

Open Access Article

Primary Students' Perceptions toward the Effectiveness of Online Learning during the COVID-19 Pandemic

Nana Diana*, Suhendra Suhendra, Yohannes Yohannes, Yovika Sukma

Mathematics Education Department, Universitas Pendidikan Indonesia, Bandung, Indonesia

Abstract: The continuous spreading of COVID-19 encourages school activities through online learning. This study aimed to determine primary students' perceptions of implementing online learning during the COVID-19 pandemic spreading in early 2020, particularly in Indonesia. Most of the previous research focused on teachers' perceptions, while students, as the most affected subject during online learning, were required to determine their perceptions of online learning effectiveness. Thus, the main goal of this study is to explore students' perceptions toward online learning during the COVID-19 pandemic. This study applied exploratory methods and gathered information using online questionnaires. The questions in the questionnaire were developed based on the general learning effectiveness indicators and adjustments to be done during the online learning. The data collected using the questionnaire were analyzed qualitatively. Ten respondent students of primary schools were involved in this study. The primary school is located in Banda Aceh, the capital city of Aceh Province, Indonesia. According to students' perception, three indicators of effective online learning have been implemented, including the teachers' responsibility in preparing the teaching-learning process, the involvement of parents in guiding students, and students' enthusiasm in submitting their assignments. Meanwhile, the other three indicators of effective online learning need to be more upgraded, including student awareness to learn independently before having an online class with their teacher, interaction among students during the learning process, and the availability of teachers' feedback during online learning. During the early implementation of online learning, primary students experienced several constraints, such as not being familiar with using technological tools, lack of enthusiasm, the difficulty of the material taught, unstable internet connection, inappropriate learning platform, and limited time for learning. Further exploration is needed to review the latest primary students' perception of online learning, particularly Banda Aceh City.

Keywords: COVID-19, effectiveness, online learning, students' perception.

小學生對新冠肺炎大流行期間在線學習有效性的看法

摘要: 新冠肺炎的不斷傳播鼓勵了學校通過在線學習開展活動。本研究旨在了解小學生在 2020 年初 新冠肺炎大流行期間 (尤其是在印度尼西亞) 對實施在線學習的看法。以往的研究大多集中在教師的認知上, 而學生作為在線學習中受影響最大的主體, 需要確定他們對在線學習有效性的看法。因此, 本研究的主要目標是探索學生在 新冠肺炎大流行期間對在線學習的看法。本研究採用探索性方法並使用在線問卷收集信息。問卷中的問題是根據一般學習效果指標和在線學習過程中要進行的調整而製定的。使用問卷收集的數據進行了定性分析。10 名小學的受訪學生參與了這項研究。小學位於印度尼西亞亞齊省省會班達亞齊市。根據學生的認知, 有效在線學習的三個指標已經落實, 包括教師準備教與學過程的責任、家長對學生指導的參與、學生提交作業的積極性。同時, 有效在線學習的其他三個指標需要進一步升級, 包括學生在與老師在線上課前的自主學習意識、學習過程中學生之間的互動以及在線學習過程中教師反饋的可用性。在實施在線學習的初期, 小學生遇到了不熟悉使用技術工具、缺乏熱情、教材难度大、網絡連接不穩定、學習平台不合適、學習時間有限等諸多製約因素。需要進一步探索以回顧小學生對在線學習的最新看法, 特別是在班達亞齊市。

Received: June 23, 2021 / Revised: August 21, 2021 / Accepted: September 24, 2021 / Published: October 30, 2021

About the authors: Nana Diana, Suhendra Suhendra, Yohannes Yohannes, Yovika Sukma, Mathematics Education Department, Universitas Pendidikan Indonesia, Bandung, Indonesia

关键词：新冠肺炎，有效性，在线学习，学生的认知。

1. Introduction

The rapid spreading of the coronavirus worldwide is causing serious concern because the virus attacks the respiratory tract and lungs, which expands quickly and causes death. Therefore, the World Health Organization (WHO) initiated a social distancing program further into physical distancing. Keeping a distance in social activities and maintaining a physical distance is expected to prevent spreading that virus. However, interactions as social beings must always be maintained; one of them is by using communication technology. During the COVID-19 pandemic, long-distance communication can be made to maintain inter-mutual relations [1]. Health institutions issued a recommendation on physical distancing about COVID-19 hazards and risks should be delivered to the public in an understandable message [2]. The COVID-19 pandemic and the implementation of physical distancing protocol affected almost all human activities, including the education sector in Banda Aceh City.

Corona Virus or Coronavirus Disease 2019 (COVID-19) was first discovered to infect residents of Wuhan, the capital city of Hubei Province, Republic of China. This virus spread throughout the world very quickly and became a pandemic in many countries [3], including Indonesia. The rapid transmission of COVID-19 has had tremendous fear throughout the world because of the ease of infecting anyone [4]. Therefore, various responses were taken to minimize the virus transmission. The World Health Organization (WHO) instructed the implementation of physical distancing. A previous study claimed this attempt slowed the transmission of the COVID-19 effectively [5]. Parties that are very influential in raising awareness of social distancing are the political elite and media officials. Another study also supports this finding, which concluded that the effectiveness and impact of social distancing are strongly influenced by senior public health authorities, political leaders, and other institutions [6]. Policymakers also became a party trusted by the public during a pandemic COVID-19 because they always propagate information according to the facts. Implementing all educational activities is reduced, and all formal education (school) arrangements are closed. Furthermore, most educational activities, especially learning, are directed towards distance learning or online learning.

The Ministry of Education and Culture of Indonesia, which concerns implementing distance education for primary and secondary education, regulates the enforcement of distance learning in Indonesia. The consequence of the distance learning implementation is that students and teachers must interact remotely

through technology (online). This implementation is applied to all levels of schools in Indonesia. According to the Central Statistics Agency (BPS) catalog number 4301008 in 2019, in the 2018/2019 school year, there were 216,066 schools, 45,073,778 students, and 2,910,014 teachers and are currently involved in online learning. Therefore, distant learning implementation due to the pandemic COVID-19 has a significant impact on 148,673 primary schools with the highest number of students and teachers of all levels, 25,238,229 students and 1,602,857 teachers.

Furthermore, UNESCO in early 2020 noted that about 70% of the world's student population was affected by the closure of schools and the transfer of the way students attend school during the pandemic COVID-19, which was based on government policies in various parts of the world. Other findings reinforce this condition by stating that implementing public policies prevents people from gathering and interacting directly, including in schools, coping with the spread of COVID-19, reducing the number of people infected or dying from contracting the virus [7]. Based on these facts, online learning is appropriate for school closure due to the COVID-19 outbreak.

Online learning is a learning process that can be understood despite obstacles, such as unseen expressions and other skeptical attitudes towards online learning. In addition, the lack of time for face-to-face learning between students and teachers can be overcome by using technological devices in the learning process. Another constraint of online learning is that profound and complex learning could not be achieved when learning in the classroom, different levels of understanding of the lesson, invasion of privacy, the digital divide, and the need for additional cost to communicate. However, other benefits of online learning can also provide timely learning, facilitate access regardless of time, place, and situation, have great accountability, increase interaction, prepare students with the skills needed in the future and provide support for lifelong learning.

Based on the description above, learning using technological tools is necessary because of the unexpected situation, and it is difficult to predict when it will end. The benefit of this situation is acquiring benefit from the learning process by using technology to prepare students for future challenges. The challenges during the implementation of online learning are strongly supposed to be an opportunity in creating more sustainable learning [8]. This result is in line with the findings that stated the application of an online learning system is an innovation in the learning process to improve the effectiveness of learning and adjust the

student in learning conditions of the millennial era that can be easily accessed anywhere and anytime [9]. Therefore, online learning is expected to be an active learning process such as face-to-face learning.

The incidental and current learning approach for many students undoubtedly generated various perceptions among students. The perception relates to someone's ability to understand the surrounding conditions and comprehend the interconnection between what can be seen and understood from that. The better the understanding is, the more ability to acquire needed information will be. A person's perception will develop very well during childhood.

This condition is due to the development of someone's perception being strongly influenced by the rules that apply in the environment so that it can slowly form sensitivity in seeing and understanding something. Perception is also related to the similarity of specific experiences experienced by someone with the condition around them. According to the effectiveness of online learning during the COVID-19 pandemic, students indeed proposed a specific perception toward the effectiveness of online learning.

Effective learning is a process of teaching that makes the result a criterion for successful implementation and depends on the overall process to facilitate students' understanding of learning and show their character as good learners. Five indicators must be achieved to measure learning effectiveness in general, including the management of learning implementation, communication processes, and students' responses, learning activities, and learning outcomes [10].

These five indicators are interrelated and support each other. Therefore, a learning process can be called effective if these five indicators match a proper category. Knowledge acquisition is a process for storing and organizing knowledge in memory. This process depends on someone's experience responding to new information, storing it in the brain memory, and how this knowledge will be implemented later. Thus, effective learning is a series of activities in learning with various criteria to form a piece of knowledge. This study explored students' perceptions of online learning implementation during the COVID-19 pandemic based on this background.

The online learning process certainly has different effectiveness from direct learning. Hence, during the COVID-19 pandemic, both teachers and students face difficulties evaluating and finding solutions to overcome online learning impacts [11]. Several Indonesian teachers face the most severe difficulties in online learning related to the use and availability of technological facilities for online learning, including personal computers and smartphones [12]. It can be concluded that online learning is challenging for students and teachers.

Most of the previous research focuses on teachers' perceptions and difficulties during the COVID-19

pandemic. At the same time, students are the most affected subject during online learning. In line with this, it is assumed that students also have certain perceptions of online learning processes. Therefore, an exhaustive exploration is required to determine student perceptions of online learning effectiveness during the COVID-19 pandemic.

2. Materials and Methods

2.1. Research Design

This study used an experimental method, and data were analyzed qualitatively. This study adopts and develops the indicators revealed by [13] regarding the six indicators that can be applied during the COVID-19 pandemic for measuring students perception in online learning, namely: (1) the teacher prepares a learning task, (2) students learn the material before class starts, (3) parents supervise children in learning based on teachers' instructions, (4) students conduct discussions with other students (5) teachers provide feedback and corrections to the results of student discussions and (6) students work on assignments and are evaluated by the teacher. By following these stages, students are expected to acquire the knowledge needed, and all learning processes can still be carried out, despite the limitations. After the questions were compiled, the school principal and deputy headmaster validated the questions. A further interview was also conducted in confirming students' responses to questionnaires. Finally, after data was obtained, the data were analyzed qualitatively.

2.2. Subject

Subjects involved in this study were ten students in one of the primary schools located in Banda Aceh city. Respondents were selected purposively and were given the initials S for students of grades 4, 5, and 6. Their ages ranged from ten to twelve years old. The selection was based on the discussion with the school management where these levels of pupils are recommended to answer the questions in the online questionnaire considering their ability to understand questions and giving opinions related to their perceptions toward the effectiveness of online learning during the COVID-19 pandemic.

3. Results and Discussion

The study aimed to explore students' perceptions toward the effectiveness of online learning during the COVID-19 pandemic. The COVID-19 pandemic alternates the direct learning system in the school becoming an online learning or distance learning by using technological devices [14]. This learning style is an alternative to ensure that the learning process runs smoothly and avoids the risk of COVID-19 exposure, such as additional jobs for parents to accompany children while learning and inadequate direct communication between students, teachers, and parents [15]. In addition, online learning for most students in

Indonesia is also a remarkable thing that surprised them to adjust due to their lack of experience toward online learning [16]. Because the teaching and learning process in the classroom can never be replaced by other learning styles, including online learning, to overcome the current situation, implementation of online learning is a necessity that must be enforced. Later, online learning was defined as performing an active online learning class, which could be done everywhere, outside the school [17].

3.1. The Teacher Prepares a Study Assignment

The smoothness of the learning process is determined by the management that has done by the teacher before and when the learning process takes place [18]. During online learning, teachers are expected to use the right platform for teaching. According to students, teachers are preparing various online platforms during online learning to respond to school closure during the COVID-19 pandemic.

Based on the research, Zoom is the most used media in online learning (Figure 1). In detail, students stated that teachers frequently use platforms during online learning: Zoom, WhatsApp, Google Meet, and Google Classroom. Based on this, both teachers and students have the same opinion about the platforms primarily used in online learning. This platform selection is also an alternative way to deliver interactive learning through video conferences [14].

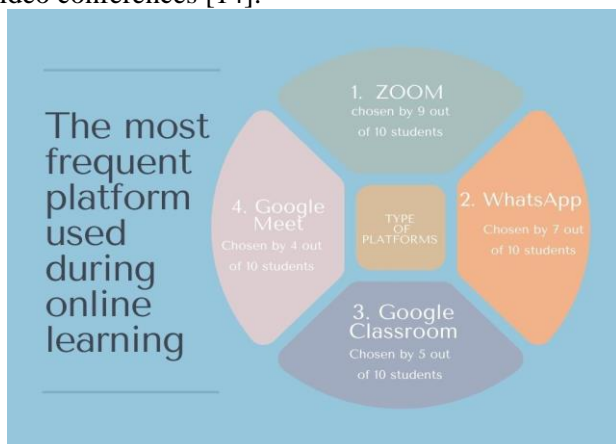


Fig. 1 Type of platforms used in online learning in primary school in Banda Aceh

Students also revealed the subjects they were most interested in during online learning: Science followed by Mathematics and English subjects, as shown in Figure 2.

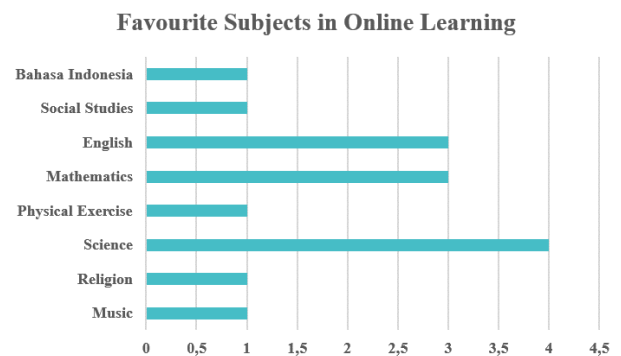


Fig. 2 The most popular subjects during online learning

Students give various reasons for their choices. Some of the reasons include:

S₁₀: *When a teacher greets their students using the term "dear."*

Students need this word, especially during conditions they could not meet directly in class. This finding was reinforced by the previous research that stated expressions such as the word compassion could strengthen a good relationship between adults, in this case, the teacher, and students [19]. Meanwhile, other students also reinforce that during online learning, teachers also prepare to learn as effectively as possible, such as the following opinions:

S₄: *The teacher makes a fun video and shows it through a zoom meeting.*

S₈: *Teachers deliver a communicative lesson by showing various modified slides.*

Always providing support to students to stay motivated by online learning will significantly assist students in the learning process during a current COVID-19 pandemic [20]. Furthermore, the description shows that before the learning process took place, the teacher tried to prepare the learning process very well and optimally.

3.2. Students Study the Material before Class Begins

According to the data obtained, three students always study independently before class starts, and five students say they sometimes do it, while two others say they did not study before class began. This data shows that the preparation of students in online learning is not very high and still needs to be improved. Furthermore, students' independent learning process before learning in class with the teacher will significantly affect learning outcomes. Therefore, it is unfortunate if students do not prepare themselves for independent learning before having learning classes with their teachers in this pandemic condition.

3.3. Parents Supervise Children during Learning Based on Instructions from the Teachers

During online learning, four students said their parents always accompanied them fully during online learning. While six others said that their parents only accompanied them occasionally, especially when

working on assignments. Parents' support during online learning is highly predominant for their kids to strengthen the communication and cooperation between them and teachers [21]. Based on students' answers, it is found that the assistance that has been done by parents when online learning has shown excellent and practical criteria.

3.4. Students Conduct Discussions with Teachers and Other Students

During online learning, it is known that students are very interested when learning becomes an interactive process that allows them to communicate directly with their teachers. Seven students said that they always communicate actively with their teacher, while the remaining said sometimes. Thus, the relationship between teacher and student during the online learning process significantly influences the quality of learning itself [22]. Moreover, students are fascinated if they can also communicate with their friends, as follows opinions:

S₅: The teacher gives students extra time to talk to each other before the lesson begins.

Based on the answers in the online questionnaire, two students always communicate with their friends, four of them said sometimes, and the remaining said they did not communicate actively with their friends. Thus, an interactive interaction in online learning is also created by active communication between students [23]. However, based on this research, the interaction between students is not yet established optimally. Therefore, teachers must anticipate this condition by providing more opportunities for students to communicate actively, for example, by providing group assignments that can be performed through online learning.

3.5. Teachers Provide Feedback and Corrections for Student

Based on this study, five students said that the teacher always gives feedback, three said sometimes, and two said never. Therefore, it is found that the delivery of feedback from teachers has been seen to be ineffective for students. Furthermore, the learning outcomes of students who receive direct corrective feedback will be better than students who do not receive direct corrective feedback. It also influences student work outcomes significantly. This finding indicates that the feedback indicator performed by teachers must be improved.

3.6. Students Work on Assignments and Are Evaluated by the Teacher

According to three students, the teacher immediately evaluates the assignment after being collected. One student says never, and six students express that the teacher sometimes evaluates their assignments immediately. The evaluation process can take the form of providing feedback and assessment. Online learning

during the COVID-19 pandemic forced many students to familiarize themselves with technology in the learning process.

Two students said they were very interested, three said they were interested, and five others said they were not interested. Moreover, three students said online learning is helping them to understand, and one student said no, and the remaining six students said somewhat helpful. Online learning also requires the help of parents to make the process more optimal, but not all parents understand exactly the topics taught by the teachers.

3.7. Students' Difficulties during Online Learning

The following section that the study explores is about the difficulties that arise during online learning. As many as three students said they had problems during online learning, and three students said there were no obstacles and the rest said sometimes there were obstacles they faced during online learning. In general, the obstacles students experience are as follows:

1. Lack of enthusiasm;
2. Do not understand the material that the teacher explains;
3. The material taught is difficult to understand;
4. Internet network that is not stable so that they missed teacher explanations;
5. The student did not understand how to use technology like a laptop;
6. Teachers use inappropriate platforms, such as WhatsApp, which has minimal communication processes;
7. Limited learning time and less detailed explanation

Students' perspective also highlighted that students in developing countries also have several online learning problems, including poor internet access and technical and monetary issues [24]. After students have followed online learning activities, suggestions, criticisms, and expectations are also needed to improve online learning in the future. Following are some of the criticisms and general student expectations expressed:

1. Reducing the assignments, as revealed by S₁ and S₆ below.

S₁: The exercise must be reduced.

S₆: The assignment is too much and burdens students with short deadlines, so the children rush to work because they are chasing time.

2. The learning process must be more interesting, as expressed by S₄ and S₉.

S₄: Make fun animated videos to make learning more exciting and resources, not only from textbooks from school.

S₉: Sometimes, the material presented is not very interesting.

3. Teachers should give a detailed explanation and longer learning time, as revealed by S₄.

S₄: *My expectation for online learning is more animated videos, live chat, and short quiz after video, and longer learning time*

4. The teacher must accustom students to remain disciplined, as expressed in S₅.

S₅: *Too long waiting for friends to get into zoom so that it wastes time. The suggestion is that on time and the late are not allowed to enter.*

5. The teacher must use a platform that allows students to communicate directly, as revealed by S₁₀.

S₁₀: *Not all subjects use the video conference method. All teachers should use it for all subjects.*

6. Pandemic ends as disclosed by S₂, S₇, and S₈.

S₂: *lockdown is over.*

S₇: *Hopefully, this online learning does not last long because I prefer direct learning with teachers in class and can learn with friends.*

S₈: *I hope that online learning can end, and it is better to learn face to face with the teacher at school.*

The implementation of online learning in Banda Aceh City and worldwide due to the pandemic COVID-19 is expected to adjust students' needs. During the implementation of online learning, various obstacles occur mainly related to the unpreparedness of teachers and students to use technological devices. Other constraints also relate to the teacher's difficulty controlling students' learning and ensuring students can understand the learning effectively. Furthermore, the difficulty of the topic of a lesson and the incompatibility of platforms in online learning are also obstacles that reduce its effectiveness.

These constraints can be overcome by asking parents to accompany and assist their children while learning so that problems related to technology use can be overcome. Parents can also supervise their children to remain focused in participating in online learning. Meanwhile, to overcome obstacles related to complex topics of certain subjects, the teacher can provide detailed explanations, make the online learning process as attractive as possible, and reduce student tasks. In line with this, students must also participate in online learning to fulfill and complete their study assignments on time. In this way, it is expected that the effectiveness of online learning can be achieved even though it is still not as good as direct learning in the classroom.

4. Conclusion

The importance of this study was based on the implication of previous research, which focused on teachers' perceptions and difficulties during the COVID-19 pandemic. At the same time, students are the most affected subject during online learning. Thus, it is assumed that students also have certain perceptions of online learning processes. Therefore, an exhaustive exploration is required to determine student perceptions of online learning effectiveness during the COVID-19 pandemic.

Based on students' perceptions of online learning, indicators that have been effectively implemented are the teacher's responsibility in preparing learning materials, parents' help and active involvement in assisting students during learning at home, and students actively submitting their assignments to be evaluated by the teacher. Meanwhile, indicators that must be improved are student awareness to learn independently before learning with their teacher in online learning, the interaction between students in learning, and teachers must give feedback that is more effective for their students.

During online learning, there are obstacles experienced by students, namely the use of technology in learning that is not familiar to them, the difficulty for teachers to manage students who are at home, and the complex topics to be taught via online learning. Students overcome these obstacles by asking help from parents to accompany them during online learning, keep up with online chores, and focus on doing the given tasks. On the other hand, the students must overcome the difficulties by asking for help from their parents. At the same time, online learning is ongoing and by being disciplined in completing the task given.

Notwithstanding the findings of this study, researchers are willing to state limitations, which can be used as a background in conducting the following research related to students' perceptions. This study is a restricted qualitative study that explores only ten students' perceptions in one of the primary schools in Banda Aceh City during the earlier implementation of online learning. Thus, further exploration is needed to review the latest primary students' perception of online learning in Banda Aceh City and other cities in Indonesia.

Acknowledgements

The authors express gratitude to LPDP (Lembaga Pengelola Dana Pendidikan-Indonesia Endowment Fund for Education) and UPI (Universitas Pendidikan Indonesia-Indonesia University of Education) that facilitate this study.

References

- [1] BERGMAN, D., BETHELL, C., GOMBOJAV, N., HASSINK, S., and STANGE, K.C. Physical Distancing With Social Connectedness. *The Annals of Family Medicine*, 2020, 18: 272-277.
- [2] BRZEZINSKI, A., KECHT, V., VAN DIJCKE, D., and WRIGHT, A.L. *Belief in Science Influences Physical Distancing in Response to COVID-19 Lockdown Policies*, 2020.
- [3] HUI, D.S., AZHAR, E., MADANI, T.A., NTOUMI, F., KOCK, R.A., DAR, O.A., IPPOLITO, G., MCHUGH, T.D., MEMISH, Z.A., DROSTEN, C., ZUMLA, A., and PETERSEN, E. The continuing 2019-nCoV epidemic threat of novel coronaviruses to global health — the latest 2019 novel coronavirus outbreak in Wuhan, China. *International Journal of Infectious Diseases*, 2020, 91: 264-266.

- [4] BAIG, A.M., KHALEEQ, A., ALI, U., and SYEDA, H. Evidence of the COVID-19 Virus Targeting the CNS: Tissue Distribution, Host–Virus Interaction, and Proposed Neurotropic Mechanisms. *ACS Chemical Neuroscience*, 2020, 11: 995-998.
- [5] ANDERSEN, M.S. Early Evidence on Social Distancing in Response to COVID-19 in the United States. *Coronavirus and Infectious Disease Research eJournal*, 2020.
- [6] LEWNARD, J.A., and LO, N.C. The scientific and ethical basis for social-distancing interventions against COVID-19. *The Lancet. Infectious Diseases*, 2020, 20: 631-633.
- [7] BRUNS, D.P., KRAGULJAC, N.V., and BRUNS, T.R. COVID-19: Facts, Cultural Considerations, and Risk of Stigmatization. *Journal of Transcultural Nursing*, 2020, 31: 326-332.
- [8] ADEDOYIN, O.B., and SOYKAN, E. COVID-19 pandemic and online learning: the challenges and opportunities. *Interactive Learning Environments*, 2020, 1-13.
- [9] SUSILO, P.H., and ROHMAN, M.G. Efektivitas sistem pembelajaran online sebagai media pembelajaran berbasis aplikasi web di era milenial Semin. *Nas Sist Inf*, 2019, September.
- [10] YUSUF, B.B. Konsep Dan Indikator Pembelajaran Efektif. *Jurnal Kajian Pembelajaran dan Keilmuan*, 2017, 1(2): 13–20.
- [11] YOHANNES, Y., JUANDI, D.D.N., and SUKMA, Y. Mathematics Teachers' Difficulties in Implementing Online Learning during the COVID-19 Pandemic. *Journal of Human University*, 2020, 48(5): 87–98.
- [12] DIANA, N.D., SUHENDRA, S., and YOHANNES, Y. Teachers' Difficulties in Implementing Distance Learning during Covid-19 Pandemic. *2020 12th International Conference on Education Technology and Computers*, 2020, 105–109.
- [13] HENAN, P. Ruichang Cai. *Quanzhou Wang*, 2020, 1–6.
- [14] BOEREN, E., ROUMELL, E.A., and ROESSGER, K.M. COVID-19 and the Future of Adult Education: An Editorial. *Adult Education Quarterly*, 2020, 70: 201-204.
- [15] PURWANTO, A. Studi Eksploratif Dampak Pandemi COVID-19 Terhadap Proses Pembelajaran Online di Sekolah Dasar. *EduPsyCouns Journal of Educational Psychological Counselling*, 2020, 2(1): 1–12.
- [16] MAILIZAR, M., ALMANTHARI, A., MAULINA, S., and BRUCE, S. Secondary School Mathematics Teachers' Views on E-learning Implementation Barriers during the COVID-19 Pandemic: The Case of Indonesia. *Eurasia journal of mathematics, science and technology education*, 2020, 16: 1-9.
- [17] ZHOU, L., LI, F., WU, S., and ZHOU, M. "School's Out, But Class's On," The Largest Online Education in the World Today: Taking China's Practical Exploration during the COVID-19 Epidemic Prevention and Control as an Example. *Best Evidence of Chinese Education*, 2020, 4: 501-519.
- [18] ROHIYATUN, B., and MULYANI, S.E. Hubungan Prosedur Manajemen Kelas Dengan Kelancaran Proses Belajar Mengajar. *Jurnal Pendidik. Mandala*, 2020, 2(2): 92–99.
- [19] HASLIP, M.J., ALLEN-HANDY, A., and DONALDSON, L. How do Children and Teachers Demonstrate Love, Kindness, and Forgiveness? Findings from an Early Childhood Strength-Spotting Intervention. *Early Childhood Education Journal*, 2019, 47: 531-547.
- [20] FAGELL, P.L. Career Confidential: Teacher wonders how to help students during coronavirus shutdown. *Phi Delta Kappan*, 2020, 101: 67-68.
- [21] CHENG, X. Challenges of "School's Out, But Class's on" to School Education: Practical Exploration of Chinese Schools during the COVID-19 Pandemic. *Science Insights Education Frontiers*, 2020, 5(2): 501–516.
- [22] PENNING, H.J., BREKELMANS, M., SADLER, P., CLAESSENS, L.C., VAN DER WANT, A.C., and VAN TARTWIJK, J. Interpersonal adaptation in teacher-student interaction. *Learning and Instruction*, 2018, 55: 41–57.
- [23] NULDÉN, U., and SCHEEPERS, H. Increasing Student Interaction in Learning Activities: Using a Simulation to Learn about Project Failure and Escalation. *Journal of Information System Education*, 2001, 12: 223-232.
- [24] ADNAN, M., and ANWAR, K. How Students' Perspectives about Online Learning Amid the COVID-19 Pandemic? *Journal of Pedagogical Sociology and Psychology*, 2020, 2(1): 45-51.

參考文:

- [1] BERGMAN, D., BETHELL, C., GOMBOJAV, N., HASSINK, S., 和 STANGE, K.C. 與社會聯繫的物理距離。家庭醫學年鑑, 2020 年, 18 : 272-277。
- [2] BRZEZINSKI, A., KECHT, V., VAN DIJCKE, D., 和 WRIGHT, A.L. 科學信仰影響物理距離以應對 新冠肺炎封鎖政策, 2020 年。
- [3] HUI, D.S., AZHAR, E., MADANI, T.A., NTOUMI, F., KOCK, R.A., DAR, O.A., IPPOLITO, G., MCHUGH, T.D., MEMISH, Z.A., DROSTEN, C., ZUMLA, A., 和 PETERSEN, E. 新型冠狀病毒對全球健康的持續 2019 新型冠狀病毒流行威脅——2019 年中國武漢最新爆發的新型冠狀病毒。國際傳染病雜誌, 2020 年, 91 : 264-266。
- [4] BAIG, A.M., KHALEEQ, A., ALI, U., 和 SYEDA, H. 新冠肺炎病毒靶向中樞神經系統的證據：組織分佈、宿主-病毒相互作用和建議的嗜神經機制。ACS 化學神經科學, 2020 年, 11 : 995-998。
- [5] ANDERSEN, M.S. 美國應對 新冠肺炎的社會疏遠的早期證據。冠狀病毒和傳染病研究電子期刊, 2020 年。
- [6] LEWNARD, J.A., 和 LO, N.C. 針對 新冠肺炎的社會疏遠干預的科學和倫理基礎。柳葉刀。傳染病, 2020 年, 20 : 631-633。
- [7] BRUNS, D.P., KRAGULJAC, N.V., 和 BRUNS, T.R. 新冠肺炎：事實、文化考慮和污名化風險。跨文化護理雜誌, 2020 年, 31 : 326-332。
- [8] ADEDOYIN, O.B., 和 SOYKAN, E. 新冠肺炎大流行和在線學習：挑戰和機遇。互動學習環境, 2020 年, 1-13。

- [9] SUSILO, P.H., 和 ROHMAN, M.G. 學習系統有效性在
線作為媒體 精明基於網絡應用的學習。在信息系統中,
2019 年, 9 月。
- [10] YUSUF, B.B. 有效學習概念和指標。期刊 學習與知識
研究, 2017 年, 1(2): 13-20。
- [11] YOHANNES, Y., JUANDI, D.D.N., 和 SUKMA, Y. 數
學教師在 新冠肺炎大流行期間實施在線學習的困難。湖
南大學學報, 2020 年, 48(5): 87-98。
- [12] DIANA, N.D., SUHENDRA, S., 和 YOHANNES, Y. 新
冠肺炎大流行期間教師實施遠程學習的困難。2020 年第
12 屆教育技術與計算機國際會議, 2020 年, 105-109。
- [13] HENAN, P. 蔡瑞昌. 泉州王, 2020 年, 1-6。
- [14] BOEREN, E., ROUMELL, E.A., 和 ROESSGER, K.M.
新冠肺炎和成人教育的未來: 社論。成人教育季刊,
2020 年, 70 : 201-204。
- [15] PURWANTO, A. 大流行影響的探索性研究新冠肺炎
反對小學在線學習過程。教育委員會教育心理諮詢雜誌
, 2020 年, 2(1) : 1-12。
- [16] MAILIZAR, M., ALMANTHARI, A., MAULINA, S., 和
BRUCE, S. 中學數學教師對 新冠肺炎大流行期間電子學
習實施障礙的看法: 印度尼西亞的案例。歐亞數學科技
教育學報, 2020 年, 16 : 1-9。
- [17] ZHOU, L., LI, F., WU, S., 和 ZHOU, M. “放學了, 但上
課了”, 當今世界上最大的在線教育: 在 新冠肺炎期間進
行中國的實踐探索以疫情防控為例。中國教育的最佳證
據, 2020 年, 4 : 501-519。
- [18] ROHIYATUN, B., 和 MULYANI, S.E. 課堂管理程序與
順利教與學過程的關係。期刊 教育家。曼陀羅, 2020 年
, 2 (2) : 92-99。
- [19] HASLIP, M.J., ALLEN-HANDY, A., 和
DONALDSON, L. 兒童和教師如何表現出愛、善良和寬恕
? 幼兒力量觀察干預的結果。幼兒教育雜誌, 2019 年,
47 : 531-547。
- [20] 法格爾, P.L. 職業機密: 老師想知道如何在冠狀病毒
關閉期間幫助學生。皮三角洲卡潘, 2020 年, 101: 67-68。
- [21] CHENG, X. “學校停課, 上課”對學校教育的挑戰:
新冠肺炎大流行期間中國學校的實踐探索。科學洞察教
育前沿, 2020 年, 5(2) : 501-516。
- [22] PENNING, H.J., BREKELMANS, M., SADLER, P.,
CLAESSENS, L.C., VAN DER WANT, A.C., 和 VAN
TARTWIJK, J. 師生互動中的人際適應。學習與教學,
2018 年, 55 : 41-57。
- [23] NULDÉN, U., 和 SCHEEPERS, H. 在學習活動中增加
學生互動: 使用模擬來了解項目失敗和升級。信息系統
教育雜誌, 2001 年, 12 : 223-232。
- [24] ADNAN, M., 和 ANWAR, K. 在 新冠肺炎 大流行中學
生對在線學習的看法如何? 教育社會學與心理學雜誌,
2020 年, 2(1) : 45-51。