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K-12 Education Responses to COVID-19: A Comparison of Five Countries

Jan Maia Duggan
International Christian University, Japan
maia.duggan@gmail.com

Jennifer Christine Clasara Fajardo
International Christian University, Japan
jenniclasarafajardo@gmail.com

Roberto Jr. Bacani Figueroa
International Christian University, Japan
rjbfigueroa@gmail.com

Eiman Yassin
International Christian University, Japan
eiman.barakat@gmail.com

Walter P. Dawson
International Christian University, Japan
dawson@icu.ac.jp

Insung Jung
International Christian University, Japan
isjung@icu.ac.jp

The global COVID-19 pandemic has left an indelible impression on the world of education, where many countries had to approach this issue by conducting emergency remote teaching. These education responses to the pandemic, however, seemed to differ by country. In order to explore how countries responded to the pandemic in terms of K-12 education, this study investigated five countries, the Philippines, Egypt, Korea, Japan and the United States, through document analysis. The findings revealed several similarities and differences, such as the Philippines, Egypt and Japan initially struggling to implement remote emergency teaching due to the lack of ICT infrastructure while Korea and the United States swiftly transitioned to emergency remote teaching due to their readily available ICT infrastructure. These similarities and differences can be possibly explained by the Human Development Index (HDI) and Hofstede's 6 cultural dimensions of each country.

Keywords: COVID-19 response, culture, emergency education, Human Development Index, K-12 education, online education

Introduction

Background

COVID-19 has dramatically changed the overall landscape of almost all the countries in the world. In education, one of the immediate responses to COVID-19 was to restrict access or close schools as schools were considered high-risk sites for infection due to mass gatherings in classes, lunch breaks, and club activities. These nationwide closures have impacted about 70% of the world's student population (UNESCO, 2020). However, researchers, practitioners, and parents are wary of the negative effects the pandemic can have on education (Burgess &

Sievertsen, 2020; Wang et al., 2020). In exchange for safety, children can possibly face consequences, such as lack of growth in social skills and social awareness (Burgess & Sievertsen, 2020). To combat the possible tragic impact the pandemic can pose for education, many countries have responded to this situation by implementing various strategies and school-level measures.

This study aims to explore how five countries, the Philippines, Egypt, South Korea (Korea hereafter), Japan and the United States have responded to the pandemic with regard to K-12 education. To do so, the following two questions were raised:

1. How did the five countries initially react to the COVID-19 pandemic?
2. How did K-12 education in the five countries respond to the COVID-19 pandemic?

Methodology

A comprehensive document analysis was selected as the appropriate method for this study as the main purpose of this study was to understand initial government reactions and K-12 education responses to the COVID-19 pandemic of the selected countries (i.e., the Philippines, Egypt, Korea, Japan, and the United States). Documents included recently published academic articles, media news, public documents and other sources from each respective country. With the authors' diverse backgrounds, it was assumed that a broader variety of literature (such as academic articles and news written in the national languages of the countries) could be obtained and verified by each author. The analyses of the collected data were then sent to experts in the field who have in-depth knowledge of the current educational situation for confirmation. Once confirmed by the experts, the data were then compared among the countries to identify similarities and differences in how the countries reacted and the reasons why they reacted in those ways in K-12 education during the pandemic.

Five countries listed among the top 30 populous countries in the world that have a K-12 student population of over 10 percent of the country population - the Philippines, Egypt, Korea, Japan and the United States - were selected based on convenience in conducting this study. For reference, Table 1 lists the population profiles of each of the five countries.

Table 1

Country Population Profiles

	Country Population	Kindergarten	Elementary	Middle	High	Total K-12 Student Population
Philippines	110M	2M	13M	8M	3M	27M
Egypt	102M	2M	12M	*8.9M*		22M
Korea	51.2M	634,000	2.7M	1.3M	1.4M	6M
Japan	126.5M	1.2M	6.4M	3.3M	3.3M	14.9M

United States	328M	3.7M*	*35.5M**	15.3M*	56.6M

Note. All numbers are approximated. The data for the Philippines, Egypt, Korea and Japan are taken from World Population Review (2020), and the United States from Education Data (2020). The numbers with asterisks (*) indicate that data was only available for students attending public schools. Italicized numbers were combined values (US: Elementary and middles school; Egypt: Middle and high school)

Government Reactions to the COVID-19 Pandemic

The Philippines

The Philippines recorded its first case on January 30, 2020. Upon news of the virus, President Duterte's government enforced travel bans beginning with China and eventually expanding to Hong Kong and Macau. From March 15, an international travel ban was imposed for one month. An emergency community quarantine (ECQ) was implemented and strictly enforced from March 15 until April 30, and was further extended in high-risk areas. Cash grants, food assistance, and business stimulus funds were distributed by the government but many affected families continue to complain that these funds have not been received. Currently, the Philippines has more than 70,000 confirmed cases of COVID-19.

Egypt

As of March 27, 2020, Egypt has a total of 536 confirmed cases (Egypt Today, 2020b) of COVID-19. To prevent the spread of the virus, schools and universities were closed, and international flights to and from the country were suspended. A nationwide curfew was imposed from 7 p.m. until 6 a.m. All restaurants, cafes, and shopping centers (except for drugstores and grocery stores) were shut down. To support the country's economy during this outbreak, the government tried to confront the pandemic's adverse economic impact. The President of Egypt, El-Sisi, allocated 100 billion Egyptian pounds (approximately US$6.35 Billion) to finance a comprehensive plan in confronting the effects of the pandemic on the social and economic level (Egypt Today, 2020a). The Ministry of Health took several steps to counter the spread of the virus; however, the lack of medical supplies to accommodate all cases is still an issue.

Korea

COVID-19 was first confirmed in Korea on January 20, 2020. Following the rapid spread of COVID-19, the government raised the alert level to the highest level on the 23rd of February. There was initial panic and concern from people, but Korea made a quick move to implement widespread and rapid testing in collaboration with the business sector for early detection of the virus (Bozkurt et al., 2020). It also introduced GPS tracking, traced the movement and interactions of infected individuals, and sent tracking information to people using Kakao Talk (SNS) notifications. All COVID-19 related data were open to the public. About 14M families received the government's relief as cash or a shopping voucher of US$820, and US$39 billion in emergency funding was pledged for small businesses and other stimulus measures. As of July 17, 2020, Korea has 13,672 confirmed cases and 293 deaths (Coronavirus Resource Centers at Johns Hopkins University, 2020). Due to these government measures and the voluntary compliance of the people, Korea is considered as one of the countries which has minimized its coronavirus outbreak without enforcement of lockdowns or border closures.

Japan

The first COVID-19 case was confirmed in Japan on January 16, 2020. Due to the sudden surge in numbers in late March, Japan declared a state of emergency on April 7, 2020 for Tokyo and six other prefectures, which was later extended to all 47 prefectures on April 16, 2020. Due to the current laws and regulations in Japan that do not allow for a lockdown, the government requested that people avoid nonessential travel and stay at home

as much as possible. The government provided relief cash of US$930 per person to all citizens and applicable individuals, and various relief funds for businesses and working individuals impacted by the pandemic. The government later lifted the declaration of the state of emergency for all 47 prefectures on May 25. As of July 17 2020, there are 26,160 total confirmed cases and 988 deaths (Coronavirus Resource Centers at Johns Hopkins University, 2020).

The United States

According to the CDC's (Centers for Disease Control and Prevention) COVID Tracker, there are 16,756,581 total COVID-19 cases and 306,427 COVID-related deaths as of December 18, 2020 in the US during the Third Wave. (CDC Covid Tracker, 2020). The first known case was confirmed at the end of January and subsequently, education authorities at the state and federal levels began to make plans for education including online learning options. Federal and state governments' responses to the pandemic have been criticized as the infection rate and mortality rate have soared in comparison to other nations. The federal government tried to offset the financial burden of the pandemic by making relief payments of US$1,200 to Americans under a certain income threshold of US$75,000.

A visual representation of the cumulative confirmed COVID-19 cases of the five countries can be seen in Figure 1. The figure indicates the date of the first case, as well as the trends in the virus infections for each of the five countries.

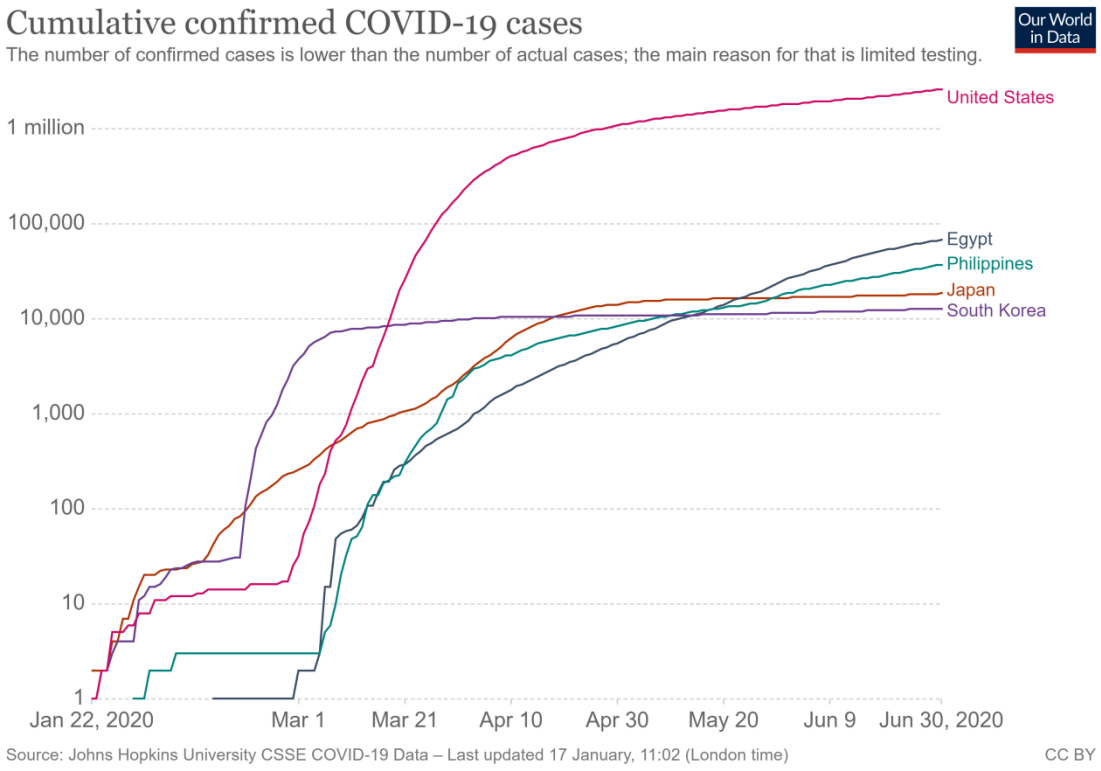

Figure 1. Trend of virus infections between January and June 2020 (Our World in Data, 2020).

K-12 Education Responses to the COVID-19 Pandemic

The Philippines

The abrupt shift to emergency remote teaching (ERT) showed a socio-economic disparity between the advantaged and the disadvantaged students (Bozkurt et al., 2020). In a developing country like the Philippines, COVID-19 has inevitably exposed the vulnerability of the education system. The Philippines, as with most countries affected, continues to provide access to education regardless of the current challenges. Several research studies have provided a working list of initiatives, programs, and policies for the Department of Education (DepEd) and the Commission on Higher Education (CHED) to adapt to the "new normal" in educational settings. As of July 19, 2020, UNESCO's COVID-19 Impact on Education page has shown the impact on all levels of education. At the national level, DepEd released "DepEd Commons," an online learning platform for public school teachers to support distance learning modalities and continue the delivery of basic education (UNESCO, 2020). Apart from this, on June 19, 2020, the DepEd also released Order 12, Adoption of the Basic Education Learning Continuity Plan for the Year 2020-2021 in light of the COVID-19 Public Health Emergency. This academic year, which will begin in August, basic, secondary, and tertiary education classes will all be conducted remotely. Last July 21, it was announced that restricted face-to-face sessions may be done in areas with low case counts. Several responses are still currently being adopted in the countryside which has technological infrastructure problems to overcome.

Egypt

On March 15, 2020, about 60,000 K-12 schools were shut down to prevent the increase in COVID-19 infections in Egypt (OECD, 2020). With 3 months left until the end of the school year, MOETE started to prepare an alternative learning plan before the end-of-year exams and applied distance learning strategies and assessments. The Ministry launched the Egyptian Knowledge Bank or EKB (https://study.ekb.eg), an online learning platform for the asynchronous learning mode for K-12 schools (The World Bank, 2019). The World Bank (2020a) reported that Egypt responded quickly to accelerate its ICT services and provide open access to this platform. The EKB includes all the K-12 national syllabi in the form of digital content by grade and subject. Two months after school closure, MOETE started preparing for the end of year exams. Examinations for grade 3-9 were conducted in a form of research projects with details announced through a new learning management system, Edmodo (The World Bank, 2020b). Grades 10 and 11 had computer-based online exams and grade 12 had a nationwide standardized face-to-face exam (The World Bank, 2020a).

Prof. Tarek Shawki, the minister of education, announced that Egypt was one of the first countries to successfully end the school year 2019/2020 and complete the annual evaluation of 22M K-12 school students. The minister mentioned that this might be an opportunity for changing the mindset of the Egyptian students and parents and introducing two new modes of education: technology in teaching and project-based learning. As the number of cases continued to increase, all schools began to offer emergency online education and introduced a blended mode combining in-person classroom teaching with online classes from home.

Korea

Korea introduced three types of emergency online education to elementary, middle and high schools: 1) synchronous interactive classes, 2) asynchronous content-based classes, and 3) independent assignment/activity-based classes (Bozkurt et al., 2020, p. 26). Teachers could combine two or three different types. EBS, Korea's public educational broadcasting system, and Korea Education & Research Information Service (KERIS) are the two organizations which have offered both teachers and students with various modes of digital materials across all levels and all subjects. For asynchronous content-based classes, many schools use EBS Online Class (https://oc.ebssw.kr/ - in Korean only) which offers video lectures for all grade levels online. Some schools use KERIS e-Learning Support System (https://cls.edunet.net/ - in Korean only) which offers all subject matters between the 3rd to 10th grades, and other support and management services.

A survey (Gyeonggi Institute of Education, 2020) conducted with 286,550 students and 30,571 teachers in the elementary, middle and high schools in Gyeonggi Province between April 17 and 20, 2020 revealed that 86% of the students were able to focus on online courses, 80.8 % perceived that online learning was helpful to learn new content, 88.6% recognized great effort and support from their teachers and schools, and 88.6% were satisfied with the interaction they had with teachers via online forums. Even though various forms of online materials across all subject areas were provided by EBS and KERIS and thus teachers did not have to make

online content by themselves, Bozkurt et al. (2020) suggest that schools in Korea must set up a system to provide initial teacher training for pedagogically effective and appealing online education and support services including manuals, workshops, peer support, SNS groups, and more. Furthermore, teachers should consider student-student and student-teacher interactions to promote active learning.

Japan

Japan initially struggled to implement online education at the K-12 level after their announcement of school closures on February 27, 2020, as many of the schools/students lacked the equipment and resources needed to conduct/take online classes. In some cases, schools who did have necessary equipment were willing to lend their equipment (e.g., laptops, tablets) to students who did not have equipment. However, due to many families requesting them, they had to postpone lending of equipment and in some cases providing online learning in general, as it may involve an unfair, selective process resulting in inequality (Yamamoto, 2020). A survey administered by the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) in mid-April reflected this situation, as it reported only five percent of local governing school districts across Japan (of the total 1213 that were surveyed) answering that they were implementing synchronous online classes, while 100 percent of the districts answered that they will use paper-based materials during the nationwide school closures (MEXT, 2020a). Many parents and educators were worried that the gap in the students' K-12 education from quarantine and technical-related reasons may hinder learning and lead to a loss of motivation (Matsuoka, 2020). To combat these concerns, schools have been offering asynchronous self-learning and/or synchronous online learning during the school closures as a temporary substitution for traditional face-to-face learning.

The nationwide school closures have revealed the lack of ICT introduction in K-12 education in Japan; however, MEXT has continued to set guidelines to ensure children's learning during this pandemic (Cabinet Office [CAO], 2020; MEXT, 2020b), and is now planning ahead of schedule to create ICT environments in schools and homes by Spring 2021 (MEXT, 2020b).

The United States

In the US, the education response to the pandemic was informed by both recommendations from the CDC and state mandates implemented by local public health departments. The President declared a national emergency on March 13, 2020 and soon after this, higher education institutions announced their transition to remote online learning. In late March 2020, primary and secondary schools moved to close schools and make the same transition. In most cases, these decisions were made by school superintendents at the primary and secondary level. The implementation of online learning in this environment was problematic, as the approach and details of delivery of online education was largely left to the school teachers themselves with little guidance or training from the government. Not surprisingly, many of these teachers have attempted to replicate the experience of in-class learning as synchronous online learning with mixed results. A significant change has been that secondary institutions have moved away from grading in favor of pass/fail options for receiving credit (Bozkurt et al., 2020).

A concern about equity is that many families do not have access to the technology infrastructure for online education, and not enough attention has been paid to low-income and minority populations who might face the greatest obstacles for access. A study by Horowitz and Igielnik (2020) shows that 54% of parents whose children are receiving in-person instruction are very satisfied with instruction during the pandemic, while this figure drops to 30% for those parents whose children receive online instruction. This trend is further compounded by socio-economic status when it is considered that 72% of low-income parents are very or somewhat concerned about their children falling behind in school during the pandemic when only 55% of upper-income parents express the same concern (Horowitz & Igielnik, 2020).

The major challenges faced by the five countries are summarized in Table 2.

Table 2

Major Challenges in Education during the Pandemic Listed by Country

	Philippines	Egypt	Korea	Japan	United States
Difficulties in accessing/distributing online materials due to lack of ICT infrastructure	Yes	Yes	-	Yes	Somewhat
Worries of socio-economic status influencing education during pandemic	Yes	-	-	-	Yes
Swift decision-making to shift to emergency online teaching	No	Yes	Yes	No	Yes
Parent or student dissatisfaction towards online learning	-	-	No	Yes	Yes

Note. Cells with a hyphen (-) indicate that there was no information available (at the time of writing) about the specific challenge listed on the right.

A Comparative Look

As shown in Figure 1, when comparing the initial spread of the virus, the spread of infections was detected more quickly in Korea than the other three countries. This spread also affected how the Korean government made policies on many aspects of society such as education. The number of infections in all five countries were all below 20,000 from February to the middle of March. A flattening can be seen in both Japan and Korea in early May while an upward trend can be seen in the Philippines and Egypt. In the case of the US, a sudden increase in infections can be seen from late February. By the end of June, the number of infections in the US surpassed that of the Philippines, Egypt, Korea and Japan combined, reaching a total of 2,633,466 cases. This could also explain the difference in education-related policies among the countries.

All five countries had to close K-12 institutions starting late February and March due to the upward trend of the number of infected individuals. Furthermore, during the closure, schools from all five countries explored ERT for students so that their educational opportunities would not be compromised. Many families in Egypt and the Philippines and some in Japan had problems accessing online materials shared by schools with their students. In this sense, the three countries were similar in the challenges that they faced. In all countries, teacher competency and confidence were the most critical issue when ERT was introduced.

The difference lies in how these explorations and plans were implemented. It was not mentioned that Korean families had problems accessing online lessons given by teachers to students. It is because Korea has an extremely advanced ICT infrastructure, which has been used in empowering online and blended learning in the country. Japan, though lacking in ICT infrastructure for education, had the financial resources to bring aid to

families who needed equipment and connectivity to access these online materials. Similar to Japan, the US encountered concerns about ICT infrastructure available to students at home; however, many schools aimed to provide equity education to all students by being flexible with grading. In contrast, both the Philippines and Egypt have been struggling with making online materials accessible to all their students despite various initiatives. This can be explained by the disparity among the four countries' Human Development Index (HDI) as shown in Figure 2, which includes dimensions related to income per capita and the gap between the rich and poor. While most Korean families could afford internet connection and computers to access online materials, Japan was able to augment the needs of some families through their local governments. In the US, to overcome issues of inequity educational institutions individually made decisions to consider ways to support students and families. However, the Philippines and Egypt were not able to address this lack due to the sheer number of needy families and the lack of resources available.

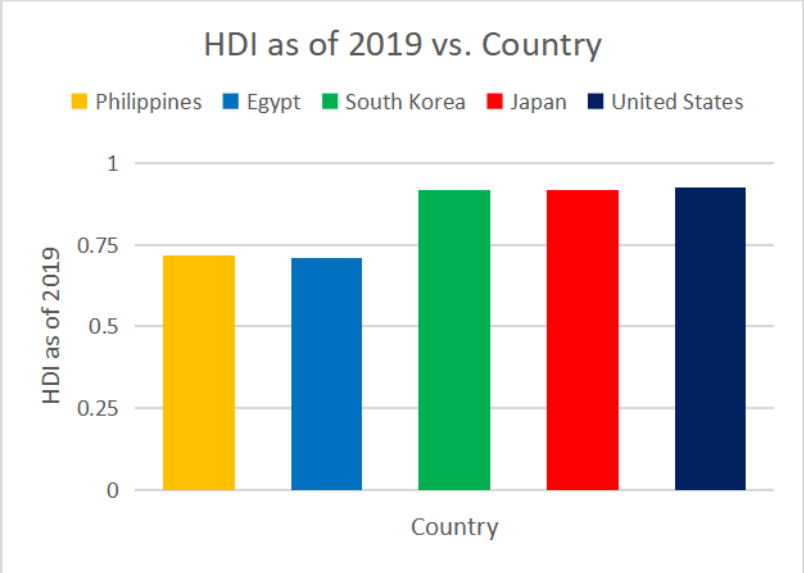

Figure 2. Difference among five countries' Human Development Index (HDI).

Aside from economic indicators, understanding the macro-level socio-cultural aspects of the five countries may be used as a reference for interpreting findings. In this section, the high-context and low-context dichotomy of cultures by Hall (1959) and the six cultural dimensions (6D model) by Hofstede (2011) were used to infer underlying sources of contrasting trends in the five countries. These models were used by researchers of multi-country studies as frameworks for explaining how measures and innovations are adopted by organizations in different societies as exemplified by the works of van Everdingen and Waarts (2003) and that of Ozbilen (2017). Upon consulting Hofstede's 6D model as shown in Figure 3, Korea was found to have the highest long-term orientation, which is combined with its relatively high uncertainty avoidance, as well as its low masculinity, individualism, and power distance. The low power distance would have made the government accountable to the people who elected them as officials, and led it to work on ways to improve ICT infrastructure for future generations.

Revolutionizing education was easy because of their extremely high long-term orientation and low individualism which may have led the citizens to be generally more open and cooperative to radical change for the improvement of their country and society. Despite having similar traits, Japan fared less in terms of long-term orientation and had high uncertainty avoidance, which made them and the education sector a bit more resistant to change. In the case of the US, low power distance and high individualism reflect the strong voices and opinions of the families and students requesting assistance from educational institutions which had to support those families in any way possible (e.g., lowering tuition). Meanwhile, the Philippines and Egypt both have high power distance, which meant that many people and families just accepted what those in power were doing. Though there was grumbling and resistance, they still ended up accepting what the government gave

them. They also have extremely low long-term orientation, which made it difficult for the educational sectors to incorporate changes in the educational system regarding ICT integration.

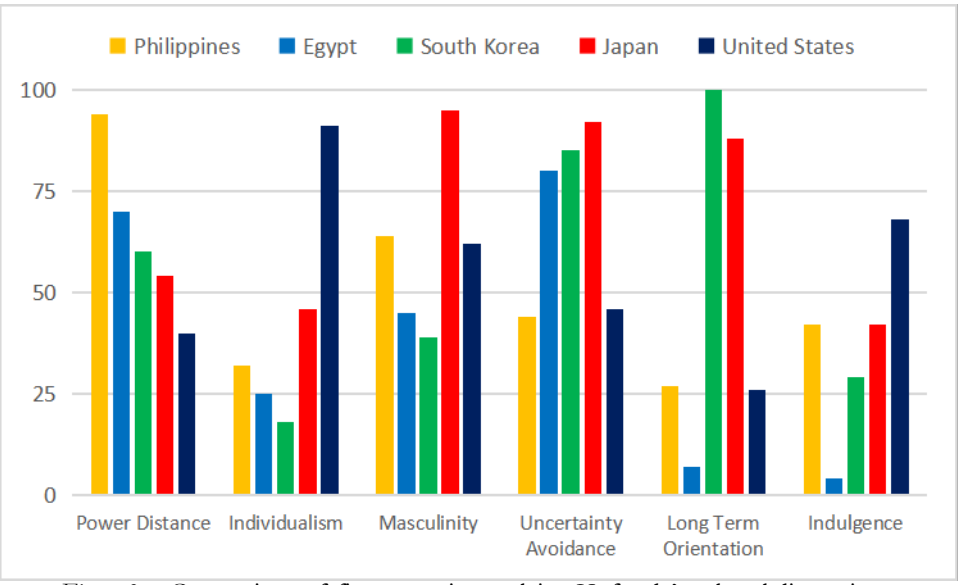

Figure 3. Comparison of five countries applying Hofstede's cultural dimensions

Using country context scores and characteristics found in the study of van Everdingen and Waarts (2003) as seen in Table 3, the varying timelines in adopting ERT as a response to the lockdowns partly followed the trend observed by the same study where organizations considered to be in low context countries tended to embrace innovations more quickly than those in high context countries. The delayed response of Japan-based schools can be explained by the fact that among 16 country groupings, it has the highest score as a high-context society. The United States of America is a very low-context country, which could explain how easily it embraced ERT as an innovation. Korea, even though still considered as slightly higher than western countries, is considered to be low context compared to other Asian countries with a 10-point score on the scale. This is consistent with its move in embracing ERT swiftly. The case of the Philippines which has a score of 10 and Egypt, which is included in Arab countries with a score of 12 seemed to have defied this trend.

Table 3

Low and High Context Countries and Their Characteristics

	Score Range	Example Countries/Regions	Characteristics
Low context	1 -3	Germany, New Zealand, North America	• Message is made explicit • Interpretation of messages rests on the written or spoken word – focus on content • Seek information from a research base (reports, databases, internet, etc.)
	4 -7	Scandanavia, Finland	
	8 -10	Slavic Countries, South Korea, Southeast Asia	
High Context	11-13	India, Arabic Countries, Africa	• Interpretation of messages rests on contextual cues • Seek information from personal information networks • Becoming well-informed about the facts before making a decision
	14-16	Italy, Spain, Portugal, France, China, Japan	

Note. Based on van Everdingen and Waarts (2003).

Conclusion

The purpose of this study was to investigate and collect data on the initial government reactions and K-12 education responses of five countries - the Philippines, Egypt, Korea, Japan and the United States - to the COVID-19 pandemic. The findings revealed how countries acted differently and unexpectedly towards initially managing the crisis. For example, Japan and the Philippines, two countries with a long history of natural disasters such as earthquakes and tsunamis, could not act as quickly as other countries with less history of natural disasters like Egypt, the United States and Korea. Interestingly, the differences and similarities in how the countries initially reacted to the crisis were in line with their country characteristics (i.e., HDI and Hofstede's cultural dimensions).

Many of these countries are still facing or in the process of overcoming the difficulties in providing education during this pandemic (e.g., the Philippines and Japan in providing ICT infrastructure for all, the United States in providing equity education). Given this reality, it can be proposed that there is a need for practitioners and policy makers to understand the characteristics of their own country and create necessary measures to foresee and overcome any obstacles ahead of time that stem from their country characteristics.

Three limitations for this study can be raised. First, there was the lack of empirical data due to time constraints. At the time of writing, there were very few relevant academic articles published; therefore, the authors had to rely on other sources, such as news articles. Second, other socio-economic and cultural factors apart from those mentioned in Hofstede's 6D model were not fully considered. Third, the country selection for this study was limited due to convenience sampling. To overcome these limitations, future studies should: 1) gather data on the influence and impact of education responses of each country, 2) consider socio-economic and other cultural

factors that can possibly influence each country's education response, 4) consider a wider selection of countries to analyze.

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