ANALYSIS OF DIGITAL EDUCATION CONSTRAINTS DURING THE COVID-19 PANDEMIC IN G-20 MEMBER COUNTRIES

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Abstract
The discussion of the constraints of digital education is the theme of discussion in this study. Digital education is being discussed considering the transformation of education is carried out by all countries, including countries members of the G20. However, in its implementation, digital education faces several obstacles. Therefore, this study aims to explain the obstacles several countries face in implementing digital education in their country. Five countries are observed where the five countries are countries that are members of the G20 membership, namely Indonesia, India, South Africa, Poland, and Hungary. The study uses a literature approach with an observation period in 2020 during the Covid-19 pandemic. Based on the analysis, the results show that the five countries face a shortage of facilities and means to support digital education. In addition, the unpreparedness of users of digital education system services is also another obstacle. These obstacles are the main obstacles faced. For this reason, the discussion of the cooperation forum for the G20 countries consistently seeks to encourage better economies of scale so that an inclusive economy can be achieved in all G20 member countries. The success of achieving an inclusive economy can build a better digital education infrastructure in the future.

Keywords: digital education, constraints, G20 countries, literature

Pembahasan kendala pendidikan digital menjadi tema pembahasan dalam penelitian ini. Pendidikan digital sedang diperbincangkan mengingat transformasi pendidikan dilakukan oleh semua negara, termasuk negara-negara anggota G20. Namun dalam implementasinya, pendidikan digital menghadapi beberapa kendala. Oleh karena itu, penelitian ini bertujuan untuk menjelaskan kendala yang dihadapi beberapa negara dalam mengimplementasikan pendidikan digital di negaranya. Lima negara yang diobservasi dimana kelima negara tersebut merupakan negara yang tergabung dalam keanggotaan G20, yaitu Indonesia, India, Afrika Selatan, Polandia, dan Hungaria. Penelitian menggunakan pendekatan literatur dengan periode observasi tahun 2020 pada masa pandemi Covid-19. Berdasarkan analisis, diperoleh hasil bahwa kelima negara tersebut menghadapi kekurangan fasilitas dan sarana untuk mendukung pendidikan digital. Selain itu, ketidaksiapan pengguna layanan sistem pendidikan digital juga menjadi kendala lain. Kendala tersebut merupakan kendala utama yang dihadapi. Untuk itu, pembahasan forum kerja sama negara-negara G20 secara konsisten berupaya mendorong skala ekonomi yang lebih baik sehingga ekonomi inklusif dapat dicapai di seluruh negara anggota G20. Keberhasilan pencapaian ekonomi inklusif dapat membangun infrastruktur pendidikan digital yang lebih baik di masa depan.

Kata kunci: Pendidikan digital, hambatan, negara G-20, literatur

INTRODUCTION

The transformation of education during the Covid-19 pandemic has significantly influenced the human character and knowledge formation in all countries. The change of the education system during the pandemic is experienced by formal, non-formal, and informal educational institutions. The transformation of education is also influenced by the development of digital technology, communication systems, social characteristics, and the developed environmental situation. Therefore, using technology becomes a part of one's life to be more adaptive and flexible in dealing with changes in the surrounding environment.

According to educational technology theory (Sukamdinata, 1997), technology becomes a practical teaching tool during the learning and teaching process. However, the increase in competence and functional abilities obtained from educational technology will not significantly affect if it is not supported by a change in one's mindset in building social interactions in a more positive direction. In other words, educational technology must be able to construct communicative interactions between students and educators. Those statements can become a premise that the combination of implementation of educational technology theory and interactional education theory must be in line.

During the educational transformation, obstacles emerged in the digital education process. This obstacle makes it difficult for people to fulfill education as their primary need. In consequence, this issue becomes one of the topics of discussion in the G20 Summit forum. Besides the health sector and economic policies during the pandemic, the G20 panel discusses several sectors, such as energy, tourism, poverty, financial services, international trade, migration, regional conflicts, transnational crime, gender balance, and climate change.

The education sector became one of the discussion themes for the delegations of G20 countries, considering all countries in the world carried out the transformation of education during the pandemic. The transformation becomes one of the central themes for the G20 summit. The spread of the coronavirus that is evenly distributed throughout the world is a factor causing the acceleration of education transformation in all countries. The pandemic has forced all countries to limit the mobility of their people. With the limitations of community mobility, it must carry out changes in the education system from a conventional education system to a digital education system. The digital education system is associated as a form of using technology in the learning and teaching process. There is an interaction between students and educators mediated by information and communication technology facilities. The digital education system aims to increase the digital literacy of students. In addition to students, digital education can also provide benefits to the general public. With the increasing knowledge of digital literacy (Tomczyk & Eger, 2020), one can find various information on the right opportunities (Matli & Ngoepe, 2020), according to their needs.

Indonesia as a member of the G20, is not alone in carrying out its digital education program. G20 member countries other than Indonesia are also doing the same thing. As a member of the G20, Indonesia has always played an active role in providing input in solving global problems. This role is undoubtedly part of the government's global political strategy map. A strategy that actively encourages the government to communicate strategic national policy maps in international forums. In addition to the government, community institutions, educational institutions, and society in general also have their respective roles in providing solutions and appropriate steps in mitigating social problems during the Covid-19 pandemic.

Therefore to analyze digital education's constraints during the pandemic, this study tries to look at experiences in several G20 member countries. Five countries, including Indonesia, India, South Africa, Poland, and Hungary, are the objects of observation in this study. Poland and Hungary are member states of the European Union. Both are countries located in the European region and have had indicators of economic progress in recent years since 2008, likewise with South Africa. This country, located in the African region, is a country that is starting to show improvement in its economy. In addition, as countries in the Asian region, Indonesia and India were also countries with a stable economic level before the pandemic occurred.

The purpose of this study is to provide recommendations for education policymakers in developing countries, especially G20 member countries that fall into the category of countries with emerging and developing market coverage. In addition, to support the research, this study sets out two main questions. First, what are the obstacles in the five countries during the implementation of digital education? Second, what is recommendations can be given? These suggestions can provide input for the following G20 discussion forum. This study is divided into three sub-discussions. The second sub-discussion after the preliminary sub-discussion is a sub-discussion on the methodology used. The next sub-discussion is the delivery of results, followed by a sub-discussion of discussions and conclusions.

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METHODE: STUDY OF LITERATURE

This study uses a literature study approach. The literature is obtained from online media documentation, either in scientific journals, information submitted through the official website, or news presented online. Several previous studies also used a literature study approach. One of them is research that discusses digital culture in the education system in Indonesia during the pandemic. Sari et al. (2020) conducted this research. In addition, Mhlanga & Moloi (2020) also took the same approach to their research. Their research addresses the transformation of digital education in South Africa during the pandemic.

The following research comes from Ridei et al. (2021). Their research also uses a literature study approach. Their research emphasizes analyzing the competence of teachers in building the concept of lifelong learning. In addition, Tomczyk & Eger (2020) also use a similar approach. The approach used to find out how much digital literacy knowledge is in Poland students aged 15-21.

The next step in this study is to determine the keywords, and the keyword used is "digital education." These keywords contain the meaning of changing the education system from conventional education to digital education. Digital technology is the main factor that drives change in all aspects, including the education aspect. Besides using the keyword "digital education," other keywords are also inserted according to the country to be observed. In other words, the keywords "Indonesia, India, South Africa, Poland, and Hungary" are also used together when searching for the keyword "digital education."

The keyword search method uses the search facilities available on the official website services, either through Google, the OECD (Organization for Economic Cooperation and Development), the World Bank, etcetera. Specifically, the keyword search used newspapers published in five countries. Each of these newspapers has an official website with a search feature in it. The newspapers used to search for sources of data and information include thejakartapost.com, thesouthafrican.com, hungarytoday.hu, Krakow.post, and hindustantimes.com.

The Jakarta Post is a daily newspaper published in Indonesia, and the language used is English. Meanwhile, The South African News is an English-language online newspaper published in South Africa. Then, Hungary Today is also an official newspaper published in the territory of Hungary. The Krakow Post, this newspaper is an English-language newspaper and is published in Polish territory. While The Hindustan Times this newspaper is one of the English-language newspapers published in India.

On the other hand, for keyword searches whose data and information sources are from scientific studies, the search sources are obtained through open online journal sources provided by DOAJ, Microsoft Academic, and Researchgate.net. Keyword searches through online journal services are also the same as keyword searches through websites and online newspapers. Keywords correlate with digital education constraints in five countries.

The year 2020 became an observation period starting from March to December 2020. March became the beginning of the observation period after the World Health Organization (WHO) officially announced that the world was in a state of a Covid-19 pandemic on March 11, 2020. This incident changed all aspects of life, including aspects of the learning process for students and educators. The digital transformation of the education system is the beginning of the search for learning system problems that are carried out online.

This study takes five countries as the object of observation. The five countries, i.e., Indonesia, India, Poland, Hungary, and South Africa, are member countries of the G20. Indonesia, India, and South Africa have already joined the G20 membership since 1999. Meanwhile, Poland and Hungary, which are members of the European Union, only joined after the financial crisis in Europe around 2008. Five countries are used as the object of this study because the four countries are countries with emerging and developing market status. In contrast, Poland has become a developed market since 2018. The five countries represent three regions, both in Asia, Europe, and Africa.

In addition, the index of increasing human resource capacity in five countries also experienced a significant increase. According to data from the United Nations Development Program (UNDP), Poland and Hungary in 2000 are still in the high human development index group. In the same year, Indonesia and South Africa are included in the medium human development group. Meanwhile,

India is included in the low human development group. However, in 2019, Poland and Hungary have entered the group of countries with a very high human development index. Meanwhile, Indonesia and South Africa are included in countries with a high human development index. At the same time, India has also experienced an increase and is included in countries with a medium human development index.

Figure 1. Human Development Index 2000-2019
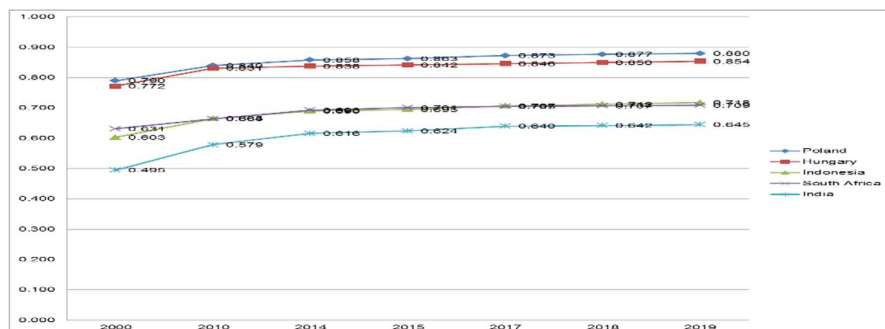
Source United Nation Development Program Statistics

RESULT AND DISCUSSION

Digital Education Constraints

This part of the discussion explains the findings from the search for data and information related to digital education constraints for the five countries as the object of observation. The problem of digital education in Indonesia is the first in the discussion. South Africa, India, Poland, and Hungary will be discussed next.

As supporting information, Table 1 below describes the number of articles collected from five online newspapers published in five countries, namely Indonesia, India, South Africa, Poland, and Hungary. The article published by the online newspaper contains content with the keyword "digital education." In the online media, the Jakarta Post, the articles that are collected are 48 articles. The South Africa online media collects 12 articles. Meanwhile, online media Hungary Today collects 83 articles. In addition, the Krakow Post's online media could not find the intended article, and the Hindustan Times online media managed to collect ten articles. Not all articles compiled have the correlations needed to explain this study. Only a few relevant articles can explain the theme of the preparation of this study.

Table 1. The Number of Articles in Online Media

The Number of Articles Sought by Online Media That Have the Keyword "Digital Education," Period March--December 2020				
The Jakarta Post	The South Africa	Hungary Today	The Krakow Post	The Hindustan Times
48	12	83	-	10

Source: several international online media (English newspaper)

Indonesia

The education program run by the Indonesian government has progressed quite well. The government allocates its education budget annually at 20% of the state budget ceiling. This portion of the budget is a mandate from the 1945 Constitution. Programs to increase the quantity and quality

of education in Indonesia encourage the human development index. However, improving the quality of education in Indonesia must face challenges when the Covid-19 pandemic has attacked all countries, including Indonesia, since March 2020. The pandemic has changed the learning and teaching process where formal and non-formal educational institutions must implement digital education. That is education carried out with the help of modern communication devices and digital technology.

During the pandemic, several areas in Indonesia are in the black, red, and yellow zones. These zones force educational institutions to implement online learning. Problems arise when digital education has not provided equal means and facilities for students and teaching staff. Therefore, many teachers and students cannot implement the distance learning process in their area. However, the government provides communication and information tools and financial assistance for accessing the internet for underprivileged students.

The release of data submitted by the OECD related to the results of the 2018 Program for International Student Assessment (PISA) study explained that Indonesia experienced an increase in the number of students, especially students for the 15-year-old population who had access to formal education. In 2000, only 39% of the population aged 15 years had access to formal education. However, this number increased a few years later, and in 2018, the achievement increased to 85%. The survey also indicates the percentage of students who can access the internet through computers during the learning process. It is stated that Indonesia is still below the average for the percentage of students who can access the internet and computers as long as these students do their schoolwork at home. Data says the number is between 20% and 25%.

The data submitted by the OECD is not up-to-date. However, the data submitted by the OECD can be re-confirmed through data and information obtained through digital literacy searches on online media during 2020. In general, the lack of facilities and facilities in implementing digital education is the main obstacle. This reality follows the statement of the Indonesian Minister of Education conveyed by the Jakarta Post through one of its stories published on December 1, 2020, with the title "Poor Internet Connection, Lack of Devices Hinder Online Learning: Ministry." One of the quotes states as follows, "According to Education and Culture Ministry data, 51 percent of early education to middle school students living in the outermost, border and disadvantage (3T) areas do not have a reliable internet connection. In addition, 27.8 percent of them said they had access to a laptop or computer, but the devices were also unreliable. Meanwhile, 20 percent and 18 percent of students outside of 3T areas also do not have access to computers and smartphones, respectively."

From the Jakarta Post's media information, it can be seen that the lack of facilities and infrastructure is the main obstacle during the digital education process being implemented in Indonesia. This condition has not taken into account the quality and welfare of the teachers. The teaching staff who experience financial limitations find it challenging to provide internet and computer facilities during the teaching process. The welfare condition of the teaching staff also affects the quality of how they build teaching models. If the income level of educators is below the regional minimum wage standard, these teaching staffs lack orientation and development in sharing their knowledge.

Meanwhile, distortion of the communication network is also another obstacle. The lack of focus and students' misperceptions are obstacles that can be seen from the way students participate in the learning process. Although many obstacles are faced, the implementation of digital education also has a positive impact, and Sari et al. (2020) sees the positive impact. According to them, building a comfortable psychological side during the learning process is a positive impact. The formation of a digital learning culture is also a positive side of this new learning and teaching process mechanism. With the new learning and teaching process mechanism, students can build a digital culture in their mindset.

South Africa

Digital education was also implemented in the South African country during the pandemic. South Africa is a developing country in the African region. In 2020, based on data from the World Bank, the country's population reached more than 59.3 million. While data submitted by worldpopulationreview.com as of August 25, 2021, South Africa's population has reached 60.1 million people. The consequences of the increasing population can affect the level of poverty if the target of inclusive economic growth has not been fully achieved in the community. Based on data from the World Bank, South Africa's Gini coefficient is 2020 reached 63.0.

This Gini coefficient index indicates that there is a considerable household income gap among South Africans. High poverty rates have a significant influence on the online learning process. The level of poverty also affects how much of the population can access formal education through public educational institutions. Not only that, but the poverty rate also affects how many people can access the internet and have communication facilities in the form of computers and smartphones.

An article was obtained based on a literature study obtained through searching for information in the South African News media. This article discussed the constraints of digital education applied by South Africa. Zuko Sibongiseni Ndzoyiya wrote the opinion with the title "The Pandemic Exposes the Inequalities in South Africa's Basic Education." Zuko concluded that the pandemic exposed South Africa's shortcomings in managing its education system, particularly education for elementary-level students. The poverty side correlates with these shortcomings, namely the lack of educational facilities and facilities as long as digital education is implemented.

"As your quintile 4, 5 and private schools where the majority elite learners attend continues with their academic progression through digital learning and parental guidance or assistance, the majority of those who come from marginalized schools suffer due to lack of capacity in their schools to provide for the alternative digital learning."

Thus, it can be said that South Africa also experiences the problem of lack of educational facilities and facilities during digital education. However, digital education is an up-to-date education system design to be implemented in the future. With the digital education mechanism, digital literacy knowledge (Matli & Ngoepe, 2020) is expected to increase, significantly increasing the opportunity to find the information needed.

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India

India is one of the countries that contributed to spreading the new variant of the Covid-19 virus. This new variant is called the Delta variant. The spread of the Delta variant of the Covid-19 virus occurred in 2021. The spread of this new virus variant indicates that public compliance to maintain mobility during a pandemic is quite vulnerable. The public's compliance with maintaining their health and environment is the key to controlling the spread of Covid-19. The lack of public awareness is caused by economic factors and the poverty level of the community. They often ignore the factors that trigger the spread of the virus so that this encourages the emergence of other symptoms of the disease.

The poverty factor in India is the same as that experienced by South Africa. This factor is the reason why digital education cannot be applied equally to all students. Before the pandemic occurred, the Indian government had planned to build a distance education system through the help of digital and communication technology. During the realization phase of the digital education implementation plan, the Indian government has built the required digital education infrastructure. However, the pandemic conditions prompted the government and the people of India to accelerate the implementation of this plan. As long as digital education is implemented, people find that the digital education mechanism has not provided education services reasonably.

This obstacle to digital education in India can be found in digital literacy sources through the media coverage of the Hindustan Times. One of his articles raised the problems faced when digital education was carried out by the Indian community (Digital Divide May Turn Shift to Online Classes Operational Nightmare, Warn Experts, 2020). According to the article, "According to the Key Indicators of Household Social Consumption on education in India report, based on the 2017-18 National Sample Survey, less than 15% of rural Indian households have access to the internet as opposed to 42% in urban households. 13% of people surveyed (aged above five) in rural areas—just

8.5% female—could use the internet. The poorest households cannot afford a smartphone or a computer, according to the survey."

The information presented in this article provides an understanding that the digital education process in India is also experiencing problems. The types of obstacles faced by India are also the same as those faced by Indonesia and South Africa. The reason is because of the differentiation of the community's ability level in implementing digital education. The inclusive economy has not been evenly distributed across Indian society. On the other hand, the Indian government must also pay attention to the education process for students with disabilities because they also face obstacles during the learning process (43 Lakh Disabled Students across States May Drop out, Unable to Cope with Online Education, 2020). "Children with a disability across several states in India including Odisha, are facing a huge risk of dropping out of school as they are not able to cope with online/digital medium for their classes during the Covid-19 pandemic." This information provides evidence that the digital education process still has shortcomings in its application. However, this education system also has a positive impact. The findings of this positive impact become a consideration for the Indian government to continue to use digital education as a learning process in the future. The Indian government has also corrected existing deficiencies, particularly strengthening internet accessibility (Goswami, 2020), so that the digital education process becomes a benchmark in the future education system.

Poland

Poland also experienced the same thing when digital education applied to students. This education process is carried out to stop the spread of Covid-19. The constraint constitutes the lack of facilities and access for some students who have limitations. Unpreparedness in implementing digital education was also an obstacle when the digital education policy was implemented. However, this condition did not last long because the Polish government has assisted the digital education process to be applied evenly. The assistance is used to reach internet access and obtain information technology devices such as computers and smartphones.

The digital education mechanism opens innovation for educational service application developers. This innovation allows research and training institutions such as the European Center for Lifelong Learning and Multimedia Education (ECKUM) to create effective learning models during the pandemic. This institution has even become one of the role models of changing the education system in Poland by developing an e-learning system. This system is another form of independent learning and training process. However, it is essential to note that the e-learning education system (Tomczyk, 2021) is slightly different from distance learning. The e-learning education system supports students learn independently. In contrast, distance learning is an education system that still provides interaction between students and teachers.

E-learning systems can provide teaching instructions without having to present a teacher directly. However, lifelong learning to improve competence (Ridei et al., 2021) for teaching staff is also needed to create teaching models following the development of education in their environment. One of them is a model of developing digital literacy knowledge (Tomczyk & Eger, 2020) for students to use digital communication devices. Increasing digital literacy knowledge can prevent students from committing cyber bullying, piracy, or other things related to pornography.

Hungary

As a member country of the European Union, Hungary can increase the knowledge of its people from the European Union member countries that have already developed. Hungary has been a member of the European Union since 2004. Hungary joined the European Union and Poland, Cyprus, Czechia, Estonia, Latvia, Lithuania, Malta, Slovakia, and Slovenia in the same year. During the pandemic, Hungary also experienced a similar situation. The Hungarian government has asked its citizens to stop their mobility during the pandemic. The cessation of community mobility has also affected formal educational institutions. During the pandemic period, the learning process was carried out using the help of a computer or smartphone connected to the internet network.

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Hungary is also experiencing problems in implementing digital education. Based on the information provided by Hungary Today New, Hungary is facing problems with the lack of readiness of educators and students in implementing digital education. In addition, the lack of supporting infrastructure for students is also an obstacle found. Regions that have residents who are less able to reach learning facilities and facilities, such as computers and internet access, are also obstacles faced during the implementation of digital education in Hungary. The lack of digital literacy for some students, teachers, and parents is also an obstacle for Hungary. That obstacle, of course, causes a gap in the mastery of digital literacy for all Hungarian residents.

The implementation of digital education even creates inequalities in the provision of space and electricity for underprivileged students (Distance Learning Concludes with Extra Efforts by Families and Gained Digital Experience, 2020). The same is true for students with disabilities. They also experience the same conditions as the conditions experienced by students with disabilities in India. In other words, students with special needs cannot use distance education facilities if the educational facilities used are not in sync with what they need.

In 2020, the student learning process in Hungary implemented a distance learning system. During the distance learning process, the number of Covid-19 patients began to decline. This indication creates space for the government to make new policies in which the government plans to reopen schools and educational institutions so that the teaching and learning process can be carried out physically (Coronavirus: Schools to Open on Sept 1, 2020). However, to anticipate the second wave of the spread of Covid-19, distance learning is still the right step so that the education system in Hungary can continue (Gov't Considers Reintroducing Distance Learning In Case of Second Wave of Pandemic, 2020). During distance learning, improving the quality of virtual applications and augmented learning space and presentation methods in education (Molnár et al., 2020) becomes an advanced solution in developing distance learning that is more interactive and easy to understand.

Discussion

From the discussion above, it can be concluded that five countries face almost the same obstacles in implementing digital education. Indonesia, India, South Africa, Poland, and Hungary all face obstacles in the unpreparedness of some teachers, students, and parents in teaching-learning materials online. The lack of facilities and supporting facilities during the digital education process is the main obstacle faced by the five countries. People who live in remote and marginalized areas are why digital education facilities and means are less critical. The cost of accessing the internet and the lack of computer ownership are also other obstacles. In addition, the lack of digital literacy is also an inhibiting factor for the digital education process to take place.

Poland and Hungary adapt their digital education better than South Africa, India, and Indonesia, with a higher human development index. Undoubtedly, it is challenging to implement digital education for Indonesia, South Africa, and India, which still have some areas that the internet network cannot reach. This condition causes students to be unable to reach the access and facilities they need. In addition to students from low-income families, students with special needs are also a particular concern. They are also unable to follow the online learning process. The limitations of supporting facilities for students with disabilities have resulted in the online learning process not being possible for them to apply.

These five G20 member countries have provided an overview of the conditions and constraints during the implementation of digital education. Each country in the three different regions has a different number and level of limitations. Likewise, the level of state capacity in providing additional costs, facilities, and means to support digital education is also different for each country. For Indonesia and India, which are countries in the Asian region, financing to support the digital education process needs to be increased. This condition also applies to South Africa as a developing country whose poverty rate is still relatively high compared to countries in the Asian region. Indonesia, India, and South Africa need to expand their financial capacity to support digital culture in their educational institutions.

On the other hand, although Poland and Hungary have more extensive sources of education funding, they still need to improve the quality of their digital education. As members of the

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European Union, they can build an education system at their own expense. Hungary even has a ratio of spending on education to Gross Domestic Product above the EU average ratio. This indication proves that Poland and Hungary can build digital education infrastructure quickly, massively, and innovatively.

CONCLUSION

The experience of digital education obstacles faced by five countries becomes valuable information to making a recommendation in the G20 cooperation forum. This input becomes material for consideration to mitigate the obstacles faced. Strengthening economic performance is a long-term solution that must be realized so that all G20 member countries can achieve inclusive economic growth. However, to realize an inclusive economy, every country requires strategic efforts and steps. Nevertheless, the distance learning process and the learning process through academic e-learning facilities will remain a reference for the cutting-edge learning process in the future. All countries only need extensification of efforts in building a comprehensive information and communication technology infrastructure. In addition, all countries also need to develop a strategy in reducing the cost of internet coverage. Others, diverting education costs that are not a priority to building infrastructure networks and increasing the capacity of its human resources. Moreover, increasing budget allocations to support digital education as a culture and way of working has begun to be used in all G20's members in today's digital society.

REFERENCES

43 lakh disabled students across states may drop out, unable to cope with online education. (2020). retrieved from https://www.hindustantimes.com/education/43-lakh-disabled-students-across-states-may-drop-out-unable-to-cope-with-online-education/story-ZAg4a1nyWDluuq4BfV2V0K.html

Coronavirus: Schools to Open on Sept 1. (2020). retrieved from https://hungarytoday.hu/coronavirus-schools-to-open-on-sept-1/

Digital divide may turn shift to online classes operational nightmare, warn expert. (2020). retrieved from https://www.hindustantimes.com/education/digital-divide-may-turn-shift-to-online-classes-operational-nightmare-warn-experts/story-Y7HMun0JGQddwCczRciv5O.html

Distance Learning Concludes with Extra Efforts by Families and Gained Digital Experience. (2020). retrieved from https://hungarytoday.hu/distance-digital-education-hungary-coronavirus/

Goswami, S. (2020). *Online Education in Corona Outbreak: A Challenge, Boon or Curse in India*.

Gov't Considers Reintroducing Distance Learning In Case of Second Wave of Pandemic. (2020). retrieved from. https://hungarytoday.hu/govt-considers-reintroducing-distance-learning-in-case-of-second-wave-of-pandemic/

Matli, W., & Ngoepe, M. (2020). Capitalizing on Digital Literacy Skills for Capacity Development of People who are not in Education, Employment or Training in South Africa. *African Journal of Science, Technology, Innovation and Development*, *12*(2), 129–139.

Mhlanga, D., & Moloi, T. (2020). Covid-19 and the Digital Transformation of Education: What are We Learning on 4IR in South Africa? *Education Sciences*, *10*(1), 1–11.

Molnár, G., Námesztovszki, Z., Glušac, D., Karuović, D., & Major, L. (2020). Solutions, Experiences in Online Education in Hungary and Serbia Related to the Situation Caused by Covid-19. *11th IEEE International Conference on Cognitive Infocommunications (CogInfoCom)*, 601–606.

Poor internet connection, lack of devices hinder online learning: Ministry - Business. (2020). retrieved from https://www.thejakartapost.com/news/2020/12/01/poor-internet-connection-lack-of-devices-hinder-online-learning-ministry.html

Ridei, N., Khomenko, O., Ivanenko, I., Filyanina, N., & Poberezhets, H. (2021). Competência dos Professores de HEIS no Contexto da Aprendizagem ao Longo daA Vida. *Laplage Em Revista*, *7*(1), 516–530.

Sari, A. I., Suryani, N., Rochsantiningsih, D., & Suharno, S. (2020). Digital Learning, Smartphone

Usage, and Digital Culture in Indonesia Education. *Integration of Education*, *24*(1), 20–31.

Sukamdinata, S. N. (1997). *Pengembangan Kurikulum*. Bandung, Remaja Rosda Karya.

The pandemic exposes the inequalities in South Africa's basic education. (2020). retrieved from https://www.thesouthafrican.com/opinion/the-pandemic-exposes-the-inequalities-in-south-africas-basic-education/

Tomczyk, Ł. (2021). E-Learning in Poland: Challenges, Opportunities and Prospects for Remote Learning during the Covid-19 Pandemic. *Higher Education in Russia and Beyond*, *2*(27), 10–12.

Tomczyk, Ł., & Eger, L. (2020). Online Safety as a New Component of Digital Literacy for Young People. *Integratsiya Obrazovaniya = Integration of Education*, *24*(2), 172–184.

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