, internet access becomes the students' challenge in implementing LFH. Subsequently, background and internet access limitations should be considered for parent and community mobilization (Burgess & Sievertsen, 2020). Education during and after COVID-19 should be a practice that can be implemented in the community. Education is expected to provide resources, help set goals, and facilitate the learning process dependant on the facilities, resources, skills, and expertise of those involved. It is still early to fully grasp the effects of school and university closures due to COVID-19 on Indonesia's education system. The impacts of this pandemic on education are described below.

(i) Impact on Learning and Skills Development

The school and university closures to prevent the spread of COVID-19 harm students' knowledge and skills development. School-going was perceived as the best public policy to improve skills (Burgess & Sievertsen, 2020). It may increase social skills and awareness (Toquero, 2020).

Research showed that schools have a positive effect on student skills' development. For example, Carlsson, Dahl, Öckert, and Roothet examined situations where a student in Sweden has several days preparing for a test. They highlight that an additional ten days of school teaching may increase scores on crystallized intelligence tests by about 1% of the standard deviation. This would not be the case if the student did not attend school. Going to school in ten days significantly increases test scores on crystallized intelligence (Carlsson, Dahl, Öckert, & Rooth, 2015).

Lavy estimated the effect of learning time on student achievement. Data samples collected from more than 50 countries with differences in teaching hours show that face-to-face learning has a significant positive impact on student test scores (Lavy, 2015). Therefore, it is easy to describe the impact of prolonged school closures on students in Indonesia.

(ii) Digital Learning Creates a Gap in Education Access

Indonesia has significant economic and educational gaps in its population. The existing education system and unequal resource distribution widen the gap between the rich and the poor. In the emergence of COVID-19, digital imbalance, and unequal access to e-learning and e-resources is likely to increase the gap between students (Hodges, Moore, Lockee, Trust, & Bond, 2020).

Students are influenced by the pandemic differently. Some schools and colleges in urban areas have started running online classes, yet this seems inappropriate for most rural schools. Data released by APJII in 2019 states that about 56% of the 268.2 million people in Indonesia can access the internet, with about 67% of internet users being in Java (Pratomo, 2019).

Gudi stated that only 13% of schools might run online classes, although 35% have internet access. It is therefore clear that the ICT infrastructure and access distribution in urban and rural areas have created two inequality levels between students in urban and rural areas, and between rich and poor people with difficulty accessing internet connections. To reiterate, providing equitable e-learning access for all students is challenging. The sudden shift to e-learning further expands inequality (Gudi & Tiwari, 2020).

According to Crawford, although technology-based learning is beneficial, it widens inequality in case it is not wisely implemented (Crawford, Butler-Henderson, Rudolph, & Glowatz, 2020). Likewise, UNESCO (2020) has shown that the achievement of the Sustainable Development Goals has several targets, including (1) Ensuring the quality of inclusive and equitable education, all students having the opportunity to learn for life, and (2) the State is obliged to reduce inequality in learning access for students.

(iii) Impact on Assessment

All kinds of assessments, such as the National Examination, were canceled, and the final semester exams in schools largely abolished (Joharudin, Septiadi, Maharani, Aisi, & Nurwahyuningsih, 2020). Cancellation negatively affects student learning. The assessment shows the students' learning needs and supports the learning process (Black & William, 2018). Andersen and Nielsen explained that IT explores the impact of testing system destruction in Denmark, indicating the test positively affects student learning. The results established a 9% increase in the reading score, with similar effects in mathematics (Andersen & Nielsen, 2019) Dawadi established that assessment motivates students to learn (Dawadi, 2019). Regarding external assessments, cancellation directly impacts the future of education with the students' work depending on their results. This uncertainty breeds anxiety in students because they are stuck in the same class for a full year. Likewise, many students plan to study abroad but were constrained by the international travel ban due to COVID-19.

(iv) Pipeline Effects

The COVID-19 pandemic creates uncertainty for Indonesian students enrolled or aspiring to be enrolled in foreign universities due to the ban on international travel. It greatly affects the prospects of overseas students, with a long-term effect on education and the economy. Therefore, the pandemic has created potential gaps in the education system.

A lot of pressure is mounting on teachers and students to adapt when the schools are closed, causing the teachers in the future to pursue learning materials and topics according to the curriculum in a short time. Murphy stated that schools and teachers are likely to experience much pressure to catch up with the learning material after COVID-19. Teachers may find it challenging to prioritize and develop students with better skills. This situation tends to worsen existing education standards (Murphy, 2020).

(v) High Drop-out Level

School closures during the COVID-19 pandemic have the possibility of increasing school drop-out rates in Indonesia. It is estimated that this might resemble the impact of the Ebola epidemic on education in Africa, where drop-out rates in Guinea, Liberia Sierra Leone, and other countries significantly increased (Giannini & Albrectsen, 2020). Meurphy stated that the longer the school was closed, the more the drop-outs cases increased. Furthermore, the longer people stop learning programs, the more difficult it is for them to re-register and return to school (Murphy, 2020).

The drop-out rate in Indonesia might arise for two reasons. First, many parents lost their jobs, and therefore, some may not afford to take their children back to school. The children may need to work to support their families. The situation might be worse in rural areas. Parents from rural areas prefer to support and help in agriculture and animal husbandry and may hesitate to take them back to school (Al-Samarrai, Gangwar, & Gala, 2020).

Secondly, Indonesia's economy depends a lot on foreign employment. Huang stated that many Indonesians work abroad as Indonesian Workers (TKI) or Women Workers (TKW), hence their families financially rely on them. However, the pandemic has greatly affected their work abroad, causing them to lose jobs and return to their homeland. This may lead to higher drop-out rates.

IV. Strategies in Response to the Covid-19 Impact on Education Systems in Indonesia

(i) Strategies to Ensure Students Return to School in "New Normal."

Students from low-income families experience a double loss during school closure due to COVID-19. For instance, there is a disruption in classroom learning and economic uncertainty. There are several indications of the COVID-19 impact in Indonesia, where many people live in poverty. Children from low-income families do not return to school because they support their families. Therefore, there is a need to track students failing to return to school and develop strategies to help parents send them back. Furthermore, schools may need to provide flexible learning with a fun approach to motivate students. They may consider providing economic support for students severely affected by the pandemic or overall economic factors (Bayham & Fenichel, 2020).

(ii) Introducing Evidence-based Interventions to Restore Learning Left Behind

Interference in educational activities after school closures will have long-term effects on students. Restoring learning may take a long time because there is no accurate plan to recover the lost learning period. Introducing evidence-based interventions aimed at facilitating the learning restoration may help students in stressful situations. Therefore, schools and universities need to survey the students' needs and design lessons to catch up (Tiruneh 2020). Relevant authorities need to arrange steps to fulfill the student learning quality by running additional classes, additional material, or remedial courses (Montacute, 2020).

(iii) Understand Students' Family Backgrounds and Provide Appropriate Counseling and Support for Students and Parents

The COVID-19 pandemic has a severe impact on the millennials' health and well-being. This might lead to increased mental health problems, with more children becoming victims of domestic violence. Another impact is the lack of physical activity for children in urban areas, because of movement cessation. Furthermore, some children are addicted to social media and digital devices. These factors indirectly affect their learning, hence the possibility of more family-related problems (Lee, 2020).

Some students return with high anxiety over health or family problems caused by the pandemic and loss of learning. Managing this situation can be a big challenge for schools, necessitating the need for an appropriate plan and corrective action. To overcome this problem, schools need to hold counseling with students and parents. Furthermore, schools need to have frequent contact with students and parents in several ways, including telephone calls, social media, and home visits, while maintaining a physical distance. Schools need to show concern for students' mental and physical welfare more than learning during this pandemic.

(iv) Utilize Trained Local Volunteers and Facilitators to Support Learning

Governments and schools should collaborate with local communities. According to Bavel, support for learning during and after this pandemic can occur through community help. Residents with teaching skills may volunteer to help students learn, under the guidance and direction from schools. They should be locally trained as competent facilitators with the potential to provide knowledge to students (Van Bavel et al., 2020). Owusu's research in Ethiopia, Ghana, and Pakistan showed that local facilitators could significantly impact education. They might improve basic literacy and numeracy skills to new students or drop-outs. The strength of these facilitators lies in their ability to communicate with students in the mother tongue and build a strong foundation for literacy (Owusu-Fordjour, Koomson, & Hanson, 2020).

(v) Involved with Parents

A family as the center of education has a crucial role in learning for children (Burgess & Sievertsen, 2020). All parents, regardless of their ethnic background, economic status, and education level, endeavor to support their children (Basol & Zabun, 2014). Furthermore, parental involvement in their children's education has many benefits,

increasing the possibility of the children's success (Cojocariu & Mareş, 2014; Goodall & Vorhaus, 2011). Positive correlations have been found between parents and their children's school performance (Georgiou, 1999). Therefore, schools need to understand the children's potential to learn with their families. Although there is a variation in family efforts to help children learn, it could compensate for the loss of learning due to COVID-19, maintaining a high student-parent collaboration level. Therefore, schools need to use different parental involvement strategies, such as arranging workshops and focus group discussions (FGD) informing parents on the curriculum, teaching practices in class, school assignments for students, and encouraging parents to volunteer in various school activities. However, teachers need training in working with parents from various backgrounds (Burgess & Sievertsen, 2020).

(vi) Supports Learning through Online and Offline Methods (Blended Learning)

There are four types of potential students in Indonesia, from pre-primary to higher education, in terms of access to digital devices and the internet. The first group consists of students and parents from poor and remote backgrounds with no access to all forms of digital and internet facilities. The second group, considered to be the largest, includes parents with access to mobile devices but no internet. In the third group, parents have good access to mobile phones but limited internet access and other digital devices. The fourth is a group of students with sophisticated digital devices such as smartphones, iPad, iPods, and laptops. They have internet access, with adequate literacy in using digital resources. However, this group is only about 5% of the student population. Furthermore, the policies and practices adopted have only been implemented in urban areas (Phuyal, 2020). The assumption by decision-makers that everyone may access internet technology post a significant challenge.

Various policies are needed to overcome the students' problems. For instance, for children in remote areas with no or limited access to digital devices and the internet, it is necessary to gather resources accessible by parents and potentially use postal delivery. The second group can be supported through radio, television, and text messaging. Priority is given for non or inaccessible technological, user-friendly, and cost-effective approaches urgently needed in education. In most poor and remote communities, technology is available in the form of radio and cell phones.

The Indonesian government has started running several classes on radio and television. However, the program is not accessed by all learners because 20% of the population lack access to radio and television. Hidayat further pointed out that the Ministry of Education was strategizing on how to overcome this challenge. When rural children access radio and television lessons, they gain more, especially where parents are illiterate.

In this context, local volunteers may directly visit students while maintaining social distance. Local governments and schools should, therefore, collaborate. Additionally, schools may run face-to-face classes by implementing several steps such as maintaining social distance, students attending classes in turns, introducing behavioral management policies to comply with social distance measures, limiting item sharing, and using face masks.

The third group can be supported through television, radio, text messaging, and other social media, such as Viber, Facebook, WhatsApp, Imo, and WeChat, while online classes and resources can be offered the last group. However, schools with online classes need to adjust to student needs. Furthermore, Vahid (2020) stated that students might have several problems, including having family duties at home. This applies to students lacking a suitable study room, for instance, limited computer or internet access, or many distractions.

Many families from the third and fourth groups prioritize using the internet for personal communication and social media. They need awareness of digital content, and training to use digital resources for children's education. To motivate these parents, Viber, Facebook, or WhatsApp Groups can facilitate regular communication. Learning material can directly be sent to parents through the groups, enabling their children to access learning material from mobile phones (Van Lancker & Parolin, 2020).

Special attention should be given to children with special needs. According to Pudasaini (2020), parental literacy is included in the four categories of learners with special needs. Multilingual context also needs to be considered, including the simultaneous use of national and local languages in virtual classes. This means that a comprehensive framework in dealing with every type of student is needed.

(vii) Partnering with International Organizations

Another possible option for restoring learning during COVID-19 is outsourcing opportunities by the government. For example, the Global Partnership for Education (GPE) recently announced to provide the US $ 250 million to help developing countries deal with the disruption in education by the COVID-19 pandemic. It aims to

support the children affected by school closure. UNESCO has also formed a task force to support governments from low and middle-income countries to overcome the crisis (Munzberg, 2020).

(viii)   *Teacher Training to Conduct Online Classes and Considering Student Access to Technology*

The current scenario in Indonesia shows that online classes in several institutions lack the right plan and vision. This raises several questions, including whether teachers use online classes, the need for training in online teaching, and access to the internet and digital devices. Nasution believes that decision-makers' assumption that everyone can access internet technology is one of the fundamental challenges that need to be addressed. Internet services cannot cover more than 50% of Indonesia. Internet service providers are almost non-existent in all rural areas, while large telecommunication companies such as Telkomsel, XL, and Indosat have high data costs.

Most Indonesians are often reluctant to buy internet quotas, prioritizing food to survive in crisis (Maslan, 2014). Because of this pandemic, people are dying of starvation, with some committing criminal acts due to insufficient food. The internet is, therefore, expected to be affordable to every student. Basic reality should be considered before a decision is made.

Furthermore, online teaching requires trained and skilled teachers. Most teachers in Indonesia are not well trained. It is wrong to believe that online learning can be effective by posting lecturer notes or having recorded video lectures (Esposito & Principi, 2020). Quality online learning requires material prepared by pedagogically trained lecturers to deliver programs for students. Poorly prepared online classes will have an impact on the program quality. Therefore, teachers need to be trained in online teaching.

(ix) *Moving to Digital Infrastructure*

The closing of the learning institutions due to COBID-19 has created alternative ways of teaching. Although few schools and universities have started running online classes during this pandemic, government support in these institutions is needed to strengthen their capacity. Students need support to get internet access and technology since most of them cannot afford it. The pandemic is assumed to be bumpy and cyclical. According to WHO, this pandemic may never be exhausted, and people must live with it (Lee, 2020). In response to such events, countries plan to incorporate distance learning in normal education. This will help overcome the crisis and minimize negative impacts. The approach includes adjusting the academic calendar, prioritizing students in the class to prepare for high-risk exams, and continuing parallel distance learning in schools. Collaboration is vital in building experiences the same as in previous outbreaks, such as SARS and Ebola. The government also needs to support form the community, such as understanding the options available as alternatives and learning innovations in education. Additionally, education administrators and policymakers can capitalize on this crisis to introduce new learning modes accessible to everyone. This is useful for preparing emergency conditions and making the system more resilient.

V. Conclusion

This article has provided a situational analysis of education during COVID-19, which has resulted in school and university closures in Indonesia. Furthermore, it includes an analysis of the impact on school education, pointing out challenges arising from school closures, and suggesting strategies for managing COVID-19 impacts. The pandemic has created educational anarchy, where the government lacks a strong grip on the education system. Failure to deal with the situation on time might lead to a stagnation in the education system or total collapse. Task forces on education need to be formed based on the relevant Ministry of Education and Culture to explore possibilities, suggest immediate short-term steps, and provide compensation for teachers and students with online learning difficulties. Since most students cannot access technology, some institutions utilize low-tech approaches, providing e-learning platforms for students with access to technology. This indicates that strategies to reduce the impact of COVID-19 range from *hi-tech*, such as real-time video, to low or no technology choices, such as educational programming on radio. Likewise, internet service providers need to be mobilized to provide platform service access in remote areas.

References

[1]   Al-Samarrai, S., Gangwar, M., & Gala, P. (2020). The Impact of the COVID-19 Pandemic on Education Financing. *World Bank.*

[2]   Andersen, S. C., & Nielsen, H. S. (2019). Learning from Performance Information. *Journal of Public Administration Research and Theory*.

[3]   Asalu, V. (2014). Restoration of Value Education: Bedrock for Sustainable Development in Nigeria. *Southeast COEASU Journal of Teacher Education*, *1*(1).

[4]   Azzi-Huck, K., & Shmis, T. (2020). Managing the impact of COVID-19 on education systems around the world: How countries are preparing, coping, and planning for recovery. *I] World Bank Blogs [/I]*, *18*.

[5]   Barrett, S. (2020). Coronavirus on campus: College students scramble to solve food insecurity and housing challenges. *CNBC. Retrieved*, 3–23.

[6]   Basol, G., & Zabun, E. (2014). The Predictors of Success in Turkish High School Placement Exams: Exam Prep Courses, Perfectionism, Parental Attitudes and Test Anxiety. *Educational Sciences: Theory and Practice*, *14*(1), 78–87.

[7]   Bayham, J., & Fenichel, E. P. (2020). Impact of school closures for COVID-19 on the US health-care workforce and net mortality: a modelling study. *The Lancet Public Health*.

[8]   Bhat, R., Singh, V. K., Naik, N., Kamath, C. R., Mulimani, P., & Kulkarni, N. (2020). COVID 2019 outbreak: The disappointment in Indian teachers. *Asian Journal of Psychiatry*, *50*, 102047.

[9]   Black, P., & Wiliam, D. (2018). Classroom assessment and pedagogy. *Assessment in Education: Principles, Policy & Practice*, *25*(6), 551–575.

[10]   Bloom, D. A., Reid, J. R., Cassady, C. I., Gandhi, M., & Lorrance, A. (2020). Education in the time of COVID-19. *Pediatric Radiology*.

[11]   Boccia, S., Ricciardi, W., & Ioannidis, J. P. A. (2020). What other countries can learn from Italy during the COVID-19 pandemic. *JAMA Internal Medicine*.

[12]   Burgess, S., & Sievertsen, H. H. (2020). Schools, skills, and learning: The impact of COVID-19 on education. *VoxEu. Org*, *1*.

[13]   Carlsson, M., Dahl, G. B., Öckert, B., & Rooth, D.-O. (2015). The effect of schooling on cognitive skills. *Review of Economics and Statistics*, *97*(3), 533–547.

[14]   Chin, T. D. Y., Foley, J. F., Doto, I. L., Gravelle, C. R., & Weston, J. (1960). Morbidity and mortality characteristics of Asian strain influenza. *Public Health Reports*, *75*(2), 149.

[15]   Cimerman, S., Chebabo, A., da Cunha, C. A., & Rodríguez-Morales, A. J. (2020). Deep impact of COVID-19 in the healthcare of Latin America: the case of Brazil. *Braz J Infect Dis*.

[16]   Cojocariu, V.-M., & Mareş, G. (2014). A study on the primary school teachers' view upon the essential factors determining the (non) involvement of the family in the education of primary school students in Romania. *Procedia-Social and Behavioral Sciences*, *142*, 653–659.

[17]   Crawford, J., Butler-Henderson, K., Rudolph, J., & Glowatz, M. (2020). COVID-19: 20 Countries' Higher Education Intra-Period Digital Pedagogy Responses. *Journal of Applied Teaching and Learning (JALT)*, *3*(1).

[18]   Dawadi, S. (2019). Parental Involvement in National EFL Test Preparation. *RELC Journal*, 0033688219848770.

[19]   de Oliveira Araújo, F. J., de Lima, L. S. A., Cidade, P. I. M., Nobre, C. B., & Neto, M. L. R. (2020). Impact Of Sars-Cov-2 And Its Reverberation In Global Higher Education And Mental Health. *Psychiatry Research*, 112977.

[20]   Dooley, D. G., Bandealy, A., & Tschudy, M. M. (2020). Low-Income Children and Coronavirus Disease 2019 (COVID-19) in the US. *JAMA Pediatrics*.

[21]   Draissi, Z., & ZhanYong, Q. (2020). COVID-19 Outbreak Response Plan: Implementing Distance Education in Moroccan Universities. *Available at SSRN 3586783*.

[22]   Esposito, S., & Principi, N. (2020). School closure during the coronavirus disease 2019 (COVID-19) pandemic: an effective intervention at the global level? *JAMA Pediatrics*.

[23]   Feuer, W. (2020). WHO officials warn health systems are'collapsing'under coronavirus:'This isn't just a bad flu season. *CNBC. Retrieved*, 3–23.

[24]   Georgiou, S. N. (1999). Parental attributions as predictors of involvement and influences on child achievement. *British Journal of Educational Psychology*, *69*(3), 409–429.

[25]   Ghafari, M., Hejazi, B., Karshenas, A., Dascalu, S., Ferretti, L., Ledda, A., & Katzourakis, A. (2020). Ongoing outbreak of COVID-19 in Iran: challenges and signs of concern. *MedRxiv*.

[26]   Giannini, S., & Albrectsen, A. (2020). *COVID-19 school closures around the world will hit girls hardest*. UNESCO.

[27]   Goodall, J., & Vorhaus, J. (2011). *Review of best practice in parental engagement*.

[28]   Gostin, L. O., Tomori, O., Wibulpolprasert, S., Jha, A. K., Frenk, J., Moon, S., … Dzau, V. J. (2016). Toward a common secure future: four global commissions in the wake of Ebola. *PLoS Medicine*, *13*(5).

[29]   Gudi, S. K., & Tiwari, K. K. (2020). Preparedness and lessons learned from the novel coronavirus disease.

The International Journal of Occupational and Environmental Medicine, *11*(2), 108.

[30] Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *Educause Review*, *27*.

[31] Jalali, M., Shahabi, S., Bagheri Lankarani, K., Kamali, M., & Mojgani, P. (2020). COVID-19 and disabled people: perspectives from Iran. *Disability & Society*, 1–4.

[32] Jamerson, K., Josh, M., & Joshua, B. (2020). Student-Loan Debt Relief Offers Support to an Economy Battered by Coronavirus. *Wall Street Journal*, 96–99.

[33] Jhaveri, R. (2020). Echoes of 2009 Pandemic H1N1 Influenza with the COVID Pandemic. *Clinical Therapeutics*.

[34] Jhung, M. A., & Nelson, D. I. (2015). *Outbreaks of avian influenza A (H5N2),(H5N8), and (H5N1) among birds—United States, December 2014–January 2015*.

[35] Joharudin, A., Septiadi, M. A., Maharani, S., Aisi, T. D., & Nurwahyuningsih, N. (2020). PANIC SYNDROM COVID-19: PENEKANAN TERHADAP KEBIJAKAN YANG DIBERIKAN. *Jurnal Perspektif*, *4*(1), 44–53.

[36] Jordan, C. (2020). Coronavirus outbreak shining an even brighter light on internet disparities in rural America. *The Hill*.

[37] Karp, P., & McGowan, M. (2020). Clear as mud: schools ask for online learning help as coronavirus policy confusion persists. *The Guardian*, 261–307.

[38] Kawano, S., & Kakehashi, M. (2015). Substantial impact of school closure on the transmission dynamics during the pandemic flu H1N1-2009 in Oita, Japan. *PloS One*, *10*(12).

[39] Lavy, V. (2015). Do differences in schools' instruction time explain international achievement gaps? Evidence from developed and developing countries. *The Economic Journal*, *125*(588), F397–F424.

[40] Lee, T. H. (2020). Creating the new normal: The clinician response to COVID-19. *NEJM Catalyst Innovations in Care Delivery*, *1*(2).

[41] Li, Q., Guan, X., Wu, P., Wang, X., Zhou, L., Tong, Y., … Wong, J. Y. (2020). Early transmission dynamics in Wuhan, China, of novel coronavirus–infected pneumonia. *New England Journal of Medicine*.

[42] Lindzon, J. (2020). School closures are starting, and they'll have far-reaching economic impacts. *Fast Company*, 11–13.

[43] Markel, H., Lipman, H. B., Navarro, J. A., Sloan, A., Michalsen, J. R., Stern, A. M., & Cetron, M. S. (2007). Nonpharmaceutical interventions implemented by US cities during the 1918-1919 influenza pandemic. *Jama*, *298*(6), 644–654.

[44] Maslan, A. (2014). Analisis Faktor-Faktor Mempengaruhi Kesenjangan Digital Studi Kasus Barelang (Batam, Rempang Dan Galang) Kepulauan Riau. *Computer Based Information System Journal*, *2*(2).

[45] Maurice, J. (2016). Cost of protection against pandemics is small. *The Lancet*, *387*(10016), e12.

[46] Montacute, R. (2020). *Social Mobility and Covid-19: implications of the Covid-19 crisis for educational inequality*.

[47] Munzberg, N. S. (2020). Stakeholder Engagement Plan (SEP) KENYA GPE COVID 19 LEARNING CONTINUITY IN BASIC EDUCATION PROJECT (P174059). *The World Bank.*

[48] Murphy, M. P. A. (2020). COVID-19 and emergency eLearning: Consequences of the securitization of higher education for post-pandemic pedagogy. *Contemporary Security Policy*, 1–14.

[49] Ngumbi, E. (2020). Coronavirus closings: Are colleges helping their foreign, homeless and poor students. *USA Today*, 11–14.

[50] Organization, W. H. (2011). Comparative analysis of national pandemic influenza preparedness plans. *Geneva: WHO*.

[51] Owusu-Fordjour, C., Koomson, C. K., & Hanson, D. (2020). The impact of Covid-19 on learning-the perspective of the Ghanaian student. *European Journal of Education Studies*.

[52] Pather, N., Blyth, P., Chapman, J. A., Dayal, M. R., Flack, N. A. M. S., Fogg, Q. A., … Meyer, A. J. (2020). Forced Disruption of Anatomy Education in Australia and New Zealand: An Acute Response to the Covid-19 Pandemic. *Anatomical Sciences Education*.

[53] Pratomo, Y. (2019). APJII: Jumlah Pengguna Internet di Indonesia Tembus 171 Juta Jiwa. *Kompas. Com*.

[54] Rewar, S., Mirdha, D., & Rewar, P. (2015). Treatment and prevention of pandemic H1N1 influenza. *Annals of Global Health*, *81*(5), 645–653.

[55] Snacken, R., Kendal, A. P., Haaheim, L. R., & Wood, J. M. (1999). The next influenza pandemic: lessons from Hong Kong, 1997. *Emerging Infectious Diseases*, *5*(2), 195.

[56] Toquero, C. M. (2020). Challenges and Opportunities for Higher Education amid the COVID-19 Pandemic: The Philippine Context. *Pedagogical Research*, *5*(4).

[57]   Troncoso, A. (2016). Zika threatens to become a huge worldwide pandemic. *Asian Pacific Journal of Tropical Biomedicine*, *6*(6), 520–527.

[58]   UNESCO. (2020). COVID-19 educational disruption and response. *Available At*.

[59]   Van Bavel, J. J., Baicker, K., Boggio, P. S., Capraro, V., Cichocka, A., Cikara, M., … Druckman, J. N. (2020). Using social and behavioural science to support COVID-19 pandemic response. *Nature Human Behaviour*, 1–12.

[60]   Van Lancker, W., & Parolin, Z. (2020). COVID-19, school closures, and child poverty: a social crisis in the making. *The Lancet Public Health*, *5*(5), e243–e244.

[61]   Wheeler, C. C., Erhart, L. M., & Jehn, M. L. (2010). Effect of school closure on the incidence of influenza among school-age children in Arizona. *Public Health Reports*, *125*(6), 851–859.

[62]   Worobey, M., Rambaut, A., Pybus, O. G., & Robertson, D. L. (2002). Questioning the evidence for genetic recombination in the 1918" Spanish flu" virus. *Science*, *296*(5566), 211.

[63]   Zhang, S., Diao, M. Y., Duan, L., Lin, Z., & Chen, D. (2020). The novel coronavirus (SARS-CoV-2) infections in China: prevention, control and challenges. *Intensive Care Medicine*, 1–3.

[64]   Zhang, W., Wang, Y., Yang, L., & Wang, C. (2020). Suspending classes without stopping learning: China's education emergency management policy in the COVID-19 Outbreak. *Multidisciplinary Digital Publishing Institute*.

[65]   Zhu, N., Zhang, D., Wang, W., Li, X., Yang, B., Song, J., … Lu, R. (2020). A novel coronavirus from patients with pneumonia in China, 2019. *New England Journal of Medicine*.