



Effects of Using a Program of Student Role Model Development for Thai Children against COVID-19, Lower Primary School Level, A School in Khon Kaen Province, Thailand

Thidaratana Lertwittayakul ^a, Ladda Pholputta ^b
and Thawatchai Toemjai ^{c*}

^a Faculty of Nursing, College of Asian Scholas, Thailand.

^b Faculty of Nursing, Roi-ET Rajabhat University, Thailand.

^c Health Insurance Subdivision, Sisaket Provincial Public Health Office, Sisaket 33000, Thailand.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/IJTDH/2023/v44i221497

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/109733>

Original Research Article

Received: 18/09/2023
Accepted: 25/11/2023
Published: 02/12/2023

ABSTRACT

Objective: This study aims to the effects of program of student role development for Thai children against COVID-19.

Methods: A quasi-experimental study was conducted on 36 students in grades 1-3 in a lower primary school. The sample was selected using stratified random sampling to select 36 participants invited to a student role model development program for Thai children against COVID-19. The

*Corresponding author: Email: toemthawat@gmail.com;

quantitative data were analyzed by descriptive statistics such as frequency, percentage, mean, and standard deviation. Statistics were compared using Paired t-test.

Results: The majority of the respondents were female (69.4%). The results revealed that after the COVID-19 learning bases program, the respondents had a mean score of the knowledge level of Corona Virus and prevention of COVID-19 spread showed a low level (M=9.75, SD=1.66). The skill level in wearing, removing the mask was a moderate level (M=2.14, SD=0.56), hand washing was a low level (M=1.47, SD=0.45), and the characteristics of Thai children against COVID-19 was a moderate level (M=21.73, SD=1.56). The effects of the COVID-19 learning bases showed that after participation, the knowledge level of Corona Virus and prevention of COVID-19 spread, the skill level in wearing, removing the mask, hand washing, and the characteristics of Thai children against COVID-19 were higher than before participated with statistically significant (p-value<0.001).

Conclusion: The student role model development program for Thai children against COVID-19 should be expanded to promote an attribute of Thai children against COVID-19 to extensive all classroom classes, and to promote good health for effective prevention of the coronavirus spread.

Keywords: Lower primary student; Thai children against COVID-19; student development program.

1. INTRODUCTION

“COVID-19 is an infectious disease caused by the SARS-CoV-2 virus, originated in Wuhan city of China in early December 2019 and expanded globally, including Thailand. The disease pandemic has been a global serious issue that adversely impacted human life. Most people who fall sick with COVID-19 will experience mild to moderate symptoms and recover without special treatment. However, some will become seriously ill and require medical attention” [1, 2]. “The virus can spread from an infected person’s mouth or nose in small liquid particles when they cough, sneeze, speak, sing or breathe. These particles range from larger respiratory droplets to smaller aerosols. The virus spreads more easily indoors and in crowded settings. Human can be infected by breathing in the virus if you are near someone who has COVID-19, or by touching a contaminated surface and then your eyes, nose or mouth” [3]. “Early in the outbreak, many cases were reported to have a link to a large seafood and live animal market. However, later cases with no link to the market confirmed person-to-person transmission of the disease. Additionally, travel-related exportation of cases occurred” [4]. “Globally, the number of cases as of 28 August 2022, over 598 million confirmed cases and over 6.4 million deaths”. [1, 3]. “Thailand, the first case was reported on 13 January 2020 (a Wuhan resident who traveled to Bangkok on 8 January 2020). As of 21 December 2022, over 4.7 million confirmed cases and over 33 thousand deaths have been reported in Thailand. Thailand also declared COVID-19 a dangerous communicable disease under the Disease Control Act, B.E. 2558 in late February 2020 to intensify active surveillance and control the disease

(Government Gazette, 2020), two weeks prior to the WHO declaring COVID-19 a pandemic” [5].

“The COVID-19 pandemic has led to a dramatically loss of human life worldwide and significantly affected the health, economic, environmental, education and social domains. The best way to prevent and slow down transmission is to be well-informed about the disease and how the virus spreads. Protect yourself and others from infection by staying at least 1 meter apart from others, wearing a properly fitted mask, and washing your hands or using an alcohol-based rub frequently. Get vaccinated when it’s your turn and follow local guidance on vaccination” [3]. Therefore, health literacy is an important for people of all ages. Especially, childhood who are at risk of infection easily due to the immune system is not yet mature. School age child is a range from 6 to 12 years of age who are an important and valuable human resource of country. During this time period is continuing to grow and many behavior changes occur as they try to find their place among their peers. As always, safety is important in school and proper safety rules should be enforced in and out of the school area. Staying fit can improve how kids develop in school, build self-esteem, as well as prevent disease and health hazard, and decrease the risk of serious illness. But if this development is interrupted or there has not been helped, it will affect the adolescence age and become a chronic problem in the future. At present, the family structure and Thai society’s way of life, including evolution and prosperity in various fields have dramatically changed and affected the healthy development and learning of school-aged children, both positively and negatively [6].

“Even with the introduction of vaccinations as a tool for prevention against COVID-19 and the proper use of masks, CDC recommends the following key COVID-19 preventative activities: avoiding crowded spaces or spaces that have poor ventilation or wear a mask in these spaces; performing proper hand hygiene; keeping high touch surfaces clean; monitoring symptoms; and getting tested if ill” [4, 7, 8]. The researcher has seen the importance and necessity of educating and correcting behavior in preventing the spread of Covid-19 by developing a program to educate about the coronavirus and preventing the spread of COVID-19. The program was used as a learning base for students, 3 learning bases as follows: 1) knowledge regarding COVID-19 2) prevention and spread of COVID-19 and 3) How to keep yourself away from COVID-19. The program was based on the learning theory that emphasizes practice, to promote good behaviors against disease and health hazards and can be a role model for friends, family and the community. Thus, action is needed to solve these problems to prevent and control COVID-19 more effectively. This study aims to study the effects of program of student role development for Thai children against Covid-19 in Khon Kaen province.

2. MATERIALS AND METHODS

2.1 Study Design

A quasi-experimental design study was carried out at Maneeanusornsuksa School, Khon kaen Province, a lower primary school level student. The population of study was a student grade 1-3 amount 120 participants. Sample size was calculated by using the criteria for calculating a sample size, 15-30% of population in the hundreds [9], $n = N \times 30\% / 100$, where n = sample size, N = population. The estimated sample size based on the above calculation was 36 individuals. The sample size employed stratified random sampling by dividing students into groups according to class where the student is studying grades 1-3, then randomly selected for each class with a ratio of 1 : 3, resulting in a sample of 12 students per class. The next step used simple random sampling to select participants. The participants were that voluntarily joined the activities of all 3 learning bases. All the samples which fit into the inclusion criteria were chosen as the participants. A total of 36 individuals were invited to participate in the study.

2.2 Data Collection

A questionnaire containing 4 parts included (1) demographic characteristics; gender, class (2)

COVID-19 knowledge (20 true/false items), assessed participants' understanding of COVID-19, a true answer was given a score as 1 but a false answer was given a score as 0. For evaluation of knowledge, ≥ 16 points (high level), 12-15 points (moderate level), ≤ 11 points (low level) (3) The skill level in wearing, removing the mask and hand washing were assessed a 3-point Rubric scale (min. 1, max. 3), For evaluation, participants who obtained mean scores of 2.34-3.00, 1.67-2.33, and 1.00-1.66 considered to have the skill level at a high, moderate, and low levels respectively. (4) The characteristics of Thai children for against COVID-19 was using Likert scales (min. 1, max. 4). For evaluation, participants who obtained scores of 31-40, 21-30, and ≤ 20 considered to have the characteristics of Thai children for against COVID-19 at a high, moderate, and low levels respectively. The questionnaires were analyzed an Index of Item-Objective Congruence: IOC by 3 experts, and then there are try out with samples closely neighboring communities for validity and reliability tests. The questionnaires have reliability with Kuder-Richardson-20: KR-20 = 0.76, the skill level in wearing, removing the mask and washing hands and the characteristics of Thai children for against COVID-19 with Cronbach' s Alpha Coefficient = 0.89 and 0.91.

Health education program regarding COVID-19 included 3 learning bases containing (1) COVID-19 knowledge and prevention of COVID-19 spread (60 min), evaluated by using pre-test and post-test, measured with questionnaires. (2) Wearing and removing mask skill and hand washing skill (30 min), practice and demonstration, skill assessment by the researcher. (3) The characteristics of Thai children against COVID-19 (30 min), skill assessment with questionnaires by the researcher in Fig. 1.

2.3 Data Analysis

The data were processed and statistically analyzed by using Microsoft excel and SPSS for windows version 23.0. Data were checked, cleaned, labeled and coded. Data were analyzed with descriptive statistics including frequency and percentage to describe cases of leptospirosis. Multiple logistic regression was performed to determine the associated factors for behavior toward leptospirosis among the respondents. Categorical data were presented as frequency table and percentage. A p-value of less than 0.05 was judged to be statistically significant.

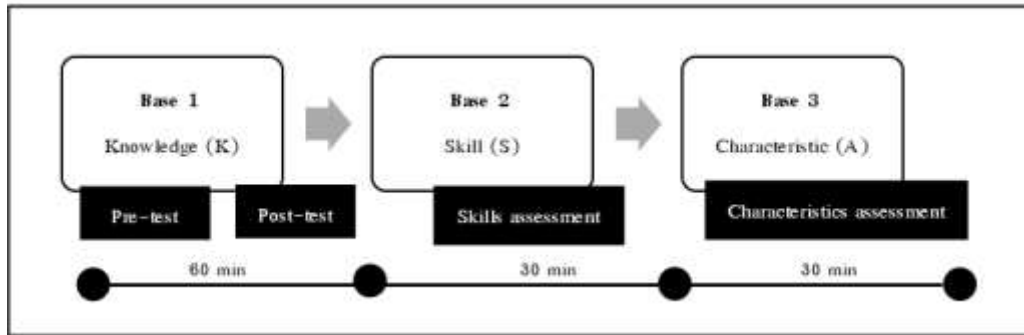


Fig. 1. COVID-19 Learning Base

2.4 Study Ethics

The study protocol was approved by the Ethics Committee for Research Involving Human Subjects, Sirindhorn College of Public Health Khon kaen, Thailand (Code: SCPHKKIRB 63082). Written consent was obtained from all respondents for the study protocol.

3. RESULTS

The majorities of participants were female (69.4%), male (30.6%), studying in grade 1, 2 and grade 3, with the same number (33.3%) in Table 1.

The participants had knowledge concerning COVID-19 showed a low level (Mean = 9.75, SD = 1.66), the skill level in wearing, removing the mask showed a moderate level (Mean = 2.14, SD = 0.56), hand washing showed

a low level (Mean = 1.47, SD = 0.45) and the characteristics of Thai children against COVID-19 showed a moderate level (Mean = 21.73, SD = 1.56) in Table 2.

The results reveal that after participating in the COVID-19 knowledge base, participants had a mean score of knowledge and prevention of COVID-19 spread (mean difference = 4.89, t = -1.606, 95%CI = 1.915-3.241, p-value <0.001), the skill in wearing, removing the mask (mean difference = 0.72, t = 1.887, 95%CI = 0.371-4.273, p-value <0.001), hand washing (mean difference = 0.96, t = 1.446, 95%CI = 0.813-1.735, p-value <0.001) and the characteristics of Thai children against COVID-19 (mean difference = 11.91, t = 3.459, 95%CI = 1.874-5.935, p-value <0.001) higher than before participated, with a statistically significant in Table 3.

Table 1. Demographical Characteristics (n = 36)

Demographical Characteristics	Number	Percent (%)
Gender		
Male	11	30.6
Female	25	69.4
Class Level		
Grade 1	12	33.3
Grade 2	12	33.3
Grade 3	12	33.3

Table 2. The mean scored level of COVID-19 knowledge, the skill level in wearing, removing the mask, hand washing and the characteristics of Thai children against COVID-19

Variables	\bar{x}	S.D.	Level
Knowledge	9.75	1.66	Low
Wearing and removing the mask	2.14	0.56	Moderate
Hand washing	1.47	0.45	Low
Characteristics of Thai children against COVID-19	21.73	1.56	Moderate

Table 3. Compare mean scored of COVID-19 knowledge, the skill level in wearing, removing the mask, and the characteristics of Thai children against COVID-19 before and after participated

variables	Before		After		Mean difference	t	95%CI	p-value
	\bar{x}	S.D.	\bar{x}	S.D.				
Knowledge	9.75	1.66	14.64	1.22	4.89	-1.606	1.915-3.241	<0.001
Wearing and removing the mask	2.14	0.56	2.86	0.35	0.72	1.887	0.371-4.273	<0.001
Hand washing	1.87	0.45	2.83	0.38	0.96	1.446	0.813-1.735	<0.001
Characteristics of Thai children against COVID-19	21.73	1.56	33.64	1.46	11.91	3.459	1.874-5.935	<0.001

4. DISCUSSIONS

The study, the effects of program of student role development for Thai children against COVID-19 in Khon Kaen province. It can be discussed as follows.

“COVID-19 knowledge and prevention of COVID-19 spread after participation was moderate level and higher than before participation, due to learning management for each learning base, students are divided into small groups. Various activities include recreation, games, education, demonstrations, and hands-on activities. The learners rotated the learning atmosphere one by one until all 3 bases have been completed. This is consistent with the principle of active learning stated that active learning is any learning activity in which the student participates or interacts with the learning process, as opposed to passively taking in the information. When given the opportunity to actively engage with the information they're learning, students perform better. It nurtures the brain, giving it an extended opportunity to connect new and old information, correct previous misconceptions, and reconsider existing thoughts or opinions. In plain terms, the more we can activate students' brains in different ways, the more they learn. This means that engaging as many sensory, cognitive, emotional, and social processes in students will increase their learning potential” [10]. A study regarding health education for the prevention of COVID-19 transmission at Wonokarang elementary school, Sidoarjo, East Java found that the activity of providing health education can be that increase students' knowledge of preventing COVID-19 transmission [11-14].

The skill of preventive against COVID-19 such as wearing, removing the mask, and hand washing

after participation were high level, and higher than before participation. In this study, the health education program of COVID-19 was applied based on learning by doing that resulting the students were learn more when they actually do the activity. This is consistent with the concept of learning by doing (Dewey, J., 1969) which is the process whereby people make sense of their experiences, especially those experiences in which they actively engage in making things. It is a conceptual designation applied to a wide variety of learning situations and a pedagogical approach in which teachers seek to engage learners in more hands-on, creative modes of learning [15]. Learners apply what they learn, in real-time, rather than post-training when critical information is forgotten. Hands-on engagement in the learning process makes it easier to remember [16]. This affirms a previous study found that the students exhibited correct behaviors in terms of hand hygiene and mask use after education and training [14,17]. The skills prevention of COVID-19 consisted of 7 steps of proper hand washing and proper wearing and removing the face mask. This skill training is in line with the school's guidelines for preventing the spread of COVID-19 including distancing, wearing a face mask, hand washing, testing (fever screening), reducing (reduce congestion in large groups of people) and cleaning [12,18,19]. A study regarding “health-education to prevent COVID-19 in schoolchildren found that in the absence of a vaccine or an effective therapeutic drug, preventive measures such as good hygiene practices - hand washing, cough etiquette, disinfection of surfaces and social distancing represent the major (in fact only) weapons that we have against COVID-19. Accordingly, we stress that there is a pressing need to develop health education-specific program for COVID-19 prevention for schoolchildren” [20].

The characteristics of Thai children against COVID-19 showed a moderate level and higher than before participating. This study was using the program of student role model development for Thai children against COVID-19 which learning from experiences resulting directly from actions. In other words, it is a method by which students make the most of their education through active participation such as steps of proper hand washing and proper wearing and removing the face mask. This is consistent with a previous study of leadership characteristics development of primary school student leadership in the 21st Century of Bangkok and the Metropolitan Region was found that the leadership characteristics of students of primary school should be self-awareness [21]. A study regarding COVID-19 prevention and protection among primary school students in Hefei, China found that Project-based learning is superior than traditional health education in terms of improvement in self-protection against COVID-19 among students [22]. A study regarding practices towards COVID-19 among students found that students had a relatively good awareness of COVID-19 during the epidemic, as well as optimistic attitudes and appropriate practices [23]. Besides, health education and promotion are important components of COVID-19 prevention activities. Especially during disease outbreaks and health emergencies which play a key role in active response to communicate with the public to prevent COVID-19 infections [24].

5. CONCLUSIONS

The health education program of student role model development for Thai children against COVID-19 is promotion and the skill development of prevention against COVID-19, including the characteristics development of Thai children against COVID-19 such as wearing, removing the mask, and hand washing are important components of disease prevention activities, but during disease outbreaks and health emergencies, this is a key role in an active response, especially important in the absence of specific drug therapies and vaccines, that results engage quickly and effectively among the student of lower primary school for preventing COVID-19.

This health education program is successful, therefore it may be useful for behavior modification against COVID-19 in other lower primary schools.

CONSENT AND ETHICAL APPROVAL

Informed consent was sought from the respondents prior to questionnaire administration. The questionnaires were administered in person.

ACKNOWLEDGEMENTS

The authors would like to thank the teacher and the student at Maneeanusornsuksa School, Khon Kaen Province, Thailand, a lower primary school that is a study participant for their contribution to this study.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. World Health Organization. Coronavirus disease (COVID-19); 2020. Available: https://www.who.int/healthtopics/coronavirus#tab=tab_1 (accessed: Oct.6, 2020).
2. Sirikut P, Situation of the disease and disease guidelines 2019 Novel Coronavirus Disease (COVID-19). (Internet). Queen Sirikit National Institute of Child Health; 2020. Available: <https://www.pidst.or.th/A878.html> accessed: Oct.8, 2020.
3. World Health Organization. Coronavirus disease (COVID-19), 2022. Available: https://www.who.int/health-topics/coronavirus#tab=tab_1 (accessed: Sep.1, 2022).
4. Centers for Disease Control and Prevention. COVID-19 overview and infection prevention and control priorities in non-U.S. Healthcare Setting; 2022. Available: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/non-us-settings/overview/index.html#:~:text=Even%20with%20the%20introduction%20of,performing%20proper%20hand%20hygiene%3B%20keeping.> (accessed: Jul.18, 2022).
5. Department of Disease Control. Coronavirus Disease Situation Report; 2019. Available: <https://ddc.moph.go.th/viralpneumonia/index.php>

- (Accessed: Jun.8, 2021).
6. Royal College of Pediatricians of Thailand Pediatrician Association of Thailand (TH). Guide for parents to disseminate knowledge on childcare and development of school children aged years. Bangkok. 2020;6-12
 7. Department of health, Ministry of public health. School management manual for COVID-19 prevention in school. Nonthaburi; 2020.
 8. UNICEF. Guidance for Covid-19 Prevention and Control in Schools; 2020. Available:<https://www.unicef.org/thailand/reports/guidance-covid-19-prevention-and-control-schools>.
 9. Srisa-at, B. Preliminary research. Bangkok: Suwiriyasan; 2000.
 10. Shenker JI, Goss SA, Bernstein DA. Instructor's resource manual for psychology: Implementing Active Learning in Classroom; 1996. Available:<http://s.psych/uiuc.edu/active.html> (accessed: Apr.30, 2021).
 11. Novianti S. Health education about the importance of implementing health protocols for the prevention of Covid-19 Transmission at Wonokarang Elementary School, Sidoarjo, East Java, *Journal of Community Engagement in Health*. 2022;5(2):116-120. DOI.org/10.30994/jceh.v5i22.376
 12. Novianti S. Health education about the importance of implementing health protocols for the prevention of Covid-19 transmission at Wonokarang Elementary School, Sidoarjo, East Java. *Journal of Community Engagement in Health*. 2022;5(2):116–120. Available:<https://doi.org/10.30994/jceh.v5i22.376>
 13. Luthfi AH, Khairunnas K, Fitri SM, Zakiyuddin Z. Pengaruh Edukasi Kesehatan Terhadap Peningkatan Pengetahuan Pencegahan COVID-19 pada siswa sdn peunaga kec. Meureubo kab. Aceh barat. *Jurnal Mahasiswa Kesehatan Masyarakat(JURMAKEMAS)*. 2021;1(2):97-109.
 14. Hadem C, Bahvani BB. Effectiveness of child to child approach on knowledge and practice regarding importance of hand washing among primary school children. *RGUHS Journal of Nursing Sciences*. 2018;8(1):23-28. Available:<https://journalgrid.com/view/article/rjns/90>
 15. Dewey J. Philosophy, Education, and reflective thinking. In Thomas O. Buford *Toward a Philosophy of Education*; 1969.
 16. Ruengdaranon N. (Editor). Text book of child development and behavior. Bangkok; Holistic Publishing.
 17. Ayran G, Köse S, Sarialioğlu A, Çelebioğlu A. Hand hygiene and mask-wearing behaviors and the related factors during the COVID 19 pandemic: A cross-sectional study with secondary school students in Turkey. *Journal of Pediatric Nursing*. 2022;62:98–105. Available:<https://doi.org/10.1016/j.pedn.2021.10.001>
 18. Department of Health, Ministry of Public Health (TH). A practical manual for educational institutions in the prevention of transmission. outbreak of COVID-19. Nonthaburi; Q Advertising Company Limited; 2020.
 19. World Health Organization Handwashing an effective tool to prevent COVID-19, Other diseases; 2020. Available:<https://www.who.int/southeastasia/news/detail/15-10-2020-handwashing-an-effective-tool-to-prevent-covid-19>. (accessed: Jun.19, 2021).
 20. Gray DJ, Kurscheid J, Mationg ML. et al. Health-education to prevent COVID-19 in schoolchildren: A call to action. *Infect Dis Poverty*. 2020;9:(81). Available:<https://doi.org/10.1186/s40249-020-00695-2>
 21. Thanakitphakin N. Leadership characteristics development of primary school student leadership in the 21st Century of Bangkok and Metropolitan Region. Educational leadership and human resource development, Chiang Mai Rajabhat University; 2018.
 22. Feng Lu, Hong Jie, Lian Shu. Effectiveness of project-based on learning of COVID-19 prevention and protection among primary school students(J). *Chinese journal of school health*, 2022;43(11):1686-1689. DOI:10.16835/j.cnki.1000-9817.2022.11.021
 23. Xue, Qi et al. "Knowledge, attitudes, and practices towards COVID-19 among primary school students in Hubei Province, China." *Children and youth*

- services review 2021;120:105735. schoolchildren: A call to action. Infect Dis
DOI: 10.1016/j.childyouth.2020.105735 Poverty.2020;9:(81).
24. Gray DJ, Kurscheid J, Mationg ML. et al. Available: <https://doi.org/10.1186/s40249-020-00695-2>
Health-education to prevent COVID-19 in

© 2023 Lertwittayakul et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

The peer review history for this paper can be accessed here:

<https://www.sdiarticle5.com/review-history/109733>