Elementary Students’ Attitudes towards an Online Visiting Lecture in Covid-19 School Closure Period

Aryanti1*, Tommy Tanu Wijaya2
Department of Pedagogy, Indonesia University of Education, Bandung, Indonesia
School of Mathematical Sciences, Beijing Normal University, Beijing, China
*aryanti28@gmail.com

Received: January 28th, 2022  Revised: February 27th, 2022  Accepted: February 28th, 2022

Abstract

This study aims to describe the attitudes of elementary students towards online visiting lectures and teacher problems while teaching in the Covid-19 school closure period. The visiting lecture was conducted to relieve the boredom of online learning. The novelty of online visiting lecture conducted at elementary school level in Covid-19 school closure period. This study sample comprised 48 third grade students at a private elementary school in Bandung, West Java, Indonesia. This study used a qualitative approach. The data were collected through observation and interviews with elementary school students. The results showed that the students’ attitudes towards online visiting lecture in Covid-19 school closure period were very good. The students engaged in learning actively. When the visiting lecturer asked questions, the students answered the questions confidently. In conclusion, the visiting lecture can be held in Covid-19 school closure period when students need a new online learning atmosphere. In Indonesia, Covid-19 pandemic has lasted more than 1 year, and it causes boredom of online learning. Holding visiting lecture is an effective way to increase students’ learning interest and motivation so that the online teaching and learning process runs more efficiently.

Keywords: Covid-19; elementary school; online visiting lecturer

1. INTRODUCTION

The first Covid-19 case was found in Wuhan at the end of 2019, and the virus has spread over the whole world quickly (Harits et al., 2019; Manullang et al., 2020). In early 2020, the World Health Organization (WHO) reported that coronavirus, a type of virus that causes Covid-19 disease, was a dangerous virus (Ashokka et al., 2020; Reznik et al., 2020). In this condition, all countries try to stop the spread of the virus (Nuere & de Miguel, 2020; Pandey et al., 2021). To deal with this problem, the government orders a national or regional lockdown which the movement of people is controlled through the closure of roads, public places, schools, etc. Students are not allowed to go to school. Alternatively, students take a distance learning program (Huang et al., 2020; Zhu & Liu, 2020).
The coronavirus has entered and spread quickly in Indonesia since March 2020. Like other countries, Indonesia's government also orders territorial quarantine so that students must take a distance learning program that is usually conducted online or conducted using the internet (Putra et al., 2020). Based on the previous studies, distance learning implementation due to Covid-19 school closure has many obstacles. The biggest obstacle is the internet network (Lapitan et al., 2021). Students who live in cities may not have a problem to access the internet. However, students who live in rural areas have the problem to access the internet because the internet network is not good, so the online classes do not go efficiently. The other problem is that the teachers do not know the real problems faced by their students. There are many obstacles to students joining online classes, but preventing a wider spread of coronavirus distance learning is the best way. Teachers conduct online classes as effectively as possible. Some advantages of conducting online classes during Covid-19 school closure are 1) the flexible class schedule, 2) the unlimited number of students in one class 3) the enablement of parents to accompany their children joining the online class 4) the increase in the ability of teachers to use technology.

After more than 1 year of conducting online classes, teachers have made many ways to make the teaching and learning process run efficiently. For elementary students, learning atmosphere and interest are very important. Basically, elementary students prefer to play to learn, so teachers have to create a fun class atmosphere. For example, teachers can facilitate learning through play. There are many ways to increase elementary students' learning interest one of which is facilitating learning through play (Açıkgül & Aslaner, 2020; Martín et al., 2017; Mulyani et al., 2021), blended learning (Arrosagaray et al., 2019; Fitri et al., 2019; Lapitan et al., 2021), and other interesting games. However, this method is quite difficult to implement in distance learning. Teachers have to find other learning methods that can improve students' learning interest.

A visiting lecture has been around since the 1900s. It is often held in the university and has a good impact on students (Manukonda et al., 2019). A visiting lecturer is invited to teach, lecture, or perform research on a topic the visiting lecturer is valued. A visiting lecture held on campus or online has the same good impact on students' learning interest and gives new experience to students. A visiting lecture is used to improve students’ learning experience, share knowledge among educational institutions, and introduce real-world problems to schools.

A visiting lecture is usually teacher-centered learning that the focus of instruction is on the lecturer. In the previous study, Li and Guo carried out an experiment on the use of student-centered learning in the visiting lecture. This study aimed to increase students’ participation and satisfaction in question and answer sessions. Furthermore, many
studies on visiting lectures have successful results such as the study of Kumar and Lightner (Kumar & Lightner, 2007) which used games in the visiting lecture and the study of Hiroko Y et al. (Yako-Suketomo et al., 2019) which was conducted at 11 schools aimed at increasing students' awareness of the danger of cancer through a visiting lecture.

Some studies show that students' learning motivation is influenced by the learning model and teachers' pedagogical skills (Bakar et al., 2010; M. C.-L. Huang et al., 2020). Another study finds negative reactions and decreased interest in learning when teachers only use traditional teaching methods (Hutajulu et al., 2019). The study of Hartnett (Hartnett, 2016) suggests that students' motivation is very important in online learning, and a visiting lecture brings new learning experience which can increase students' learning interest. Based on these previous studies, it can be concluded that a visiting lecture can increase students' learning motivation and interest.

Of the many studies on visiting lecturers, the researchers conclude that a visiting lecture is widely conducted at the university, especially in the department of science. However, there is no study on a visiting lecture at elementary school. Similarly, there is no study on online visiting lectures in Covid-19 school closure period. Both of these backgrounds make this study have a novelty value.

Based on the explanation above, this study aims to:

1. Analyzing teachers' problems when delivering the teaching/learning materials online in the Covid-19 school closure period.
2. Analyzing elementary students' attitudes towards an online visiting lecture as a method to increase students' learning interest and give students new learning experience after 1 year of having online classes.

2. METHOD

This study is a qualitative study to describe students' attitudes towards online visiting lectures and teacher problems when teaching during the coronavirus situation. One of the researchers played a role as the visiting lecturer and observed the students' expression, the students' participation, the way the students answered the questions from the visiting lecturer, the frequency of students in asking the visiting lecturers which indicated learning interest and motivation. The population was 48 third graders of an elementary school in Bandung City, West Java, Indonesia. The data was collected through interviews and observation. The data collection procedure is in the figure 1.
The analysis and evaluation process time is 7 weeks, from 10 February 2021 to 28 March 2021. The data obtained from the observation was analyzed qualitatively. The data obtained from the interview was used to evaluate the teaching and learning process.

The research video data with a duration of 2 hours was analyzed using MAXQDA software. Researchers coded each student's expressions and responses in a simple code during visiting lectures.

3. RESULTS AND DISCUSSION

a. The Analysis of the Teaching and Learning Process

The class was conducted online with Zoom application at 9 in the morning, 13 March 2021. To start the class, Miss Susan, the teacher, asked the visiting lecturer to introduce himself. He was from Guangxi Normal University, China. Miss Susan read and motivated the students to be able to follow the visiting lecturer’s instruction well because she thought that joining a visiting lecture was a great opportunity. She also said that the visiting lecture aimed to provide the
students' new experience and new learning atmosphere.

The visiting lecturer opened the class by greeting the students warmly (figure 2). The visiting lecture was conducted on the Chinese New Year holidays, so the visiting lecturer extended Chinese New Year greetings. Based on the observation, there were some problems faced by the visiting lecturer when the class just started. The first was that the students did not turn on their cameras. As a result, the visiting lecturer did not know what the students were doing. The visiting lecturer also did not know if the students were doing other things during the online class. If the students did not turn on their cameras, the visiting lecturer would not know the students’ learning environment. Unconducive learning environment certainly would affect the students’ learning achievement. Chen (2020) states that conducive learning environment will increase students’ motivation. Similarly, Valtonen T et al. (Valtonen et al., 2020) state that a conducive learning environment helps students prepare themselves for new knowledge.

For this reason, the visiting lecturer asked the students to open their cameras and communicate with the visiting lecturer. The visiting lecturer asked easy questions at the beginning of the class to become fun and interactive. Eventually, 39-42 students turned on their cameras.
When the students turned on their cameras, the visiting lecturer found that some students had less conducive learning environment. The visiting lecturer saw some students on the street, and they studied in an open area where many people could distract their attention. For this reason, the visiting lecturer advised the teacher to ask the parents to help their children having a conducive learning environment.

The second problem was that the students turned off their microphones and were passive during the class. The students only listened and looked at the slideshow presentation given by the visiting lecturer. As a result, the visiting lecturer could not ensure that the students really understand the materials given. For this reason, the visiting lecturer prepared many interesting slideshow presentations with a realistic approach. The realistic approach is one of the learning approaches that have been around for a long time. There are many studies on the development of realistic-based learning media (Alim et al., 2020; Putri & Zulkardi, 2018; Van den Heuvel-Panhuizen & Drijvers, 2014; Zulfah et al., 2020). Learning with a realistic approach also shows better results compared to learning with a traditional approach (Herawaty et al., 2020; Utari & Zulkardi, 2019; Zaranis & Exarchakos, 2018). A realistic approach is an approach from the Netherlands. The realistic approach makes learning
meaningful and interesting by bringing the classroom atmosphere to the real

The implementation of realistic-based slideshow presentation and student-centered learning showed a positive reaction at 32th minute and 6th minute. The students seemed excited and interacted with the visiting lecturer. The students got excited to answer the questions from the visiting lecturer. The class became full of noisy students discussing. The students were also not afraid to make mistake when answering the questions. The visiting lecturer encouraged the students to answer the questions and work on the problems on the slideshow. Occasionally, the visiting lecturer told his personal experience to give insights to the students. This is in accordance with the study conducted by Rotgans (Rotgans & Schmidt, 2011) that when students feel the class is very fun, students will be active in participating in teaching and learning activities. De porter (Chotimah et al., 2018; Excell et al., 2020; Wijaya, Jianlan, et al., 2020) states that students who pay attention, listen, and interact with the teacher can gain the teacher's knowledge faster than the passive students.

b. Students’ Attitudes towards Online Visiting Lecture in Covid-19 School Closure Period

At the end of the class, the visiting lecturer interviewed 3 third-grade students chosen randomly to find out their responses towards the visiting lecture. The interview transcript is below:

The first question:

Visiting lecturer: Are you happy to study online with a visiting lecturer?

Student VA: Very happy. I learned through play. The class atmosphere is different from the usual class which the teacher delivers. Even my younger sibling is happy to join the class.

AS Student: I'm very happy to know you and gain new knowledge and atmosphere. The way you teach is very different.

Student OV: Very happy. I'm excited. Hopefully, my teacher often invites a visiting lecturer.

The students’ responses indicated that the visiting lecture made the students excited, active and bring new learning experience for the students.

The second question:

Visiting lecturer: What did you get from today's lesson?

Student VA: I got many things, new experiences, and I was happy to learn even though the class was conducted online.

AS Student: I am motivated to be a visiting lecturer because you know many things. And I want to study abroad.

Student OV: I get a new enthusiasm for learning. I'm excited to learn if there is a visiting lecturer.

The second question is a question for students to reflect on their learning that
teachers usually ask students at the end of class. The students’ responses indicated that the visiting lecture increases students’ learning interest and motivation. Also, the visiting lecturer encouraged the students to review the materials from the previous meeting. Zou P et al. (Zou et al., 2019) state that a visiting lecture increases students’ learning interest and motivation.

The third question:
Visiting lecturer: Did the class give you new knowledge?
Student VA: Yes. I understand better about animals even though this topic has actually been studied before.
AS Student: Of course, I got a lot of new knowledge.
Student OV: Not only do I get new knowledge, but I can also solve everyday life problems.

The students’ responses indicated that the visiting lecturer improved their comprehension and the realistic approach made them closer to everyday life. Both visiting lecture held online and on-campus make students be enthusiastic, give students new knowledge and experiences, and serve as an effective teaching strategy (Alebaikan, 2016).

The fourth question:
Visiting lecturer: Do you have any suggestions for learning in this Covid-19 school closure period?
Student VA: Yes. In my opinion, inviting many visiting lecturers is very fun.

AS Student: Teachers must be good at teaching. Don't just explain the materials because it makes me sleepy.
Student OV: you can use video learning.

The students’ responses indicated that after students had learned for about 1 year online, they needed to use new, different and unique learning methods to increase their learning interest and motivation. The students' suggestions can be used to improve the effectiveness of online learning in the Covid-19 school closure period. This fact can occur in all learning processes that are saturated with a lack of variety of methods. In conclusion, need a new learning methods at any given time to keep students' learning interest and motivation.

This study proves that visiting lecture can be conducted at the university level and at elementary school level. It is proven to improve elementary students' understanding, learning interest and motivation, bringing new atmosphere into online learning. In this Covid-19 school closure period, visiting lecture can still be held online. Online visiting lectures can save more money and time because the visiting lecturer does not need to go to school to teach students. The visiting lecturer can use Zoom application or other similar applications (Hoffman & Johnson, 2002; Murphy, 2020; Wijaya, Ying, et al., 2020).

The implementation of the visiting lecture was successfully carried out online in Covid-19 school closure period in Indonesia. Based on the interview results, it was found that first the teacher
must improve her technological pedagogical knowledge (Akyuz, 2018; Lin et al., 2013; Pamuk et al., 2015). Having good technological pedagogical knowledge helps teachers to conduct effective learning including online learning. Students are also always excited to gain new knowledge given by their teachers. Second, the teachers have to be sensitive to their online class situation in the Covid-19 school closure period. Debra A (Allen & Fraser, 2007) states that there is an effect of learning environment on students’ achievement. Teachers have to pay attention to the students’ learning environment whether it is conducive or not (Zhao et al., 2021). Lizbeth (Ramirez et al., 2014) stresses the importance of the role of parents in achieving students’ success. Teachers can also regularly conduct parent meetings in this Covid-19 school closure period to discuss the best way to teach the students to learn well in this Covid-19 school closure period.

4. CONCLUSION
This study is a qualitative study to describe students' attitudes towards online visiting. In this study, the researchers conclude that visiting lecture for elementary students is very effective and efficient. The visiting lecture also has many benefits when conducted online in Covid-19 school closure period. The visiting lecture in this study presented the way of how to deal with passive students in online class by creating a new and attractive class atmosphere. The visiting lecturer also received positive responses from the students. This study was conducted in Indonesia at the time of Covid-19 school closure. It may produce different results when it is carried out in other countries. The researchers suggest that further studies on visiting lecture can be conducted at junior and senior high school level with more specific subjects such as chemistry, biology, or social studies.

REFERENCES
Açıkgül, K., & Aslaner, R. (2020). Effects of Geogebra supported micro teaching applications and technological pedagogical content knowledge (TPACK) game practices on the TPACK levels of prospective teachers. Education and Information Technologies, 25(3), 2023–2047. https://doi.org/10.1007/s10639-019-10044-y
Akyuz, D. (2018). Measuring technological pedagogical content knowledge (TPACK) through performance assessment. Computers and Education, 125(May 2017), 212–225. https://doi.org/10.1016/j.compedu.2018.06.012
Alebaikan, R. (2016). Online and face-to-face guest lectures: graduate students’ perceptions. Learning and Teaching in Higher Education: Gulf Perspectives, 13(2), 1–13. https://doi.org/10.18538/ltthe.v13.n2 .229
Alim, J. A., Fauzan, A., Arwana, I. M., & Musdi, E. (2020). Model of Geometry Realistic Learning Development with
Interactive Multimedia Assistance in Elementary School. *Journal of Physics: Conference Series, 1471*(1). https://doi.org/10.1088/1742-6596/1471/1/012053

Allen, D., & Fraser, B. J. (2007). Parent and student perceptions of classroom learning environment and its association with student outcomes. *Learning Environments Research, 10*(1), 67–82. https://doi.org/10.1007/s10984-007-9018-z

Arrosagaray, M., González-Peiteado, M., Pino-Juste, M., & Rodríguez-López, B. (2019). A comparative study of Spanish adult students’ attitudes to ICT in classroom, blended and distance language learning modes. *Computers and Education, 134*(October 2018), 31–40. https://doi.org/10.1016/j.compedu.2019.01.016

Ashokka, B., Ong, S. Y., Tay, K. H., Hooi, N., Loh, W., Gee, F., & Samarasekera, D. D. (2020). Coordinated responses of academic medical centres to pandemics: Sustaining medical education during COVID-19 Coordinated responses of academic medical centres to pandemics: Sustaining medical education during COVID-19. *Medical Teacher, 0*(0), 1–10. https://doi.org/10.1080/0142159X.2020.1757634

Bakar, K. A., Ayub, A. F. M., Luan, W. S., & Tarmizi, R. A. (2010). Exploring secondary school students’ motivation using technologies in teaching and learning mathematics. *Procedia - Social and Behavioral Sciences, 2*(2), 4650–4654. https://doi.org/10.1016/j.sbspro.2010.03.744

Chen, Y. L. (2020). Students’ Attitude Toward Learning and Practicing English in a VR Environment. In *Lecture Notes in Computer Science: Vol. 12555 LNCS*. Springer International Publishing. https://doi.org/10.1007/978-3-030-63885-6_15

Chotimah, S., Bernard, M., & Wulandari, S. M. (2018). Contextual approach using VBA learning media to improve students’ mathematical displacement and disposition ability. *Journal of Physics: Conference Series, 948*(1). https://doi.org/10.1088/1742-6596/948/1/012025

Excell, P. S., Eds, M. A., Coulson, G., & Ferrari, D. (2020). *Emerging Technologies in Computing*. Springer. https://doi.org/10.1007/978-3-030-60036-5

Fitri, S., Syahputra, E., & Syahputra, H. (2019). Blended learning rotation model of cognitive conflict strategy to improve mathematical resilience in high school students. *International Journal of Scientific and Technology Research, 8*(12), 80–87.

Harits, M., Sujadi, I., & Slamet, I. (2019). Technological, pedagogical, and content knowledge math teachers:
To develop 21st century skills students. *Journal of Physics: Conference Series, 1321*(3).
https://doi.org/10.1088/1742-6596/1321/3/032011

Hartnett, M. (2016). Motivation in Online Education. *Motivation in Online Education, Bekele 2010*, 5–32.
https://doi.org/10.1007/978-981-10-0700-2

Herawaty, D., Widada, W., Adhitya, A., Sari, R. D. W., Novianita, L., & Falaq Dwi Anggoro, A. (2020). Students’ ability to simplify the concept of function through realistic mathematics learning with the ethnomathematics approach. *Journal of Physics: Conference Series, 1470*(1).
https://doi.org/10.1088/1742-6596/1470/1/012031

Hoffman, D., & Johnson, C. R. (2002). *Mathematics and Visualization in Art and Education* (C. P. Bruter (ed.)). Springer Verlag Berlin.

Huang, M. C.-L., Chou, C.-Y., Wu, Y.-T., Shih, J.-L., Yeh, C. Y. C., Lao, A. C. C., Fong, H., Lin, Y.-F., & Chan, T.-W. (2020). Interest-driven video creation for learning mathematics. In *Journal of Computers in Education* (Vol. 7, Issue 3). Springer Berlin Heidelberg.
https://doi.org/10.1007/s40692-020-00161-w

Huang, R., Tili, A., Chang, T. W., Zhang, X., Nascimbeni, F., & Burgos, D. (2020). Disrupted classes, undisrupted learning during COVID-19 outbreak in China: application of open educational practices and resources. *Smart Learning Environments, 7*(1).
https://doi.org/10.1186/s40561-020-00125-8

Hutajulu, M., Wijaya, T. T., & Hidayat, W. (2019). the Effect of Mathematical Disposition and Learning Motivation on Problem Solving: an Analysis. *Infinity Journal, 8*(2), 229.
https://doi.org/10.22460/Infinity.v8i2.p229-238

Kumar, R., & Lightner, R. (2007). Games as an Interactive Classroom Technique: Perception of Corporate Trainers, College Instructors and Students. *International Journal of Teaching and Learning in Higher Education, 19*(1), 53–63.

Lapitan, L. D., Tiangco, C. E., Sumalinog, D. A. G., Sabarillo, N. S., & Diaz, J. M. (2021). An effective blended online teaching and learning strategy during the COVID-19 pandemic. *Education for Chemical Engineers, 35*(May 2020), 116–131.
https://doi.org/10.1016/j.ece.2021.01.012

Lin, T. C., Tsai, C. C., Chai, C. S., & Lee, M. H. (2013). Identifying Science Teachers’ Perceptions of Technological Pedagogical and Content Knowledge (TPACK). *Journal of Science Education and Technology, 22*(3), 325–336.
https://doi.org/10.1007/s10956-012-9396-6
Manukonda, S. R., Priyadarshini, C., Ponnam, A., & Sode, R. (2019). What motivates students to attend guest lectures?: A comparative study across three popular disciplines in India. *International Journal of Learning in Higher Education, 26*(1), 23–34. https://doi.org/10.18848/2327-7955/CGP/V26I01/23-34

Manullang, S. O., Satria, E., Krisnadwipayana, U., & Hatta, U. B. (2020). The Review of the International Voices on the Responses of the Worldwide School Closures Policy Searching during Covid-19 Pandemic. *5*(2), 1–13.

Martín, M., Gómez-pablos, V. B., & Muñoz-repiso, A. G. (2017). A quantitative approach to pre-service primary school teachers’ attitudes towards collaborative learning with video games: previous experience with video games can make the difference. *International Journal of Educational Technology in Higher Education, 14*(11). https://doi.org/10.1186/s41239-017-0050-5

Mulyani, E. A., Alpusari, M., & Putra, E. D. (2021). The Effect of Learning Facilities and Family Environment on Motivation to Learn of Prospective Elementary Teacher Education on Online Learning. *Journal of Teaching and Learning in Elementary Education, 4*(1), 86-94. http://dx.doi.org/10.3357/jtlee.v4i1.7866

Murphy, M. P. A. (2020). COVID-19 and emergency eLearning: Consequences of the securitization of higher education for post-pandemic pedagogy. *Contemporary Security Policy, 0*(0), 1–14. https://doi.org/10.1080/13523260.2020.1761749

Nuere, S., & de Miguel, L. (2020). The Digital/Technological Connection with COVID-19: An Unprecedented Challenge in University Teaching. *Technology, Knowledge and Learning, 0123456789*. https://doi.org/10.1007/s10758-020-09454-6

Pamuk, S., Ergun, M., Cakir, R., Yilmaz, H. B., & Ayas, C. (2015). Exploring relationships among TPACK components and development of the TPACK instrument. *Education and Information Technologies, 20*(2), 241–263. https://doi.org/10.1007/s10639-013-9278-4

Pandey, D., Ogunmola, G. A., Enbeyle, W., Abdullahi, M., Pandey, B. K., & Pramanik, S. (2021). COVID-19: A Framework for Effective Delivering of Online Classes During Lockdown. *Human Arenas, 0123456789*. https://doi.org/10.1007/s42087-020-00175-x

Putra, Z. H., Witi, G., & Sari, I. K. (2020). Prospective elementary teachers’ perspectives on online mathematics learning during coronavirus outbreak. *Journal of Physics: Conference Series, 1655*(1).
Putri, R. I. I., & Zulkardi. (2018). Learning fraction through the context of Asian Games 2018. *Journal of Physics: Conference Series, 1088*. https://doi.org/10.1088/1742-6596/1088/1/012023

Ramirez, L., Machida, S. K., Kline, L., & Huang, L. (2014). Low-Income Hispanic and Latino High School Students’ Perceptions of Parent and Peer Academic Support. *Contemporary School Psychology, 18*(4), 214–221. https://doi.org/10.1007/s40688-014-0037-3

Reznik, A., Gritsenko, V., Konstantinov, V., Khamenka, N., & Isralowitz, R. (2020). COVID-19 Fear in Eastern Europe: Validation of the Fear of COVID-19 Scale.

Rotgans, J. I., & Schmidt, H. G. (2011). Situational interest and academic achievement in the active-learning classroom. *Learning and Instruction, 21*(1), 58–67. https://doi.org/10.1016/j.learninstruc.2009.11.001

Tamur, M., Juandi, D., & Adem, A. M. G. (2020). Realistic Mathematics Education in Indonesia and Recommendations for Future Implementation: A Meta-Analysis Study. *JTAM | Jurnal Teori Dan Aplikasi Matematika, 4*(1), 17. https://doi.org/10.31764/jtam.v4i1.1786

Utari, A., & Zulkardi. (2019). Mathematical literacy skill of students of Pisa type in the context of coconut. *Journal of Physics: Conference Series, 1315*(1), 0–5. https://doi.org/10.1088/1742-6596/1315/1/012015

Valtonen, T., Leppänen, U., Hyypiä, M., Kokko, A., Manninen, J., Vartiainen, H., Sointu, E., & Hirsto, L. (2020). Learning environments preferred by university students: a shift toward informal and flexible learning environments. *Learning Environments Research, 0123456789*. https://doi.org/10.1007/s10984-020-09339-6

Van den Heuvel-Panhuizen, M., & Drijvers, P. (2014). Realistic Mathematics Education. In *Encyclopedia of Mathematics Education*. https://doi.org/10.1007/978-94-007-4978-8_170

Wijaya, T. T., Jianlan, T., & Purnama, A. (2020). Developing an Interactive Mathematical Learning Media Based on the TPACK Framework Using the Hawgent Dynamic Mathematics Software. *Emerging Technologies in Computing, 318*–328. https://doi.org/10.1007/978-3-030-60036-5

Wijaya, T. T., Ying, Z., Purnama, A., & Hermita, N. (2020). Indonesian students’ learning attitude towards online learning during the coronavirus pandemic. *Psychology,*
Evaluation, and Technology in Educational Research, 3(1), 17–25. https://doi.org/10.33292/petier.v3i1.56

Yako-Suketomo, H., Katanoda, K., Kawamura, Y., Katayama, K., Yuasa, M., Horinouchi, H., & Saito, K. (2019). Children’s Knowledge of Cancer Prevention and Perceptions of Cancer Patients: Comparison Before and After Cancer Education with the Presence of Visiting Lecturer-Guided Class. Journal of Cancer Education, 34(6), 1059–1066. https://doi.org/10.1007/s13187-018-1408-7

Zaranis, N., & Exarchakos, G. M. (2018). The Use of ICT and the Realistic Mathematics Education for Understanding Simple and Advanced Stereometry Shapes Among University Students. Research on E-Learning and ICT in Education. https://doi.org/10.1007/978-3-319-95059-4

Zhao, Y., Hong, J. S., Zhao, Y., & Yang, D. (2021). Parent–Child, Teacher–Student, and Classmate Relationships and Bullying Victimization Among Adolescents in China: Implications for School Mental Health. School Mental Health, 0123456789. https://doi.org/10.1007/s12310-021-09425-x

Zhu, X., & Liu, J. (2020). Education in and After Covid-19: Immediate Responses and Long-Term Visions. Postdigital Science and Education. https://doi.org/10.1007/s42438-020-00126-3

Zou, P., Sun, W., Hallowell, S. G., Luo, Y., Lee, C., & Ge, L. (2019). Use of guest speakers in nursing education: An integrative review of multidisciplinary literature. Advances in Medical Education and Practice, 10, 175–189. https://doi.org/10.2147/AMEP.S196456

Zulfah, Astuti, Surya, Y. F. F., Marta, R., & Wijaya, T. T. (2020). Measurement of mathematics problems solving ability using problem based mathematics question. Journal of Physics: Conference Series, 1613(1). https://doi.org/10.1088/1742-6596/1613/1/012026