

# Response to COVID-19 from the Perspective of School Education in Thailand

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## Abstract

This paper examines how Thailand's school education system responded to the COVID-19 pandemic. Schools have been forced to remain closed for a long or short period of time in most countries during 2020-22, it is feared that the school closures due to COVID-19 may deprive children of growth-related opportunities. The purpose of this paper is to examine how the Thai government responded to COVID-19 in terms of school education and to consider the related problems.

The COVID-19 pandemic in Thailand can be broadly divided into three waves. In the first wave, schools were closed all over the country, and in the second and third waves, schools were closed only in areas where the infection spread. However, the third wave had been prolonged and many children had lost on-site educational opportunities. The Ministry of Education in Thailand introduced online learnings in place of on-site classes, but they were one-sided video lessons.

This paper points out some of the educational challenges posed by this response to COVID-19. The first issue concerns the quality of education. Various educational activities were restricted, and online learning meant one-sided video lessons. This method is not qualitatively sufficient for education and may deprive children of learning opportunities. A Thai poll showed that Thai people, including in teachers, parents, and students held a negative view about online learning. A common consciousness is that online learning may not guarantee the quality of education, Thai people were afraid that the quality of Thai education would deteriorate. The second biggest issue was securing tools for online learning. The EEF estimated that by the end of 2021, 65,000 students would drop out of school. It is feared to lose educational opportunities for the poor that only using online classes without using other methods. When interactive educational ICT tools can be developed in addition to DLTV, it can be expected to improve the quality of education in Thailand in the future.

## 1. Introduction

This paper examines how Thailand's school education system responded to the COVID-19 pandemic. Correspondence regarding COVID-19 has been a vital issue in the context of school education worldwide since 2020. Therefore, this paper considers the same from the perspective of Thailand.

Since the beginning of 2020, COVID-19 has affected the globe, forcing school closures in many countries and depriving children of learning opportunities. Article 3, Paragraph 1 of the Convention on the Rights of the Child states : "In all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration." This implies that policy makers and teachers must make the best choices for their children in relation to COVID-19. Additionally, Arti-

cles 28 and 29 of the Convention mentions the right to education. Article 29 provides for “the development of the child’s personality, talents and mental and physical abilities to their fullest potential.” Thus, it is feared that the school closures due to COVID-19 may deprive children of growth-related opportunities.

How many children have been deprived of educational opportunities owing to COVID-19? Figure 1 shows the school closure period in each country as of November 30, 2021. This figure means that schools have been forced to remain closed for a long or short period of time in most countries. There are countries that have closed schools for 41 weeks or more, mainly in the Americas, Southeast Asia, South Asia, and the Middle East. Thailand’s schools have remained closed for 52 weeks. The full school closure was for 16 weeks, and the partial school closure was for 36 weeks. In the first half of 2020, many countries closed down their schools completely. However gradually, an increasing number of countries began doing so only in the specific regions and phases of widespread infection.

Japan had a shorter school closure period than other countries. According to UNESCO statistics, as of November 30, 2021, Japan enforced a full school closure for three weeks and a partial school closure for eight weeks. In Japan, the nationwide school closure began on March 2, 2020, at the request of Prime Minister Shinzo Abe. From March to April, which overlapped with the spring holidays in Japan, the period of full school closure was shorter than in other countries. However, after the start of the new semester, a state of emergency was issued, schools in areas of widespread infection were closed, and children were forced to attend school in a staggered attendance. There were also restrictions on learning activities.

Although the period of school closure was short in Japan, many countries, especially developing countries, have been forced to close schools and shifted to distance education including online learning. UNESCO, UNICEF, and World Bank (2021) pointed out that school closures and distance education have led to a loss of educational opportunities and poor quality of education, and they feared that

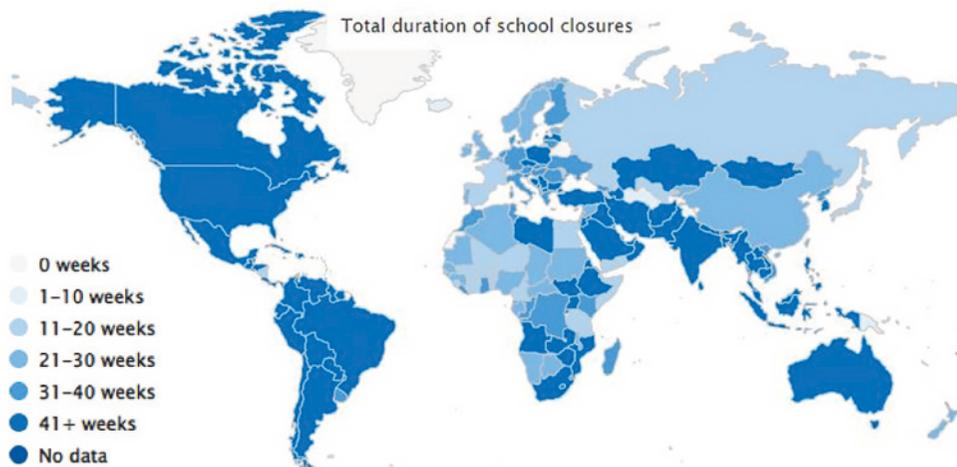


Figure 1 : Total Duration of School Closures as of November 30, 2021

Source : UNESCO (<https://en.unesco.org/covid19/educationresponse#schoolclosures>, accessed on January 18, 2022)

these responses to COVID-19 put children at the risk of poverty, and their lifetime income would drop by as much as \$ 17 trillion. They believe that the loss of educational opportunities due to COVID-19 is not only a short-term loss, but also a loss in terms of widening inequality and sustainable economic development.

The United States International Development Agency (2021) also pointed out that the response of each country to COVID-19 exacerbated pre-existing educational inequality. Particularly, the educational situation for disadvantaged girls, learners with disabilities, people in extreme poverty, and other marginalized groups have deteriorated. McBurnie, Adam, and Kaye (2020) mentioned that during school closures and a consequent reliance on technology-supported education interventions could leave the poorest students behind and widen existing inequalities. They said that in Ghana, almost 60% of respondents reported that children use their own school books to learn at home. These children do not use technology to study. Disparities in digital devices and the Internet have led to educational inequality.

While there are concerns about the loss of educational opportunities due to COVID-19, some papers pointed out that there are prospects for new educational opportunities. Thomas and Rogers (2020) mentioned the potential revolution in educational technology during the pandemic. However, they also pointed out the problem of educational inequality. In developing countries, where there are disparities in educational opportunities and social classes, home education and online learning are presumed to lead to increased disparities in educational opportunities.

As shown in figure 1, many developing countries implemented long-term school closures. In many developing countries, it is difficult to develop online learning, and compared to developed countries, there are problems with weak medical systems and delays in vaccination. Thailand has a rich economic position among developing countries, a high rate of enrollment in higher education and provides educational support to neighboring countries. The purpose of this paper is to examine how the Thai government responded to COVID-19 in terms of school education and to consider the related problems. This paper examines the case of Thailand, but it may highlight issues common to many developing countries.

## 2. COVID-19 Situation and School Closures in Thailand

This section provides an overview of the COVID-19 situation in Thailand and explains the situation of school closures. As shown in figure 1, Thailand is one of the countries with long-term school closures.

By January 2022, there were three waves of COVID-19 in Thailand. The first wave occurred between March and April of 2020. The first COVID-19 case was discovered in Thailand on January 12, 2020. The patient was a tourist living in Wuhan, China. After that, close contacts of tourists from Wuhan and Thai overseas travelers were infected with COVID-19, and the infection spread throughout the city in March. According to figure 2, from late March to early April 2020, more than 100 people were infected with COVID-19 daily. On March 26 and April 3, 2020, the Thai government ordered a curfew, restrictions on foreigners' entry, and the closure of facilities. Prior to such a

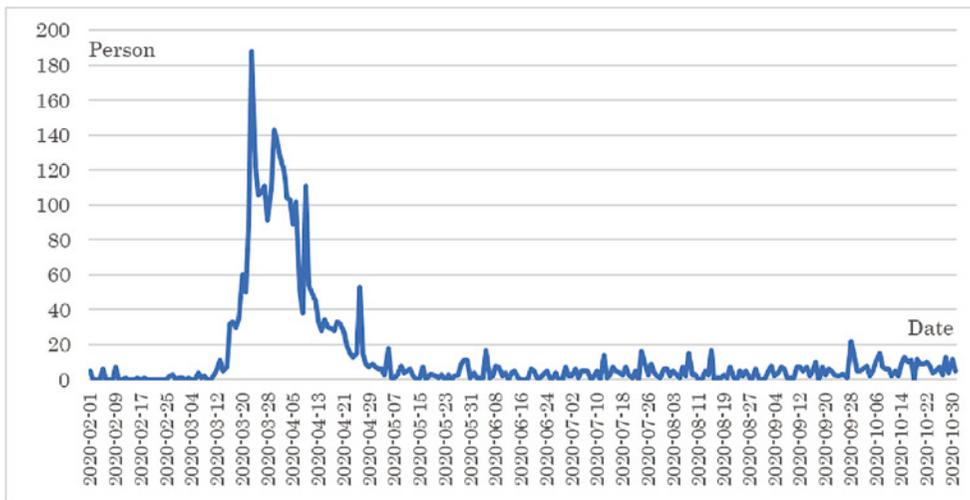


Figure 2 : The Number of Newly-infected COVID-19 Cases (1st Wave)

Data Source : Oxford University, *Our World in Data* (<https://ourworldindata.org/>, accessed on January 26, 2022)

state of emergency, all schools in Thailand were closed.

The Minister of Education in Thailand, Nataphol Teepsuwan, ordered on March 17, 2020, that all schools were to remain closed from March 18 to prevent the spread of COVID-19. According to an article from Bangkok Post, on March 17, 2020, the Thai cabinet had approved measures to contain the spread of the disease which ranged from 14-day closure of schools and universities and the postponement of the following month's Songkran New Year holiday<sup>1</sup>. Schools in Thailand are usually scheduled to start a new semester in mid-May with Songkran New Year holidays in between, and the Thai government initially aimed to reopen schools early. However, the Thai cabinet on April 7, 2020, approved an Education Ministry proposal to postpone the reopening of all schools for the new semester from May 16 to July 1, as a measure to control COVID-19<sup>2</sup>. At that time, Teepsuwan mentioned the possibility of online learning. The Ministry of Education of Thailand began preparing for online learning in April 2020. Eventually, the first wave was over, and a new semester, of on-site classes commenced from July 1, 2020.

The second wave began from the end of 2020 to the beginning of 2021. Figure 3 shows the number of newly-infected people in the second wave. The number of infected people increased during the year-end and New Year in 2020-21. Schools all over the country have not been closed since the second wave, but many schools were closed in areas where the infection was widespread. Schools under the administration of the Bangkok Metropolitan Administration (BMA) were closed in some districts from December 21, 2020, and all schools under the administration of the BMA were closed from January 1, 2021<sup>3</sup>.

The third wave began in April 2021. As shown in figure 4, the third wave peaked in July and August of 2022. The peak number of new infections exceeded 20,000 per day. The first and second waves had hundreds of newly-infected people, while the third wave had thousands and tens of thousands of newly-infected people. In that sense, 2021 was the year of the COVID-19 pandemic in

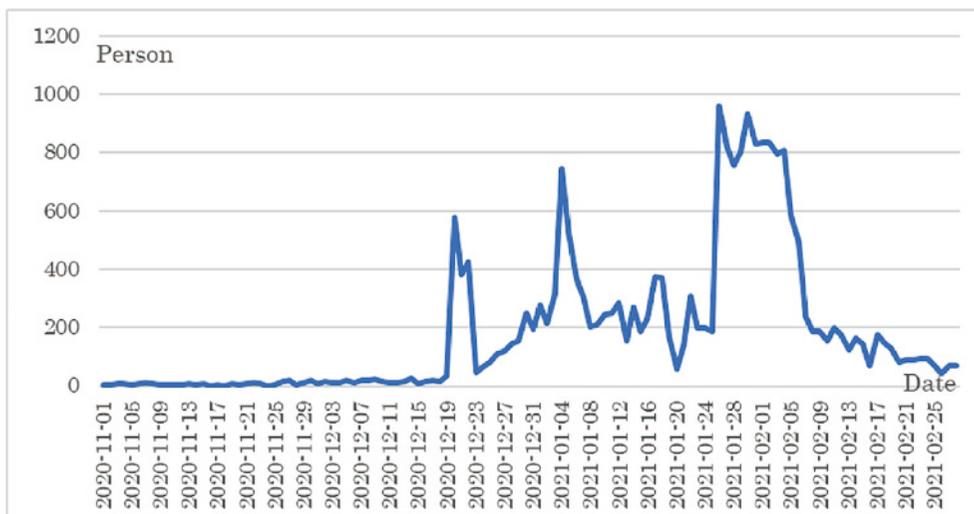


Figure 3 : The Number of Newly-infected COVID-19 Cases (2nd Wave)

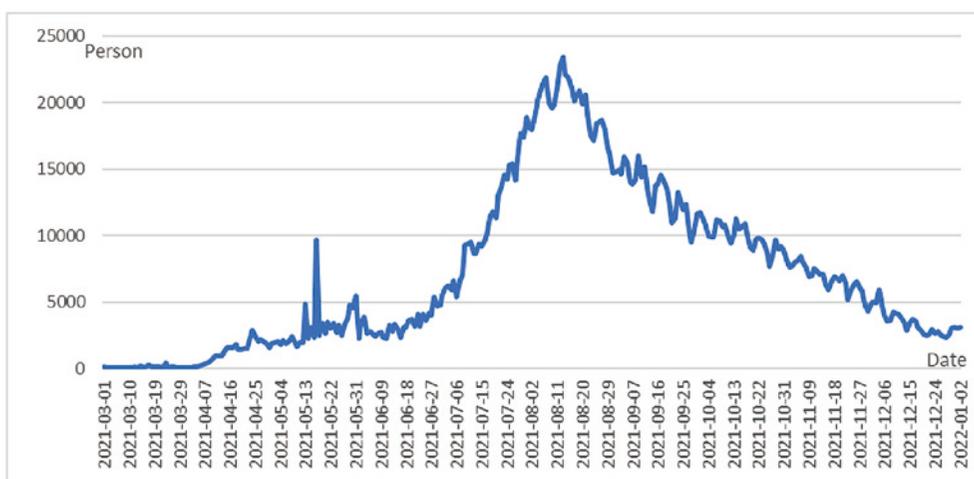
Data Source : The Department of Disease Control, *COVID-19 Situation Daily Report* (Written in Thai)

Figure 4 : The Number of Newly-infected COVID-19 Cases (3rd Wave)

Data Source : The Department of Disease Control, *COVID-19 Situation Daily Report* (Written in Thai)

Thailand. Although not shown in figure 4, the number of new infections has increased again since January 2022 due to the Omicron variant.

The protracted third wave forced many schools to close, especially in urban areas. Although alternative online learning was implemented as described below, many children lost their on-site educational opportunities. Figure 1 shows that schools in Thailand remained closed for a longer time compared to the rest of the world. This was partly due to the prolonged closure of schools in the third wave.

However, in November 2021, the Thai government announced that it would ease immigration restrictions for foreigners and relax restrictions on entertainment districts. At the same time, the Thai

government announced a policy to shift from online learning to on-site classes in schools. More than 35,100 schools could resume on-site classes after passing a Covid-19 preparedness assessment. A total of 37,149 schools joined the “Thai Stop Covid Plus” assessment before the November 1, 2021, school reopening, and 94.5% of these (35,114) passed the assessment. The assessment is designed to help schools and businesses evaluate their COVID-19 control measures, including physical distancing, ventilation in buildings, and rubbish disposal methods, among others<sup>4</sup>. Schools that have passed the Thai Ministry of Public Health standard, i.e., the “Thai Stop Covid Plus,” have been able to resume on-site classes. Additionally, the spread of vaccination for students was one of the reasons for deciding to reopen schools despite the spread of COVID-19.

In 2021, the Thai government began to procure the COVID-19 vaccine. Thailand received on February 24, 2021, the first 200,000 doses of Sinovac Biotech’s CoronaVac, the country’s first batch of vaccines. Most of these were reserved for frontline medical workers. Subsequently, 117,000 doses of AstraZeneca’s COVID-19 vaccine were administered<sup>5</sup>. Prime Minister Prayuth Chan-o-cha was among the first recipients of AstraZeneca’s COVID-19 vaccine in March 2021. The Thai government mainly procured AstraZeneca and Sinovac vaccines, preferentially inoculated them to medical workers, and started inoculating the general public in June 2021. However, these have not been approved for administration to the youth.

In September 2021, the Thai government announced that young people aged 12-18 years would begin receiving the Pfizer vaccine, as long as their parents consented. The vaccination of the young was approved by the Center for COVID-19 Situation Administration (CCSA)<sup>6</sup>. Vaccination for students was promoted for the resumption of on-site classes from November 2021. Since the first semester of 2021 (May-October) was mainly online learning in many schools in Thailand, the government hoped to conduct on-site classes in the second semester (November-April) at any cost.

In January 2022, the Thai government prepared doses of the Pfizer-BioNTech COVID-19 vaccine for children between the ages of 5 and 11, and the vaccination drive for those aged 5 to 11 is expected to begin in February 2022<sup>7</sup>. The Thai government intends to guarantee on-site classes by promoting vaccination of primary school students, even if the COVID-19 situation worsens.

Figure 5 shows the vaccination rate for the population at the end of January 2022. As of January 21, 2022, 74.3% received 1 vaccination, 68.5% received 2 vaccinations, and 16.3% received 3 or more. According to Oxford University statistics, the world vaccination status in January 2022 was 60.4% for those vaccinated once, 50.9% for twice, and 11.6% for 3 or more times<sup>8</sup>. Thus, Thailand’s vaccination rate is higher than the world average. Vaccination for primary school students is scheduled to begin after February 2022, and the Thai government aims to further increase the number of people vaccinated. The Thai government considers deregulation, including school education, through a high vaccination rate.

### 3. Preparing for Online Learning

On April 7, 2020, the Thai government made a cabinet decision to postpone the start of the new semester from May 16 to July 1. In April 2020, the first wave of COVID-19 began, and there was no

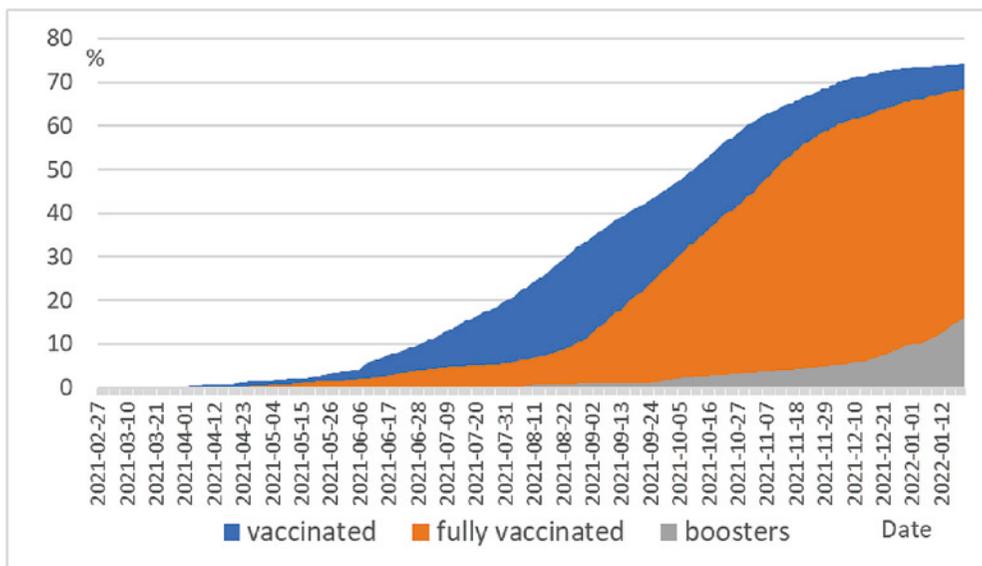


Figure 5 : Vaccination Rate of the Population

Data Source : Oxford University, *Our World in Data* (<https://ourworldindata.org/>, accessed on January 31, 2022)

prospect of reopening schools. The Thai government decided to reopen schools on July 1, but the prospect of the end of COVID-19 was uncertain, so it was necessary to consider alternatives to on-site school education.

On April 21, 2020, the Ministry of Education in Thailand announced that they would proceed with online learning, under the slogan “*Stop school but not stop learning* (โรงเรียนอาจหยุดได้ แต่การเรียนรู้หยุดไม่ได้)”<sup>9</sup>. Figure 6 shows the policy of the Minister of Education in Thailand. The Ministry of Education announced that even if COVID-19 prevented the reopening of schools with on-site classes, they would reopen schools conducting online learning.

In connection with the “*Stop school but not stop learning*,” the Minister of Education provided the following six guidelines : 1) provide education and learning with safety as top priority, 2) teach student even if they could not go to school, 3) utilize DLTV<sup>10</sup> etc., 4) investigate the needs of students, teachers, and schools, and make policy decisions while considering effective education and learning management (the Ministry of Education supports the necessary teaching materials), 5) adjust the school calendar as needed to help children “learn to know,” 6) minimize the impact of changes ; educators could continue to educate them.

The office of the Education Council of the Ministry of Education in Thailand describes the guidelines for online learning in “*Online Learning in the COVID-19 Era : Crisis or Opportunity in Thai Education* (รายงาน เรียนออนไลน์ยุคโควิด-19 : วิกฤตหรือโอกาสการศึกษาไทย).” Education design guidelines under the COVID-19 situation ordered by the Minister of Education can be summarized as follows : 1) guidance would be provided on-site (face-to-face) and on-air (remote) according to the local epidemic situation, 2) eliminate unnecessary and urgent activities (learning mainly on major subjects), increase the number of holidays, and reduce evaluation, 3) carefully prepare for distance education and



Figure 6 : The Slogan of “Stop school but not stop learning”

Source : The Office of the Education Council of the Ministry of Education (2020), p. 1 (written in Thai)

online systems before the actual semester begins, 4) the Ministry of Education supports 80% of online learning, and the remaining 20% is to be designed by communities and schools, 5) distance learning to be conducted using digital TV and DLTV.

The first point relates to introducing online learning and change the response depending on the COVID-19 situation in each region. The Ministry of Education in Thailand decided to close all schools nationwide from mid-March to the end of June 2020, but the Ministry of Education in Thailand had changed its policy to continue education either on-site or online, depending on the region after July 2020.

The second point relates to focusing on studying subjects, such as Thai, Mathematics, Science, Social Studies, and English. For example, in Thai school education, “learner development activities,” such as boy scouts, are carried out as extra-curricular educational activities, but by reducing the time for such activities, the lesson time reduced by COVID-19 would be recovered.

The third to fifth points are related to the development of online learning. The policy was to divert the satellite lesson tools introduced in small schools and schools with remote corners of the country to online learning under the COVID-19 situation. It was necessary to prepare for online learning via the Internet and television broadcasting, so that students could take online learning at home.

Thailand’s national primary and secondary schools are under the jurisdiction of the Office of the Basic Education Commission of the Ministry of Education (OBEC), and specific measures need to be taken by the OBEC. The OBEC held a conference call on May 7, 2020, to prepare for the online learning approach and set guidelines for online learning under the COVID-19 situation. The OBEC divided it into four phases and showed the challenges and correspondences for each. The four phas-

es were “preparation,” “experimental management of distance education,” “education and learning management,” and “test and next education,” Table 1 summarizes these.

Phase 1 was the “preparation” stage from April 7, 2020, to May 17, 2020. Prior to online learning, the OBEC needed to investigate the readiness of students, parents, teachers, and management systems for Internet access. It also had to obtain digital TV channel usage certification from the National Broadcasting and Telecommunications Commission (NBTC) in order to broadcast DLTV. From preschool education to lower secondary education, online classes can be supported by using existing DLTV, but since there is no such tool for upper secondary education, the OBEC Content Center and others needed to prepare teaching materials.

Phase 2 was the “experimental management of distance education” stage from May 18 to June 30, 2020. Satellite signals from the Distance Learning Foundation (DLF) were planned through digital television channels, and distance learning channels were promoted. In other words, the OBEC planned to check and improve online learning so that they could handle online learning when the new semester reopened in July 2020.

Phase 3 was the “education and learning management” stage from July 1, 2020, to April 30, 2021. At this stage, the correspondence was divided according to the situation of COVID-19. Situation 1 was when the COVID-19 situation did not improve. Thus, online learning was conducted at all educational stages, from preschool to secondary education. DLTV was used from preschool education to lower secondary education, and other online systems, including video lessons, were used for upper secondary education. Situation 2 was when the COVID-19 situation improved. In that case, ordinary school education and learning activities were carried out while maintaining social distance. Additionally, the Ministry of Education ordered a plan for emergencies at the provincial education conference.

Phase 4 was the “test and the next education” stage from April 1 to May 15, 2021. The OBEC needed coordination with testing agencies. Specifically, it was necessary to consider what to do with

Table 1 : Education under the COVID-19 Situation

	Stage	Period	Challenge
Phase 1	Preparation	April 7, 2020 – May 17, 2020	<ul style="list-style-type: none"> <li>• Survey of digital device readiness</li> <li>• Digital TV channel certification</li> </ul>
Phase 2	Experimental Management of Distance Education Learning	May 18, 2020 – June 30, 2020	<ul style="list-style-type: none"> <li>• Preparing digital TV channels</li> <li>• Enhancement of online learning</li> </ul>
Phase 3	Education and Learning Management	July 1, 2020 – April 30, 2021	<ul style="list-style-type: none"> <li>• S1: Online learning (DLTV, etc.)</li> <li>• S2: On-site classes</li> </ul>
Phase 4	Test and Next Education	April 1, 2021- May 15, 2021.	<ul style="list-style-type: none"> <li>• Coordination of graduation exams and university entrance exams</li> </ul>

O-NET (P6, M3, M6) conducted by the National Institute of Educational Testing (Niets) and TCAS, GAT, and PAT related to higher education entrance examinations. O-NET is a graduation exam at each educational level, but according to the announcement by the Ministry of Education in Thailand on December 25, 2020, O-NET P6 (6th grade) and O-NET M3 (9th grade) were canceled in 2020 school year, and only O-NET M6 (12th grade) was implemented because it was related to the university entrance examination<sup>11</sup>.

School education in Thailand resumed on-site classes, as scheduled in July 2020, but in the end, the second and third waves forced many children to take long-term online classes. Online learning in Thailand did not entail real-time interactive classes but one-sided classes using the Internet or digital TV. The OBEC has provided guidance on how to proceed with online learning. Table 2 presents the same. Students attend their own online classes, and teachers are required to manage their students' learning situations. Teachers are required to cooperate with parents for preschool and primary school children. Secondary students are required to learn autonomously.

DLTV is mentioned as the main tool for online learning, but what is DLTV? Video teaching materials have been used since 1995 in Thailand. DLTV means "distance education television." The DLF was established on December 5, 1995, to commemorate the 50th anniversary of King Bhumibol's coronation (1996). DLTV was run by the DLF. It was originally implemented to address the shortage of teachers in remote schools and improve the educational gap. Beginning with the broadcasts of secondary education, primary education programs were incorporated in November 2002<sup>12</sup>.

DLTV cites the following five reforms in recent years : 1) 15-channel and 24-hour broadcast, 2) change from standard definition (SD) to high-resolution definition (HD), 3) enhancement of broadcast-

Table 2 : How to Learn Online Learning

	Learning method for each subject		Review method
A1-A3 8:30-11:00	DLTV media (50min)	Teacher communicates with infant parents for 10 minutes	Strengthen activities in the right way (13:00-14:30) Weekly home visits by teachers
P1-P6 8:30-14:30	DLTV media (50min)	Teacher communicates with the child's parents and the child for 10 minutes	Review in the right way (14:30-16:30) Teachers meet children once a week and hand over work files
M1-M3 8:30-14:30	DLTV media (50min)	Teacher communicates with the student for 10 minutes	Review in the right way (14:30-16:30)
M4-M6 8:30-14:30	OBEC media (30min)	Student communicates with teachers and using supplemental media for 20 minutes	Teachers review by two-way communication or other appropriate methods (14:30-16:30)

Source: The Office of the Education Council of the Ministry of Education (2020). p.3 (written in Thai)

ing station facilities, 4) change from live broadcasting to recorded broadcasting, 5) change to view from satellite broadcasting, DLTV homepage, YouTube<sup>13</sup>. In short, DLF improved the quality of DLTV. Regarding the first point, DLTV was created to complement the educational environment of small schools<sup>14</sup> (primary education) and opportunity expansion schools<sup>15</sup> (secondary education), but DLTV has been revised so that it can be widely used, including review. In 2021, DLTV had 15 channels, including preschool, vocational, higher education, and teacher education.

#### 4. Conclusion : Future Challenges

This paper outlines the response to COVID-19 regarding school education in Thailand. In Thailand, when the situation of COVID-19 was serious, schools introduced online learning, which entailed one-sided video lessons. In conclusion, I would like to point out some of the educational challenges posed by this response to COVID-19.

The first issue concerns the quality of education. Various educational activities were restricted, and online learning meant one-sided video lessons. This method is not qualitatively sufficient for education and may deprive children of learning opportunities. It is necessary to study how this method affected children's development of academic ability and various other abilities.

There is also an awareness about the problem of poor quality of education in online learning in Thailand. The Suan Dusit University conducted a poll on online learning in June 2021<sup>16</sup>. The poll was conducted online on June 14-17 involving 3,749 teachers, parent, and schoolchildren throughout the country to gauge their responses to the Education Ministry's policy for to teach children online during the COVID-19 pandemic<sup>17</sup>. Thailand was hit by the third wave of COVID-19 at that time, and there was anxiety and dissatisfaction among people about conducting online learning. The following shows the questions and answers from the poll<sup>18</sup>.

Q1. The Ministry of Education says it will open school on June 14, 2021, but are you ready?

Not ready : 51.35%, Ready : 32.33%, Not sure : 16.32%

Q2. Do you think Thai education today is ready to be taught online?

Not ready : 63.30%, Ready : 21.31%, Not sure : 15.39%

Q3. What are you worried about in online learning?

**【Teacher】**

Equipment not ready, internet is slow : 77.18%

Parents go to work, no one takes care of learners at home : 69.74%

Learners do not understand, lack of learning : 67.31%

**【Parent】**

Lack of concentration, lack of enthusiasm : 66.16%

Do not understand the content taught by the teacher : 64.64%

Learners do not have full knowledge : 61.65%

**【Student】**

I don't understand, I can't study in time : 74.25%

I haven't met my friends, no interaction : 63.47%

Not getting the same amount of knowledge as in the physical classroom : 62.28%

**【General population】**

Lack of concentration in studying : 65.80%

Did not understand the content, failed to learn : 61.92%

Device not ready, for example, tablet, internet : 60.26%

Q4. How do you want the government and educational institutions to provide help with online learning?

Support for online learning tools : 62.22%

Discount/free use of internet for students : 58.28%

Discount on education fees : 55.80%

Q5. What level of education do you think online learning will have the most impact on?

Preprimary level : 35.57%, Primary level : 33.77%, Secondary level : 23.51%,

Tertiary level : 7.15%

Q6. How do you think online learning will improve the quality of Thai education?

Worsen : 68.52%, Remain the same : 25.40%, Improve : 6.08%

(The Suan Dusit Poll, June 2021)

Evidently, Thai people, including in teachers, parents, and students held a negative view about online learning. A common consciousness among teachers, parents, students, and the general population is that online learning may not guarantee the quality of education. Thai people were afraid that the quality of Thai education would deteriorate.

The second biggest issue was securing tools for online learning. As observed in the poll, Thai people were concerned about the situation of the Internet environment and digital devices. The Equitable Education Fund (EEF), a support agency for poor children, pointed out that online learning raises children's education costs and undermines educational opportunities for poor children. Specifically, the EEF estimated that by the end of 2021, 65,000 students would drop out of school<sup>19</sup>. Future research needs to investigate the loss of educational opportunities due to online learning.

So far, this paper has negatively stated the method of distance education in Thailand, but finally, I would like to mention the outlook for future education. Online learning in Thailand has been provided as one-sided video lessons, but DLTV, which was intended for small schools or remote areas schools, has been made available to schools nationwide. Although online learning, which does not entail real-time interactive, is concerned about the effectiveness of education, Thai schools and students can utilize it in a complementary manner. For example, it is expected that DLTV will be used for lesson preparation and review, teacher training, and lifelong learning. When DLTV and interac-

tive educational information and communication technology (ICT) tools can be developed, it can be expected to improve the quality of education in Thailand. I would like to focus on the development and utilization of ICT in education in Thailand as a research topic in the future.

### Acknowledgment

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### Notes

- 1 Bangkok Post Online Article (Published on March 17, 2020), “Cabinet approves plans to close schools, postpone Songkran.” (<https://www.bangkokpost.com/thailand/general/1880635/cabinet-approves-plans-to-close-schools-postpone-songkran>, accessed on January 26, 2022)
- 2 Bangkok Post Online Article (Published on April 7, 2020), “Schools won’t reopen until July 1” (<https://www.bangkokpost.com/thailand/general/1895015/schools-wont-reopen-until-july-1>, accessed on January 26, 2022)
- 3 Bangkok Post Online Article (Published on January 1, 2021), “Bangkok schools closed, more places to follow” (<https://www.bangkokpost.com/thailand/general/2044243/bangkok-schools-closed-more-places-to-follow>, accessed on January 26, 2022)
- 4 Bangkok Post Online Article (Published on November 4, 2021), “Over 35,000 schools can reopen after checks” (<https://www.bangkokpost.com/thailand/general/2209735/over-35-000-schools-can-reopen-after-checks>, accessed on January 26, 2022)
- 5 The Japan Times Online Article (Published on February 24, 2021), “Thailand receives its first coronavirus vaccines” (<https://www.japantimes.co.jp/news/2021/02/24/world/science-health-world/thailand-china-vaccines/>, accessed on January 26, 2022)
- 6 Bangkok Post Online Article (Published on September 12, 2021), “Students aged 12-18 to get Pfizer jabs later this month” (<https://www.bangkokpost.com/thailand/general/2180323/students-aged-12-18-to-get-pfizer-jabs-later-this-month>, accessed on January 26, 2022)
- 7 Bangkok Post Online Article (Published on January 8, 2022), “Young children to receive Pfizer jabs” (<https://www.bangkokpost.com/thailand/general/2244155/young-children-to-receive-pfizer-jabs>, accessed on January 26, 2022)
- 8 Oxford University, *Our World in Data* (<https://ourworldindata.org/>, accessed on January 31, 2022)
- 9 YouTube OBEC Channel, Noon News on April 21, 2020 “เที่ยงวันทันข่าว สพร. (ประจำวันที 21 เมษายน 2563)” ([https://youtu.be/89HvHI\\_w7aA](https://youtu.be/89HvHI_w7aA), accessed on January 31, 2022)
- 10 DLTV stands for distance learning television.
- 11 Regarding O-NET, its survival, regarding the quality of tests, was debated even before the COVID-19 pandemic.
- 12 Distance Learning Television Website (<https://www.dltv.ac.th/>, accessed on January 31, 2022)
- 13 Distance Learning Television Website (<https://www.dltv.ac.th/>, accessed on January 31, 2022)
- 14 There are numerous small primary schools with less than 120 students in Thailand.
- 15 Opportunity expansion schools are those that teach secondary education using primary school teachers, school buildings / equipment, teaching materials, and so on. These schools encounter the problems of small size and teacher shortage.
- 16 Suan Dusit Poll (2021), *Teachers, Parents, Students and Online Learning*. (written in Thai)
- 17 Bangkok Post Online Article (Published on June 20, 2021), “Most say online learning will lower education quality : poll” (<https://www.bangkokpost.com/thailand/general/2135303/most-say-online-learning-will-lower-education-quality-poll>, accessed on February 1, 2022)

- 18 The author translated the Suan Dusit Poll written in Thai into English.
- 19 Equitable Education Fund Article (Published on June 20, 2021), “The EEF surveys the situation of children falling out of the system after the start of a new semester” (written in Thai) (<https://www.eef.or.th/news-eef-explore-children-falling-out-of-system-after-new-semester/>, accessed on February 2, 2022)

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