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# THE 1st INTERNATIONAL CONFERENCE ON HUMANITIES, EDUCATION, AND SOCIAL PRAXIS IN THE AGE OF THE NEW NORMAL 2022 (1st ICHESPAN 2022)

**Theme: The Representation of Social Distancing, Humanistic Care, and Social Praxis under the Impact of Covid-19 (May 19th, 2022)**

# E-PROCEEDING BOOK

**ASIA UNIVERSITY**
*COLLEGE OF HUMANITIES AND SOCIAL SCIENCES*
*500, Lioufeng Rd., Wufeng, Taichung 41354, Taiwan*

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# The 1st International Conference on Humanities, Education, and Social Praxis in the Age of the New Normal 2022
# (1st ICHESPAN 2022)

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# FOREWORD

Since the outbreak of COVID-19, nations around the world announced and implemented city closures and other epidemic prevention measures, and the coronavirus pandemic has forced people to maintain social distancing. For this reason, normal daily social, communal, and institutional events, such as ceremonies, festivals, and weddings, have been deferred, modified, and even canceled and these changes could generate profound impacts on family and society. Scholars from education, humanities, social sciences, and other related fields have recognized the necessity of adjusting teaching strategies to maintain learning standards. In addition, scholars have noticed how social distancing may reshape human relations and community identification and thus create long-term influences on human beings.

While "social distancing" is a relatively new measure, "social distance" has long existed in other contexts. Themes and representations of isolation, social media, and services such as distance learning, etc. are closely related to the arts, humanities, social welfare, and education. Accordingly, COVID-19 has introduced a new context for researchers to reexamine these themes and topics and whether those adjustments lead to new learning patterns and unforeseen alterations in lifestyles

To better explore various impacts brought out by COVID-19, the College of Humanities and Social Sciences in my university, Asia University, had planned the 1st International Conference on Humanities, Education and Social Praxis in the Age of the New Normal 2022（1st ICHESPAN 2022）on 19th May, which invited scholars from Indonesia, India, Vietnam, Korea, Australia, and Taiwan, and in total more than 180 participants, who were taking part in this annual event organized. Two partner universities, Jakarta State University (UNJ) of Indonesia and Thu Dau Mot (土龍木), the University of Vietnam, also served as co-organizers of this conference.

The theme of this year's conference--"**The Representation of Social Distancing, Humanistic Care, and Social Praxis under the Impact of Covid-19**" has been a shared concern among researchers, scholars, and teachers all over the world for the past three years. As educators, we were glad to gather at this online conference for our respective nations' governments to have continuously taken measures to monitor the negative impacts of COVID-19. COVID-19 has indeed posed a challenge to every human being and their daily activities, and this conference proceeding has collected 3 invited papers and 5 papers which were analyzed and evaluated from different aspects and through different disciplines on how social distancing may reformulate family functions, communication modes, relationships, teaching methods, and welfare measures.

As the chief organizer of this online international conference, on this occasion of conference proceeding publishing, our sincere gratitude goes to the Ministry of Education, Taiwan, for their generous funding and consistent support for academic collaborations between universities in Taiwan and Southeast Asia. We wish to meet you in person at conferences held by the College of Humanities and Social Sciences at Asia University in the near future.

Your Sincerely,
Prof. Yinghuei Chen
Chairman

1st ICHESPAN2022 Committee

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## The College of Humanities and Social Sciences of Asia University, Taiwan

The College of Humanities and Social Sciences of Asia University is comprised of three departments: The Department of Foreign Languages and Literatures; the Department of Social Work; and the Department of Early Childhood Education. Professors have conducted research and have published on language teaching, applied linguistics, cultural studies, early childhood education, teacher development, social welfare, social care, cross-cultural communication, and multiculturalism.

## The Postgraduate Program of Universitas Negeri Jakarta, Indonesia

Universitas Negeri Jakarta is a national university of education in Jakarta, which trains secondary teachers in Indonesia. The university is comprised of eight colleges including humanities and arts; social sciences; instructional technology; mathematics and natural sciences; engineering; sports; economics; and psychoeducation. AU and UNJ have cooperated in holding intensive Mandarin learning programs, Indonesia proficiency tests, and Indonesian teacher training workshops and share the same mission of providing high-quality education.

## Thu Dau Mot University, Vietnam

Thu Dau Mot University was formerly known as Binh Duong Pedagogy College (1976-2009), a teacher training institution in Binh Duong Province, Vietnam. It was renamed Thu Dau Mot University when it attained general university status in 2009. The university is comprised of eight colleges, including social sciences and humanities; foreign languages; education; general knowledge; economics; management science; architecture; and cultural industries.

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## Impacts of Covid-19 to Indonesia Education: A Child Rights Perspective

Hafid Abbas[1]

*1.President, State University of Jakarta Senate, and Coordinator of all Public University Service Senates across Indonesia*

Statistically, in 2021, Indonesia population is 273.9 million which makes it the fourth largest globally after China, India and the US. About 85 million (30.1 percent) of the total population are below eighteen years of age (BPS, 2021). The United Nations Convention on the Rights of the Child (UNCRC) defines a child as any human being under the age eighteen years (Online Library-Addressing Child Trafficking, 2020). Indonesia ratified this convention in 1990 and adopted this definition in its Human Rights Law in 1999. Children in this age group are mostly in primary and secondary schools.

It has been reported that some 68 million students are at high risk as they are at primary and secondary school levels. They have greatly suffered from the Covid-19 pandemic due to the closure of their 530 thousand schools (UNICEF, 2020a). However, prior to the Covid-19 pandemic, Indonesian education faced these realities.

*First* is the paradox of the tendency for an increasingly large education budget vs the declining quality of our education. For example, in 2018, state budget allocation for education was IDR 444 trillion and in 2020 increased to IDR 508 trillion. However, Indonesia's PISA ranking dropped from 65th place (2015) to 72th (2018) among 77 countries because Indonesian children's reading, math, and science ability scores continued to decline (Kompas Cyber Media, 2011).

*Secondly,* The World Bank reported that the quality of education in Indonesia was still the lowest in ASEAN. 55 percent of children aged below 15 years were functionally illiterate, compared to Vietnam is below ten percent (CNN, 7/6/2018). And only one in 1,000 Indonesians has a serious interest in reading (Ashar, 2017).

*Thirdly,* the Minister of Education and Culture, Baswedan (2015) exposed his great concerns about various realities and paradoxes in Indonesian education. He then calls such realities an *"emergency situation"* to address 88.8 percent of a half million schools that have not met the minimum standards (Kompas Cyber Media, 2011) which leads Indonesia to the

lowest rank globally, and Finland and South Korea at the highest (Learning Curve-Pearson, 2014).

With deep concerns about these realities, then the global Covid-19 pandemic hits Indonesia and devastated its education. As of 30 April 2022, Indonesia Covid-19 Pandemic Database has reported 6,046,796 cases, the second highest in Southeast Asia, behind Vietnam. With 156,257 deaths, Indonesia ranks are at second in Asia and ninth in the world.

UNESCO and UNICEF (2020b) reported that COVID-19 is widening Indonesia's education gaps. In 2020, the pandemic resulted in the immediate closure of schools and a rapid shift to distance learning for 68 million students. However, 67 percent of teachers reported difficulties in operating devices and using online learning platforms; four out of five Internet users in Indonesia live in Java and Sumatra, etc. (UNICEF, 2020b).

## Government Obligations on UNCRC

Indonesia as the party to UNCRC has an obligation to promote, protect and fulfil the rights as outlined in the convention, including creating a child rights friendly policy at all levels of bureaucracies (State of Jersey, 2022).

UNCRC(2019) has four general principles to promote and protect child rights: *Non-Discrimination* means that all children should enjoy their rights and should never be subjected to any discrimination; *the Best interests of the child Children* stipulates that all actions concerning children, the best interest of the child shall be a primary consideration; *the right to survival and development* mandates that state parties shall ensure to the maximum extent possible the survival and development of the child (Tobacco, 2018); and *the views of the child* which means that *s*tate parties shall assure to the child who is capable of forming his or her own views the rights to express those views freely in all matters affecting the child.

To implement those UNCRC general principles in education, State could adopt Katerina (Karlsson & Grimhedan, 2002) "Four A scheme."

*Availability* means the right to free and compulsory education for all school-age children up to the minimum age of employment; the right to the establishment of schools; respect for parental freedom to choose education for their children; etc. *Accessibility* refers to progressively expanded access to post-compulsory education as circumstances permit; elimination of exclusion from education based on internationally prohibited grounds of discrimination; elimination of gender and racial discrimination in education; etc.

*Acceptability* means setting minimum standards for the learning materials, methods of instruction, school discipline, health and safety, professional requirements for teachers; etc. *Adaptability* is to design, implement and expand educational opportunities for children excluded from formal schooling; adapt the education system to the best interests of each child, especially those from disadvantaged groups; apply the principle of indivisibility as guidance to

advance human rights through education; etc.

These principles could be a substantive input to reform, recovery and to improve access and quality, and management of Indonesian education.

*First*, the critical issue in the "Availability" scheme is the structure of the state budget for education. World Bank in its publication *How Indonesia's Subnational Government Spend Their Money on Education* (2020) exposes data that 86 percent of the total education state budget, is not for the future of students, but for their teachers and education officials' welfare. It is reported that in 32 Districts and Municipalities, their allocation is more than 90 percent. Sragen, for example, allocates 96 percent of their education budget for their welfare, nothing leaves for children. In comparison, Vietnam allocates its education budget only 42 percent to salary and incentives while Finland is 55 percent (p. 68).

Such existing policy of not putting children first must be immediately reformed and reallocated proportionally to improve the teaching and learning of the children in the classroom.

*Second*, the most fundamental issue of the "Accessibility" scheme is the reopening of the 530 thousand schools gradually by considering the level the of Covid-19 pandemic in each school's local environment. Then, prioritize and invest in digital teaching skills in teacher training programs (UNICEF, 2020a) for 67 percent of the existing four million teachers.

*Third,* the crucial issue of "Acceptability" is how to achieve the eight minimum standards of education. If 88.8 percent of the total 530 thousand schools do not meet all minimum standards, then both the Government must declare that Indonesian Education is in a *State of Emergency.* The system and the policy, all must be reformed fundamentally with no delay.

*Lastly,* the chronic issue of "Adaptability", is how to put education as a collective responsibility and obligation of all citizens. Education is a great social equalizer instrument to remove poverty and inequality. Ironically exposed that the four richest men in Indonesia own as much wealth as almost half of the total Indonesian population or equal to the country's poorest 100 million citizens (The Guardian, 2017).

This is the product long denial of the importance of education and prolonged conspiracy between our politicians and tycoons which could likely create a dark future for our children, our common future.

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# Prediction of COVID-19 Evolution in Binh Duong Province using SIR Epidemiological Model

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## Introduction

A new strain of virus called SARS-CoV-2 was first detected in Wuhan city, Hubei province, China in December 2019 (Lau, et al., 2020) SARS-CoV-2 causes a severe and possibly fatal respiratory distress syndrome termed COVID-19. The COVID-19 has rapidly spread to many countries around the world and has been identified as a global pandemic by the World Health Organization (WHO) in March 2020 (WHO, 2020). SARS-CoV-2 is constantly changing, creating many new variants, rendering the pandemic evolution more and more complicated with the significantly increased number of newly infected cases around the world. To date, the worrisome variants of SARS-CoV-2 have been detected as Alpha (B.1.1.7), Beta (B.1.351, B.1.351.2, and B.1.351.3), Delta (B.1.617.2, AY.1, AY.2, and AY.3), and Gamma (P.1, P.1.1, and P.1.2) (Abdool Karim, et al., 2021), in which the Delta variant was found to be more infectious and faster than the other ones. This Delta variant first appeared in India in March 2021 and quickly became the main variant causing a very serious second wave of the pandemic in this country. In addition, the Delta variant has also become the main variant causing new waves of COVID-19 in many countries. As of September 16, 2021, there have been a total number of 227,281,028 people infected with COVID-19 and 4,673,871 deaths worldwide, of which the countries with the highest number of infections are the USA, India, and Brazil (Marti et al., 20201) In Vietnam, the Delta variant has caused the fourth extremely serious COVID-19 wave in the southern regions. The Delta variant was first detected in Ho Chi Minh city with only two cases on May 18, 2021; but with the fast growth, the fourth COVID-19 wave has quickly spread almost whole regions in Vietnam. It should be mentioned that there has been a total number of 641,244 positive cases in Vietnam, in which the regions with the highest confirmed cases are Ho Chi Minh city, Binh Duong province, Dong Nai province, and Long An province (Marti et al., 2021, Vu et al., 2022).

With the fast growth of the COVID-19 pandemic, modeling studies of the COVID-19 based on in-silico simulation methods are very crucial to provide reliable predictions of the COVID-19 evolution that can support the governments to have the right measures to prevent and control the pandemic. To date, many modeling studies have been performed to predict the evolution of the COVID-19 pandemic. Epidemiological models expressed through dynamic ordinary differential equations established based on the mechanism of disease transmission are very effective for predicting the evolutions of the COVID-19 pandemic. The most commonly studied epidemiological models are SIR (Susceptible-Infectious-Recovered), SEIR (Susceptible-Exposed-Infectious-Recovered), and ESIR (Extended-Susceptible-Infectious-Recovered) (Ahmetolan, et al., 2020; Arifin, et al., 2020; Wangping, J., et al., 2020; Singh, et al., 2021; Neves, 2020; Arifin, et al., 2020; Cooper, et al., 2020; Dos Santos, et al., 2021). In addition, neural network and machine learning methods have been used to predict the COVID-19 pandemic (Pal, et al., 2020; Gupta, 2020). Furthermore, other approaches to predict the evolution of COVID-19 have been studied, including the hybrid artificial-intelligence (AI) model (Zheng, et al., 2020), a Gauss error function and Monte Carlo simulations (Ciufolini, & Paolozzi, 2020), and the spatial-temporal model (Aràndiga, et al., 2020).

Binh Duong is a key industrial province of Vietnam that has a large density of workers. Thus, the COVID-19 situation is very complicated and unpredictable. Preventing and controlling the COVID-19 in Binh Duong will play an important role in the economic recovery of Vietnam. In that context, it is very critical to provide modeling predictions of the COVID-19 evolution in the Binh Duong province, in which the predicted results can support the government in taking appropriate measures to minimize the impact of the COVID-19. Thus, the research group of modeling and simulation at the Institute of Applied Technology, Thu Dau Mot University has conducted the in-silico study based on the SIR epidemiological model (Ahmetolan, et al., 2020; Arifin, et al., 2020; Wangping, J., et al., 2020; Singh, et al., 2021; Neves, 2020; Arifin, et al., 2020; Cooper, et al., 2020; Dos Santos, et al., 2021) to predict the evolution of the COVID-19 in the Binh Duong. The results in this study can support the government of the Binh Duong province to issue appropriate measures to effectively prevent and control the COVID-19.

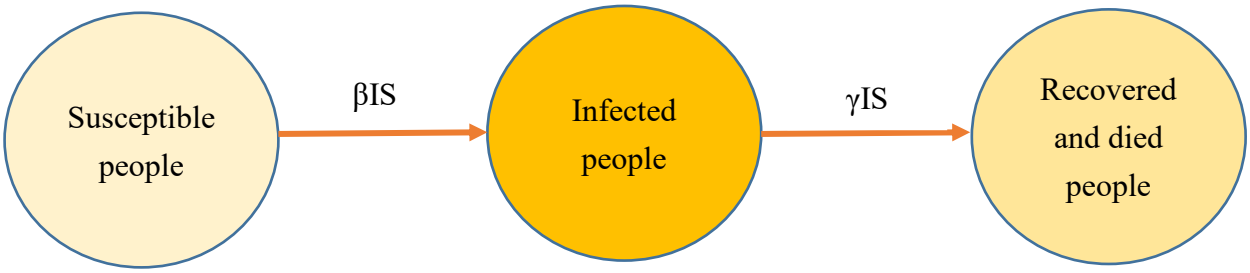
## Computational method

The epidemiological model of SIR (Susceptible-Infectious-Removed) is used to investigate the evolution of the COVID-19 in Binh Duong province. This SIR model has been widely studied by many research groups to predict the evolution of COVID-19 in various countries (Ahmetolan, et al., 2020; Arifin, et al., 2020; Wangping, J., et al., 2020; Singh, et al., 2021; Neves, 2020; Arifin, et al., 2020; Cooper, et al., 2020; Dos Santos, et al., 2021).

In this SIR study, we consider the number of vulnerable people equal to the entire population of the Binh Duong province. The homemade computer codes based on the SIR model are developed to automatically detect the optimal parameters in the model such as the reproduction ratio $R_0$, the infection coefficient β, the recovery coefficient γ. The initial input parameters are taken from the daily data on the number of new confirmed cases, the number of recovered cases, the number of deaths in the Binh Duong province. After finding the appropriate optimal parameters based on the data from July 16 to September 14, 2021, on the portal on the number of COVID-19 infections of the Ministry of Health (Ministry of Health, 2021). The parameterized SIR model is numerically computed to result in predictions of COVID-19 evolution in the Binh Duong.

Conceptually, the SIR model is presented as shown in Figure 1.

***Figure 1***. General diagram of the SIR model




Assuming that the natural birth and death rates are not significantly changed during the simulation time of the SIR model. The SIR model is represented by the following differential equations, where S(t) is the number of people at risk of getting the disease at time t, I(t) is the number of people infected at time t, R(t) is the total number of people who have recovered and died in time t, N = S(t) + I(t) + R(t). The γ is the recovery coefficient and β is the transmission coefficient which also depends on time.

(1) $\frac{dS}{dt} = -\frac{\beta IS}{N}$

(2) $\frac{dI}{dt} = \frac{\beta IS}{N} - \gamma I$

(3) $\frac{dR}{dt} = \gamma I$

Three parameters of S, γ, and β have an important influence on the results of the model, so they have been programmed by R language to automatically optimize with the objective function to minimize the error between the simulation results and the actual results of the number of people infected (I) and the number of people recovered + the number of deaths (R).

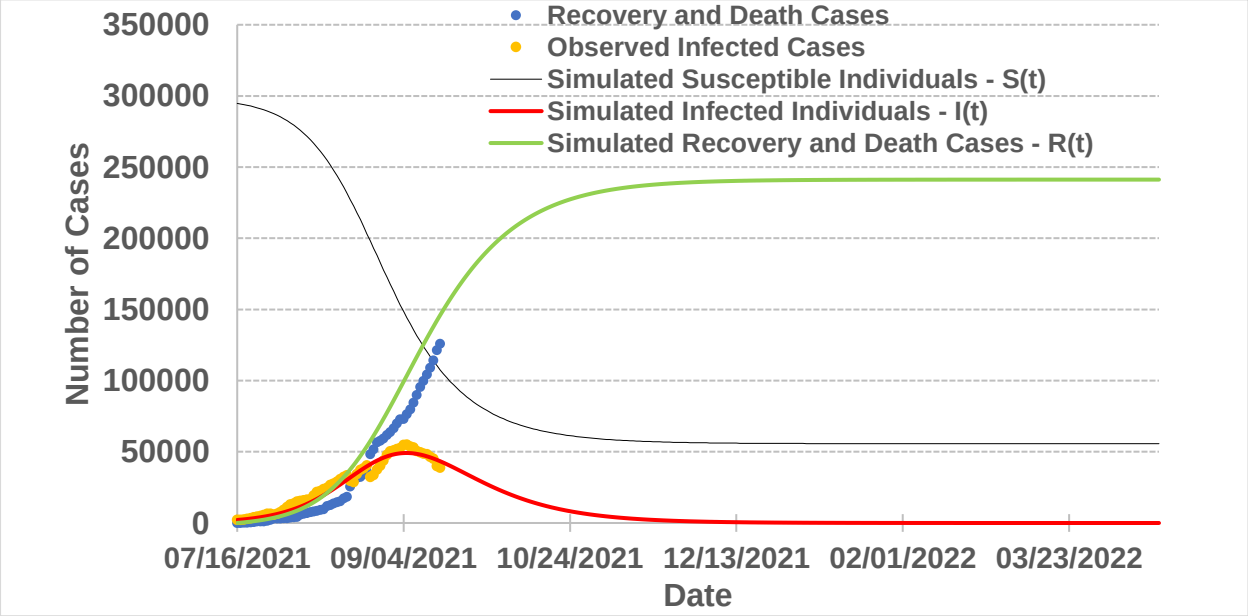
Determining these parameters is very difficult because it depends on the different behavioral characteristics of each region. In this study, we set the initial condition of S ($S_0$) equal to the current population of the Binh Duong province and used the algorithm to reduce $S_0$ gradually until achieving its probable level (S=297000 people).

The coefficients of γ and β are set in the ranges [0.09-0.1] and [0-1], respectively. The results are consistent with actual data showing that the appropriate coefficients γ and β are 0.09 and 0.185. After adjusting the SIR model with appropriate parameters, the adjusted SIR model is simulated using R-Studio software to result in the COVID-19 evolution in Binh Duong province.

## Results and Discussion

**Figure 2**.

*SIR-based results of the COVID-19 evolution in the Binh Duong province*




In Figure 2, the black curve shows the number of people susceptible to COVID-19 by simulation, the green curve illustrates the total number of recoveries and deaths by simulation, the red curve displays the simulated new positive cases by day, the orange dashed curve shows the actual number of infections, and the blue dashed curve shows the number of observed cured and died cases.

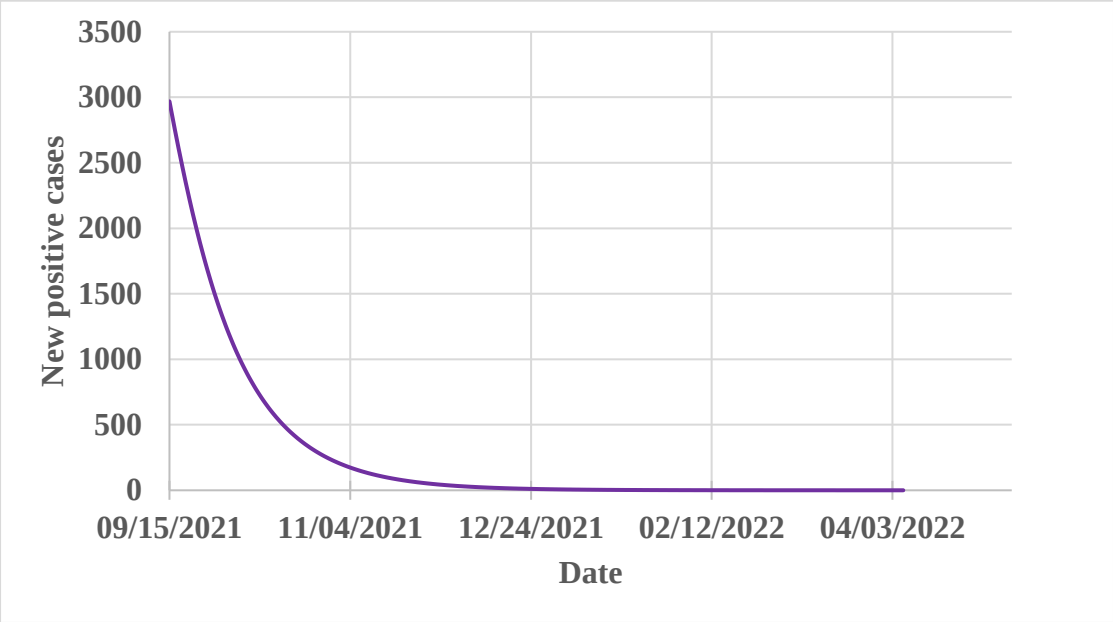
**Table 1**.

*Evolution of COVID-19 over several time points*

| Time | New cases | Infected people | Total infected cases |
|---|---|---|---|
| 30-09-2021 | 1299 | 26146 | 219297 |
| 15-10-2021 | 543 | 13072 | 231934 |
| 31-10-2021 | 217 | 5729 | 237467 |
| 15-11-2021 | 93 | 2557 | 239613 |
| 30-11-2021 | 40 | 1126 | 240539 |
| 15-12-2021 | 17 | 492 | 240941 |
| 31-12-2021 | 7 | 203 | 241123 |
| 18-02-2022 | 0 | 13 | 241242 |

**Figure 3**.

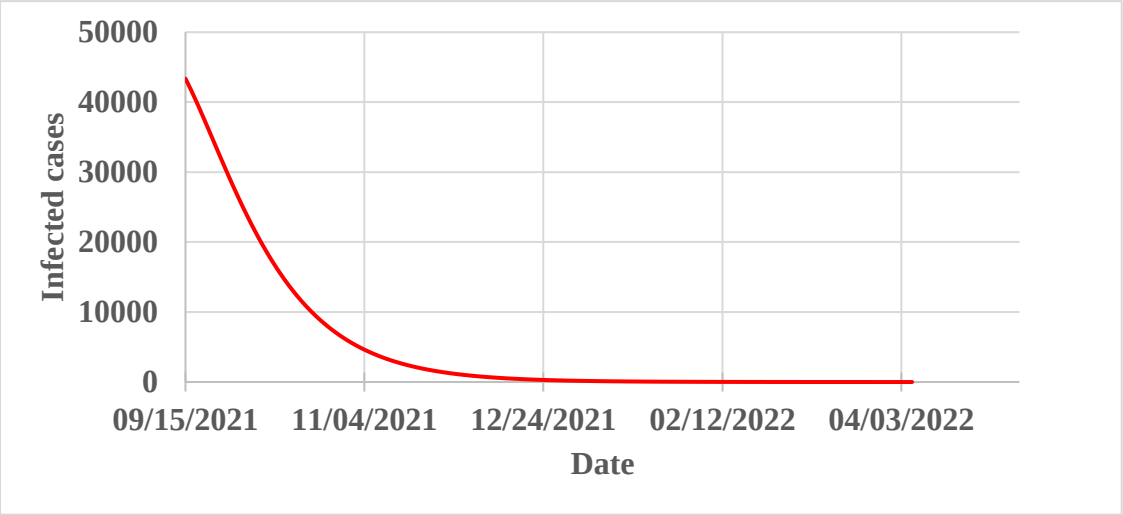
*Evolution of new positive cases per day according to the SIR model in Binh Duong*




In Figure 3, the purple curve shows the evolution of new cases according to the SIR model prediction in Binh Duong province from September 15, 2021, onward. According to this prediction (see Table 1), by November 30, 2021, the number of new positive cases in the Binh Duong province is only 40 new cases per day, which can be considered as the province has controlled the fourth wave of the COVID-19. As a result, the number of new cases becomes zero by mid-February 2021.

**Figure 4**.

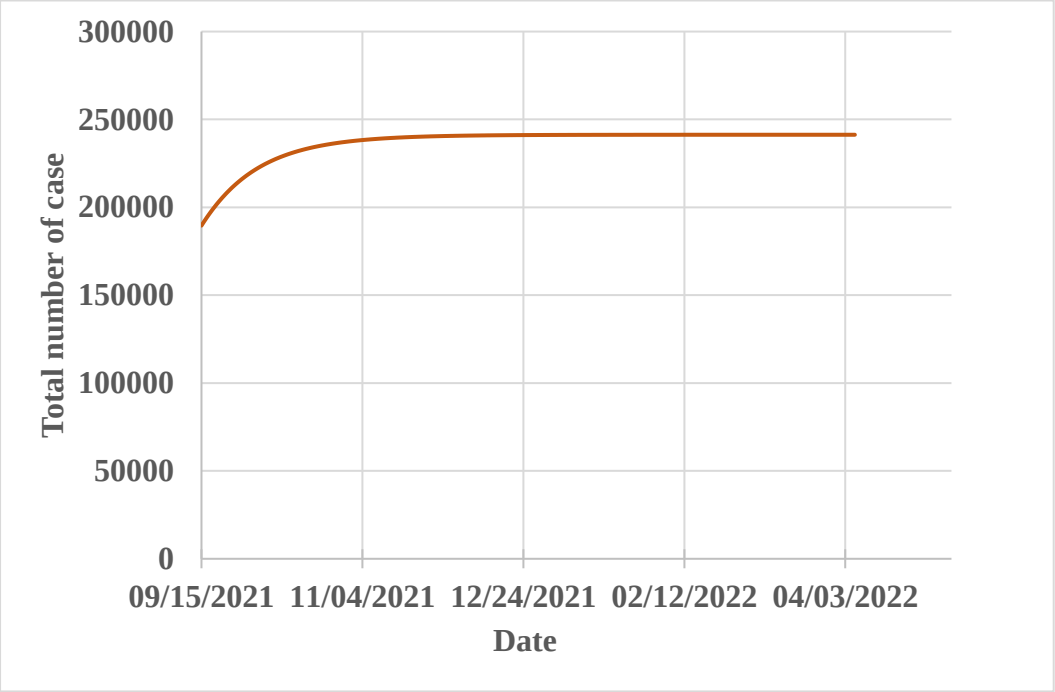
*Evolution of the number of infected people according to the SIR model in Binh Duong*




In Figure 4, the red curve shows the number of active cases from September 15, 2021, onward. According to this prediction (see Table 1), as of November 30, 2021, Binh Duong province still has 1126 cases. By the end of December 2021, about 203 cases are still being treated.

**Figure 5.**

Evolution of the total infected cases according to the SIR model in Binh Duong



In Figure 5, the gray curve shows the evolution of the total number of infected cases since the beginning of the pandemic in the Binh Duong province. According to this prediction, from December 31, 2021 (see Table 1), the total number of infected cases is almost unchanged, as the number of new cases rapidly decreases to zero.

However, in these SIR results, there are still relative errors since the data on new cases, recovered cases, deaths, and total daily infected cases at the early stage of the COVID-19 have not yet been updated on time, causing that the simulation results still have large errors. At the later stage of the COVID-19 pandemic, the data of COVID-19 has been updated on time that is closer to the actual epidemiological data. Thus, the error of SIR results in the simulation is reduced at the later stage. Specifically, the average relative error from July 17 to September 15, 2021, is about 26.5%. The relative error of this SIR model is similar to that of other forecasting models, so it can be highly feasible.

## Conclusion

The presented SIR results are highly feasible if there are no other unpredictable changes such as (i) Virus strains create new variants with variable spreading rates; (ii) There is much more change in the disease management policies of the local government (such as policies on isolation, blockade, $F_0$ isolation, treatment, and opening the economy); (iii) Infected cases or uninfected people in other provinces move into the Binh Duong province. In general, the predicted results will be effective if the conditions on distance, isolation of infections, treatment in the Binh Duong province will not change much compared to the period from July to September 2021. If the above conditions are better implemented, the end of the pandemic will be earlier; If the current implementation is not as good, the end of the pandemic will be longer than the predicted results of this SIR epidemiological simulation. In addition, this SIR model does not consider birth and death rates due to other factors (e.g., accident). The study also assumes that the number of people who have recovered from infection have immunity and are not infected again.

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# The Challenges of COVID-19 in Social Work and Spiritual Care

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## Introduction

The COVID-19 pandemic had affected many people all over the world causing tremendous human suffering and challenges affecting the entire daily life. It has affected not only the health, jobs and income but also made people experience anxiety, worry, affecting their socialrelations, their trust in other people and institution, their personal, security and sense of belonging and worse the safety of their life. The COVID-19 pandemic created new situation which forced people to stay in their homes for a long period of time. It was a period of uncertainty, fear of getting test, fear of costly treatment and situation of loneliness, isolation or conflicts within the home. The pandemic has entirely changed way the way of life in the society due to social distancing even among the close relatives (Parisi, et. al., 2021). The COVID-19 created major impact on peoples and front-line health worker's activities, routines, livelihood, mental health and wellbeing. COVID-19 taught a greatlesson to each and every individual that anything can happen to anyone and taught the importance of life. The cremation of the affected person was the worst pain for the health care providers. The COVID-19 pandemic had created the challenging situation for all the healthcareprofessionals, including social workers. The measures taken by Governments measures such as quarantines, lockdowns and isolation were making the conditions more intense.

During thelast two years the data gathered all over the world showed increase in the trend of social, mental health and economic problems. Many people lost their source of income which has affected not only them but also their family members. There were too much of information flooding through the media and it was triggering the anxiety among the people. There was no hope that vaccines will be available and will be accessible to all. Treatments were available butconfusion were there whether to trust or not the treatment procedures. Due to the anxiety therewere crowds in all the medical facilities and there were any people who found difficult to get admission with oxygen facility in many parts of the world. Inaccessibility to the important commodities was a major challenge to people in the community. All these problems seem tobe increased due to uncertainty and availability of limited resourced during the COVID-19 Pandemic. There was high prevalence of discrimination among the people who

were diagnosedas positive which made the situation worse in many countries. All the incidents and death datareported by the media and other information from various parts of the world have shaken the confidence of life of many people. Everyone realized the importance of life, self-care, self- compassion, mindfulness, kindness, gratitude, religiousness and spiritual care. Many institutionscame forward to conduct webinars on self-care, gratitude, kindness and other human values. Inspite of many challenges several health cares provide including the social workers were in the fore front standing spiritually strong and were taking their best to provide the effective servicesto all the needy people both at individual and community level.

## Spirituality

The spirituality is innate in all human beings. Spirituality gives the meaning to our life, purposeof life, meaning and direction to life. The word spirituality comes from the word spirit, whichis derived from the Latin word "spiritus" which means breath, courage, vigour or soul and breathe (Hjelm,2010). According to Knapik (2010) the five characteristics of the spirituality includes meaning of life, value of life, transcendence, connecting with oneself, connecting withothers and connection with super power which an individual's belief and the environment andbecoming (the growth and progress in life). Spiritual beliefs and practices can affect the way people understand health and strategies they use to cope with illness, their resilience, resourcesand sense of support, and overall health outcomes. The situation when the individual is ill he or she resorts to praying, meditation or other ways to keep his mind in a relaxed way. The fearof infection, treatment and death related COVID-19 made many people turn towards spirituality and to work on self-care and helping others in the community. Spirituality promotes coping strategies for stress, promote receiver, resilience and prevents burnouts. For healing their self, it is essential for the people to embrace spiritual value of involvement with detachment, love, forgiving themselves and others. However, connection with one's deeper self enables individuals to experience meaningful spirituality that in essence contributes to healing in the physical, mental and social dimensions. Spirituality is a source of comfort, support and meaning (Gray, 2017) and instils the idea of a sense of belonging and existential interconnectedness, promoting mental health. Spirituality is considered only as one of factor in the ability of people to cope with life problem but not as wholeness of humanity (Glicken & Frazer, 2004; Gotterer, 2001; Palmer, 1999). Spirituality can be experienced than describes but can also include neurophysiological, cognitive and behavioral expressions.

There has been remarkably increase in research in field of spirituality and the researchers haveevidence that spiritual wellbeing plays an important role in both physical and mental health. Many people take efforts to explore their spiritual and religious resources during the time of problems. Spirituality is a fundamental aspect of our identity and our understanding of what it means to be "human." The importance of spirituality is being embraced by the healthcare field

as it gains recognition as an essential component of whole-person care. In the period of COVID-19 pandemic people experienced extreme form of uncertainty, distress and social, economic and mental health challenges. A distress which can lead to suffering, a state of anguish due to not being able to feel meaning in life in particular adverse moments, which in some way undermines personal identity (Timmins & Caldeira, 2017; Caldeira, 2017). Any individual experiencing spiritual distress is confused with lot of questions on purpose and meaning of his or her life. Addressing psychosocial and spiritual needs can really contribute to the improvement (Morocutti, 2019) in the quality of life and well-being of individuals, especially at a time like the one the whole world is now facing and in which diagnostic and medical certainties become increasingly unsure and unconsolidated. They needed psychological, social and spiritual support from the family and the community.

Spiritual needs are necessary to provide a holistic and people-centered intervention (Johnston & Mayers, 2005). The spiritual needs of individuals differ from other individuals and increases when an indīvidual experiences physical, mental, social and mental challenges. Theseneeds are not necessarily exclusively religious, even those who do not have a religious faith still refer to belief systems that provide feelings of meaning and purpose (Büssing, 2005), which in this period of the COVID-19 pandemic seem to assume a role and an even deeper meaning in relation to the bewilderment that people are confronted with in the face of such a pervasive, disruptive event creating fragility, fear and daily uncertainties. In a certain sense it is precisely at the moment of greatest difficulty that the need for support in spiritual terms becomes stronger, in the hope of finding comfort in one's faith and beliefs. Very often, however, we are faced with inadequate preparation in responding to this type of need (Ellis MR, Thomlinson P, 2013). In fact, the importance of training health professionals so that they possess the skills to identify and support the spiritual discomfort of patients is increasingly evident (Balboni & Peteet, 2013). Fulfilment of spiritual needs promotes the spiritual health.

Spiritual health is extremely important to all to the extent that it is seen as the one of the key aspects of health (Jjbaghery & Faraji, 2015). According to several studied-on client's spiritual health leads to improved mental health (Hilton & Child, 2014) and is positively related to physical health, for instance, it may help patients to experience lesser pain (Hematti,2015). The spiritual health is about the connection with self (personal dimension), others (social dimension), the nature (the environment) and the God (transcendental dimension) (Gomes & Fisher, 2003). The basic characteristics of spiritual health are proper lifestyle, connection with others, asking about the meaning and purpose of life and transcendence (Jirasek, 2015). There is positive correlation between spiritual practices with survival, reducedblood pressure, reduced stress and depression.

## Spirituality & Social Work in COVID-19

Social work has both historical and philosophical connection to spirituality. The Charity Organization Society, founded in 1869 in UK has made a deep impact on social work through its focus on families and development of a codification of methods to determine the claims and need of the potential clients. Social work pioneer Jane Addams founded the Hull House in 1889 out of her humanitarian and religious belief viewing it as a cathedral of humanity. Mary Richmond, viewed as a cornerstone in building the profession of social work, developed what she called "social diagnosis" and constructed the foundations for a more structured casework based on theoretical and practical applications within the profession. Social work and other religiously based social service organizations such as Catholic Social Services, Lutheran Social Services, and Jewish Social Services have long been united in their concern for and service provision to disenfranchised populations. Social workers, as part of a healthcare team along with other health professionals, have a unique opportunity to collaborate with board certified chaplains to address the spiritual needs of patients and families, provide support, and relieve suffering, particularly in referring to the chaplain when spiritual distress is identified as being present. This highly integrated interprofessional level of care delivery empowers each discipline to clearly understand and respect the professional expertise of the other while fostering trust and mutual confidence in sharing sometimes overlapping roles. Such collaboration leads to the shared goal of better outcomes for clients. Practitioners tend to focus on how to use or draw upon the spirituality of their clients as a strength in practice. Koenig and Spano (2007), however, emphasized that spirituality is an important component by which practitioners cultivate hope in their own lives and practices. Spirituality of the practitioner is the power to ignite the underlying motive for social work, empathy or sacred compassion or unconditional love (Canda & Smith, 2001). The social work profession has increasingly recognized spirituality as an important element in developing an understanding of the whole person. Gaining knowledge about clients' spirituality can enhance a social worker's understanding of clients' potential for development.

In weaving spirituality into their practice, social workers are better equipped to implement a holistic approach that can empower their clients and open up new possibilities for clients to grow and succeed. Saleebey (2002) insinuates at the connections between the strengths perspective and spirituality when he states, "In the thicket of trauma, pain, and trouble you can see blooms of hope and transformation. Within the profession of social work, spirituality has been increasingly considered essential to an understanding of the whole person. Several authors (e.g., Besthorn, 2001; Bullis, 2013; Canda & Furman, 2010) have explored spirituality (e.g., transpersonal theory, deep ecology) and their relevance to social work practice. Transpersonal theories provide the social work profession with an alternative framework by which social work professionals can recognize the potential for extended human developmentalcapacity (Robbins

et al., 2012). The transpersonal perspective offers an expanded notion of human possibilities that goes beyond self–actualization and beyond. The literature on spirituality and social work to date has focused upon practical applications of spirituality in mental health assessment and intervention mainly revolving around clients (Canda & Smith, 2001; Coholic, 2005; Dezerotes, 2006; Oxhandler, Parrish, Torres, & Achenbaum, 2015). Theinclusion of client's spirituality in practice is a meaningful expansion for the social work profession. The need to integrate practitioner's spirituality into social work practice provides another opportunity for more holistic approach that enhances practitioner's ability to respect and empower client potential and possibility. Several authors (e.g., Besthorn, 2001; Bullis,2013; Canda & Furman, 2010; Derezotes, 2006; Robbins, Chatterjee, & Canda, 2012) have explored spirituality (e.g., transpersonal theory, deep ecology) and their relevance to social work practice. The transpersonal perspective offers an expanded notion of human possibilitiesthat goes beyond self–actualization and beyond ego.

According to Carroll (1998), who discusses social work's conceptualization of spirituality, there are two different meanings of spirituality: Spirituality-as-essence and spirituality-as-one-dimension. The view of spirituality refers to a core nature, which provides the motivational energy toward meeting the potential for self-development and self-transformation. From this perspective, spirituality is a way of life (Canda, 1999). On the other hand, the view of spirituality-as-one-dimension refers specifically to "one's search for meaning and relationship with God, the transcendent, or ultimate reality" (Carroll, 1998). This view considers spirituality to be the transpersonal dimension of a person. The dimension of relatedness to God or the transcendent may be framed within or separate from an organized belief system or religion. However, the presence of dual meanings in the concept of spirituality does not necessarily mean that these meanings are dichotomous. As Carroll (1998) points out, both meanings may be included in an overall concept of spirituality. From practitioners „perspectives, however, spirituality is often considered only as one factor in the ability of people to cope with life problems but not as the wholeness of humanity (Glicken & Frazer, 2004; Gotterer, 2001; Palmer, 1999).

Practitioners tend to focus on how to use or draw upon the spirituality of their clients as a strength in practice. As a result, while social worker's competence to tailor understandings and language about spirituality is simply based on a careful assessment of clients, the importance and examination of the spirituality of practitioners is overlooked. Little attention has been paid to the impact of the spirituality of practitioners on the intervention or on the relationship between clients and practitioners. Koenig and Spano (2007), however, emphasized that spirituality is an important component by which practitioners cultivate hope in their own lives and practices. Unfortunately, most practitioners still feel unprepared by education ortraining for how to deal with the issues of the spirituality (Canda & Furman, 2010; Sheridan, et al., 1992; Murdock, 2005). It is worth noting that the eye of the spirit is more than a way ofseeing

for practitioners as they work with clients. Transpersonal awareness inspires a sense of mutuality in the practitioner beyond ego-bounded self. The eye of the spirit transcends the ego-bounded self and yields a sense of connection and communications with all other people and the environment on a global level (Wilber, 1998). This implies that the relationship between practitioner and client can be vitalized through spirituality. The quality of the relationship between practitioner and client has long been understood as a powerful tool for healing within social work practice (Strupp, 1995). Carl Rogers (1951) pointed out the important elements of the quality relationship such as respect, genuineness, concern, collaboration, and empathy. Particularly, in strengths-based practice, the role of the practitioner as a collaborator, a facilitator,and a genuine partner is considered key to the success of practice. As valuable members of interdisciplinary healthcare teams, social workers use a variety of clinical skills ranging from brief assessments as well as comprehensive bio-psychosocial spiritual assessment, to identify the unique characteristics of a person's personality, family dynamics, socio-economic standing,and culture, to name but several elements, that may interfere with healthy functioning and efficient participation in the services associated with their care.

## Spiritual Care and Social Work

Spiritual care is an important aspect of client centered care and in healthcare research the focuson spiritual care has been growing through the past decades (Cadge and Bandini,2015; Gijsberts et al., 2019; Harrad et al., 2019). The spiritual care refers to providing spiritual resource for the practitioners and clients. It is very complicated to provide spiritual care in global, cultural entwined and pluralistic world (Taylor, 2007; Berger 2014), and the care providers must be sensitive to the potential variance in the secular, spiritual and religious meaning orientation of their clients (Ghorbani et al., 2021). India has many religions, cultures and traditions hence social workers practitioners here need to be very sensitive in providing the spiritual care services. The social workers must be very sensitive to the section of people who do not believe God or any religion. The World Health organization emphasizes on providing spiritual care is vital for enhancing quality of life and it should be included in the treatment (Group, 1994). According to Nissen et al., (2021), the spiritual care is a process consisting of five phases namely 1) the identification of spiritual needs and resources 2) understanding the client's specific needs, 3) developing the individual intervention plan involving required resource persons such as religious persons, 4) the provision of spiritual careand 5) Evaluating the spiritual care provided.

## The Identification of Spiritual Needs and Resources

Spiritual distress is different from physical pain. It cannot be addressed or removed in the

same way that physical pain can. Spiritual care, when provided competently, can reduce spiritual distress and ameliorate suffering. Spiritual distress may arise when the meaning in life is challenged and, in some instances, shattered. At times of spiritual distress, the individual loses trust on himself and the people around him and is always have number of questions in how orher mind to understand what is happening and why it is happening. The One potential positive outcome of spiritual distress is the maturation of a person's spirituality and the reframing of the medical journey, regardless of outcome. Many have shared that facing illness led to a spiritual rebirth resulting in a deepening of faith or spirituality. Subsequently, this deepened faith can provide much more meaningful and powerful spiritual resources, such as hope, peace,and a more authentic relationship with self, others, and the person's individual understanding of the transcendent or "that which is outside of the self, and yet also within the self also knownas God in their own believing form. When people got affected by COVID-19 it was rebirth experience for many people all over the world because of several health problems and scarcityof medicines and treatment. Hence the spiritual needs and resource of everyone is different hence the social worker need to be sensitive to the need and resources. The social worker has carefully assessed the information from the clients on their spiritual belief, religious community support, level of spiritual strength and potential need or area of distress by adopting qualitative method and record it narratively. A wide range of interventions have been in spiritual care, but research shows that these interventions are often developed as standalone instruments, such as for instance questionnaires or interview guides assessing spiritual needs (Damberg Nissen et al., 2020). Social workers can play a valuable role by screening and assessing for spirituality broader experience and meaning in client's lives withintheir scope of practice, expertise and competence.

Strengths-based and solutions-focused approaches both rooted in the belief that capacity ratherthan pathology should be the primary focal point of the helping process can, and should, also be applied to spirituality. This approach to spirituality, then, is also consistent with the ideological foundations of social work. The strength perspective requires the social worker not only to discover client's strength a resource but also to genuinely believe that all clients have possibilities and hopes to reverse misfortune and to grow and change no matter what the problems they have (Koenig &Spano, 2007). Canda (1999) also notes, "Spiritually-sensitive practice gives a deepened meaning to empathy. Expression of empathy does involve skills of accurate listening, critical reflection, and appropriate feedback to the clients.

However, empathy cannot be reduced to skills or technique, a person can intuitively connect with another, sensing the person's feelings, anticipating the implications, and gaining insight into the right response just at that particular moment". Professional understanding of spirituality through education must be required, but strengths-based practice must move beyond the understanding or recognition of the spiritual facts of clients. The practitioner must be also engaged in a constant process of self-reflection, search for meaning, and participate in

the practice of disciplines that expand awareness to transpersonal levels. From a transpersonal perspective, "the helping situation is an opportunity for both client and worker to deepen their spiritual insight and to grow toward their highest potential, including transpersonal awareness if that is relevant to the client's needs and aspirations" (Robbins et al., 2012).

The social workershould approach the work respecting client autonomy by working within the definitional frameworks employed by patients, and avoid attempting to provide answers for the unanswerable existential questions such as "Why me?" or "Why now?". No social worker should proceed in a manner that goes beyond one's level of expertise and training in spiritual care. Exploring spiritual themes such as an individual's religious community support, spiritualbeliefs, level of spiritual strengths and/or potential needs or areas of distress using evidence-based instruments and tools can be a relevant part of overall spiritual assessment within the client's narrative. A spiritual assessment can be a broad category of addressing spirituality and/or religion in any way, which is one use of the term. And a spiritual assessment tool or process also refers to a more specific, concrete approach, often used in chaplaincy alongside the spiritual screen and spiritual history. This has led to some unclear communication betweenthe fields of chaplaincy and social work. It is important reassure every person he or she is not alone in the experience and he or she must express the problem or challenges faced. In COVID-19 almost several people around the world experienced the same problem hence it was helpful for people to get hope. It is very healthy goal for the client is to understanding on theirown in the context of being heard.

## Understanding the Clients Specific Needs

After the spiritual need assessment, it is important to share with entire team of spiritual care providers so that the client can receive truly coordinated holistic whole-person care. Within theprofession there is currently a great deal of variation; while some social workers are well-trained and competent, not every social worker will be the best prepared team member to respond to spiritual needs. This is due to a range of factors, including: lack of training, personal comfort or interest or time constraints due to heavy caseloads, and institution-specific scope of practice. Engaging a client's spiritual, religious beliefs, support system, constructing coping may help in better intervention. Social workers are also skilled at using behavioral techniques and teaching self-management skills.

In suggesting that, the social worker would want to consider the patient's own history with and belief about meditative techniques, perhaps having them utilize something from their own spiritual background to be culturally sensitive and consistent and to build upon their strengths. Professional boundaries must always be maintained so that trust can be established. It is important that social workers should, at minimum, be able to identify spiritual needs that trigger appropriate referrals to a board-certified healthcare chaplain who can connect the patient to

their local faith community leader if they desire to be. Professional chaplains specialize in in-depth spiritual discussions and should be referred to clients who wish to develop or enrich their spiritual practice and expression while coping with illness. Spirituality of the practitioner is the power to ignite the underlying motive for social work, empathy or sacred compassion or unconditional love (Canda & Smith, 2001). Considering that the genuine relationship between practitioner and client is crucial in strengths-based practice, the spirituality of the practitioner can be a generator to create that genuine therapeutic relationship.

## Developing the Individual Intervention Plan

Everyone's spiritual needs are different hence it is essential for the social worker to design individualistic spiritual care interventions. The Central to the social worker'srole in healthcare is the identification of internal and external strengths and resources that a patient can use deliberately to reduce obstacles to care and to enhance coping with illness, including their unique spiritual resources. Tapping into this pre-existing cognitive framework,building upon it when appropriate, referring patients to the spiritual care specialists, and helping clients to recognize the aspects of their spiritual beliefs and the resources that supportthem through hard times is crucial during times of illness or injury. In spiritually sensitive practice of social work, some methods and practices for spiritual development are recommended. Canda and Furman (2010) list a variety of spiritual activities or training techniques helping practitioners and clients to grow spiritually; e.g., meditation, reflective journaling, reading religious books, prayer, forgiveness, yoga, etc. However, spiritually sensitive practice is not only about skills or techniques. Yoga is ancient methodology which has been practiced in India for more than 1000 years ago and now it is part of therapeutic treatment for the people who experience minor to major challenges of mental health. Diversionof mind towards reading religious books and forgiving self and others leads to better healing for the clients. Canda and Furman (2010) make it clear that spiritually sensitive practice "includes but is more than problem solving. It includes but is more than promoting coping, adapting, and recovering **a**nd encourages clients to reach for their immediate goals and their highest aspirations and potentials". All social workers should, at minimum, be able to identifyspiritual needs that trigger appropriate referrals to a board-certified healthcare chaplain who can connect the patient to their local faith community leader if they desire to be. Professional chaplains specialize in in-depth spiritual discussions and should be referred to patients who wish to develop or enrich their spiritual practice and expression while coping with illness.

Spirituality provides the guidance for how persons approach life. Several authors indicate thatsocial work professionals are inadequately prepared to undertake spiritually competent work with clients and advocate the inclusion of relevant material within the social work curriculum (Sheridan et al., 1994; Canda, 1998; Canda & Furman 2010; Canda et al., 2004;

Oxhandler et al., 2015). Advanced training for any social worker who wishes to provide more in-depth spiritual care is a necessity. Spiritual care has been and will be the significant part of social work practice. Trained and capable social workers often provide some level of spiritual care while also highly valuing communication, collaboration and appropriate referral to chaplaincycolleagues. Strong partnerships between social workers and chaplains are critical to our mutual goal to serve and meet the spiritual needs of individuals and families. Both disciplines are recognized as essential to the delivery of quality spiritual care. Together, chaplains and social workers can continue to form excellent partnerships that better serve patients, medical team members, and the larger healthcare system.

## Evaluating the Spiritual Care

The last phase is evaluation of spiritual care intervention and it has do done continuously in order that secure that the care is provided according to plan and that effect is measured. It canbe assessed through questionnaire on status of measuring to what extend the spiritual needs have been met (Barber et al., 2018).

Ethical considerations and challenges should be balanced by therapeutic humility, pacing and presence, as well as collegiality, and clear, open interprofessional communication. Additionally, cultural humility can help mitigate low levels of cultural competency as healthcare providers allow patients to teach them who they are by asking, listening fully, and hearing, all of which develop and contribute to a holistic healing context and encounter. Social workers lacking the knowledge to ethically and effectively conduct a comprehensive spiritual assessment with patients from religious tradition with which they are unfamiliar should approach patients and families from a place of curiosity, or refer to the chaplain. Hence it is very essential to include spiritual care in social work and provide advanced training in spiritual care intervention and work in collaboration with other spiritual health care providers.

## Conclusion

Spirituality was and is considered an essential dimension of social work practice during the COVID-19 pandemic, because people experienced fear, uncertainty and spiritual distress. This paper has discussed on the importance of spiritual care and the stages in the process of spiritual care. Spirituality is critical to both clients and practitioners. The prevailing condition the pandemic is continuing hence there is need of spiritual social work practice interventions. Hence it is very important for social workers to get advanced training on spiritual interventions along with other spiritual care providers. It is very important there is good relationship between practitioner and client which is one of the powerful tools of the healing process.

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# THEME TOPICS

## A Comparison of Social Support between Patients on Peritoneal Dialysis and Hemodialysis

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***Abstract:*** Social support is associated with improving clinical outcomes and life quality in dialysis patients. This study explored the differences in professional support and family support in peritoneal dialysis (PD) patients and hemodialysis (HD) patients. Factors associated with professional and family support were analyzed to identify possible factors to improve social support. We enrolled 120 PD patients and 123 HD patients from Jan to Aug 2018. The social support questionnaire that accesses emotional, informational, appraisal, and instrumental support was applied. Professional support was defined as supports from doctors, nurses, and social workers. Family support was defined as supports from spouses, brother, sister, children, friends, and colleagues. Factors associated with professional support and family support were analyzed using linear regression. The scores of professional supports were positively correlated with the scores of family support (Beta = 0.403, $p < 0.001$). The professional support of PD patients was $3.44 \pm 0.48$, better than that ($3.19 \pm 0.60$) of HD patients ($p = 0.001$). The family support of PD patients was $3.28 \pm 0.73$, better than that ($3.05 \pm 0.84$) of HD patients ($p = 0.036$). HD (Beta = -0.210, $p = 0.005$) and married status (Beta = -0.221, $p = 0.022$) were associated with worse professional support. HD was not associated with social support scores and married status (Beta = 0.383, $p = 0.003$) was associated with better social support. Professional support is positively linked to social support. PD is associated with better professional support and family support. We suspect that patients' self-caring motivation is linked to better social support. Strategies that may improve patient's motivation of self-caring should be explored to improve social support.

***Keywords***: peritoneal dialysis, social support, professional support, family support, hemodialysis

## Introduction

Social support is an important predictor of survival (Szeto, Chow, Kwan, Law, Chung, Leung et al., 2008; Thong, et al., 2007) and having more social support is associated with a better quality of life (Alexopoulou, et al., 2016; Li, et al., 2017) in dialysis patients. Social support may come from family, friends, colleagues, or health care providers. The intensity of family support may be related to patients' marital status, the number of children, the income and education levels of the family (Kannan, 2016; Theodoritsi, et al., 2016; Wang, et al., 2017). These factors were difficult to modify in clinical practice. Professional support is usually provided by physicians, nurses, and social workers and is more feasible for modifications. Professional support is associated with reducing illness intrusiveness among hemodialysis (HD) patients (Neri, et al., 2011). A limited body of literature addressed the social support provided by the family and the professional health care providers. Little is known regarding the differences between patients on PD and patients on HD. Because PD and HD are two major modalities of dialysis, HD patients usually return to the dialysis clinic three times a week and PD patients usually return to the clinic once a month. Exploring the differences in professional support in HD and PD patients may help to understand the association of the frequency of clinical visiting and the intensity of professional support. The aim of the study was to explore the differences in social support between PD and HD patients. We further analyzed the interaction of family support, professional support, and dialysis modality.

## Method

The study was approved by the institutional review board of China Medical University Hospital (CMUH107-REC2-041).We enrolled 120 PD patients and 123 HD patients from Jan to Aug 2018. The following inclusion criteria were applied: at least 20 years, receiving PD or HD for more than 3 months, able to give informed consent, and able to complete questionnaires. The exclusion criteria were: younger than 20 years, receiving PD or HD less than 3 months, patients with a psychotic disorder or dementia, unable to give informed consent, and unable to complete the questionnaires. The social support questionnaire from a previous study (Wang, et. al., 1998) was applied. The Cronbach α coefficient of the questionnaire was 0.84 and the intraclass correlation coefficient for interrater reliability was 0.89. Four domains of social support including emotional, informational, appraisal, and instrumental were accessed. Professional support was defined as support from doctors, nurses, and social workers. Family support was defined as supports from children, spouses, brothers, sisters, friends, andcolleagues.

## Statistical Analysis

Data are reported as the means (standard deviations), medians (interquartile ranges, IRQ), or frequencies (percentages) where appropriate. Data were analyzed using the t-test for normally distributed variables, the Mann-Whitney U test for non-normalized variables, or the chi-squared test for categorical variables. Factors associated with family support and professional support were analyzed using linear regression. All analyses were performed using R Statistical Software (version 3.3.2, R Foundation for Statistical Computing, Vienna, Austria). Values with $p < 0.05$ were considered statistically significant.

## Results

Fifty-three percentage of PD patients were female (Table 1), higher than 38.8% of HD patients ($p = 0.041$). PD patients were younger than HD patients. 35.8% of PD patients and 18.1 of HD patients were younger than 50. 39.2% of PD patients and 53.7% of HD patients were older than 60 years. The levels of education were no different among PD and HD patients. 75% of PD patients and 77% of HD patients were married ($p = 0.274$). The number of children was not different among PD (3.05) and HD (3.31) patients. The professional support ($3.44 \pm 0.48$) of PD patients was better than that ($3.19 \pm 0.60$) of HD patients ($p = 0.001$).

**Table 1**

*Characteristics of all patients*

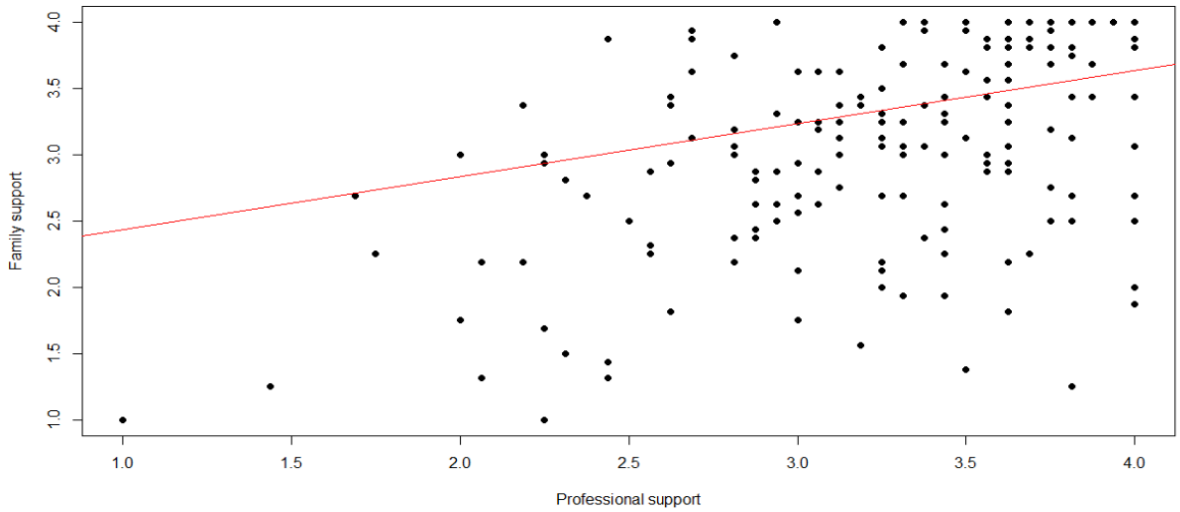
| Characteristics | PD n=120 | HD n=123 | p |
|---|---|---|---|
| Female | 63 (52.9) | 45 (38.8) | 0.041 |
| Age (years) | | | |
| 20-29 | 4 (3.3) | 0 (0.0) | 0.001 |
| 30-39 | 11 (9.2) | 9 (7.4) | |
| 40-49 | 28 (23.3) | 13 (10.7) | |
| 50-59 | 30 (25.0) | 34 (28.1) | |
| 60-69 | 38 (31.7) | 35 (28.9) | |
| ≥70 | 9 (7.5) | 30 (24.8) | |
| Education (years) | | | |
| 6 | 18 (15.0) | 29 (23.6) | 0.204 |
| 9 | 19 (15.8) | 15 (12.2) | |
| 12 | 41 (34.2) | 48 (39.0) | |
| 16 | 35 (29.2) | 28 (22.8) | |
| >16 | 7 (5.8) | 3 (2.4) | |
| Marital status (%) | | | |
| Single | 22 (18.3) | 16 (13.1) | 0.274 |
| Married | 90 (75.0) | 94 (77.0) | |
| Divorced | 6 (5.0) | 5 (4.1) | |

| | | | |
|---|---|---|---|
| Widowed | 2 (1.7) | 7 (5.7) | |
| Number of children | 3.05 (1.25) | 3.31 (1.25) | 0.113 |
| Professional support | 3.44 (0.48) | 3.19 (0.60) | 0.001 |
| Emotional | 3.34 (0.81) | 2.92 (1.06) | 0.001 |
| Informational | 3.76 (0.48) | 3.71 (0.59) | 0.42 |
| Appraisal | 3.59 (0.56) | 3.44 (0.68) | 0.059 |
| Instrumental | 3.08 (0.65) | 2.67 (0.68) | <0.001 |
| Family | 3.28 (0.73) | 3.05 (0.84) | 0.036 |
| Emotional | 3.35 (0.87) | 3.20 (1.02) | 0.226 |
| Informational | 2.83 (1.16) | 2.56 (1.12) | 0.076 |
| Appraisal | 3.41 (0.78) | 3.24 (0.91) | 0.137 |
| Instrumental | 3.43 (0.71) | 3.20 (0.82) | 0.025 |

The better professional support was majorly contributed by emotional and instrumental support in PD patients. The family support (3.28 ± 0.73) of PD patients was better than that (3.05 ± 0.84) of HD patients (p = 0.036). The better family support in PD patients majorly came from instrumental support. As shown in Figure 1, the intensity of professional support was positively correlated with the intensity of family support (Beta = 0.403, p < 0.001).

**Figure 1**

*Scatter plot and regression line of professional support scores and family support scores. Professional support scores are positive associated with family support scores*




Factors associated with professional support (Table 2) were HD (Beta = -0.210, p = 0.005), Family support (Beta = 0.404, p < 0.001), and married status (Beta = -0.221, p = 0.022). Factors associated with family support (Table 3) were professional support (Beta = 0.709, p < 0.001) and married status (Beta = 0.383, p = 0.003).

**Table 2**

*Factors that may be associated with professional support scores*

| Factors | Beta | Standard Error | T | P |
|---|---|---|---|---|
| Hemodialysis | -0.210 | 0.074 | -2.847 | 0.005 |
| Family support | 0.404 | 0.049 | 8.255 | <0.001 |
| Age (every 10 more years) | 0.065 | 0.039 | 1.656 | 0.100 |
| Education (year) | -0.001 | 0.038 | -0.030 | 0.976 |
| Female | 0.017 | 0.083 | 0.204 | 0.839 |
| Married | -0.221 | 0.096 | -2.310 | 0.022 |
| Monthly income | 0.014 | 0.030 | 0.477 | 0.634 |
| Number of Child | -0.044 | 0.042 | -1.046 | 0.297 |

**Table 3**

*Factors that may be associated with family support scores*

| Factors | Beta | Standard Error | T | P |
|---|---|---|---|---|
| Hemodialysis | 0.015 | 0.100 | 0.154 | 0.878 |
| Professional support | 0.709 | 0.086 | 8.255 | <0.001 |
| Age (every 10 more years) | -0.045 | 0.052 | -0.867 | 0.387 |
| Education (year) | -0.001 | 0.050 | -0.025 | 0.981 |
| Female | 0.080 | 0.110 | 0.731 | 0.466 |
| Married | 0.383 | 0.126 | 3.045 | 0.003 |
| Monthly income | 0.002 | 0.040 | 0.045 | 0.964 |
| Number of Child | 0.105 | 0.055 | 1.908 | 0.058 |

## Discussion

Better social support is associated with better outcomes and quality in dialysis patients but little is known regarding the differences between the components of social support including professional support and family support. We disclosed a positive correlation between professional support and family support. PD was associated with better professional support and family support. HD was associated with lower professional support but not family support in linear regression. 80% of our PD patients performed PD treatment by themselves and these patients usually had better social support. We believe that family and health care providers were more willing to help these patients if they were more enthusiastic about self-caring (Hassani, Izadi-Avanji, Rakhshan, Majd, 2017). Most HD patients return to the dialysis clinic three times

a week and the PD return to the clinic once a month. This suggested that the intensity of professional support is not be related to the frequency of clinic visits. We need to discover strategies to improve patients' motivation in self-caring and professional support.

Of interesting, married status was associated with worse professional support ($p = 0.022$) but was associated with improving family support ($p = 0.003$). Married status was associated with better social support in other studies and this is correlated to their marital satisfaction (Jiang, Wang, Zhang, Liu, Ding, Lei, et al., 2015; Khaira, Mahajan, Khatri, Bhowmik, Gupta, 2012; Daneker, Kimmel, Ranich, Peterson, 2001). We believed that PD treatment performed by their spouses was linked to decreased professional support in married patients. 62% of our PD patients believed that the decision of PD was made by themselves. It may not be surprising that their spouses are not happy about it when the patient did not perform PD by himself. We did not collect marital satisfaction data in our study and was not able to access if the lower professional support is associated with marital satisfaction. Age, gender, number of children, education levels, and family income were not associated with professional support and family support.

## Conclusions

Professional support is positively correlated with family support. PD is associated with better professional support and family support. We need to explore strategies to improve patients' motivation in self-caring to improve the professional support.

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# Communication Model in Project Based Learning Using New Media

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***Abstract***: The Covid-19 pandemic has made major changes to the use of digital application as a replacement for classroom meetings in universities. Online learning carried out during the pandemic also demands creativity from educators so that learning becomes interactive and easy to understand by students. One method used to achieve those goals is project-based learning. Project based learning is a learning method that uses projects or activities as a learning tool to achieve learning outcomes, such as attitudes, knowledge, and skills competencies. This study aims to find out and create a communication model for project-based learning using new media for students. This study used qualitative methodology. Data was collected by interview, observation, and literature study. This study found that project-based learning using new media can motivate students to think critically and creatively. Students also developed ability to utilize information and communication technology in project-based learning. Students collaborate to solve problems in project-based learning. In this collaboration, a communication model for project-based learning is formed that emphasizes the value of sharing, inspiring and synergizing between students and lecturers, practitioners, communities, using new media.

***Keywords:*** communication model, collaboration, new media, project-based learning

## Introduction

The education system in Indonesia is currently continuing its pursuit to be able to adapt to the development of information and communication technology. COVID-19 pandemic made the use of new media in learning as primary requirement. Online learning carried out during the pandemic also demands creativity from educators to be able to operate new media so that learning becomes interactive and easily comprehensible to students. Educators realize that education is the main factor that can shape a person as well as develop his/her potentials (Safitri, 2019). Through education, humans can solve problems and face challenges in life (Pauran, et. al., 2021).

Learning is a system consisting of objectives, materials, methods, and evaluation components. These four components must be met to achieve the learning goals that had been determined (Tumuyu, et.al., 2021). A learning model is made with appropriate learning methods, approaches, and techniques to be able to produce learning in accordance with the lesson plan. In addition to the learning model, communication interactions between lecturers and students, either face-to-face or with using media, are also important (Safitri, 2017). Interaction through media is carried out using new media that provides image, audio, video, and other features. With a well-designed learning communication model, it will produce good learning outcomes as well (Safitri, 2015).

According to Jihad and Haris (2009), learning outcomes are patterns of real changes in student behaviour after the teaching and learning process is carried out in accordance with learning objectives. Tabroni (2015), referring to Bloom's definition describes learning outcomes including cognitive, affective, and psychomotor abilities.

Cognitive abilities as learning outcomes are knowledge, memory, understanding, explaining, summarizing, making examples, applying, describing, determining relationships, organizing, planning, making assignments, and assessing. Learning outcomes from affective abilities include accepting, responding, organizing, assessing, and having character. Learning outcomes of psychomotor abilities include productive skills, task-taking techniques, social, managerial, and intellectual skills.

Learning outcomes are influenced by internal and external factors. Internal factors consist of physiological and psychological factors while external factors consist of environmental and instrumental factors (Rusman, 2016). Physiological factors include health conditions, fatigue, and physical disability. Psychological factors include intelligence (IQ), attention, interest, talent, motivation, motive, cognitive and reasoning power. Environmental factors include the physical and social environment. Instrumental factors include the curriculum, infrastructure, and lecturer's competencies.

COVID-19 pandemic brought several problems for learning activities in universities. One of them is grading problem, where lecturers are asked to be not too strict regarding student's attendance as grading component. Therefore, lecturers were choosing asynchronous online class that gave students time and flexibility to fill out attendance and submit assignments. The assignments given are also directed at providing students with a learning experience with interesting content, so that the process can deliver significant learning outcomes.

Significant changes have also occurred during this COVID-19 pandemic. Learning innovations with new media are also carried out. During this pandemic, there were also changes to the curriculum and infrastructure to accommodate digital learning innovations. The learning curriculum in higher education is experiencing innovation with educational reforms that are in line with 21st century competencies (Jimoyiannis, 2010, Lu et al., 2015). Even in Indonesia, an independent campus (*Kampus Merdeka*) and independent learning (*Merdeka Belajar*) program has been started. The goal is for students to have an off-campus experience doing

several programs of their own choosing. These programs include student exchanges, internships, independent studies, teaching in schools, research, humanitarian projects, entrepreneurial activities, and integrated real-life lectures.

During this pandemic, most activities are conducted online. This online activity gives students many options to creatively understand the concept of learning (Gurcay, 2013). Students become creative learners and learn independently. This independence is supported using new media based on information and communication technology (Millanes, 2018). The more students interact with new media for learning activities, the more they contribute to deepening the learning material (Collier Reed et al, 2013). However, the willingness of students to interact with new media in learning activities will only be effective with strong encouragement from the lecturers.

Learning in higher education also facing problems to create strong interactive communication between lecturers and students, supported by an adequate system, and the existence of integrated learning practices with new media. Many lecturers and students are unable to establish interactive communication during the pandemic. This will be investigated further in this study. This study aims to identify communication problems that occur in learning during the COVID-19 pandemic, especially in project-based learning. It also aims to investigate the extent to which pedagogical practices are carried out by lecturers to ensure that the planned project can be successfully implemented according to the learning objectives.

Previous research conducted by Annamalai (2021) found that many high school students in Malaysia are not satisfied and not ready with online learning. This is because they do not like repository-based learning which only pursues cognitive aspects but ignores social needs. The use of various applications and ever-changing schedules made students uncomfortable. Interactive sessions are less perceived despite an increase in the use of technology in schools. Teachers and students have additional assignments to attend courses and crash training to be able to use online learning tools. For teachers, this course is also followed by other courses on teaching methods and learning approaches (Garba, et all., 2015).

The novelty of this research compared to previous study is its location in Indonesia with its educational system. The teaching method studied in this research is project-based learning with new media. The problem to be investigated is the problem of learning communication in project-based learning. The purpose of this research is to create a project-based learning communication model using new media.

## Method

This study is using qualitative method. Qualitative research was born out of a series of criticisms of the positivistic approach to social science, including the limits of objectivity, non-naturalistic, reductive experimental methods, universal claims, and others (Denzyme and Lincoln, 2000). The research method used is interview, observation, and literature study. Interviews were used to collect in-depth information based on students' experiences in undergoing the learning process using project-based learning using new media. Observation is used to determine the exploration of the student learning process with project-based learning methods using new media. Research informants in this study amounted to 127 students from three different classes who took two different courses. The courses followed are Critical Theory and Copywriting.

This research is communication research that uses a qualitative methodology consisting of five frameworks: validity, transparency, ethics, reflexivity, and collaboration. Communication as a field of science has an epistemic diversity and an interdisciplinary history

that is heavily involved with various human-centred disciplines, philosophy, psychology, rhetoric, political science, sociology, feminist, and others (Waisbord, 2019).

Communication research is also carried out critically from the results of reflection to improve knowledge production processes, encourage value practice and discuss diversity, equality, and inclusion in the field of communication. This method is used to appreciate the various ways to determine the transparency and trustworthiness of scientific knowledge (Humpreys et al, 2021).

This method is also carried out to answer questions in empirical research about how to conduct communication research that can be trusted and can be conveyed ethically to other researchers, institutions, informants, and the public (Dienlin et all, 2020).

The first principles of communication research for open research are validity. Validity is a logical, factual, and certain quality. The epistemological approach used will determine the validity of communication research. The research can be replicated to be trustworthy and credible. To validate it, cognitive interviews can be carried out to verify that the informant can interpret in the correct way, which is desired by the researcher (Carbone, Campbell, & Morreale, 2002) and validate the informant by means of a cross (Sakaluk, 2016).

Validity is also carried out by observation, where researchers are involved in recording and observing in detail. The researcher also examines various findings and checks them with the interpretation of the informants. It can also be called triangulation, where researchers draw on various sources and or types of data to provide different perspectives on a phenomenon. The longer he is involved with the informant, it can increase the validity of qualitative research (Maxwell, 2013).

The second principle in communication research is transparency. This principle allows the reader to assess how the researcher can make research claims and conclusions. The principle of transparency requires that researchers be willing to share information about their methods, the data used, and the analysis carried out. Researchers can start from providing basic information about the code used to conduct the analysis, to information on copies of research documentation. This is done so that the research community can examine the work of researchers, identify deficiencies, and even find new findings using open data. In addition, the community also benefits from research and access to data that can be used for various purposes (Brand, et. al., 2015).

The third principle is ethics. Ethics is a formal code of ethics that concerns responsibility, integrity, fairness, and respect for the rights and dignity of others. It also concerns the ethics of who will benefit from the results of the research. This encourages researchers to share data and materials because these are the property of scientists to share (Grzanka & Cole, 2021).

The fourth principle is reflexivity. Reflexivity means that informants can be personally researched and become a source of power that can be exploited to enrich the quality of the analysis. The researcher is the instrument. There are five levels of reflection in communication research, namely Personal, Relational, Methodological, Contextual and Discipline.

Contextual reflectivity is a context in which researchers also need to reflect on the socio-cultural, political, and economic factors of the researcher. Discipline reflectivity is the ideological and structural conversion of the field of communication studies (Pande, 2020).

The fifth principle is collaboration. Collaboration is when researchers working together to achieve a common goal, that is to produce new scientific knowledge. Through collaboration, communication researchers can expand their theoretical, methodological, and analytical skills

on research projects. This collaboration can be done to achieve pedagogical goals, especially if there is collaboration between lecturers and students. One of the benefits of collaboration is to check for personal biases, errors, observing differences in approach that can affect conclusions. (Siberzahn et al., 2018). Communication research actively encourages collaboration to maximize the benefits that can be generated from research. In this study, there has been collaboration between researchers and researchers with informants (students).

## Results

Online learning in universities during the pandemic demands creativity from educators so that learning becomes interactive and easy to understand by students. The use of project-basedlearning is a widely used learning method. Therefore, this research was conducted to find out and create a project-based learning communication model using new media for students. This research was conducted on a group of students who took two different courses but used project-based learning. This study found that the project-based learning communication model using new media has increased students' ability to utilize information and communication technology in learning. Students also become creative, think critically, and can collaborate to solve problems in project-based learning. In this collaboration, a communication model for project-based learning is formed that produces synergies between students and lecturers, practitioners, and the community, using new media.

### *Utilize Information and Communication Technology*

The informant said that this project-based learning gives students the experience of researching, planning, designing, and making reflections using new media technology. Students also collaborate to complete projects from designing, solving problems, making decisions, making projects, and disseminating project activities.

The critical theory course consists of two classes, class A and class B. Each class is given the same project. The project is to make scientific articles to be sent to SINTA (Indonesian Journal Index System) accredited journals. The project was carried out by a group of two to three people. At the first meeting, the lecturer explained the complete semester learning plan with the subject matter to be taught. From the existing subject matter, each group of students was asked to fill in one article theme based on the list of subject matter. Their first task is to find as much reading material as possible on the chosen subject.

The reading material that has been collected is then summarized and useful findings are presented. Students use these findings as a reference for the theme of the article that will be made by each group. The group then made a presentation on their plan to write article based on the reading material that was studied. They then look for journals that match their theme. In addition to look for journals that have the scope of their chosen theme.

From this activity, students learn to plan projects and design the research. Every week the lecturer will provide learning materials through power points and students submit progress reports on article writing. Lecturer will then check their article for plagiarism with the Turnitin application. If the results are above 20% similarity, students are asked to revise their article. If the results are below 20%, students can directly submit their articles on the open journal system page. At the end of the course, students were asked to reflect on their learning experiences for one semester.

> "With this group assignment, I learned how to plan and compile articles. Since this is a group assignment, we are all involved in solving the problem

> we are discussing, we usually express our personal opinions and then respond to each other. This project makes me more responsible because in this project, it is not only my score that is at stake in this assignment, but also the score of my friends" (P1).

The learning process in this project shows new media roles to spawn collaboration. Each member of the group is involved in decision making. They vote to determine the research design if there is no agreement in the group discussion. This collaborative process is enormous, and it's all materialized through new media. In this case, new media is the only media where group members can communicate between themselves since all students are working from their home in various cities in Indonesia.

> "My group and I usually make plans for the progress of the task with new media. Group members together design one by one the arrangement of workassignments. If there is a problem, such as an obstacle in working on a given group assignment, we try to solve it" (P2).
>
> Students also feel they can learn to make decisions. One example is deciding to choose an article title or choosing a division for group work. This scientific article project makes students know how to write scientific articles and how to submit it to journal.
>
> "With this assignment, I can find out how to write the right article. I also learned to communicate and discuss with my group. Usually about the shortcomings in the writing that we have done" (P3).

A similar process with slightly different details also applied for copywriting class. At the first meeting, the lecturer gave a semester lesson plan and asked students to make small groups consisting of three to four people. Each group chooses for themselves the type of business or service they want to create a copywriting project for. Students also get input and assessments from copywriting professionals.

Communication between students and lecturers is carried out through various means such as Google Classroom, WhatApp, and Zoom meeting. Lecturers use Quiziz to conduct online quizzes. The parties involved in learning communication are not only lecturers and students, but also eight professional copywriters. In addition to regular communication between parties regarding course subject and assignments, a form of communication also established when students interviewed copywriters for their final project.

The final project is a scoring event conducted by the jury. The jury for the project is a professional copywriter who has been providing input to each group. While in earlier stage of the class, the copywriter only communicates with the group interviewing him/her. In the final project, the copywriters gathered and learned about the work of other groups. Together they score all eight groups. The scoring is based on four categories: marketing writing, promotional materials, sales copy, and content writing.

Communication also established between students and communities through selling assignment. In this assignment, students were asked to sell the product they make copywriting of. Students completed this task by doing online selling of the product.

> "Yes, through this course, students in groups share their thoughts about content ideas, planning content ideas to be published, communicating with each other in solving problems, learning to make decisions, practicing selling products through social media, and evaluating the results with other group members" (P4).

Students have a learning experience with new media and collaborate in groups, lecturers, and copywriters. Content planning is done by students in groups. Lecturer comments on weekly

copywriting assignments give students the ability to solve problems. Students also learn to sell online, regarding online sales applications and online sales delivery applications.

> "This course gives me the opportunity to research. I got to know more about copywriting writing techniques on social media, apparently there are ways, such as making headlines, taglines, etc. In making a copywriting plan, it makes our group must think more for the future. Group communication is active in providing suggestions and planning copywriting assignments. This project also adds to my skills in designing. With the direction and input at each meeting given by the lecturer, it helps students to find ways to use new media for more effective copywriting activities" (P5).

Students assert that they learn step by step with designs and plans that have been prepared by the group at each meeting and by always providing progress report. Interviewing copywriters teach them how to communicate with experienced person, and how to improve networking and knowledge. "In planning a business project such as a product, we do it by doing small research by looking at competing products on Instagram. All designs are also done using new media. We can also see the reflection of the projects we are running using new media" (P6).

## *Creativity*

Communication using new media in project-based learning enables students to think creatively. Creativity in project-based learning can be observed when students tasked with selling their copywriting content. This assignment spurred communication between students and prospective buyers through social media.

> "This course allows us to learn to plan and design a business project, solve problems that occur when running a business project, make decisions in running a business
> project, about something related to the business project we are running, such as content to be uploaded, product to be sold, and the selling price of the product. We also communicate the results of social media engagement, content, and product sales" (P7).

The mentoring process in the critical theory class is carried out with the presentation of learning materials, followed by discussions and questions and answers about the material. In addition, there are quizzes at meetings 7 and 14. Every week there is a revision of the article group assignments, and daily assignments.

> "The mentoring process in this course is quite good, where the lecturers have a system to report the progress that we have been working on every week. This makes us as students, whether we like it or not, we must make progress. The good thing is, by giving progress every week, we get used to being active in terms of tasks" (P8).
> I think the guidance in this course is very good, because the lecturers who provide supervision and direction are very detailed, so students can fix what is wrong or missed freely and not too confused. Lecturers also provide flexible time for students to ask questions" (P9).
> In my opinion, the supervising process in this course is quite good with progress every week. However, I think it would be even better if directions were given for the next steps, so that the research is structured" (P10).

> "Good enough, we are trained to always do our best. Lecturers guide by updating and revising each journal's progress in one of the learning media platforms. Lecturers will provide comments on every journal progress post every week" (P11).
>
> "In my opinion, the mentoring process is quite good. Every time there is an error or miss-comm related to material or assignment collection, very detailed directions and revisions are always given, repeatedly until the results are satisfactory. If there are questions and they are still difficult to understand, the lecturer always facilitates the platform or media to conduct questions and answers". (P12).

This process of submit and revise, had allow students to bring more perspectives on their assignments. The broaden perspectives in turn allow students to come with new ideas regarding the problem definitions and method used for their writings. Just like critical theory courses, copywriting courses also required students to provide progress on the activities the group has been doing every week. Lecturers then provide input on deficiencies to develop products or services.

> "The mentoring process is carried out every week during lectures through Google Classroom. This method is very effective in improving our process of promoting on social media, especially regarding the copywriting technique we use" (P13).

This process required students to come with new copywriting content every week. Producing new content every week thus stimulate students' creativity as it is one quality that stemmed from the rapid nature of new media. Through this project-based learning, students honed their creative thinking skills, especially in planning projects. Students are used to seeing trends that are happening, seeing opportunities, creating content according to the interests of readers from projects that have been planned.

## *Critical Thinking*

During this covid-19 pandemic, the way students search for reading materials relies more on online media, as opposed to frequenting library as they were used to.

> "The reading material that I use, first is the material given by the lecturer. For complements, I also searched through google books, journals, and theses. Before the pandemic I often visited the national library to look for references" (P14).

Students are also provided with ways to find references through trusted sources on the internet. The varieties of sources available on the internet has its negative sides, that is hoax and false claims are widely available. Students should develop capabilities to differentiate between trustworthy sources and bogus ones.

> "We look for reading materials by discussing and choosing one theme for the right and interesting title. Then, we looked for references on Google Scholar or Sinta accredited journals. We search by typing the title we want to make, and we associate the topic with the focus and scope we want to discuss" (P15).

Finding reading material was done by discussing. Group discussion started with choosing a theme for the article. Then, students look for references using Google Scholar or find online version of accredited journals. Students are also taught to look for journals that match the focus and scope of the articles they are working on.

> "Looking for reading material from Google Scholar, writing down what you are looking for. In addition, look for trusted websites such as Sinta ResearchedDikti. For books, read from books on google book" (P16).

Some students look for reading material by looking at other people's reviews or from the number of people who comment. From there, students are usually interested in reading and proving whether the content is in accordance with what others have reviewed or commented on. However, the main reading material is still from the lecturer in charge of the course.

> "The way we look for reading material is of course from the material provided by the lecturer, then we also look for eBooks or other materials on the internet" (P17)

Before lectures, students prepared themselves by first reading the material that has been given in the semester lecture plan.

> "Before class starts, sometimes I read the material first. I understood the material, then when I was in class, I reread the material, to be used as a study material to conduct discussions with group members. After that we look for reading material
> from what we have discussed through valid sources. After that, we execute the reading material and make it into content" (P18)

In copywriting lectures, reading material is also needed for the purpose of creating content on social media. Students usually search for reading material according to the content they planned to upload to social media accounts.

> "The way I look for reading materials is to look for references related to the theme or topic I want to write about, whether in the form of articles, designs, photos, videos, and others" (P19).

This course also required students continue to refer to journals and books, although more references is made from similar material from social media accounts related to products and services they were working on.

The division of tasks in groups also makes students actively look for reading materials related to the articles made. With the progress every week that will be given to the course supervisor, students continue to build communication with each other. In addition, lecturers are also active in providing revisions and suggestions in working on articles. What lecturers do in building input and direction makes students also actively engage in learning discussions.

> "We have discussions about everything that will be discussed, starting from the title, theory, method, and others. After that we also discussed the distribution of discussions that will be carried out by each member" (P20).
> "The way we plan project completion activities is by working together in a compact team, respecting each other's opinions, exchanging opinions, backing up each other, and having clear project completion targets" (P21).

Active discussions are run in the group chat to discuss what still needs to be revised. From the results of the discussion there was a fair distribution of tasks to each member. Students also have clear targets and timelines for completing journal article projects.

> "The first thing in the discussion, we give each other's opinion. Then, from these opinions, the one that best suits the wishes of the group is sought. We apply a deliberation system in every decision making and involve all parties in completing the project" (P22).

The planning made by students in the copywriting course is also not much different from the process in the critical theory course. Student groups also discuss to make content planning every week. In addition, students also discussed designs and captions that would be made, looking for a copywriter to be interviewed, and discussed so that account insights on social

media could continue to increase every week. Students also work together so that the products made by copywriting can be sold.

> "From the first week of class to the last, we always discuss interesting content and get buyers. We also discussed to determine the strategy so that the business carried out reached the target" (P23).
>
> "From the beginning we have divided the tasks of who is looking for data, designing and uploading content on social media. We have determined in advance what topics will be discussed each week. We do the work according to each part." (P24)

In planning learning project completion activities, at the beginning of the semester, the learning description and learning project have been explained. Students load schedule plans for project development for the next one semester. Students also plan content material to be created.

> "I do the planning by making a Content Planning, both in terms of dates, and content topics/content pillars that I want to discuss, shaping the audience, mood, plans to get reach/engagement" (P25).

The process of finding reference and supporting materials for their projects train the students to engage in critical thinking. Discussing and selecting which materials are worthy to be included in their projects require critical thinking abilities. Moreover, the revisions and inputs from the lecturers is a form of training to students to be able to accepting different and sometimes competing perspectives.

## *Collaboration*

Learning communication occurs well in groups. Students share input and suggestions on the progress of learning projects. Sometimes when a group has doubts about the results of the discussion, one of the group representatives will ask for guidance, input, and suggestions from the course lecturer. For a place to work together in editing files, generally students work together via the Google Docs link.

> "In making progress reports per week, I usually take notes in notes or create a task folder and see the progress that I have been working on. After receiving corrections and input from the lecturer, we will discuss it together in groups to revise the parts that need to be improved and add further progress. After that, the group representatives will collect it to Google Classroom to be reviewed by the lecturer" (P26).

Students usually start a discussion one day apart from submitting a progress report. The student learning project group has planned progress for the next week. If there are comments for revision from the lecturer, the group will correct the mistakes first. After that, the group moved on to work on the next progress.

> "In making progress reports, we refer to the journal portal we are aiming for, after that we start using the journal template to make it easier to write research articles. Every meeting we make revisions on suggestions from lecturers and or proceed to the next chapter or stage" (P27).

Students look at the revisions that have been given, after that the student groups include a list of what is lacking and what needs to be revised. The next step is to discuss and share tasks. After working on their respective parts, it will be combined into one file.

> "We saw the revision that the lecturer had given, after that we discussed with the group to complete what was lacking and revise. We make a progress report every week using targets and division of tasks. Each has its

> own section and then we also conduct a review before reporting it to the lecturer" (P28).

Generally, students take turns every week to make presentation by attaching screenshots and descriptions of each content. However, there are also groups whose teams have their own job desks and do not take turns. The division includes editors, content writers, publishers, and others. And when there are teams that have not been able to complete their tasks, the student groups will back up each other and help to complete progress. When the comments have been given by the lecturer, such as suggestions for improvement, the learning project group will communicate together.

> "Progress reports are carried out by collecting data through insights on Instagram every hour. In making progress reports, I and my group focused on planning and creating content until D-1 progress collection. We do the design process of the content that we do every week together. Likewise captions and content, then we see the insights we get from the content we post" (P29).

Students evaluate the corrections given by the lecturer and then collect data from the learning project's Instagram account to make a report. Students collect the necessary data from Instagram and several online stores managed by students by means of screen shots. Project based learning during this pandemic, not only allows students to communicate well with each other, but also fosters a sense of empathy between them. The role of lecturers in motivating students is also great in completing assignments. Project management is also applied in this course. There is a division of tasks, discussion forums, mutual response, and support for each other. Weekly routine tasks reported to lecturers include creating content, posting content, writing captions, and making weekly presentations and reports.

> "We document inputs or revisions from lecturers by taking screenshots and sending them to groups to be fixed together for the following week. In addition, the method of documenting the input given by the lecturer usually adjusts to the media or platform used. If input is given through the comment's column in Google Classroom, we can read the history by searching for it" (P30).
>
> "For me, I always use screen shoot items if the material is important in my opinion and after that I transfer the results of the screen shoot into one file according to the course at each meeting" (P31).

In copywriting courses, documentation is also important, for the purpose of producing content every week. Input from the lecturer is discussed with group members, so that the input is used as evaluation material for each member. There is one person who screenshots input from the lecturer and then sends it to the group. After that, the student project group will discuss and follow the recommendation.

Every input or suggestion given by the supporting lecturer is recapitulated to be used as an evaluation every week. Student project groups will make improvements so as not to repeat mistakes. In addition, they also work together to improve the performance and account performance of learning projects.

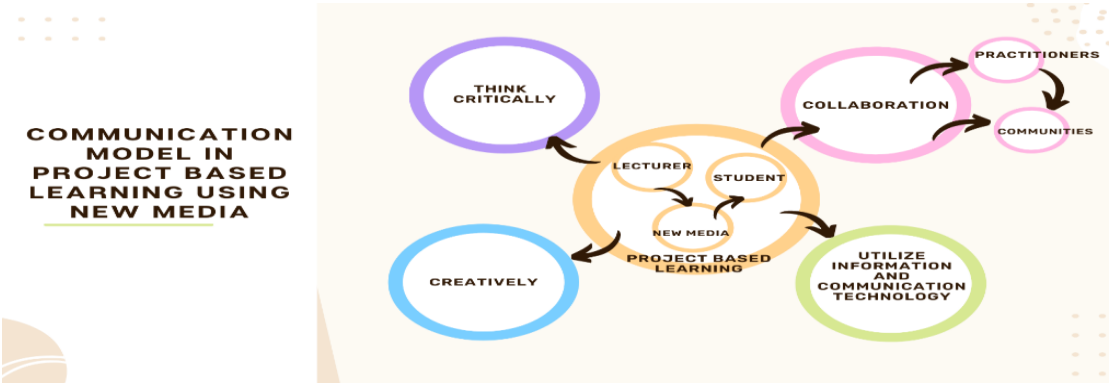
In general, there are two types of collaboration happens within the group of students. The first one is division of tasks, where students take permanent roles within the group. The second type is an agile model, where students were not assigned to specific roles within the group but making contributions within their abilities.

## *Communication Model in Project Based Learning Using New Media*

Based on the above explanation, this study found that project-based learning using new media can motivate students to think critically and creatively. Students also developed ability to utilize information and communication technology in project-based learning. Students collaborate to solve problems in project-based learning. In this collaboration, a communication model for project-based learning is formed that emphasizes the value of sharing, inspiring and synergizing between students and lecturers, practitioners, communities, using new media. Here is an overview of the model:

**Figure 1**.

*Communication Model in Project Based Learning Using New Media*




## Discussion

The learning experiences that students get from project-based learning using new media include the experience of researching, planning, designing, and reflecting using new media technology. Students also collaborate to complete projects from designing, solving problems, making decisions, making projects, and disseminating project activities.

Project based learning during this pandemic, not only allows students to communicate well with each other, but also fosters a sense of empathy between them. The role of lecturers in motivating students is also great in completing assignments. Project management is also applied in this course. There is a division of tasks, discussion forums, mutual response, and support for each other.

Project-based learning models using new media, not only produce collaboration between lecturers, students, and practitioners, but also produce several learning values, including creating utilize information dan communication technology, think critically, and producing creative work. The model created in this study is open to receiving criticism, input, and suggestions for improvement.

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# Equal Access to Early Childhood Education during the Pandemic of Covid-19 for Children with Disabilities

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***Abstract***: The COVID-19 pandemic has created very unique challenges for preschool teachers and parents of young children. Preschools had to provide education in different ways, such as virtually, in-person, or with a hybrid learning model. However, children with disabilities might not equally access to the early childhood education. In order to know whether and how the children with disabilities could continue to access to the developmentally appropriate education, we carried out a survey over fifty-six parents who have children with disabilities about the types and contents of the home-schooling program they received during the coronavirus lockdown. We sent the link of a self-administered questionnaire to the parents, and to ask them to respond to the items. These parents were all having children enrolled in preschools which were located in Taichung City, Taiwan. Among our survey sample, 80.4% were female, and median house incomes were thirty-five thousand NT dollars per month. Most of the families have two children. The Virtual Course Satisfaction Scale comprised eight items, the Cronbach's alpha was 0.95, and the mean scores were between 3.46 and 3.70. The Feeling about Inequity Scale had six items, Cronbach's alpha was 0.94, and the mean scores were between 3.59 and 3.91. The three most needed resources were Q&A information (55.4%), reference resources (53.6%), and materials of the activities (51.8%). Based on the results, we proposed some suggestions to preschool teachers who have students with disabilities. First, adopt the principles of universal design for learning to support the children with disabilities. Second, keep frequent communication with the families to discuss about any inequities they felt. Third, identify more useful practice that can support the children and their families

***Keywords:*** equal access, early childhood education, COVID-19, children, disabilities

## Introduction

For many children in the world, regardless of national boundaries, national wealth or national poverty, the pandemic let them face injustice and discrimination, even brought an end to their education. Children with disabilities face barriers to access material resources, institutions, participation spaces, and goods frequently, and they also have little control over their own decisions (ECLAC, 2018). The negative consequences for children were not just limited to the academic aspect, many children felt the loss of their autonomy, and some others felt social isolation, anxiety, stress, sadness, and depression. Some wellbeing services, such as nutrition and health support, which previously delivered through the education system, were also hampered by school closures. Exclusion from education means limited social contacts, poor health, and low self-esteem. As a result, opportunities become further reduced, leading to higher risks of illness, injury, and impairment and further exclusion, and (Yeo, 2001). The OECD calls for all schools should design their education responses to COVID-19 to avoid deepening educational and social inequalities (Reimers and Schleicher, 2020).The OECD (2004) stated four basic aspects of equity in relation to students with disabilities, first, equity of access or equality of opportunity; Second, equity in terms of learning environment or equality; Third, equity in production or equality of achievement; fourth, equity in terms of realization or exploitation of results.

Additionally, Meyers, Rosenbaum, Ruhm, & Waldfogel (2003) listed three kinds of low-quality early childhood education that usually happened to disadvantaged children:
The costs of early childhood education impose heavy burdens on families and then increase income inequality both directly and indirectly.

Social-economic status disparities in early childhood education may create social inequalities in the type and the quality. Meyers, Rosenbaum, Ruhm, & Waldfogel (2003) listed three kinds of low-quality early childhood education that usually happen to disadvantaged children.

The costs of early childhood education impose heavy burdens on families and then increase income inequality both directly and indirectly.

Social-economic status disparities in early childhood education may create social inequalities in the type and the quality of education received.

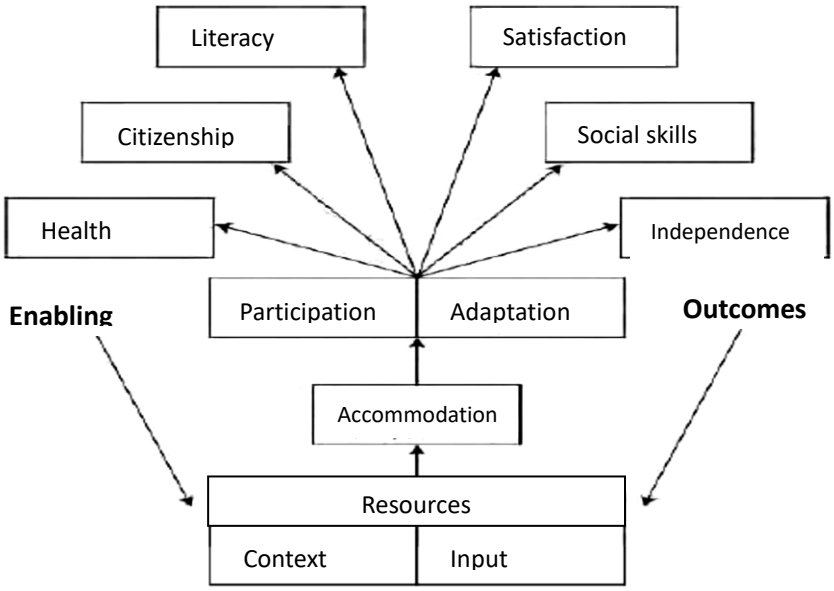
Early childhood education differentials contribute to increasing inequality by affecting children's early development, learning, and health in the longer term. Blundell et al. (2020) found that age, gender, ethnicity, and income inequalities were exacerbated during COVID-19. However, many programs and empirical studies often have two deficiencies as barriers to achieving equities for disabled people: lack of reliable or comparable demographic data; and, second, a lack of conceptual and attitudinal understanding regarding impairment and disability. For education administrators and policymakers, demographic data could provide decision-makers with information needed to target services to specific groups and important status markers. So, we set demographic characteristics as our latent exogenous variable in this study.

Another latent exogenous variable in this study was the resources needed by the parents of children with disabilities because some of them do not have access to or do not feel comfortable with new technologies, while many early childhood education practitioners may display their flexibility and creativity by sending educational activities by mail to these parents (Brossard, 2020). In spite of that, resources related to the promotion of literacy and numeracy provide critical foundational components to early childhood education, and persist among the hardest to reach (Lopes and McKay, 2020).

Peters, Johnstone, and Ferguson (2005) proposed a local-level model in concern with the education rights of students with disability. This model used children's satisfaction, literacy,

social skills, citizenship, independence, and health as its outcome variables, used children's adaptation, participation, and accommodation as the mediating variables, and used the resource of input and context as the predictor variables. This model was constructed from disability rights declarations and other international policy documents. The model's outcomes at the top level are influenced by the resources, contexts, and inputs. The mediating variables serve to shift the focus from market value to the human values identified by disabled children and their organizations. This model also addresses barriers as well as encompasses the four basic aspects of equity that we mentioned above, which are equity of access, equity in terms of quality, equity of outcomes, and equity of results.

**Figure 1**
*Disability Rights Education Model: Local-Level Outcomes Source: Peters, Johnstone, and Ferguson (2005).*




In this article, we use this model as our conceptual framework and use our survey data to test a simplified model. Our hypothesized model used satisfaction and inequities as the outcome variable, using resources and context variables as the predictor variables. The goodness-of-fit, total variance explained, and the regression weights are to be analyzed and discussed.

## Method

### *Participant*

We recruited the participants through the teachers or administrators of the preschools located in Taichung City, Taiwan. We set three criteria for choosing the participants. First, the child's age was 2-6 years old. Second, the child had the qualification of disabilities or developmental delay. Three, the children received an online course or virtual classroom during the coronavirus lockdown. If the children fit these three criteria, then we sent a consent form and the printed questionnaires to the parents, sent the files of the consent form and the questionnaire through e-mail or Line to the parents, or sent a link to the webpage questionnaire to the parents. After checking the missing items, the final sample for analysis consisted of fifty-six cases.

## *Measure*

A questionnaire made up of questions to survey how the parents of preschoolers feel about the curriculum, how well or wrong their children learn, and what kinds of learning resources they need. The first part of the questionnaire was the demographic characteristics of the respondents which consisted of three variables- gender, house income, and the number of children. Variable gender has two types. The father is coded as one, and the mother is coded as 2. Variable house income has six levels, income less than 25,000 is coded as 1, income between 25,001 and 35,000 is coded as 2, income between 35,001 and 45,000 is coded as 3, income between 45,001 and 55,000 is coded as 4, and income between 55,001 and 65,000 is coded as 5, and income higher than 65,001 is coded as 6. The variable number of children is coded as the number of children, the lowest level has one child, and the highest level has four children. The second part of the questionnaire was the Scale of Equal Access to Early Childhood Education during Pandemic, which consisted of sixteen items; using a Likert type scale, response options range from 1 to 5, for which 1 means strongly disagree, 2 means disagree, 3 means undecided, 4 means agree, 5 means strongly agree. The third part of the questionnaire was the needs and help that the parents of young children with disabilities are hoping to have, several education resources, such as materials for the activities, steps handout, demonstration video, Q&A information, online consultation, and reference resources were listed. The parents may respond yes or no to the items, in which 1 refers to yes, and 2 refers to no.

## Result

The data analysis consisted of several parts, which the first part is the descriptive statistics of background variables and the response of the needs and helps. The second part is concerned about the psychometrics of the Scale of Equal Access to Early Childhood Education during Pandemic, including exploratory factor analysis, confirmatory factor analysis, and reliability analysis. The third part is using the Partial Least Square modeling to estimate the weights and the R-square.

## *Demographic Profile of the Sample*

The sample consisted of 56 participants, 45 mothers (80.4%) and 11 fathers (19.6%). Family income varied, the median of the family income was 35,001-45,000 NT per month. Approximately 45% reported that their family income was 35,001-45,000 per month. Thirty-four families (60.7%) had two children and nineteen families (33.9%) had one child. The demographic characteristics of the participants are listed in Table 1.

**Table 1**
*Demographic characteristics of the participants*

| Variable | Frequency | Percent (%) |
|---|---|---|
| Gender | | |
| Male | 11 | 19.6 |
| Female | 45 | 80.4 |
| family income | | |
| less than 25,000 | 2 | 3.6 |

| | | |
|---|---|---|
| 25,001-35,000 | 10 | 17.9 |
| 35,001-45,000 | 25 | 44.6 |
| 45,001-55,000 | 9 | 16.1 |
| 55,001-65,000 | 7 | 12.5 |
| higher than 65,001 | 3 | 5.4 |
| Number of children | | |
| 1 child | 19 | 33.9 |
| 2 children | 34 | 60.7 |
| 3 children | 2 | 3.6 |
| 4 children | 1 | 1.8 |

## *Descriptive Statistics*

As shown in Table 2, the most needed resources reported by the parents of the young children with disabilities were Q&A information (55.4%), the second most needed was reference resources (53.6%), and materials of the activities (51.8%) was the third, demonstration video (48.2%) was
the fourth, steps handout (46.4%) was the fifth, online consultation (44.6%) was the sixth.

**Table 2**
*Descriptive statistics of the items of Needs and Helps*

| Variable | Yes | No |
|---|---|---|
| Materials for the activities | 29(51.8%) | 27(48.2%) |
| Steps handout | 26(46.4%) | 30(53.6%) |
| Demonstration video | 27(48.2%) | 29(51.8%) |
| Q&A information | 31(55.4%) | 25(44.6%) |
| Online consultation | 25(44.6%) | 31(55.4%) |
| Reference resources | 30(53.6%) | 26(46.4%) |

## *Factor Analysis*

We used the sixteen items to perform a factor analysis, the result suggested two items to be deleted because of the factor loadings were lower than 0.4. Then we performed a factor again with the fourteen items, and the solution was acceptable for an adequacy value of Kaiser-Meyer-Olkin (KMO) and the Bartlett's test of sphericity was significant. KMO is a test conducted to examine how the factors explain between the variables, and most scholars argue that a KMO of at least 0.8 are good enough for factor analysis to commence. Bartlett's test of sphericity is to test the null hypothesis that the correlation matrix is an identity matrix, which means that variables are unrelated and not ideal for factor analysis. In our study, The KMO

measure of sampling adequacy is .800, and the chi-square value of Bartlett's test of sphericity was 887.43($p$<.001), hence it is plausible to conduct factor analysis.

**Table 3**
*Factor analysis of the items in the Scale of Equal Access to Early Childhood Education during Pandemic*

| Items | Factor 1 | Factor 2 |
|---|---|---|
| The lessons were enjoyable. | .695 | -.033 |
| The lessons contributed to develop some skills. | .772 | -.106 |
| The lessons made my child spend more time to work on them. | .873 | -.071 |
| The lessons were useful. | .911 | .024 |
| The activities fulfilled the course objectives. | .953 | -.062 |
| The activities were clarity in the explanation. | .873 | -.008 |
| My child was interesting with the activities. | .841 | -.014 |
| I am contented with the course. | .757 | .040 |
| My child were not motivated | -.111 | .697 |
| The teaching materials were not accessible. | .075 | .806 |
| They didn't provide flexible schedules | -.163 | .873 |
| They didn't give adequate support to my child. | .042 | .902 |
| My child had difficulties understand the topics. | -.028 | .887 |
| The content of the class were not communicated effectively. | .014 | .925 |

Then we used principal axis factoring extraction and Varimax with Kaiser Normalization rotation method to perform the factor analysis. The result revealed two factors, factor 1 could explain 41.0% of variance, and factor 2 could explain 31.3% of variance. Eight items fall on factor 1, factor loadings ranged from .696 to .953.Six items fall on factor 2, factor loadings ranged from .696 to .953. The results of the analyses are presented in Tables 3 where each factor with its corresponding variables and factor loadings are found and these two factors explained 72.3% of the total variance. In general, factor loadings were all over 0.5 were interpreted as salient loadings, extracted factors accounted for more than 50% of the variance would be a satisfying result of factor analysis. We named factor 1 as the satisfaction to the course, and factor 2 as the feeling about inequity and then we used these factors as two subscales, which are The Virtual Course Satisfaction Scale and The Feeling about Inequity Scale.

The psychometric properties of The Virtual Course Satisfaction Scale and The Feeling about Inequity Scale were examined through reliability analyses. To measure the internal consistency of the main scale, reliability was computed using Cronbach's alpha. The results of reliability analysis and descriptive statistics are presented in Table 4. The Virtual Course Satisfaction Scale comprised eight items, the mean score of each item were between 3.46 and 3.70. The mean score of this subscale is 3.61($SD$=1.15), the skewness is -.62, the kurtosis is

-.61, and the Cronbach's alpha was .949. The Feeling about Inequity Scale had six items, the mean score of each item were between 3.59 and 3.91. The mean score of this subscale is 3.74(*SD*=1.03), the skewness is -0.61, the kurtosis is -.82, and the Cronbach's alpha was .936.

**Table 4**
*Descriptive statistics of The Virtual Course Satisfaction Scale and The Feeling about Inequity Scale*

| | Mean | Std. Deviation | Skewness | Kurtosis | Cronbach's alpha |
|---|---|---|---|---|---|
| Satisfaction[1] | 3.61 | 1.15 | -.62 | -.61 | .949 |
| Inequities[2] | 3.74 | 1.03 | -.61 | -.82 | .936 |

Note 1: The Virtual Course Satisfaction Scale. Note 2: The Feeling about Inequity Scale

## *Confirmatory factor analysis (CFA)*

We use CFA to test the validity and reliability of the measured variables in the measurement model and to measure the construct validity and convergent validity. CFA allows a researcher to test the viability of a hypothesized model, which first the researcher should hypothesize a model for a particular covariance matrix, and then to test whether or not the model fits the sample data. The overall fit of the model to data was examined through chi-square statistics, which a smaller chi-square indicated a better fit of the model. In our study, the overall fit indices for the proposed model were acceptable, with Chi-square of 1.871, Chi-square/df equal to .234. The fit of the model could also be assessed by the goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), normed fit index (NFI), comparative fit index (CFI), relative fit index (RFI). In our study, the default model was with GFI of .989, AGFI of .971, NFI of .994, CFI of .999, PNFI of .81, IFI of .97, and RFI of .93. By convention, models with a good fit have GFI, AGFI, NFI, CFI, and RFI above 0.9. Additionally, model with root-mean-square residual (RMR) and standardized root-mean-square residual (SRMR) below 0.5 is a good fit. In our study, the default model was with RMR of .032 and SRMR of .025. Lastly, model with Parsimony goodness-of-fit index
(PGFI), Parsimony normal fit index (PNFI), Parsimony comparative fit index (PCFI) and Expected cross-validation Index (ECVI) above 0.5 is a good fit. In our study, hypothesized model was with PGFI of .533, PNFI of .530, PCFI of .533, and ECVI of .507. The fit indices of the CFA model are listed in Table 5.

**Table 5**
*The fit indices of the Confirmatory factor analysis model*

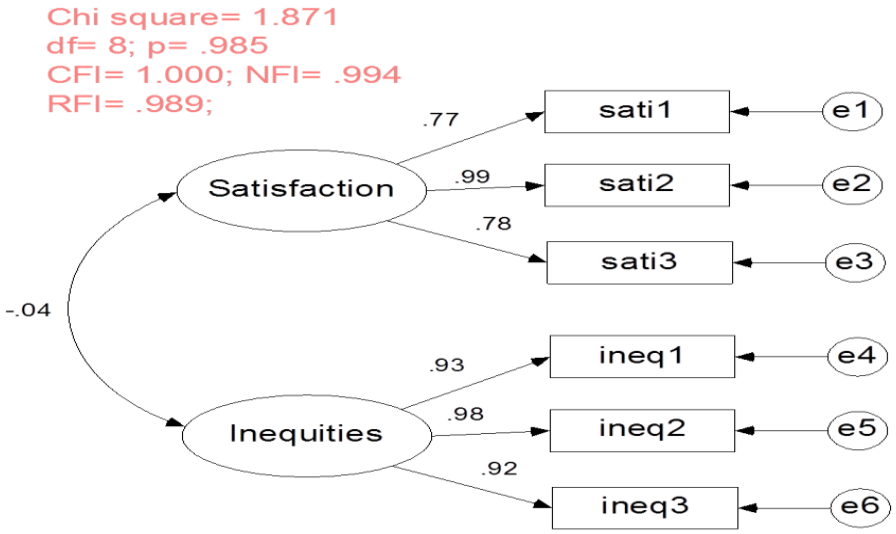
| Indices | Value | Indices | Value |
|---|---|---|---|
| $\chi^2$ | 1.871 | RMR | .032 |
| $\chi^2$/df | .234 | SRMR | .025 |
| GFI | .989 | PGFI | .533 |
| AGFI | .971 | PNFI | .530 |
| NFI | .994 | PCFI | .533 |
| CFI | .999 | ECVI | .507 |
| RFI | .989 | | |

The path coefficients of our hypothesis model are presented in Figure 2. The correlation between factor Satisfaction and Inequities was -.04. The observed variables of both the factor Satisfaction and the factor Inequity are calculated by items parceling. The standardized factor

loadings from the factor Satisfaction are between .77 and 0.99, and the standardized factor loadings from the factor Inequities are between .92 and .93. For the construct of subscale Satisfaction, the composite reliability was .887 and the average variance extracted is .727. For the construct of subscale Inequity, the composite reliability was .961 and the average variance extracted is .891. Since the value of the factor loadings are all higher than 0.7, the composite reliability is higher than 0.7, and the average variance extracted is higher than 0.5, which all meets their acceptable standards, therefore the hypothesized model of our confirmative factor analysis was confirmed and the model have good convergent validity is supported.

**Fig 2**

*Fit statistics for the Confirmatory factor analysis*

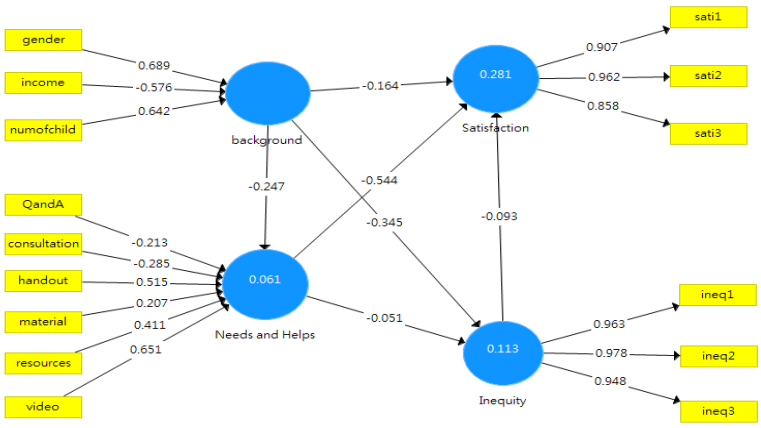



## *Partial Least Square Modeling*

We want to know whether the background traits and the resources needed would affect the satisfaction to the virtual class, and the feeling about inequity, we set a hypothesized model, which is presented in Figure 3. We used SmartPLS 3.0 (Ringle et al., 2015) to assess the psychometric properties of the measurement model and to estimate the parameters of the structural model. As for the goodness of model fit of our hypothesized model, according to Hair et al., (2014)'s standards, SRMR should be less than 0.08. Our model's SRMR is 0.07 and it is an acceptable fit. Another fit index is NFI, which the ideal value for NFI must be above 0.9. The NFI of our hypothesized model is only .783, which is only on the borderline of goodness-of-fit.

**Fig 3**

*Parameter estimation of Partial Least Square modeling for our hypothesized model*




The coefficient of determination, which also could be called R-square values, were obtained through the SmartPLS algorithm function, the results are presented in Figure 3. The R-square value indicates the amount of variance in a dependent variable that is explained by the independent variables. In this study, the structural model show that the factor Background explains 6.1 % of the variance in factor Needs and Helps. The factor Inequity could be explained 11.3% of the variance by factor Background and factor Needs and Helps. The factor Satisfaction could be explained 28.1% of the variance by factor Background, factor Needs and Helps, and factor Inequity. Since R-square is the proportion of variability in the data that the measurement model explains, so these values are expected to be high to explain the endogenous latent variable's variance well. Which is to say, a larger R-square value increases the predictive ability of the structural model? However in this study, the R-square values of each dependent factor did not meet the criterion of Chin (1998) and that means the structural model did not have adequate predictive ability.

Based on the iteration computation, the results showed that all items in the measurement model exhibited loadings exceeding .5. Figure 2 shows the loading for each item, and the loadings of factor Satisfaction are .907 ($t=17.47$, $p<.001$), .962 ($t=23.63$, $p<.001$), .858 ($t=12.99$, $p<.001$), for which all items are significant at the level of .001. The loadings of factor Inequity are .963 ($t=7.97$, $p<.001$), .978 ($t=7.93$, $p<.001$), .948 ($t=7.87$, $p<.001$), and also all items are significant at the level of 0.001. According to Hair et al., (2010), a measurement model is said to have a satisfactory indicator reliability when each item's loading estimates is higher than 0.7. Items used in our PLS model are ranging from a lower bound of .858 to an upper bound of .978, which demonstrate satisfactory indicator reliability.

As for the construct reliability of the measurement model, the Cronbach's alpha of subscale Satisfaction and subscale Inequity are .897 and .961, and the composite reliability of subscale Satisfaction and subscale Inequity are .935 and .975, which both appear to have satisfactory internal consistency. Convergent Validity is usually assessed by examining the average variance extracted value is close to 0.5 or higher. In this study, the average variance extracted values of factor Satisfaction and factor Inequity are .927 and .828, both are higher than 0.5. Thus, these two factors could be said to have adequate convergent validity of their measurement construct. The path coefficient of the reflective indices and the indices of reliability and validities is presented in Table 6.

**Table 6**
*Path coefficients of the reflective indices and the indices of reliability and validities*

| Variable | Weight | T Statistics | P Values | Cronbach's alpha | CR | AVE |
|---|---|---|---|---|---|---|
| Satisfaction | | | | .897 | .935 | .828 |
| Sati1 | .907 | 17.47 | <.001 | | | |
| Sati2 | .962 | 26.63 | <.001 | | | |
| Sati3 | .858 | 12.99 | <.001 | | | |
| Inequity | | | | .961 | .975 | .927 |
| Ineq1 | .963 | 7.97 | <.001 | | | |
| Ineq2 | .978 | 7.93 | <.001 | | | |
| Ineq3 | .948 | 7.87 | <.001 | | | |

As shown in Table 7, path coefficients of the formative indices are listed as well as their values of significant test. Being mother and having more children show positive effects on factor
Background, while higher house income is to have negative effect. The effects of gender, income and number of child are .689 ($t$=1.367, $p$=.172), -.567 ($t$=.950, $p$=.342) and .642($t$=1.519, $p$=.129). None of the effects of background variable is significant. For the factor Needs and Helps, variables materials for the activities, steps handout, demonstration video, and reference resources contribute positive effects, while Q&A information, Online consultation contribute negative effects. The effects of all the Needs and Helps variables and their values of significant test are listed in Table 7, in which Q&A information of -.213 ($t$=.710, $p$=478), Online consultation of -.285($t$=.972, $p$=.331), Steps handout of .515($t$=1.676, $p$=.094), Materials for the activities of .207($t$=1.595, $p$=.129), and Reference resources of .411($t$=2.105, $p$=.035), Demonstration video of .651($t$=2.105, $p$=.035). Only variable Demonstration video is significant in influencing the factor Needs and Helps, variable Q&A information, online consultation, steps handout,
material for the activities, and reference resources do not have significant effects.

**Table 7**
*Path coefficients of the formative index*

| Path | Effect | Standard Deviation | T Statistics | P Values |
|---|---|---|---|---|
| Background | | | | |
| Gender | .689 | .504 | 1.367 | .172 |
| Income | -.576 | .606 | .950 | .342 |
| Number of child | .642 | .423 | 1.519 | .129 |
| Needs and Helps | | | | |
| Q&A information | -.213 | .300 | .710 | .478 |
| Online consultation | -.285 | .293 | .972 | .331 |
| Steps handout | .515 | .307 | 1.676 | .094 |
| Material for the activities | .207 | .229 | .907 | .364 |
| Reference resources | .411 | .257 | 1.595 | .129 |
| Demonstration video | .651 | .309 | 2.105 | .035 |

Regression weights in the structure models allow the researcher to assess whether the hypothesis could be confirmed or disconfirmed, because each path connects the latent variables representing the strength of the relationship between dependent and independent variables. The more significant of the t-statistics value, the strength of relationship between dependent and independent variables is stronger. In this study, we examine six effects in our PLS hypothesized model and we used the SmartPLS bootstrapping function to generate 3000 sample and to compute the *t*-statistics values. First, the effect of Inequity predict Satisfaction is -.093 (*t*=.645, *p*=.519); Second, the effect of Needs and Helps predict Inequity is -.051 (*t*=.246, *p*=.806); Third, the effect of Needs and Helps predict Satisfaction is -.544 (*t*=2.313, *p*=.021); Fourth, the effect of Needs and Helps predict Satisfaction is -.345 (*t*=1.109, *p*=.267); Fifth, the effect of Needs and Helps predict Satisfaction is -.247 (*t*=.645, *p*=.519); Sixth, the effect of Needs and Helps predict Satisfaction is -.164 (*t*=.908, *p*=.364). Among these regression weights, only the effect of Needs and Helps predicting Satisfaction is significant. Since yes is coded as 1 and no is coded as 2, the higher the value of Needs and Helps mean less resource for virtual course is needed. In addition, the regression weight is negative, that means the less resources were needed, the less satisfaction they became. The path coefficients, t-statistics value, and the significant levels of the direct effects between structure factors are presented in Table 8.

**Table 8**

*Direct effect between factors of our PLS hypothesized model*

| Path | Effect | Standard Deviation | T Statistics | P Values |
|---|---|---|---|---|
| Inequity→Satisfaction | -.093 | .144 | .645 | .519 |
| Needs and Help→Inequity | -.051 | .206 | .246 | .806 |
| Needs and Help→Satisfaction | -.544 | .235 | 2.313 | .021 |
| Background→Inequity | -.345 | .311 | 1.109 | .267 |
| Background→Needs and Help | -.247 | .384 | .645 | .519 |
| Background→Satisfaction | -.164 | .181 | .908 | .364 |

Assessing the direct and indirect relationships between exogenous and endogenous latent variables is another evaluation of our structural model. In this study, we perform three mediation model assessments between the structure factors. The first mediation model is to test whether the relation between Background and Inequity is mediated significantly by Needs and Help. Both the level of significance of the direct and indirect relationships can be examined by conducting Sobel's test, which is employed to test the significance of the mediating relationships hypothesized (Henseler et al., 2009). Table 9 shows the summary of the direct and indirect relationships based on the structural model. With Needs and Helps as the mediator, the direct and
indirect effect of Background on Inequity are -.345 (*t*= 1.109, *p*= .267) and .013(*t*= .152, *p*= .879), and the total effect is-.332 (*t*= 1.093, *p*= .274). The *Z* value of the Sobel's test is .231(*p*= .591), which is not greater than 1.96, and the VAF% is only3.6%, so the Needs and Helps is not a significant mediator between Background and Inequity.

**Table 9**
*Summary of mediation model with Needs and Helps as the mediator between Background and Inequity*

| Path | Effect | T Statistics | P Values |
|---|---|---|---|
| Direct effect | | | |
| B→I | -.345 | 1.109 | .267 |
| Indirect effect | | | |
| B→N→I | .013 | .152 | .879 |
| Total effect | | | |
| (B→I)+( B→N→I) | -.332 | 1.093 | .274 |
| Sobel's Z | | .231 | .591 |
| VAF% | 3.6% | | |

*Notice: I: Inequity; N: Needs and Help; B: Background*

The second mediation model is to test whether the relation between Needs and Help and Satisfaction is mediated significantly by Inequity. Table 10 shows the summary of the direct and indirect relationships based on the structural model. With the Inequity as the mediator, the direct and indirect effect of Needs and Helps on Satisfaction are -.544 ($t$= 2.313, $p$= .021) and .005($t$= .139, $p$= .890), and the total effect is-.539 ($t$= 2.232, $p$= .020). The $Z$ value of the Sobel's test is .231($p$= .591), which is not greater than 1.96, and the VAF% is only0.9%, so the Inequity is not a significant mediator between Needs and Helps and Satisfaction.

**Table 10**
*Summary of mediation model with Inequity as the mediator between Needs and Helps and Satisfaction*

| Path | Effect | T Statistics | P Values |
|---|---|---|---|
| Direct effect | | | |
| N→S | -.544 | 2.313 | .021 |
| Indirect effect | | | |
| N→I→S | .005 | .139 | .890 |
| Total effect | | | |
| (N→S)+(N→I→S) | -.539 | 2.332 | .020 |
| Sobel's Z | | .231 | .591 |
| VAF% | 0.9% | | |

*Notice: I: Inequity; S: Satisfaction; N: Needs and Help*

The third mediation model is serial mediation, which means causal chain linking the mediators and with a specified direction of causal flow (Hayes, 2012). Serial mediation can help specify the causal chain by conducting a more detailed analysis. We adopt the procedure of serial mediation suggested by Hayes (2012) and created three models, all with factor Background as the independent variable, and factor Satisfaction as dependent variable. The first path is with Needs and Helps as the mediator, the second path is with Inequity as the mediator, and the third path is through Needs and Helps then to Inequity as the mediator. A 3000-sample bootstrap function of SmartPLS was employed to estimate the parameters and

indices of this serial mediation model.

Table 11 shows the summary of the direct and specific indirect relationships based on the structural model with Needs and Helps and Inequity as the mediators, the direct effect of Background on Satisfaction is .165 ($t$= .783, $p$= .434). The specific indirect effect of path B→N→S is .032 ($t$=.559, $p$= .576 ), of path B→I→S is .134 ($t$=.656, $p$= .512), and of path B→N→I→S is -.001($t$=.088, $p$= .930), and the total effect is .001 ($t$= .006, $p$= .995). The VAF% is 50.3%, the Inequity and the Needs and Helps seems more likely a moderator than a mediator between Background and Satisfaction.

**Table 11**

*Summary of serial mediation model with Inequity and Needs and Helps as the mediator between Background and Satisfaction*

| Path | Effect | T Statistics | P Values |
|---|---|---|---|
| Direct effect | | | |
| B→S | .165 | .783 | .434 |
| Specific indirect effect | | | |
| B→N→S | .032 | .559 | .576 |
| B→I→S | .134 | .656 | .512 |
| B→N→I→S | -.001 | .088 | .930 |
| Total effect (B→S)+(B→N→S)+(B→I→S)+ (B→N→I→S) | .001 | .006 | .995 |
| VAF% | 50.3% | | |

*Notice: I: Inequity; S: Satisfaction; N: Needs and Help; B: Background*

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# Students' Mathematical Characters: The Established during Covid-19 Pandemic Learning

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***Abstract***: This study aims to identify how the process of character building students in learning mathematics in elementary schools during the covid-19 pandemic. This study uses a phenomenological approach. The data were analyzed using domain analysis techniques, taxonomic analysis, componential analysis, and theme analysis. The results showed that the character of students who were formed through online mathematics learning during the covid-19 pandemic was honest, disciplined, and responsible feelings. Forming students' character in learning mathematics is carried out using the method of habituation, example, and inculcation of values. The teacher's role is as an example, inspiration, and motivator. The learning strategies used by the teacher include: contextualizing mathematics learning, creating a fun mathematics learning situation, and easing the mental burden of students in learning mathematics. Meanwhile, the factors that support the learning strategy are teachers' experience in teaching, students' enthusiasm for learning mathematics, and collaboration between teachers and parents.

***Keywords:*** learning mathematics, character building, elementary school students

## Introduction

Elementary school is the most important educational unit in existence. Everyone admits that one cannot formally continue or attend junior high/junior high school education without completing primary school education or its equivalent. Countries in the world recognize the significant role of primary education. With the increasing government investment in the primary education sector from year to year, elementary schools must be prepared and possibly (Sparrow et al., 2020). Therefore, elementary schools must be managed as well as possible to become quality schools. To achieve all that, quality education is needed, and implementing a good and quality curriculum can create a generation that has the unique character of elementary schools (Rachmadtullah et al., 2020).

Successful learning activities in the cognitive and psychomotor domains need to be supported by learning activities in the affective domain because the depth of students' understanding of the cognitive, affective, and psychomotor domains has a positive effect on the decision to become entrepreneurs which can reduce the rising unemployment rate (Bali & Musrifah, 2020). Likewise, the affective domain plays an essential role in creating quality human resources. Because if someone has reliable knowledge and skills without being supported by a good attitude, then these human resources can be influenced by irresponsible groups to threaten Indonesia's development. Therefore, character building is very important to be implemented in elementary school lessons because primary education is the foundation for these students in building and constructing their knowledge as a provision to become quality human resources (Ulumiyah et al., 2022).

Mathematics is a subject that can be used to develop student character because of the relevance of mathematical material to everyday life (Hasanah et al., 2019). Hendriana explained that mathematics learning plays an important role in forming students' character, such as critical, creative, consistent, logical thinking, systematic, honest, confident, responsible, and other (Sinyanyuri et al., 2022). Mathematics learning contributes to developing innovative and creative characters (Irawan & Iasha, 2021). It also impacts the nature of students' independence and a high sense of responsibility that synergizes with their learning outcomes (Rusmiarti et al., 2022). On the other hand, the characteristics of students who have been formed through the learning process synergize in achieving good learning outcomes, such as research results show that the attitude and active involvement of participants students in the learning process have a positive influence on learning achievement by 93.7% (Ainulluluah et al., 2022).

However, the reality in the field is that the impression of learning mathematics in elementary schools, in general, is on cognitive and psychomotor abilities, especially in online learning during this Covid-19 period. While learning outcomes in the affective domain are not given much attention, learning outcomes in the affective domain are difficult to assess because the assessment of the affective domain involves a combination of cognitive and behaviour as well as feelings (Casey & Fernandez-Rio, 2019). At the same time, learning mathematics requires intellectual ability and specific characteristics such as discipline and thoroughness (Zabiyeva et al., 2021).

Therefore, this study aims to identify how the process of character building students in learning mathematics in elementary schools during the covid-19 pandemic; knowing the teacher's perception of character building in learning mathematics; understanding the teacher's role in character building in learning mathematics, and hobbies during the covid-19 pandemic; find math learning strategies used in efforts to build student character during the covid-19 pandemic and find out what factors support the implementation of math learning strategies used in efforts to build student character during the covid-19 pandemic.

## Method

The study used a phenomenological qualitative approach. A phenomenology approach focuses more on the concept of a particular phenomenon. The form of its research is to see and understand the meaning of an experience related to a specific phenomenon (Neubauer et al., 2019).

Qualitative research was conducted because the researcher wanted to explore descriptive phenomena that could not be quantified. Thus, qualitative research is not only an effort to describe the data, but the description is the result of valid data collection, namely through in-depth interviews, observation, and documentation. The data collection tool or research instrument is the researcher himself, who goes directly into the field (Lobe et al., 2020).

Researchers conducted research with a phenomenological qualitative approach to describe the process of character building for elementary school students through learning mathematics during the covid-19 pandemic. The description of the process of forming the character of elementary school students through learning mathematics during the COVID-19 pandemic was explained based on the data collection results in the field through interviews, observation, and documentation. To conduct interviews and observations, an interview and observation guide was made regarding the process of character building for elementary school students. Then the data were analyzed using the James Spradley approach, which includes four steps, namely; (1) domain analysis, (2) taxonomic analysis, (3) component analysis, and (4) theme analysis (Hasan et al., 2021).

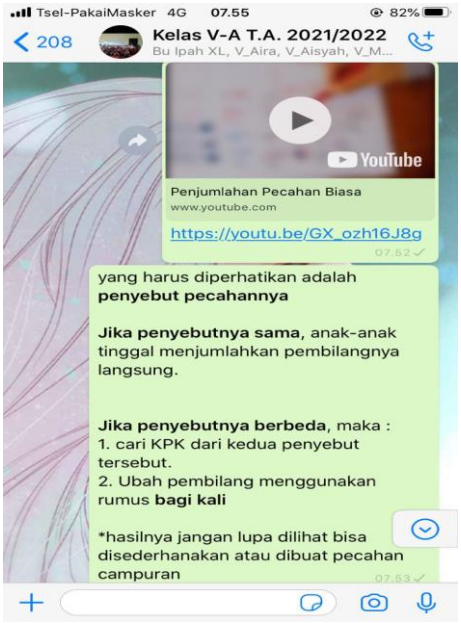
## Results and Discussion

Based on the results of interviews and observations, there are several ways in the process of forming student character in online mathematics learning during the covid-19 pandemic. This method adapts to teaching and learning activities and student character. In general, the forms of character formation include; habituation, example, and inculcation of values.

### *Habituation*

Character formation is an effort to improve individual behaviour that is carried out continuously by involving aspects of knowledge, feeling, and acting. Character formation can be done with a pattern of habituation. Doing positive things is one way to instil character values in students, which contain components of knowledge, individual awareness, determination, and the willingness and action to implement values, both towards God Almighty and self. Themselves, fellow human beings, the environment, and the nation, so that insan Kamil will be realized. Based on the results of observations of habituation of disciplined characters in elementary school students, teachers familiarizing students with being absent early before online learning is carried out and emphasizing students to submit assignments on time.

**Figure 1**
*The process of teaching and learning disciplined habits through giving assignments*




## *Exemplary*

Exemplary is the best way to teach the values of truth to children because children understand more quickly from what they see directly. This value is believed by teachers to be a good method for educating and teaching children. The student's character which is expressed in behavior can be formed from the imitation process through the process of seeing, hearing, and following. Therefore, character-building cannot be done by providing material and knowledge for the characters but pays more attention to the direct practice of teachers (educators) so that students can imitate them (exemplary). The task of a teacher is not only to make students smart but also to equip them with life values that prepare them for future challenges. There are a number of character values taught to students by teachers through exemplary learning, including responsibility, honesty, and discipline.

Responsibility is one of the many characteristics that students must have, whether they realize it or not, instilling responsibility in children from an early age is the best start for children to become adults who do not run away from obligations and what they have received or what we call responsibility. One way that can form responsibility in children is an example of responsibility in learning mathematics

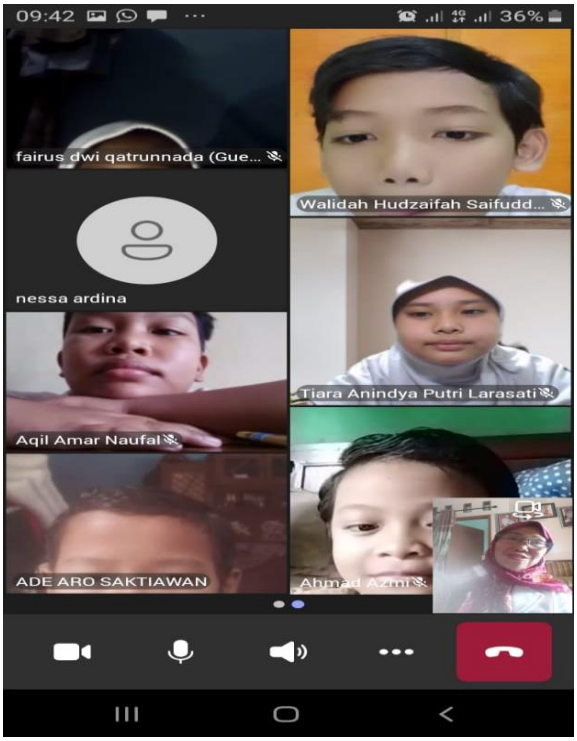
Honesty is a person's behaviour based on efforts to make himself trustworthy in words, actions, and deeds, both to himself and to others. Honesty needs to be diligently trained so that children become honest people. Although humans basically like honesty, the environment, association, and bad upbringing they receive can change that trait. Therefore, we must lay a solid foundation on honesty. It is necessary to conduct honesty character training in children from an early age so that they grow up to be good and trusted by everyone.

Discipline is the ability to control behaviour that comes from within a person according to what has been determined because there is no existing standard. In other words, psychological discipline can be interpreted as a person's behaviour that manifests and has the ability to adapt to the rules that have been set. Discipline is very important for students because this discipline will force students to follow or follow school rules, study hard and follow teacher instructions.

## *Value Cultivation*

Character formation can be done by instilling mathematical values in students so that it has a good impact on everyday life. In order for these values to be meaningful to students, teachers must meet a number of prerequisites, including 1) being able to understand mathematics learning material and support the abilities or attitudes that will be developed; 2) being able to formulate values developed through short sentences full of meaning; 3) able to direct/teach the material by using contextual examples that can be analyzed according to the values developed; 4) able to explain the consequences of deviations in values developed both theoretically and in their application in society.

**Figure 2**
*The process of inculcating character through advice when learning mathematics*




There are many characteristics that need to be instilled in elementary school students to prepare them to become quality human resources, including discipline, honesty, and responsibility. The inculcation of student character, especially discipline, is carried out when online learning is carried out by giving 10 minutes earlier notice to students so that they are ready to take online lessons through the Zoom meeting application, and while studying students are reminded not to be alone at home so they don't focus when studying. For example, students should not often leave their cell phones during a zoom meeting. Then the character of honesty is carried out in the learning process by getting used to advising students to be honest in working according to their abilities, not cheating. After explaining the material, we also provide opportunities for students to ask about learning materials that have not been understood. In addition, for the character of responsibility, it is done by instilling the value of responsibility in students, namely by giving school assignments, then reminding students to do these assignments properly and correctly.

## Conclusion

In this study, the identification of student character formation in learning mathematics in elementary schools during the COVID-19 pandemic has been successfully carried out. Based on the research findings, three important aspects support the implementation of mathematics learning strategies used to build student character during the COVID-19 pandemic: parts of teacher experience in teaching, aspects of student enthusiasm in learning mathematics, and aspects of teacher collaboration with parents.

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# Teaching Preschoolers Online during COVID-19 School Closures in Taiwan

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***Abstract***: In mid-May 2021, the cases of COIVD-19 infections surged and the rate of vaccinated population had not yet reached to a satisfactory level of protection. Concerning the COVID-19 might spread in schools and endanger the health and wellbeing of students, the Ministry of Education announced that from May 18th, all schools, including preschools and after-school classes, had to close to prevent social contact and spread the virus. Schools need to adapt other means to convey lessons so the learning would never stop during school closures. An online survey investigating how preschool administrators and teachers managed to implement online courses during school closures was sent out to them. Data was collected during mid-October through Mid-November 2021. A total of 92 valid responses were collected and analyzed with descriptive statistics. In the primary analysis, the result indicated that 10% of the teachers/administrators reported that in the school closure period (about two months), they stop the class competently and did not use alternative means to convey class materials. About 48% of the responses revealed that teachers/administrators use non-synchronized recorded videos and prepare take-home materials for children to use at home. For synchronized method, only 12% of the teachers/administrators applied them during the school closures. The purpose of this online questionnaire was to investigate and understand the methods that teachers/administrators applied during the school closure period in 2021. Teachers/administrators reported the difficulties and cooperative relationship between teachers and parents. They also revealed that if there will be school closures in the future, more preparation will be needed in their teacher training, planning and parent-teacher cooperation.

***Keywords:*** COVID-19 pandemic, early childhood education, online instruction, learning never stops

## Introduction

Started from December 2019, the world has been going through a major pandemic outbreak. World Health Organization (WHO) declared COVID-19 a global pandemic on March 11, 2020, almost four months after the first cases was found in Wuhan, China (Cucinotta & Vanelli, 2020). Even as I wrote this article, it is still an ongoing event affecting everyone in the world. The total cases of infection rosed to 537,223,755 on June 16, and the total death is 6,314,224 in the world (Johns Hopkins University (JHU), 2022). Taiwan also sees spike on COVID 19 cases, 3,072,432 of total infected and 4,546 of total deaths. (Taiwan Centers for Disease Control, 2022). COVID 19 is caused by SARAS-CoV-2 virus and is causing respiratory infections among patients. Most common transmit methods are human contacts, such as dining together, staying in the same room for more than 15 minutes, talking without masks. Therefore, the best way to prevent this air-born infection was to avoid close range contact, wear masks, and wash hands.

On May 18th 2021, when the cases roses to hundreds and people in Taiwan were not yet vaccinated, the Ministry of Education announced that schools at all levels had to suspend physical courses from May 19th to 28th and use online learning methods to convey learning materials (MOE, 2022; The Reporter, 2022). The original plan was to suspend all courses until May 28th, but the situation worsens and all schools had to suspend physical courses until summer vacation. For preschools, it was harder because of the learning needs are different from those of the elementary school and junior high school students. Secondary students and teachers are more experienced with computer and online learning (Polat et al., 2022).

Although it seemed impossible, some preschool educators managed to make online learning possible. The purpose of this survey was to investigate:

(1) What are the teaching methods preschools applied during school closures from May to July in 2021?

(2) What are the challenges for preschools who employed synchronized, asynchronized, or digital materials online?

(3) How did the preschools cope with the challenges? What are their strategies?

## Features of Online Learning

Distance learning is a form of learning that when teachers and students are separated by distance. In the digital world, technological inventions such as computer, internet, meeting platforms enable us to teach and learning online. During COIVD-19 pandemic, we have experience drastic changes in learning and teaching, especially we are able to teach and learn with synchronized and/or asynchronized ways. Synchronized learning means learning happens at the same time, even when the teachers and students are in the different places. Asynchronized learning means that teaching and learning occurs not in the same time. Teachers can pre-record their materials and send the learning content to students with email, online discussion forums, blogs, podcasts, etc (Ishmael, Heiser, & Payne, 2020). Whether in synchronized learning or asynchronized learning, teachers make and deliver on their own. However, in this study we also include digital materials where teachers use learning materials made by publishers or other companies for them to use.

## Learning Features of Preschool Children

Preschool children need to be cared in an environment that is welcoming and designed for them to learn cognitive activities, social skills, to build relationships, and to self-care skills The

National Association for the Education of Young Children (NAEYC) revised their early learning program accreditation standards and assessment items in 2022 with ten standards and assessment items that resonates with the six domains of the Early Childhood Education & Care Curriculum Framework (ECE Framework) in Taiwan (Physical activity and health, Cognition, Language arts, Social Skills, Emotion, and Aesthetics domain), they are: Relationships, Curriculum, Teaching, Assessment of child progress, Health, Staff Competencies, Preparation, and Support, Families, Community relationships, Physical Environment, and Leadership and Management. It is important that early childhood educators create a safe environment for children to learn and assess their learning even during school closure during COVID-19 pandemic.

## Method

### *Research Design*

This study employed a quantitative research method utilizing a survey to investigate how preschool teachers and administrators applied during school closures from May to July in 2021. The survey was designed via Google Form, and it was sent to preschool teachers and administrators between October 26th to November 6th, 2021. Data was collected and descriptive statistics were used for total number and percentages.

### *The Survey*

The survey contains two parts. The first part requires participants to answer 15 questions of their personal information, such as their age group, years in teaching, and their training program. The second part contains 13-15 questions (depends on the strategies they choose). Questions related to what teaching methos employed during school closures, how they deliver their curriculum, and their opinions on the efficacy and efficiency of synchronized, asynchronized, or digital materials teaching methods.
The survey was designed by the author and sent to review by two preschool administrators who had teaching experience at the preschool level for more than ten years. Both administrators gave their feedback on the survey, and the author edited the survey according to their suggestions.

## Results

The survey was sent out via social media (Line, Facebook) to reach potential participants. To reach target groups, the author sent the survey link to Facebook groups, such as Preschool Teachers groups, as well as Line groups for reginal preschool teachers. To encourage teachers and administrators to participate in the research, teachers and administrators who completed the survey and enter their email address would have chances to win a gift (under $200 NT dollars).

## *Participants*

A total of 93 responses were recorded. Most participants were female (93.5%), and male participants were 4.3%. The age ranges of participants were from 21-30 years old (31.2%), 31-40 years old (23.7%), and 41 years old and above (45.2%). Years of teaching experience in early childhood education settings were: under 5 years (33.3%), 6-10 years (19.4%), 11-20 years (26.9%), and 21 years above (31.2%). Their current positions vary from headmaster

(32%), Educare giver (35.1%), Administrative staff (15.5%), Teacher (9.3%), Program director (6.2%), and Educare assistant (2.1%).

The types of preschools were mostly Non-profit Preschools (47.3%) and Private preschools (44.1%). Participants from Public preschools and Quasi-public preschool contains only 3.2% and 5.4%, respectively.

The total responses divided by online teaching methods are: Synchronized learning (11 responses), Asynchronized learning (45 responses), Digital Materials (19 responses), Other methods (9 responses), and complete closures (9 responses). Although the total responses are 93 participants, we excluded participants who stated that their schools closed completely during the period (so the total participants are 84).

## *Curriculum Models before and during School Closures*

We collected teaching methods of each school to show the contrast before and during school closures. Most school employed Theme based curriculum methods (58%) and Learning centers (28%). However, during school closures, we can see shift from Learning Centers (28%, see Figure 1) to Unit Learning (14.3%–28.6%, Table 1).

In Table 1, we also find that most of the preschools choose asynchronized learning methods (45 responses) blending online and offline activities to deliver their learning materials (mostly theme based). Table 2 indicates the domains taught during school closures. Participants can pick whichever applies. The results show that of the six domains defined by the Early Childhood Education & Care Curriculum Framework (ECE Framework): Physical activity and health, Cognition, Language arts, Social Skills, Emotion, and Aesthetics. Physical activity and health domain was taught most often during school closures across all teaching methods. In addition, the data also show that the domains of Social Skills and Emotion were less taught during school closures.

**Figure 1**

*Curriculum Models before School Closures*

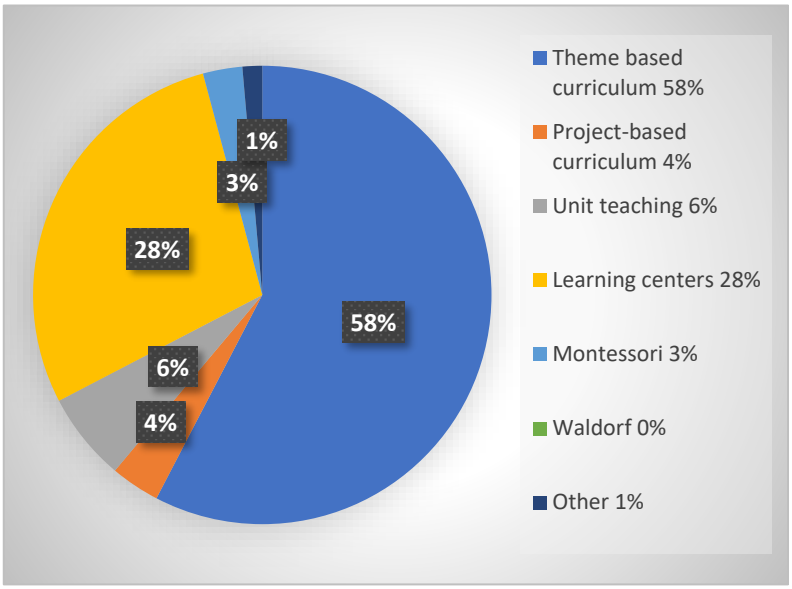

**Table 1**
*Teaching Methods*

| Items | Teaching methods | Synchronized learning (11 responses) | Asynchronized learning (45 responses) | Digital Materials (19responses) | Other (9responses) |
|---|---|---|---|---|---|
| Curriculum Models | Theme based curriculum | 50.0% | 42.1% | 61.9% | Mixed synchronized and asynchronized learning Making Montessori lesson materials and have them taken home |
| | Project-based curriculum | 0% | 3.5% | 0% | |
| | Unit teaching | 28.6% | 28.1% | 14.3% | |
| | Learning centers | 7.1% | 12.3% | 14.3% | |
| | Montessori | 7.1% | 1.8% | 0% | |
| | Waldorf | 0% | 0% | 0% | |
| | Other | 7.1% | 12.3% | 9.5% | |

**Table 2**
*Domains Taught during School Closures*

| | Teaching methods | Synchronized learning (11 responses) | Asynchronized learning (45 responses) | Digital Materials (19 responses) | Other (9 responses) |
|---|---|---|---|---|---|
| Domains taught | Physical activity and health | 20.8% | 19.9% | 20.2% | 17.0% |
| | Cognition | 18.9% | 18.1% | 18.1% | 19.1% |
| | Language arts | 18.9% | 18.1% | 19.1% | 17.0% |
| | Social Skills | 13.2% | 12.7% | 13.8% | 14.9% |
| | Emotion | 13.2% | 12.7% | 11.7% | 12.8% |
| | Aesthetics | 15.1% | 18.6% | 17.0% | 19.1% |

## *Length, Frequency, and Tools Used to Teach Children*

During school closures, most preschools arranged to have students to engage in course, whether it was Synchronized, Asynchronized, Digital materials, or other types of learning method, 2–5 times a week. Preschools where Synchronized learning was employed, they went online almost every day during the period (4–5 times a week, 45.5%). Asynchronized learning demanded less frequent course engagement (2–3 times a week, 42.2%). Please noted that the delivery method were different, therefore, the author only comparing frequencies of the requirement each method requires to**.**

In comparing teacher preparation time, the data showed that on average, teachers spent 1–2 hours when they employed synchronized learning method, 1–4 hours when they employed asynchronized learning method, and under an hour when they used digital materials. The delivery media for synchronized learning have broadcast and meeting features, enabled teachers and children interact with each other, such as Google Meet/Classroom, Facebook, and Zoom. Preschools where asynchronized learning was employed, usually used

broadcastingmedia, such as YouTube, school website, and Facebook. They also used Google Classroom, Line to communicate and submit homework and learning materials. For Digital materials and other delivery methods (usually mixed methods), teachers would use a wide-range of media and tools for them to delivery their lessons.

**Table 3**
*Length, Frequencies and Tools Used*

| Items | | Synchronized learning (11 responses) | Asynchronized learning (45responses) | Digital Materials (19 responses) | Other (9responses) |
|---|---|---|---|---|---|
| Students time online (per day) | Within 1 hour | 72.7% | 75.6% | 94.7% | 77.8% |
| | 1-2 hours | 18.2% | 22.2% | 5.3% | 22.2% |
| | 3-4 hours | 9.1% | 2.2% | 0% | 0% |
| Frequencies | Once a week | 18.2% | 22.2% | 21.1% | 22.2% |
| | 2-3 times a week | 36.4% | 42.2% | 36.8% | 22.2% |
| | 4-5 times a week | 45.5% | 33.3% | 36.8% | 44.4% |
| | 6 and more times a week | 0.0% | 2.2% | 5.3% | 11.1% |
| Preparation time | Within 1 hour | 18.2% | 20.0% | 52.6% | 33.3% |
| | 1-2 hours | 63.6% | 35.6% | 26.3% | 33.3% |
| | 3-4 hours | 0.0% | 35.6% | 10.5% | 33.3% |
| | 5-6 hours | 18.2% | 4.4% | 5.3% | 0.0% |
| | 7 hours and more | 0.0% | 4.4% | 5.3% | 0.0% |
| Tools used | | Google Meet<br>Zoom<br>Facebook | YouTube<br>Google classroom<br>School website<br>Facebook<br>Line | YouTube<br>Google classroom<br>Facebook<br>School website | YouTube<br>School website<br>Publisher resources |

## *Perspectives and Challenges of Employing Online Learning*

We asked seven opinionated questions for teachers to give their judgment on the effectiveness of the lesson delivery, teacher-readiness of online-teaching, school provision and parental involvement. The data showed that overall, teachers consider they are capable of administering, and think that their schools provide adequate support. Teachers who employed synchronized, asynchronized, and digital materials online learning method consider that their method is effective in teaching preschool children, with teachers who use synchronized learning slightly higher than other methods. Teachers who used synchronized and asynchronized learning method also consider that their method is efficient in delivery the content. Teachers are more likely to assess young children's learning with synchronized

learning method than other learning methods. All of them think parental involvement is critical during school closures.

**Table 4**
*Teachers' Opinion according to Their Online Learning Methods*

| Items | Synchronized learning (11responses) | Asynchronized learning (45 responses) | Digital Materials(19responses) | Other (9responses) |
|---|---|---|---|---|
| I think I am capable of conducting {this method} | 3.36 | 3.49 | 3.00 | 3.00 |
| My training enables me to do apply {this method} | 3.64 | 3.40 | 3.11 | 3.11 |
| My school provided resources to make {this method} possible | 3.64 | 3.60 | 3.21 | 2.78 |
| I think {this method} is more efficient in teaching the content | 3.18 | 3.09 | 2.74 | 2.78 |
| {this method} let young children learning effectively | 3.36 | 3.00 | 3.00 | 2.56 |
| I can assess young children's learning effectiveness with {this method} | 3.27 | 2.80 | 2.74 | 2.44 |
| I think parental involvement is critical | 3.64 | 3.96 | 3.74 | 4.11 |

## *Challenges and Future Preparations*

Challenges emerged when the Ministry of Education announced all schools had to close until further notice. Our survey also asked teachers what aspect they considered to be difficult. We used Likert Scale of 5 points, 1 being the most difficult, and 5 means they have no difficult. Both teachers who employed synchronized and asynchronized learning method, considered little difficulty when operating software and preparing content of lessons. However, they considered assessing young children's learning to be the most difficult (2.35–2.91), as well as parental cooperation during the school closures (2.62–2.91). Noted that in interacting with young children, teachers used synchronized learning rated 3.45, whereas teachers who used asynchronized learning rated 2.76.

When asked how they might best prepare for future school closures, teachers all consider getting lesson plans ready (3.79–4.11, average 3.89), plan for teaching methods and strategies (3.78–4.00, average 3.90), plan for assessments (3.11–4.11, average 3.72), develop young children's digital ability (3.00–3.67, average 3.47), and communicate with parents (3.11–4.56, average 3.84). The data showed that teachers consider that children's digital ability is not something they are more concerned of, getting lesson plans ready and planning teaching strategies and assessments are the priority.

Participants also stated qualitatively about the difficulties they encounter during school closures. For some examples, some teachers shared that they need a lot of their time to edit videos. If children are younger, they usually need parents to stay with them and set up the

computer and make sure the camera and microphone are working. They also stated that if parents are not with their young children, it would be more difficult to teach. Therefore, parent involvement and cooperation are critical to deliver lessons successfully. In addition, teachers and administrators had to consider parents' situation, such as if they can be with their children when synchronized learning time is scheduled and if they have enough equipment at home.

For future preparation, participants mentioned that they would like the multimedia equipment (such as recorders, software) and internet speed to be ready. They also wished that if school closures to be happened in the future, parental communication and cooperation need to plan ahead. Some teachers worried that the materials they used were taken online, and they were worried about if this might violate Copy Right. They wished that trainings on lesson plans and preparing course materials can be provided to them.

## Discussion

### *A Survey on Teaching Preschoolers Online*

During school closures controlling the spread of COVID-19 among students, the Ministry of Education encouraged all school levels to keep teaching and learning online, so the learning would never stop. Schools and teachers from all school levels in Taiwan were somewhat forced to change their ways of delivering their teaching materials from face-to-face to distance/online. It was not an easy task. To be honest, there were many difficulties to begin with. For some examples, who is going to stay home with children under 12 who cannot be left along at home. Do families have usable and enough computers/laptops/tablets for each of their children? Are teachers ready to deliver their contents online? How to use online meeting platforms such as Google Meet, Zoom, and Webex? How to edit videos and put words or captions on the video? How might teachers interact with children and have them to compete tasks? The questions might be more than answers; however, teachers and administrators strive to provide quality education to children even when they cannot come to school.

### *Delivery Methods and Contents*

The survey was conducted after the teachers and administrators had just experiencing this hectic school closures. The author intended to collect information on how schools cope with school closures, lesson delivery, evaluation, and parent communication and cooperation. Of the 93 participating teachers and administrators, 9.67% (9 responses) stated that they do not have any type of distance/online learning administered. The Most used online teaching method is asynchronized learning. One of the reason this method was popular is that asynchronized learning gives learners liberty in learning "anytime, anywhere." If parents need to work and grandparents are taking care of the children, they don't have to be online in certain times (Chao, Hsiao, & Cheng, 2022). They can watch the videos teachers provided on their own time. Our data also showed that asynchronized learning, although being more flexible, is less interactive. When teachers employed synchronized learning, they have more opportunity to interact with children and assess their learning and give real-time feedbacks.

In content delivery, the survey asked what curriculum models were used before and during the school closures. The data showed a major model shift, some preschools where Learning Centers were used shifted to Unit Teaching during school closures. It is likely that Learning Centers model is a highly self-directed learning model where children can manipulate materials in the environment created for them. It is very difficult to create similar learning environment at home as it is in schools. In addition, teachers tend to focus more on domains such as Physical Activity and Health domain than Social Skills and Emotional domains. The reason is obvious,

because children do not have a lot of opportunities to interact with their peers at home.
On features of online learning, most programs designed less an hour online learning per day for preschool children due to their attention span is short. However, teachers considered it is difficult to assess children's learning. How to assess young children virtually is an issue that educators need to attend to and make plans if school closures were to happen in the future.

### *Challenges Still Remain for Assessment and Parental Cooperation*

Learning from the experience of school closures in 2021, teachers seemed to be less stressful this time. However, the challenges still remain for assessment young children's learning virtually. In addition, parental cooperation and communication will be an issue every time when schools need to be closed and parents have to share the responsibility of teaching their children to learn what they are supposed to learn at school.

## Limitations and Suggestions

Some limitations might exist for this study. First, this survey did not cover more questions in detail, such as the length of time taught in each domain, lesson plans, ways teachers deliver content, communication with parents, and videotaping and editing videos. Further studies should address more profound questions with qualitative method. In addition, the search of participants was limited to use online social media. More participants from diverse background would be preferred.

If online learning is a new normal for even young children in preschools, educators need to plan how to teach online (whether it's synchronized, asynchronized, or providing digital materials). Educators need to consider how to assess young children's learning via synchronized, asynchronized, or digital materials. Parents play an important role in care-taking and administering lessons at home during school closures, therefore good communication and cooperation is needed.

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