Rope Ladder Physical Activity as a Media Innovation to Improve Elementary School Student Learning from Home Motivation during COVID-19 Pandemic

Ega Trisna Rahayu[1], Rina Syafrida[1], Ine Nirmala[1], Jarudin[2]
[1]Universitas Singaperbangsa Karawang
[2]Institut Teknologi dan Bisnis Bina Sarana Global
Contact e-mail: jarudin@stmikglobal.ac.id

Abstract

Physical education learning in elementary school prioritizes learning with a pleasant atmosphere. The use of game-based learning media for physical education is one of the teachers' efforts in improving students' learning motivation at home during the COVID-19 pandemic. This research aims to develop Rope Ladder-based learning media to motivate students to study at home during the COVID-19 pandemic. Involving 19 students for field tests using pre-test and post-test instruments. They have intervened for 12 meetings over three months through the zoom meeting cloud. The results showed a p-value < 0.05 means there is a difference in test results. Rolade game-based learning media is effective for improving students' learning motivation at home during the COVID-19 pandemic. Rolade game-based learning media is not the only source. Therefore, it is recommended that users look for other learning resources to help motivate children aged 7-8 years.

Keywords: Media, Rope Ladder, Learning from Home, Motivation

Introduction

In early 2020, the world is on high alert for a virus called Coronavirus Disease 2019 (Covid-19). The World Health Organization (WHO) officially announced COVID-19 as a pandemic (Ghebreyesus, 2020). In response, heads of state heads have taken various policies to cut the chain of the spread of COVID-19. Therefore, the government adopts *the stay-at-home* approach by working, worshipping, and requiring school-age children to study at home. The President of the Republic of Indonesia's appeal through the Decree of the Ministry of Education and Culture requires the implementation of learning in the conditions of the spread of COVID-19 to no longer be done face-to-face, but to be done at home in the family (Essa et al., 2020; Goniewicz & Khorram-Manesh, 2021).

Learning from home in physical education is considered an effective and efficient way to keep learning activities to live during the COVID-19 outbreak. The severity of the challenge of Study from home physical education in the event of a Covid-19 emergency becomes crucial. A study from home in elementary school students' physical education is undoubtedly different from schools' learning. Physical education learning in elementary school, especially in the early grades (ages 7-8 years), prioritizes learning with a pleasant atmosphere. The use of physical education learning media is one of the teachers' efforts in improving students' learning motivation because sometimes, when the learning process teaches, teachers will face lazy and bored students (Enright & Sullivan, 2013).

Research relevant to this study that anxiety levels increased during home learning, and depression was more significant during the pandemic (Antonucci et al., 2020; Buckner et al., 2021). This study only discusses home learning implications during pandemics and has not provided a solution to address them. Several other researchers stated that information technology is the right solution in carrying out learning during the COVID-19 pandemic (Campos et al., 2021; Espino-d & Fernandez-caminero, 2020; Fatoni et al., 2020; He et al., 2021; König et al., 2020; Mishra et al., 2020; Wargadinata et al., 2020). Some new researchers focused on facilitating learning during the pandemic have not discussed how learners follow online learning.

Researchers are interested and very important to overcome the problem to provide solutions to students in following the learning during the COVID-19 pandemic. The innovation of learning media can increase the motivation of Study from Home elementary school students called Rope ladder (Rolade) physical activity. Rolade physical activity is an innovation of game learning media created to answer the problem of improving students' learning motivation. Understanding Rolade physical activity is a game-based learning medium in the form of rope ladder physical activity that is made to resemble a game of snakes and ladders. The novelty and uniqueness of Rolade physical activity compared to snakes and ladder games.

Rolade physical activity game every number on the box includes physical activity commands whose movements are adjusted to the physical motor development of children aged 7-8 years. Variations of motion activity games made on Rolade physical activity can increase the motivation of Study from home physical education of elementary school students. A study from home students does not close the possibility of becoming less active in conveying their aspirations and thoughts to lead to saturated learning. Therefore, it is necessary to encourage students to move the learning spirit to have learning achievements (Beghetto & Kaufman, 2014). The nature of learning can be possessed by increasing the motivation of learning.

This research aims to develop innovative media learning Rolade physical activity towards motivation study from home student's elementary school. The novelty of the study is the rope ladder game model that can increase students' learning motivation. Motivation is a force that encourages a person to do something to achieve a goal. This power is stimulated from various needs such as (a) wishes to be fulfilled; (b) conduct; (c) purpose; and (d) feedback(Hellriegel et al., 2016). The concept of motivation contained three essential images: purpose, knowledge, and metacognitive processes (Hennessey, 2019). Motivation is an element in achieving optimal learning achievements and general health conditions and intelligence and talents and interests. Learning motivation is a factor that nonintellectual psychic; its distinctive role is in the growth of passion, feelings, and spirit to learn. Thus motivation has a strategic role in learning (Hennessey, 2019). To be more optimal at the end of knowledge, then the motivation principles in learning activities must be carried out. Students' learning motivation from home can be improved by utilizing exciting media to make students interested in learning. In this case, teachers can create or use animated media to support study from home.

Methods

Methods used in research with a quantitative approach. This research was conducted to determine Rolade physical activity learning media innovation's effectiveness in improving the motivation of study from home elementary school students in Physical Education learning. Data retrieval techniques through questioner motivation level elementary school students ranging in age from 7-8 years. Application of learning media innovation Rolade physical activity in the implementation of study from home in the emergency of the spread of Covid-19. The application of Rolade physical activity learning media innovation was integrated into the performance of Study from Home physical education, which was given 12 times over three months in the experimental group. Procedure research through practical methods can be illustrated like figure 1.
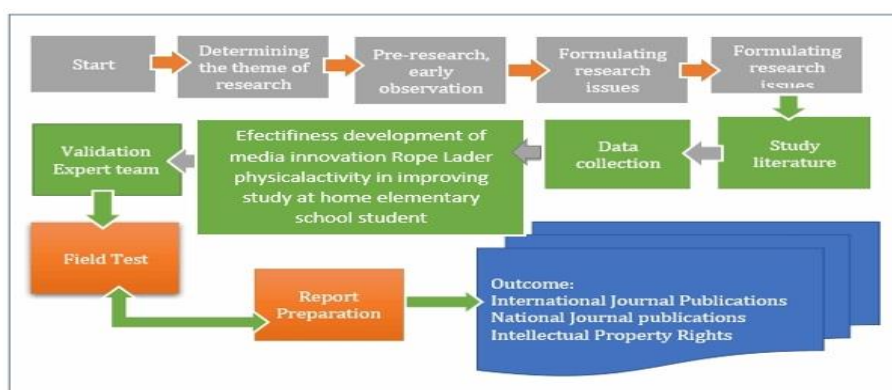
Figure 1. Research design

The location of the research was conducted in Karawang Regency. Researchers chose this location following several missions of Universitas Singaperbangsa Karawang, namely: (1) Preparing professional and noble human resources; (2) Create, implement, and develop practical and compelling science, technology, and art; and (3) Actively carrying out community service to improve the welfare of the community, therefore to support the efforts of Universitas Singaperbangsa Karawang in carrying out its mission, the development of rope ladder physical activity learning media innovation was made to realize the challenge of implementing Study From Home physical education in elementary school students which is considered as an effective and efficient way to keep learning activities alive during the Covid-19 outbreak.

This study's research variables are: (a) Independent Variable which is the effectiveness of innovative learning media rope ladder physical activity, and (2) Dependent Variable that is the motivation of Study from Home elementary school students Karawang District. The design used in this study is the one-group pre-test and post-test Design (Dick et al., 2015). Determination of research subjects using cluster random sampling technique whose sample was chosen not from individuals but rather groups or areas called clusters. It so selected SDIT Lampu Iman as an experimental group school in grade 1 students, several 19 students ranging in age from 7-8 years. This study does not use comparison classes, with initial tests,

treatments, and final tests. The magnitude of the effect or effect of rope ladder physical activity learning media innovation can be known for sure.

The instrument used is a student learning motivation test in the form of a learning motivation questionnaire developed based on McClelland (McClelland, 2005). In the efforts to collect data and information needed, this study uses the following data collection techniques: (1) Initial Test Implementation; (2) Implementation of treatment as many as 12 meetings; and (3) Final Test Implementation. Furthermore, the collected data is analyzed using paired T-Test Technique ($p \leq 0.05$) to determine the significant increase in gain from Pretest and Post-test through (1) Average Test and Standard Deviation; (2) Normality Test; (3) Homogeneity Test; and (4) Hypothesis Test.

Results

This study's results are game-based learning media to increase students' learning motivation at home during the COVID-19 pandemic. Rope ladder physical activity is an innovation of game learning media in physical education created to answer the problem of improving students' learning motivation. Rolade physical activity is a visually designed learning resource that students can use individually or in groups in the Study from home physical education of early childhood elementary school. Figure 2 is an innovation of Rolade physical activity learning media.
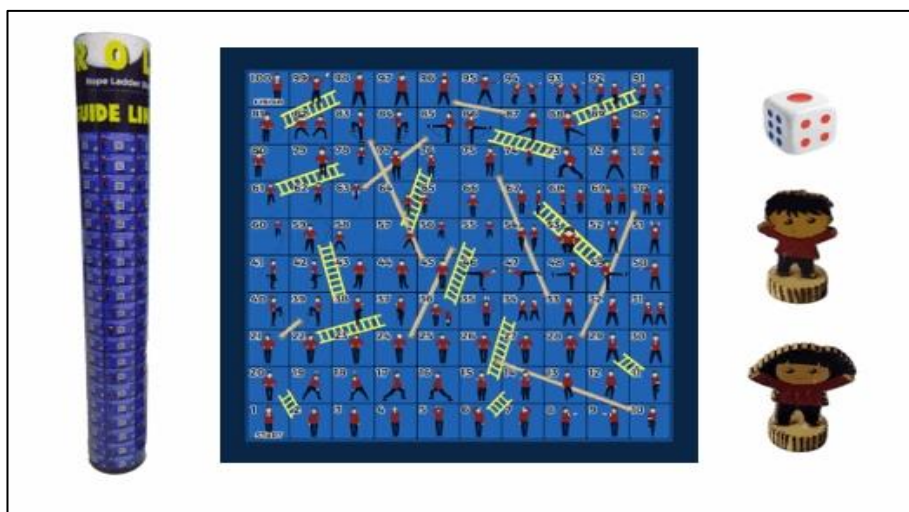
Figure 2. Rope ladder instructional media

The innovation of learning media in physical education in children called Rolade physical activity is inspired by the game of snakes and ladders known to the public. Rolade physical activity is a game-based learning medium in Rope Ladder Physical Activity that resembles a game of snakes and ladders. Still, the rules of the game added new regulations to make learning more exciting and not dull. The novelty and uniqueness of Rolade physical activity compared to the game of snakes and ladders is in the Rolade physical activity. Each number on the game box includes physical activity commands whose movements are adjusted to the aspects of the child's motor physical development movement (Grammatikopoulos & Gregoriadis, 2012).

The implementation of learning using Rolade physical activity in a study from home physical education in elementary school children cannot be separated from the monitoring/ assistance of parents representing teachers at home. Therefore the involvement of parents representing teachers is needed in this game (Konstantinidou et al., 2014). Here are the steps to implement the learning of Rolade physical activity, including (a) students, are prepared using complete sports clothes and shoes; (b) familiarize students to pray first before starting study from home; (c) prepare a Rolade physical activity media containing 100 boxes containing numbers depicting commands or motion activities, dice shakers, dice, and miniature students; (d) start the game by shaking the dice first, then after the miniature student arrives at the number box, the student carries out the movement activity commands listed on the image (e.g., perform a 10-step jumping motion), etc. (e) perform the systematics of the game in a follow-up manner following the instructions on the learning media Rolade physical activity; (f) if the miniature student arrives at the box with the rope, then the command is down level or down, but if the miniature student arrives at the box with the picture ladder then the next level or up. (g) If the miniature student has reached box 100, then the game Rolade physical activity is declared finished; (h) make it a habit for students to end their learning or play (Konstantinidou et al., 2014) by praying. Figure 3 is the guideline or steps of the Rolade physical activity movement.
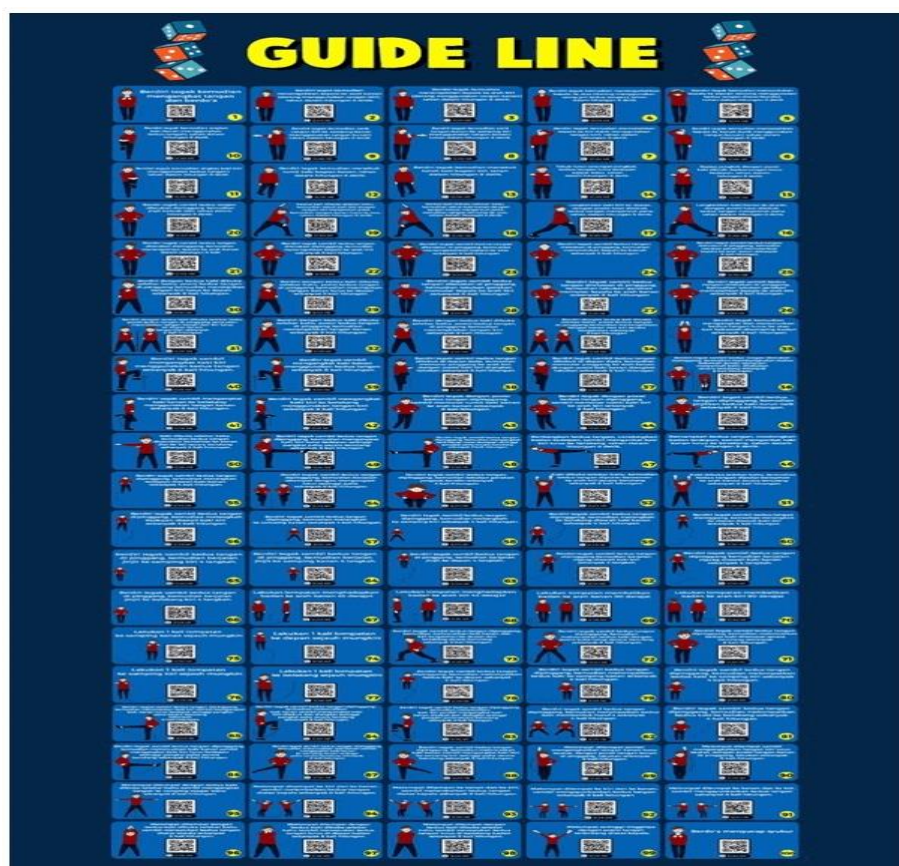

Figure 3. Guideline rope ladder

Based on the implementation of the above learning, it can be concluded the advantages of *Rolade* physical activity in implementing study from home physical education that can: (a)

facilitate physical education teachers in implementing study from Home; (b) increase students' interest and motto in carrying out home learning (Beghetto & Kaufman, 2014); and (c) develop a patient, tenacious, disciplined attitude following the direction in the implementation of the game (Cho et al., 2013). So that at the end of the game, variations of motion activities made on *Rolade* physical activity can increase the motivation of Study From Home Physical Education elementary school students (Beghetto & Kaufman, 2014). (Beghetto & Kaufman, 2014) (Beghetto and Kaufman, 2014)

Game-based learning media before the trial will be validated first by a team of experts. The expert team consists of content experts, design, and media. The results of three experts' verification data analysis on the feasibility of national defense media products' development. The learning product is eligible to be used as a component of game-based learning media to motivate students to learn about the COVID-19 pandemic at home during their studies. However, the three experts all put forward some suggestions for revision to make learning products more perfect. The expert team's advice is the composition of colors, the display's design should be precise, and the size should be suitable for children aged 7-8 years. In total, the description of the average percentage feasibility of game-based learning media validation results of the three experts can be seen in figure 4.
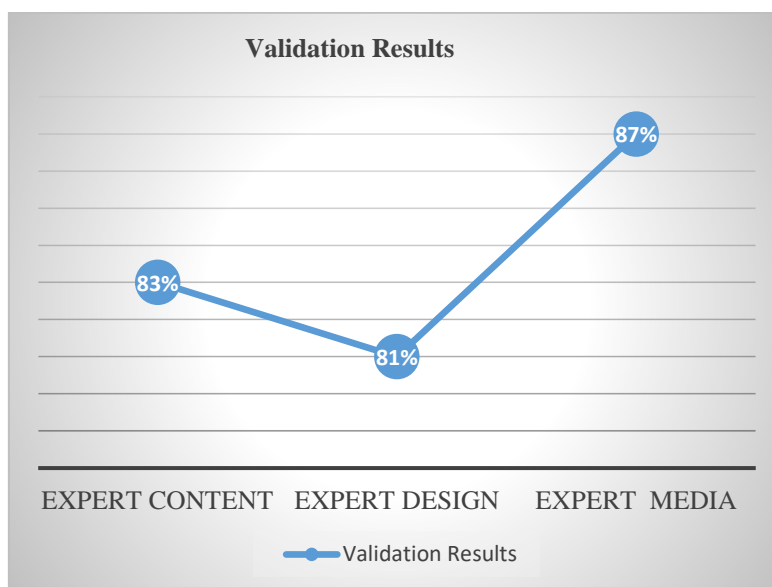

Figure 4. Expert team validation results

Based on the average assessment of the three experts of 83.67% can be interpreted that the product developed is worth using and can be done field tests.

Field trials aim to see the effectiveness of game-based learning media in achieving pre-defined learning objectives. Also, it is to obtain information about learning components, material components, and display components. Field trials were conducted with 19 children aged 7-8 years, which is adjusted to the number of children in SDIT Lampu Iman. The primary trial process is carried out. Children aged 7-8 years are given access to use game-

based learning media. Hal is done because to identify shortcomings or weaknesses in the media, be it material, instructive goals, and results motivate students in learning at home. Following the primary purpose of developing learning media to encourage students to learn at home during the COVID-19 pandemic. Before the treatment with learning media, participants conducted an initial test to see the initial ability. After the treatment with the learning media at the end of the activity, they showed the final examination. The comparison of the initial and final *test* results of field trials can be seen in table 1.

Table 1. Pre-test and post-test field test results

	Pre-Test	Post-Test
N Valid	19	19
Mean	79.47	93.63
Median	79.00	94.00
Mode	79	97
Std. Deviation	2.503	6.020
Variance	6.263	36.246
Range	10	19
Minimum	74	85
Maximum	84	104
Sum	1510	1779

Based on table 1. It can be illustrated with graphics like figure 5.
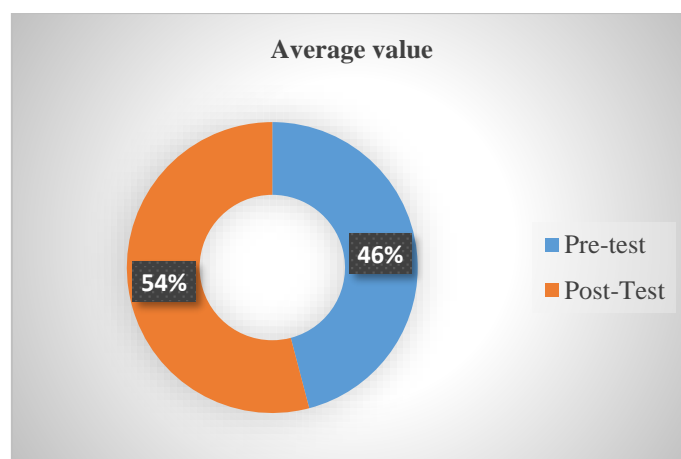

Figure 5. Pre-test and post-test results

Based on table 1, T Paired test with SPSS 24.0 results can be seen in table 2.

Table 2. T paired statistical results

	Statistical	T(table)
Mean	-14.158	
Std. Deviation	6.414	

T	9.621	1.734
Df	18	
Sig. (2-tailed)	0.000	

Table 2 obtained value T = 9622 compared to the t table on df 18 is 1.734. Because t statistical 9.621>t (table) 1.734, it can be interpreted significantly that the initial test is different from the final *test*. It can also be by looking at the Sig value. (2-tailed) or p-value of 0.000. That means there is a difference between before and after treatment, that p-value 0.000<0.05. There is an increase in the score after intervention for the mean value of -14.158, negative value. An average increase of 14,158 concluded that game-based learning media effectively motivates students to learn at home during the COVID-19 pandemic. This study's finding is that giving treatment during 12 meetings through Rolade game-based learning media for children aged 7-8 years can motivate students' learning. Rolade game-based learning media can encourage students to learn at home during the COVID-19 outbreak based on field tests.

Discussion

In some terminology, motivation is a necessity, desire, gesture, instinct, and impulse, which forces the organism to act. Motivation is a force that encourages a person to do something to achieve a goal(Raes et al., 2020). This power is stimulated from various needs such as (a) wishes to be fulfilled; (b) conduct; (c) purpose; and (d) feedback (Bizimana et al., 2020). The concept of motivation contained three essential images: purpose, knowledge, and metacognitive processes (Kalogiannakis & Papadakis, 2021). Motivation is an element in achieving optimal learning achievements and general health conditions and intelligence, and talents and interests (Ivanova et al., 2020). Learning motivation is a factor that nonintellectual psychic; its distinctive role is in the growth of passion, feelings, and spirit to learn (Chen et al., 2020). Thus motivation has a strategic role in learning (Hennessey, 2019). To be more optimal at the end of knowledge, then the principles of motivation in learning activities must be carried out (Enright & Sullivan, 2013). Students' learning motivation in the study from home can be improved by utilizing engaging media to make students interested in learning. In this case, teachers can create or use an animated press to support a study from home.

The learning media innovation theory is the constructivism theory that children develop through the learning process (Rahayu & Trisna, 2016). In constructivism learning, there is a process of constructing knowledge that occurs from within the child. Everything such as materials, media, equipment, environment, and other facilities can assist such formation. Teachers create a fun learning atmosphere. To create a fun learning atmosphere, teachers use games in the form of media. In addition to the pleasant atmosphere, the game's media is also something meaningful: the knowledge gained from real-life experience in developing personal and social skills (Pill & Suesee, 2017).

Media digital facilitates independent and practical learning in improving learning outcomes and learning something that teachers do to achieve learning goals by strong the students' learning (Fiorella & Mayer, 2018). The learning process is an effort to make students learn

so that a situation is a learning event, which is an effort to change students' behavior (Göksu et al., 2017). Behavior changes can occur due to interactions between students and their environment. Behavior changes depend on two factors, namely: internal factors and external factors (Gagne et al., 2005). Instructional is an effort to give excitatory guidance, direction, and encouragement to students to occur the learning process (Vogel-Walcutt et al., 2013).

Furthermore, learning is the process of behavior change (in a broad sense) caused or altered through practice or practice (Tang et al., 2019). Learning is a series of physical activities to obtain a change in behavior due to an individual's experience in interaction with his environment, which concerns cognitive, affective, and psychomotor(Stacey et al., 2008). Learning plays an essential role in learning because, in learning, there are learning events and teaching events. Learning is a psychophysical activity caused by teaching activities.

Conclusion

During the research and development of game-based learning media Rolade, giving implications in refined products is a medium that can facilitate the learning process for children aged 7-8 years. This product can help teachers and students aged 7-8 years as a learning resource and motivate students to learn at home during the COVID-19 pandemic. With the media developed, it is expected to meet the needs of children aged 7-8 years in doing home learning.

To support the widespread use of Rolade game-based learning media, teachers and parents need to socialize with students. This learning medium is easy to operate or use. It is a learning resource to motivate children to learn at home. Based on the conclusions and implications that have been put forward, there are recommendations that researchers want to convey, namely: Teachers with limited time in facilitating learning, and it is necessary to develop appropriate learning media to support innovative, effective, efficient, and fun learning processes. For this purpose, teachers are recommended to become learning developers, not just as educators. Therefore, it is necessary to understand the development research to support the learning process. Obstacles faced by the limited intensity of the implementation of treatment because of pandemic covid-19 rely only on Zoom meeting cloud or google meet. For further research, look for other methods that can address these obstacles.

References

1. Antonucci, T. C., Settersten, R. A., Bernardi, L., Juho, H., Dykstra, P. A., Heckhausen, J., Kuh, D., Ulrich, K., Moen, P., Mortimer, J. T., Mulder, C. H., Smeeding, T. M., Lippe, T. Van Der, Hagestad, G. O., Kohli, M., Schoon, I., & Thomson, E. (2020). Understanding the effects of Covid-19 through a life course lens. *Advances in Life Course Research*, *45*(July), 1–11. https://doi.org/10.1016/j.alcr.2020.100360
2. Beghetto, R. A., & Kaufman, J. C. (2014). Classroom contexts for creativity. *High Ability Studies*, *25*(1), 53–69. https://doi.org/10.1080/13598139.2014.905247
3. Bizimana, B., Yaw, S., Somuah, B. A., & Guantai, H. K. (2020). Influence of students' learning experiences on involvement in alma mater in selected Ghanaian, Kenyan and Rwandan Universities. *Social Sciences & Humanities Open*, *2*(July 2019), 1–7. https://doi.org/10.1016/j.ssaho.2020.100026
4. Buckner, J. D., Abarno, C. N., Lewis, E. M., Zvolensky, M. J., & Garey, L. (2021). Increases in distress during stay-at-home mandates During the COVID-19 pandemic : A longitudinal study. *Psychiatry*

Research, *298*(February), 113821. https://doi.org/10.1016/j.psychres.2021.113821

5. Campos, S., Trujillo, Y., Carlo, M. D., & Huam, T. (2021). Telementoring of in-home real-time laparoscopy using whatsapp messenger : An innovative teaching tool during the COVID-19 pandemic . A cohort study. *Annals of Medicine and Surgery*, *62*(December 2020), 481–484. https://doi.org/10.1016/j.amsu.2021.01.085

6. Chen, I. H., Gamble, J. H., Lee, Z. H., & Fu, Q. L. (2020). Formative assessment with interactive whiteboards: A one-year longitudinal study of primary students' mathematical performance. *Computers and Education*, *150*, 103833. https://doi.org/10.1016/j.compedu.2020.103833

7. Cho, Y., Chung, H. Y. E. Y., Choi, K., Seo, C., & Baek, E. (2013). The Emergence of Student Creativity in Classroom Settings : A Case Study of Elementary Schools in Korea. *Journal of Creative Behavior*, *47*(2), 152–169. https://doi.org/10.1002/jocb.29

8. Dick, W., Carey, L., & Carey, J. O. (2015). The Systematic Design of Instruction. In *Pearson* (6th ed.). Pearson.

9. Enright, E., & Sullivan, M. O. (2013). Physical Education " in All Sorts of Corners " Physical Education " in All Sorts of Corners :" Student. *Research Quarterly for Exercise and Sport*, *83*(2), 37–41. https://doi.org/10.1080/02701367.2012.10599856

10. Espino-d, L., & Fernandez-caminero, G. (2020). Analyzing the Impact of COVID-19 on Education Professionals . Toward a Paradigm Shift : ICT and Neuroeducation as a Binomial of Action. *Sustainability*, *12*, 1–10. https://doi.org/10.3390/su1214564

11. Essa, A., Lily, A., Ismail, A. F., & Abunasser, F. M. (2020). Technology in Society Distance education as a response to pandemics : Coronavirus and Arab culture. *Technology in Society*, *63*(July), 1–11. https://doi.org/10.1016/j.techsoc.2020.101317

12. Fatoni, Arifiati, N., Nurkhayati, E., Nurdiawati, E., & Fidziah. (2020). University Students Online Learning System During Covid-19 Pandemic : Advantages , Constraints and Solutions. *Systematic Reviews in Pharmacy*, *11*(7), 570–576. https://www.sysrevpharm.org/fulltext/196-1602175161.pdf

13. Fiorella, L., & Mayer, R. E. (2018). What works and doesn't work with instructional video. *Computers in Human Behavior*, *Volume 89,* 465–470. https://doi.org/10.1016/j.chb.2018.07.015

14. Gagne, R. M., Briggs, L. J., & Wager, W. W. (2005). *Principles of Instruction, Fourth Edition*. Ted Buchhlz. https://doi.org/10.1002/pfi.4140440211

15. Ghebreyesus, T. A. (2020). *Virtual press conference on COVID-19* (Issue March). https://www.who.int/docs/default-source/coronaviruse/transcripts/who-audio-emergencies-coronavirus-press-conference-full-and-final-11mar2020.pdf?sfvrsn=cb432bb3_2

16. Göksu, I., Özcan, K. V., Cakir, R., & Göktas, Y. (2017). Content analysis of research trends in instructional design models: 1999-2014. *Journal of Learning Design*, *10*(2), 85. https://doi.org/10.5204/jld.v10i2.288

17. Goniewicz, K., & Khorram-Manesh. (2021). Maintaining Social Distancing during the COVID-19 Outbreak. *Social Sciences*, *10*(14), 1–7. https://doi.org/10.3390/socsci10010014

18. Grammatikopoulos, V., & Gregoriadis, A. (2012). *Acknowledging the role of motor domain in creativity in early childhood education. In O. N. Saracho (Ed.), Contemporary Perspectives on Research in Creativity in Early Childhood Education*. Information Age Publishing Inc.

19. He, W., Justin, Z., & Li, W. (2021). Information technology solutions , challenges , and suggestions for tackling the COVID-19 pandemic. *International Journal of Information Management*, *57*(November 2020), 1–8. https://doi.org/10.1016/j.ijinfomgt.2020.102287

20. Hellriegel, D., Jackson, S. E., & Slocum, J. W. (2016). *Managing: A competency based approach* (11th ed.). Argie Butler.

21. Hennessey, B. A. (2019). *Intrinsic Motivation and Creativity in the Classroom: Have We Come Full Circle? In R. Beghetto & J. Kaufman*. Cambridge University Press. https://doi.org/10.1017/9781316212899.015

22. Ivanova, R., Ivanov, A., & Nikonova, Z. (2020). Application of Mobile Technologies in Foreign Language Learners ' Project Activity. *International Journal of Interactive Mobile Technologies (IJIM)*, *14*(21), 64–77. https://doi.org/10.3991/ijim.v14i21.18471 Rimma

23. Kalogiannakis, M., & Papadakis, S. (2021). education sciences Gamification in Science Education . A Systematic Review of the Literature. *Education Sciences*, *11*(22), 1–36.

https://doi.org/10.3390/educsci11010022

24. König, J., Jäger-biela, D. J., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure : teacher education and teacher competence effects among early career teachers in Germany. *European Journal of Teacher Education*, *43*(4), 608–622. https://doi.org/10.1080/02619768.2020.1809650

25. Konstantinidou, E., Gregoriadis, A., Grammatikopoulos, V., & Michalopoulou, M. (2014). Primary physical education perspective on creativity: The nature of creativity and creativity fostering classroom environment. *Early Child Development and Care*, *184*(5), 766–782. https://doi.org/10.1080/03004430.2013.818989

26. McClelland, D. C. (2005). Human motivation. In *Cambridge University Press* (Vol. 23, Issue C). Cambridge University Press. https://doi.org/10.2307/1422777

27. Mishra, L., Gupta, T., & Shree, A. (2020). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open*, *1*(August), 1–8. https://doi.org/10.1016/j.ijedro.2020.100012

28. Pill, S., & Suesee, B. (2017). Including Critical Thinking and Problem Solving in Physical Education. *Journal of Physical Education, Recreation & Dance*, *88*(9), 43–49. https://doi.org/10.1080/07303084.2017.1367741

29. Raes, A., Vanneste, P., Pieters, M., Windey, I., Van Den Noortgate, W., & Depaepe, F. (2020). Learning and instruction in the hybrid virtual classroom: An investigation of students' engagement and the effect of quizzes. *Computers and Education*, *143*(August 2019), 1–16. https://doi.org/10.1016/j.compedu.2019.103682

30. Rahayu, & Trisna, E. (2016). *Strategi Pembelajaran Pendidikan Jasmani Implementasi pada Pembelajaran Pendidikan Jasmani Olahraga dan Kesehatan*. Alfabeta.

31. Stacey, E., Gerbic, P., Mayer, R. E., Kyu, M., Mi, S., Khera, O., Getman, J., Kukulska-Hulme, A., Krauskopf, K., Zahn, C., Hesse, F. W., Hansch, A., Hillers, L., McConachie, K., Newman, C., Schildhauer, T., Schmidt, P., Graves, L., Conole, G., … Africa, U. S. (2008). Getting started with blended learning. *Computers and Education*, *15*(4), 331–346. https://doi.org/10.2139/ssrn.2577882

32. Tang, X., Pakarinen, E., Lerkkanen, M., Muotka, J., & Nurmi, J. (2019). Journal of Applied Developmental Psychology Longitudinal associations of first-grade teaching with reading in early primary school. *Journal of Applied Developmental Psychology*, *63*(February 2018), 23–32. https://doi.org/10.1016/j.appdev.2019.05.002

33. Vogel-Walcutt, J. J., Fiorella, L., & Malone, N. (2013). Instructional strategies framework for military training systems. *Computers in Human Behavior*, *29*(4), 1490–1498. https://doi.org/10.1016/j.chb.2013.01.038

34. Wargadinata, W., Maimunah, I., Dewi, E., & Rofiq, Z. (2020). Student ' s Responses on Learning in the Early COVID-19 Pandemic. *Jurnal Keguruan Dan Ilmu Tarbiyah*, *5*(1), 141–153. https://doi.org/10.24042/tadris.v5i1.6153

35. Yogesh Hole et al 2019 J. Phys.: Conf. Ser. 1362 012121