



Utilisation of Android Learning Video Application in Improving Student Achievement

Rezeki Nur ¹, Erna Wahyuni ², Rosianna Gusniasari ³, Xie Guilin ⁴, Yeffriansjah Salim ⁵

¹ Akper Mappa Oudang Makassar, Indonesia

² Universitas Borneo Tarakan, Indonesia

³ Universitas Negeri Yogyakarta, Indonesia

⁴ University of Science and Technology of Hanoi, Viet Nam

⁵ Sekolah Tinggi Manajemen Informatika dan Komputer Indonesia Banjarmasin, Indonesia

Corresponding Author: Rejeki Nur

E-mail: rhenu@gmail.com

Article Information:

Received December 10, 2023

Revised December 19, 2023

Accepted December 25, 2023

ABSTRACT

Android is a device that cannot be separated from education and learning in the current 5.0 era, for this reason educational institutions must have high enthusiasm in increasing the learning of android video applications to improve student achievement. The purpose of this study is that educators and students can utilize android learning video applications in improving student achievement in learning. This research was conducted with a quantitative method survey model, namely researchers distributed questionnaires using google form to educators and students. The results of this study explain that the android learning video application can be an alternative by educators in an effort to improve student achievement. To see an increase in student achievement through android learning videos, there needs to be training and development for educators and students, because android competition will be tighter in the future. Researchers have research limitations in conducting this android utilization survey because it does not cover all educational institutions, for that researchers hope that future researchers will conduct surveys with the addition of educational institutions and better ways.

Keywords: *Android, Learning video, Utilization*

Journal Homepage

<https://ejournal.staialhikmahpariangan.ac.id/Journal/index.php/wp/>

This is an open access article under the CC BY SA license

<https://creativecommons.org/licenses/by-sa/4.0/>

How to cite:

Nur, R., Wahyuni, E., Gusniasari, R., Judijanto, L., Salim, Y. (2023). Utilisation of Android Learning Video Application in Improving Student Achievement. *World Psychology*, 2(3), 248-263. <https://doi.org/10.55849/wp.v2i3.581>

Published by:

Sekolah Tinggi Agama Islam Al-Hikmah Pariangan Batusangkar

INTRODUCTION

Technological developments that are increasingly advanced in the fields of education, economy, social and culture (Duan et al., 2018; Kim et al., 2019; Lee et al.,

2019). This requires all parties to race in the world of technology, because today's competition is no longer physical but millennial in any field in the era of increasingly developing times (Abd Majid & Mohd Shamsudin, 2019; Andoni et al., 2019; Saberi et al., 2019). Technology in the era of globalization has a huge impact, especially in the field of education. Education will be more advanced when all parties within the scope can race in using technology (Baloch et al., 2021; Haseeb et al., 2019; Jahanger et al., 2022). Technology provides many benefits to the development of education (Akçayır et al., 2016; Subhash & Cudney, 2018; P. Wang et al., 2018). One example of technology is a smartphone or cellphone, in an education all parties will not be separated from cellphones, because cellphones are lightweight and minimalist.

Mobile phones have many benefits for educators to facilitate the teaching and learning process (Sudaryadi et al., 2020; Wibawa & ., 2019). Educators or teachers must try as much as possible in using cellphones to improve student achievement, because with cellphones educators and students can communicate both at school and outside school (Frid-Adar et al., 2018; Senapati et al., 2018; Topol, 2019). Mobile phones are an example of technology that is easy to carry everywhere, with mobile phones it will make it easier for teachers to provide information related to learning even though they are not in the school environment (Pinho et al., 2019; Venkata Ramana et al., 2019; Wali & Omaid, 2020). Educators are required to always be updated in the field of technology, because if educators are updated in this technology it will greatly affect student achievement in education, and will also affect the accreditation or development of an educational institution or institution.

The purpose of education is so that humans can become good characters, can distinguish between good and bad, and can also know that their potential can be useful for society (Bai et al., 2020; Fry et al., 2018; Kioupi & Voulvoulis, 2019). While humans can be far from ignorance and suffering, and can give birth to people who are proficient, have religious morals and advanced critical thinking, this is the function of education (Aziz et al., 2018; Cheng et al., 2018; Lövdén et al., 2020). The teaching and learning process is always related to education, this teaching and learning process has important aspects, learning, learning, evaluation, educators, and students (Davies et al., 2018; Reichstein et al., 2019; Sun et al., 2019). A quality learning process will greatly help to realize quality education and achieve educational goals, and will also greatly help in improving student achievement.

In this era of globalization, the fast way to simplify work, solve problems, especially in the field of learning is technology (Acheampong et al., 2019; Haseeb et al., 2019; Khan et al., 2019). The rapid development of social media today has made people more creative and innovative in doing things related to education. Educators and students in the world of education must be able to keep up with these developments, because with the development of social media this will facilitate learning. Learning can be presented in the form of videos, photos and audio that make students not bored in learning (E. Chen et al., 2020; Orben et al., 2020; Zubiaga et al., 2019). Learning using this style will have an impact on students, the intended impact is the increase in skills or achievements that exist in students.

The learning media that can be used to make videos in presenting learning is an application that can be used to make videos (Story et al., 2019; S. Wang et al., 2019; Yip et al., 2019). Learning video applications can be used by educators to present material more interestingly, with the existence of learning video applications can help educators to relieve tasks in their work, for example if the teacher is out of town then

the students remain in class and learn from the videos that have been displayed in this application (Bhatia, 2018; J. Chen et al., 2018; Toninelli et al., 2019). Students must also be able to use this android learning video application, because with videos from educators, students can learn anywhere after downloading the application. The android learning video application has a very good influence on educators and students in carrying out the teaching and learning process. The development of an increasingly modern and technological era requires all parties, especially in the scope of education, to be as skilled, creative, and creative as possible in using various new applications with the aim of improving student achievement. Applications are defined as tools to make it easier to fulfill a need. Educators must strive to be skilled in using learning video applications so that students are enthusiastic and can improve skills in the learning process.

The purpose of this learning video application is to make it easier for educators to explain the material and make it easier for students to understand the material being explained. But at this time there are still many educators who cannot use video applications in learning due to lack of knowledge of how to use the media. As a learner it is possible to be more proficient than the teacher, because in the world of technology it depends on persistence and a lot of literacy not depending on the status of the position. For example, many children who are still teenagers today already have their own income because they are proficient in using the application (Fu & Hwang, 2018; Pivoto et al., 2018; Zhao et al., 2019). Educators must be able to take advantage of students who are proficient in using learning video applications to be able to train and improve the achievements of other students.

There are several previous studies that are relevant to the research conducted at this time including (Arif Sulistiyo Atmoko) on the utilization of android applications in learning videos to improve student learning outcomes in computer network material (Coley et al., 2018; Larson et al., 2018; Liu et al., 2020). The results obtained that learning media in the form of android applications that can facilitate access to learning materials and learning videos as a substitute for material in the form of ebooks can improve the results of students' knowledge of computer network material. In addition to the advantages of android applications can be used to overcome besides that it is easy to carry can be connected to the network anytime and anywhere, more flexible in accessing learning resources communication proximity, students can be involved and active. The use of android applications as a substitute for the school's Learning Management System and learning materials in the form of learning videos as a substitute for ebooks has a significant impact on improving student learning outcomes.

The reason researchers conducted this study was to see the extent of the utilization of android learning video applications in an effort to improve student achievement in the teaching and learning process, and also to find out the advantages and disadvantages of learning video applications. And can facilitate educators and students in achieving the learning objectives that have been designed. How to apply the android learning video application to provide convenience in terms of sending, distributing even without face-to-face contact. The problem encountered in this learning video application is the difficulty of accessing and discussing in the discussion column. Factors that cause obstacles in the application are poor internet networks that make it difficult for students to access videos in the application.

RESEARCH METHODOLOGY

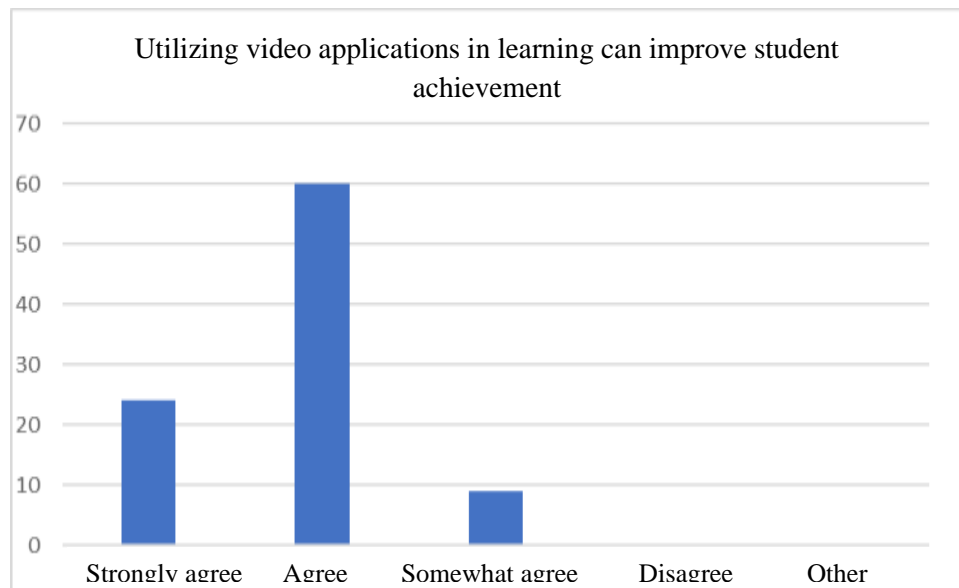
The method used by researchers is a quantitative method which is carried out by direct survey to the place of destination studied (Park et al., 2018; Yu et al., 2020; Zwanenburg et al., 2020). The survey method used is related to the research objectives about the benefits of learning videos using android to improve student achievement. This research was conducted in one of the schools in Sawahlunto during the 2020/2021 school year because that year technology developed rapidly. The time was used because at that time the teaching and learning process used a lot of applications due to the covid outbreak that hit the world of education. Video applications used in the learning process can create a conducive and effective learning atmosphere, students' interest in lessons increases using adroid while learning. But such a way of learning must have strong assistance by educators so that students do not violate the rules when learning through adroid.

The source of this research comes from the views of educators and students conducted by researchers to schools by distributing questionnaires by researchers online. It will produce constructive responses about the use of video with android to improve student achievement in learning (Rose, 2020; Sundarasan et al., 2020; Theobald et al., 2020). The use of this application depends on the institution whether it is allowed to use it or not because not all educators use the application for learning. We recommend that the use of android-based video applications should be used in every school in order to realize smart, active and creative students to support lessons. If this application is used an educator must understand in depth about the programs in it before being introduced to students and in the learning process students must be accompanied and monitored so that the desired things do not happen.

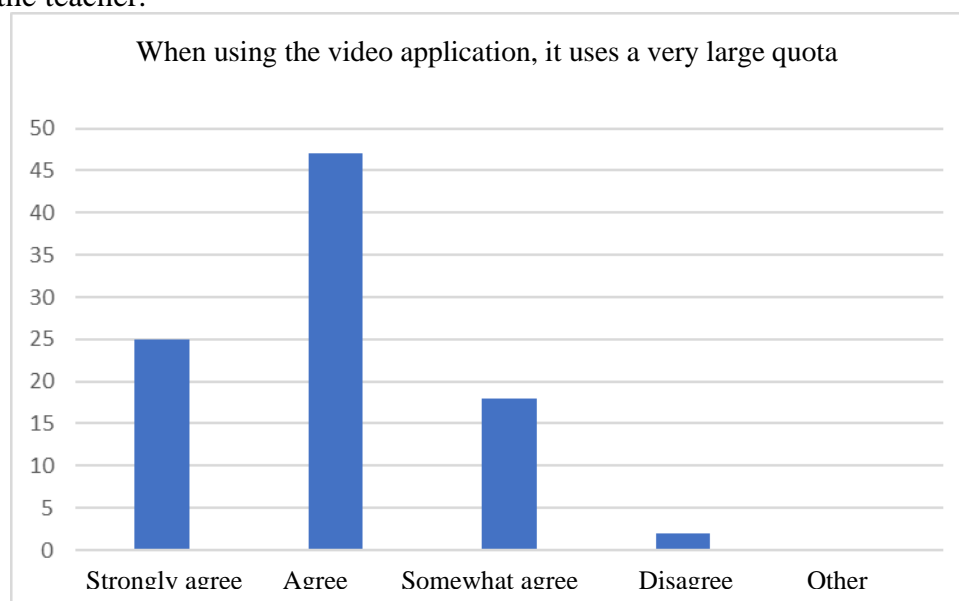
From research conducted quantitatively using google form which is distributed to educators and students as a whole. It aims to produce and get a percentage of each question that has been asked by the researcher. This technique is used to make it easier for researchers to get results and can collect samples of students and educators who have been interviewed. In this way, it will obtain all the samples that have been studied from around 50 (fifty) people who fill in what has been submitted by the researcher. This number will be seen in every student and educator who gives his responses about adroid-based video applications. Research by means of this survey, researchers have arranged words in the form of a question related to the use of video applications with Android to improve student achievement.

RESULT AND DISCUSSION

Technological advances today have a huge impact on the world of education. This is because the education level will never be separated from the use of technology related to the internet. This is one form of supporting facilities in the learning process. For educators and students, technology is very helpful in the teaching and learning process. In the world of education, technology is a way to race and compete in improving student achievement and increasing the accreditation of a school. Researchers have conducted a survey by distributing google forms about the utilization of android learning video applications in the scope of learning which aims to determine the utilization of this video application by educators to improve student achievement. Which the use of this application can be used in all school agencies.

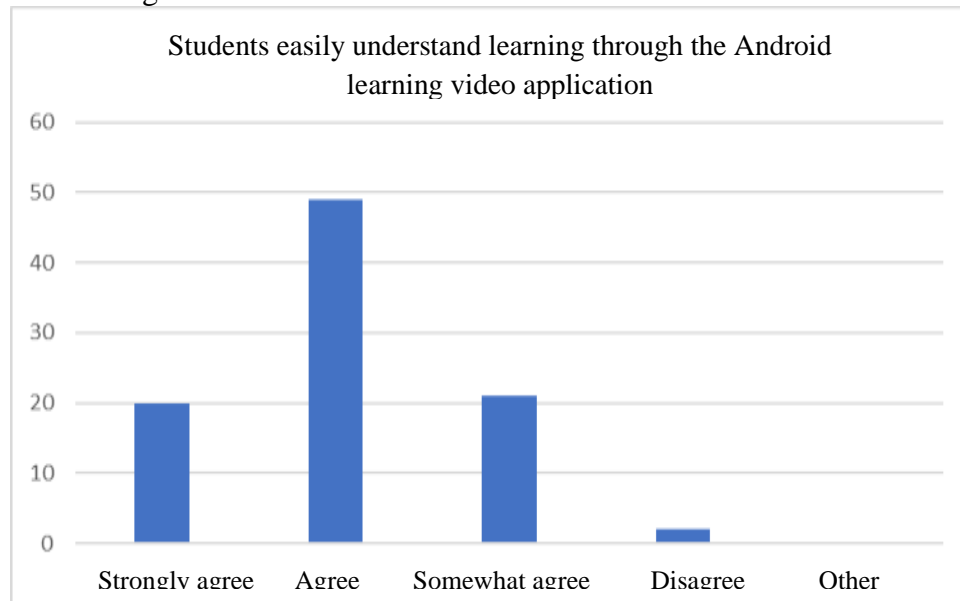


From the diagram above, it can be seen that the opinions of the students regarding the discussion of the utilization of the android learning video application in improving student achievement, the answers from the students were varied, some answered strongly agree, namely 24 people, some answered agree, namely 60 people, who answered less agree, namely 9 people, and who answered disagree, namely 0 people. This research was conducted by distributing questionnaires containing statements online via whatsapp. It can be seen from the diagram above that students choose more answers agree, because students understand the learning presented by the teacher through videos and can also help students in improving learning achievement. It can also be seen from the diagram that there are also students who answer less agree, namely there are 9 people, it could be that students do not understand the material presented through videos, because students need more direct explanation from the teacher.

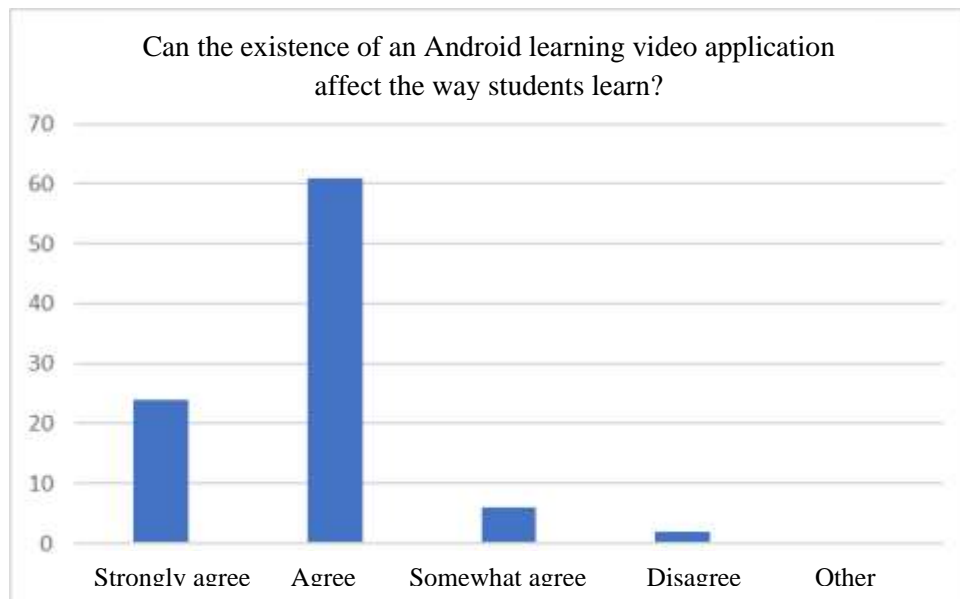


From the diagram above, it can be seen that the respondents given by the students regarding the use of video applications that consume a lot of quota. Judging from the above statement, many students who answered agreed, namely 47 people,

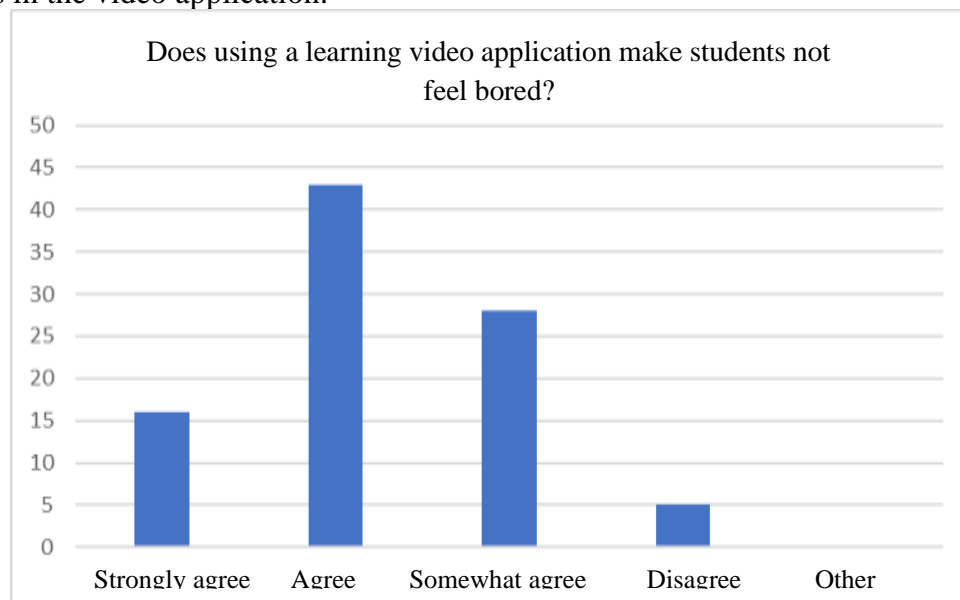
because it could be that students who usually have to be economical in using quotas due to economic limitations, but because the use of this video application resulted in students often buying quotas so that it became burdensome to the students. Some of these students also answered strongly agree as many as 25 people, 18 people disagreed, and there were even students who answered disagree as many as 2 people. Students who answered disagree could be that the student came from a well-off family who did not need to save on quota for the use of video applications, because the student was not limited in his economy and was financed by his parents in buying quota for learning.



It can be seen from the diagram statement above regarding students' understanding of learning by using video applications. In the diagram above, it can be seen that the responses given by students regarding understanding learning by using the android video application are that many students who answer agree there are 49 people, there are students who answer strongly agree, namely there are 20 people, who answer disagree there are 21 people, and who answer disagree there are 2 people. Judging from the students who answered the most, namely agree, it could be that the students understood and understood the learning presented by the teacher using the video because the students thought that the explanation directly or through the video both came from the teacher, the difference was only that one was directly and the other was indirectly. It can also be seen that there are some students who answer less agree and even disagree because students need and more easily understand the explanation delivered directly in front of the class by the teacher.

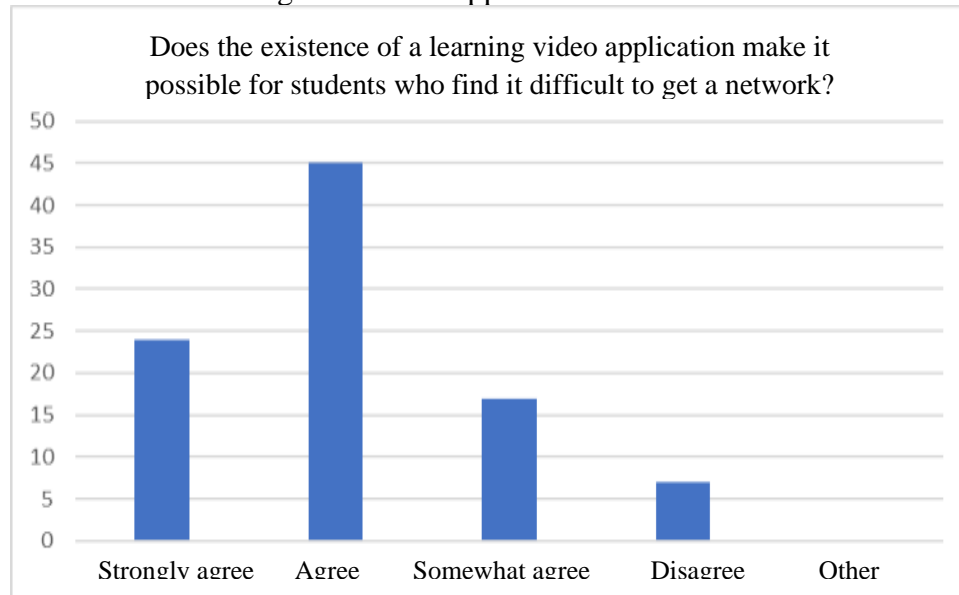


It can be seen from the respondents given by students regarding learning with an android that affects how students learn. Some of the students answered agree because the students thought that learning with an android made students unfocused due to the many factors that undermined the focus of the student, such as students replying to notifs from whatsapp, notifs from Instagram, taking pictures while studying, and students could also play games when the teacher explained the lesson. So that's why the initial intention was to see the learning material but deviated to things that were not related to learning. There are also some of the students who answered disagree and disagree, it could be that students who give such responses are students who are lazy in learning and also lazy in listening to explanations from teachers in front of the class, so that students prefer through videos because students can play or do other things in the video application.

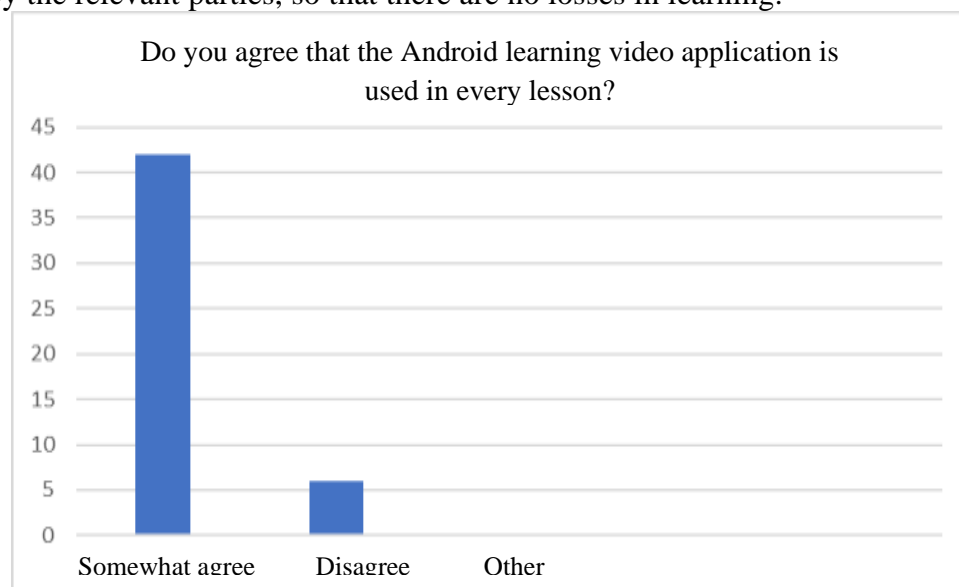


Based on the results of the respondents above, it can be seen that many chose to agree and strongly agree with the results of the statement using the learning video application. This makes students not feel bored, because they will be able to increase their interest in learning and make learning not saturated. This platform also produces

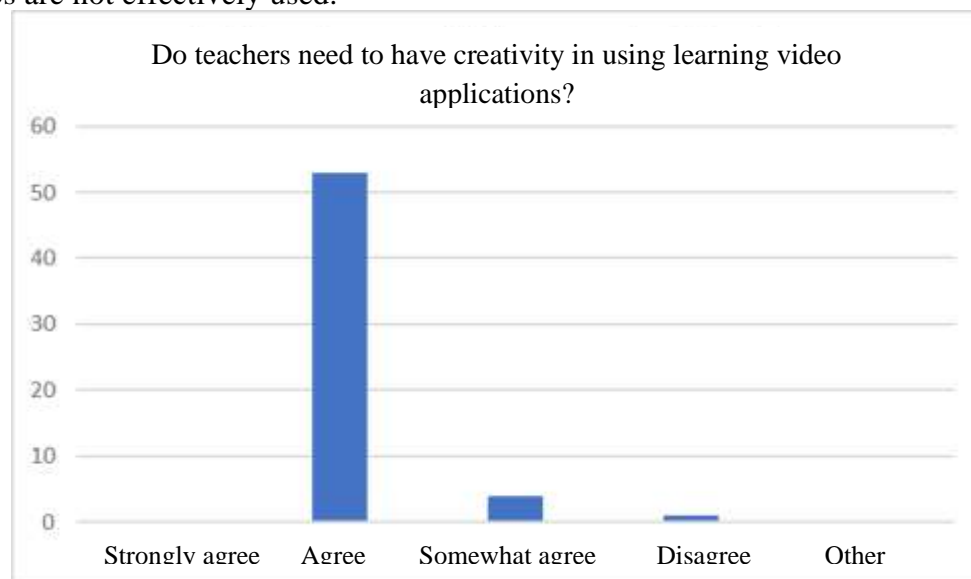
many interesting learning video creations and becomes an innovation for them alone. There are also those who answer less agree and disagree because, it could be because they will not be able to focus on learning because they will abuse the android. An educator must be able to control or supervise when students use an android for the learning process. So that if students are faced with such a way of learning, educators must be firm so that nothing unwanted happens.



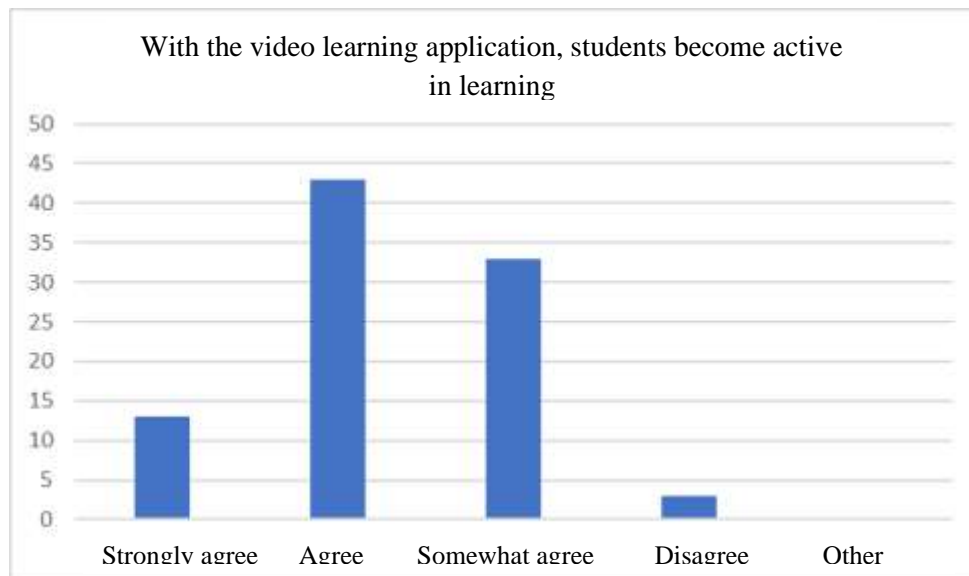
Based on the results of the respondents above, choosing different answers, including those who chose strongly agree, agree, disagree, and disagree. Regarding respondents who answered strongly agree and agree because maybe the student is constrained by the network and it is difficult to find a network. This is one of the main causes that disrupts the learning process. So that these students find it difficult to understand the lesson. For respondents who answered disagree and disagree, maybe in their place the network is very good, making it easier for them to access information. Network problems are usually found in places far from settlements or remote from the crowd. So it can be concluded that learning using this network must be conditioned first by the relevant parties, so that there are no losses in learning.



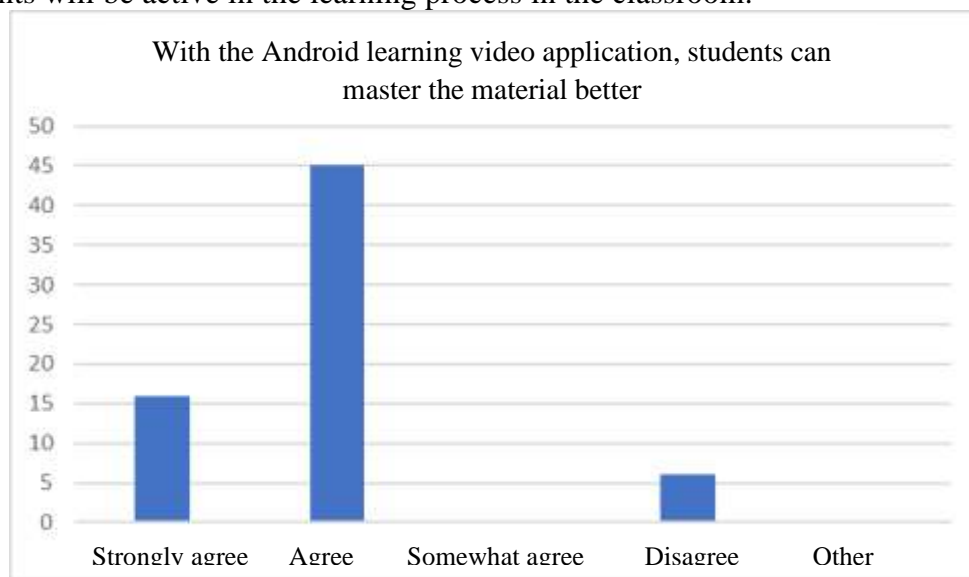
Based on the diagram above, it can be concluded that the results related to this question are many who choose to disagree, because basically the use of android learning videos will cause students not to focus on learning, many things they will see but not see learning material. So they will not be able to understand the learning material properly because they are focused on the video alone and do other activities, and also have other activities. Students will also not be able to interact well, so there is no question and answer in the learning process. For this reason, it is necessary to collaborate between the use of learning videos from teachers for students. So that students are able to understand the learning video well. With that many people are hesitant in using learning videos, because of that many people think that learning videos are not effectively used.



Judging from the diagram above, how do respondents think about the ability to be creative in using learning videos. Where respondents chose with different answers, some answered agree, disagree and disagree. It can be seen that many respondents answered questions related to the ability of a teacher to use this learning video application. The questionnaire results obtained from this statement were 50 people answered agree, this is because they agreed for teachers to be more creative in the learning process, so that learning is not boring. Teachers must be able to make learning videos as good as possible in order to make a motivation for students to increase their interest in learning. Educators must be required to be able to use the application that will be introduced to students later. If the teacher is not good at operating the platform, it will cause very significant problems for students. Therefore, educators must understand more about the application.



Judging from the diagram above, the respondents answered differently. Some of them answered strongly agree, agree, disagree and disagree. Related to respondents who answered strongly agree and agree because the video contains the material being studied so that they not only see but they can listen and they will not need to take notes or summarize the material again. If during the exam they can listen to the video with various activities so that they can understand the material. Regarding respondents who disagree and disagree, maybe they cannot understand the material and cannot discuss material related to learning. And it is not certain if with learning videos students will be active in the learning process in the classroom.



Based on the diagram above, it can be seen that the results of respondents who answered differently. Among them are those who answered strongly agree, agree and disagree. Related to respondents who answered strongly agree and agree because this learning video is made as interesting as possible and in the video only the essence of the learning material is made, making it easier for students to master the material quickly without repetition from the educator to explain the learning material again. For respondents who answered disagree, there may be obstacles to understanding the material and making them will never master the material. And using learning videos is

also considered very effective because many variations are released from the video that has been designed, and students will be comfortable and feel happy with the learning video application.

So from the 10 surveys that the researchers have described, it can be concluded that the use of android learning video applications in improving student achievement is one of the supporters in the teaching and learning process. which can be able to increase the creativity of each student in the use of features when learning. Included in learning videos can increase student interest in learning and increase student motivation in every lesson. Respondents mostly answered agree and strongly agree compared to the other 3 options, it can be useful for more interesting and creative means. Not all students can understand the material by using the application because sometimes students are less able to understand the material delivered online. Educators play an important role in balancing every learning that is done both by using videos and not using applications in learning.

CONCLUSION

Learning video application is one of the ways used in the learning process to improve student achievement. The purpose of this learning video application is to increase students' interest in learning so that they have more enthusiasm for learning and have the motivation to learn. This learning video application can develop students' creative ideas in the learning process. This research can be maximized, therefore researchers hope that this learning video application is not only used during the learning process but can be used in various aspects of learning. As the researchers have explained that this learning video application makes students not quickly saturated and bored in learning, because the learning video has been made as interesting as possible. And that's where the teacher or teacher is required to be more active in this learning video.

Regarding researchers who use quantitative methods, this method makes it very easy for researchers to describe the questionnaires that researchers have distributed. Therefore, the researcher hopes that the respondents will be good, this is very helpful for students in developing broad insights so that students are more advanced in all aspects of technology and applications. This learning video application is one of the supports in the learning process. so it can be concluded that this learning video application can be used as a support in improving student achievement.

REFERENCES

- Abd Majid, F., & Mohd Shamsudin, N. (2019). Identifying Factors Affecting Acceptance of Virtual Reality in Classrooms Based on Technology Acceptance Model (TAM). *Asian Journal of University Education*, 15(2), 51. <https://doi.org/10.24191/ajue.v15i2.7556>
- Acheampong, A. O., Adams, S., & Boateng, E. (2019). Do globalization and renewable energy contribute to carbon emissions mitigation in Sub-Saharan Africa? *Science of The Total Environment*, 677, 436–446. <https://doi.org/10.1016/j.scitotenv.2019.04.353>
- Akçayır, M., Akçayır, G., Pektaş, H. M., & Ocak, M. A. (2016). Augmented reality in science laboratories: The effects of augmented reality on university students'

- laboratory skills and attitudes toward science laboratories. *Computers in Human Behavior*, 57, 334–342. <https://doi.org/10.1016/j.chb.2015.12.054>
- Andoni, M., Robu, V., Flynn, D., Abram, S., Geach, D., Jenkins, D., McCallum, P., & Peacock, A. (2019). Blockchain technology in the energy sector: A systematic review of challenges and opportunities. *Renewable and Sustainable Energy Reviews*, 100, 143–174. <https://doi.org/10.1016/j.rser.2018.10.014>
- Aziz, I., Palsson, O. S., Törnblom, H., Sperber, A. D., Whitehead, W. E., & Simrén, M. (2018). The Prevalence and Impact of Overlapping Rome IV-Diagnosed Functional Gastrointestinal Disorders on Somatization, Quality of Life, and Healthcare Utilization: A Cross-Sectional General Population Study in Three Countries. *American Journal of Gastroenterology*, 113(1), 86–96. <https://doi.org/10.1038/ajg.2017.421>
- Bai, S., Hew, K. F., & Huang, B. (2020). Does gamification improve student learning outcome? Evidence from a meta-analysis and synthesis of qualitative data in educational contexts. *Educational Research Review*, 30, 100322. <https://doi.org/10.1016/j.edurev.2020.100322>
- Baloch, M. A., Ozturk, I., Bekun, F. V., & Khan, D. (2021). Modeling the dynamic linkage between financial development, energy innovation, and environmental quality: Does globalization matter? *Business Strategy and the Environment*, 30(1), 176–184. <https://doi.org/10.1002/bse.2615>
- Bhatia, A. (2018). Interdiscursive performance in digital professions: The case of YouTube tutorials. *Journal of Pragmatics*, 124, 106–120. <https://doi.org/10.1016/j.pragma.2017.11.001>
- Chen, E., Lerman, K., & Ferrara, E. (2020). Tracking Social Media Discourse About the COVID-19 Pandemic: Development of a Public Coronavirus Twitter Data Set. *JMIR Public Health and Surveillance*, 6(2), e19273. <https://doi.org/10.2196/19273>
- Chen, J., Oh, P. J., Cheng, N., Shah, A., Montez, J., Jarc, A., Guo, L., Gill, I. S., & Hung, A. J. (2018). Use of Automated Performance Metrics to Measure Surgeon Performance during Robotic Vesicourethral Anastomosis and Methodical Development of a Training Tutorial. *Journal of Urology*, 200(4), 895–902. <https://doi.org/10.1016/j.juro.2018.05.080>
- Cheng, A., Nadkarni, V. M., Mancini, M. B., Hunt, E. A., Sinz, E. H., Merchant, R. M., Donoghue, A., Duff, J. P., Eppich, W., Auerbach, M., Bigham, B. L., Blewer, A. L., Chan, P. S., Bhanji, F., & On behalf of the American Heart Association Education Science Investigators; and on behalf of the American Heart Association Education Science and Programs Committee, Council on Cardiopulmonary, Critical Care, Perioperative and Resuscitation; Council on Cardiovascular and Stroke Nursing; and Council on Quality of Care and Outcomes Research. (2018). Resuscitation Education Science: Educational Strategies to Improve Outcomes From Cardiac Arrest: A Scientific Statement From the American Heart Association. *Circulation*, 138(6). <https://doi.org/10.1161/CIR.0000000000000583>
- Coley, C. W., Green, W. H., & Jensen, K. F. (2018). Machine Learning in Computer-Aided Synthesis Planning. *Accounts of Chemical Research*, 51(5), 1281–1289. <https://doi.org/10.1021/acs.accounts.8b00087>
- Davies, M., Srinivasa, N., Lin, T.-H., Chinya, G., Cao, Y., Choday, S. H., Dimou, G., Joshi, P., Imam, N., Jain, S., Liao, Y., Lin, C.-K., Lines, A., Liu, R., Mathaikutty, D., McCoy, S., Paul, A., Tse, J., Venkataramanan, G., ... Wang, H. (2018). Loihi:

- A Neuromorphic Manycore Processor with On-Chip Learning. *IEEE Micro*, 38(1), 82–99. <https://doi.org/10.1109/MM.2018.112130359>
- Duan, X., Sun, H., & Wang, S. (2018). Metal-Free Carbocatalysis in Advanced Oxidation Reactions. *Accounts of Chemical Research*, 51(3), 678–687. <https://doi.org/10.1021/acs.accounts.7b00535>
- Frid-Adar, M., Diamant, I., Klang, E., Amitai, M., Goldberger, J., & Greenspan, H. (2018). GAN-based synthetic medical image augmentation for increased CNN performance in liver lesion classification. *Neurocomputing*, 321, 321–331. <https://doi.org/10.1016/j.neucom.2018.09.013>
- Fry, D., Fang, X., Elliott, S., Casey, T., Zheng, X., Li, J., Florian, L., & McCluskey, G. (2018). The relationships between violence in childhood and educational outcomes: A global systematic review and meta-analysis. *Child Abuse & Neglect*, 75, 6–28. <https://doi.org/10.1016/j.chiabu.2017.06.021>
- Fu, Q.-K., & Hwang, G.-J. (2018). Trends in mobile technology-supported collaborative learning: A systematic review of journal publications from 2007 to 2016. *Computers & Education*, 119, 129–143. <https://doi.org/10.1016/j.compedu.2018.01.004>
- Haseeb, A., Xia, E., Saud, S., Ahmad, A., & Khurshid, H. (2019). Does information and communication technologies improve environmental quality in the era of globalization? An empirical analysis. *Environmental Science and Pollution Research*, 26(9), 8594–8608. <https://doi.org/10.1007/s11356-019-04296-x>
- Jahanger, A., Usman, M., Murshed, M., Mahmood, H., & Balsalobre-Lorente, D. (2022). The linkages between natural resources, human capital, globalization, economic growth, financial development, and ecological footprint: The moderating role of technological innovations. *Resources Policy*, 76, 102569. <https://doi.org/10.1016/j.resourpol.2022.102569>
- Khan, M. K., Teng, J.-Z., Khan, M. I., & Khan, M. O. (2019). Impact of globalization, economic factors and energy consumption on CO2 emissions in Pakistan. *Science of The Total Environment*, 688, 424–436. <https://doi.org/10.1016/j.scitotenv.2019.06.065>
- Kim, T., Song, W., Son, D.-Y., Ono, L. K., & Qi, Y. (2019). Lithium-ion batteries: Outlook on present, future, and hybridized technologies. *Journal of Materials Chemistry A*, 7(7), 2942–2964. <https://doi.org/10.1039/C8TA10513H>
- Kioupi, V., & Voulvoulis, N. (2019). Education for Sustainable Development: A Systemic Framework for Connecting the SDGs to Educational Outcomes. *Sustainability*, 11(21), 6104. <https://doi.org/10.3390/su11216104>
- Larson, D. B., Chen, M. C., Lungren, M. P., Halabi, S. S., Stence, N. V., & Langlotz, C. P. (2018). Performance of a Deep-Learning Neural Network Model in Assessing Skeletal Maturity on Pediatric Hand Radiographs. *Radiology*, 287(1), 313–322. <https://doi.org/10.1148/radiol.2017170236>
- Lee, A. C.-L., Harris, J. L., Khanna, K. K., & Hong, J.-H. (2019). A Comprehensive Review on Current Advances in Peptide Drug Development and Design. *International Journal of Molecular Sciences*, 20(10), 2383. <https://doi.org/10.3390/ijms20102383>
- Liu, C., Chen, H., Wang, S., Liu, Q., Jiang, Y.-G., Zhang, D. W., Liu, M., & Zhou, P. (2020). Two-dimensional materials for next-generation computing technologies. *Nature Nanotechnology*, 15(7), 545–557. <https://doi.org/10.1038/s41565-020-0724-3>

- Lövdén, M., Fratiglioni, L., Glymour, M. M., Lindenberg, U., & Tucker-Drob, E. M. (2020). Education and Cognitive Functioning Across the Life Span. *Psychological Science in the Public Interest*, 21(1), 6–41. <https://doi.org/10.1177/1529100620920576>
- Orben, A., Tomova, L., & Blakemore, S.-J. (2020). The effects of social deprivation on adolescent development and mental health. *The Lancet Child & Adolescent Health*, 4(8), 634–640. [https://doi.org/10.1016/S2352-4642\(20\)30186-3](https://doi.org/10.1016/S2352-4642(20)30186-3)
- Park, Y., Depeursinge, C., & Popescu, G. (2018). Quantitative phase imaging in biomedicine. *Nature Photonics*, 12(10), 578–589. <https://doi.org/10.1038/s41566-018-0253-x>
- Pinho, A. S., Salazar, A. P., Hennig, E. M., Spessato, B. C., Domingo, A., & Pagnussat, A. S. (2019). Can We Rely on Mobile Devices and Other Gadgets to Assess the Postural Balance of Healthy Individuals? A Systematic Review. *Sensors*, 19(13), 2972. <https://doi.org/10.3390/s19132972>
- Pivoto, D., Waquil, P. D., Talamini, E., Finocchio, C. P. S., Dalla Corte, V. F., & de Vargas Mores, G. (2018). Scientific development of smart farming technologies and their application in Brazil. *Information Processing in Agriculture*, 5(1), 21–32. <https://doi.org/10.1016/j.inpa.2017.12.002>
- Reichstein, M., Camps-Valls, G., Stevens, B., Jung, M., Denzler, J., Carvalhais, N., & Prabhat. (2019). Deep learning and process understanding for data-driven Earth system science. *Nature*, 566(7743), 195–204. <https://doi.org/10.1038/s41586-019-0912-1>
- Rose, S. (2020). Medical Student Education in the Time of COVID-19. *JAMA*, 323(21), 2131. <https://doi.org/10.1001/jama.2020.5227>
- Saberi, S., Kouhizadeh, M., Sarkis, J., & Shen, L. (2019). Blockchain technology and its relationships to sustainable supply chain management. *International Journal of Production Research*, 57(7), 2117–2135. <https://doi.org/10.1080/00207543.2018.1533261>
- Senapati, S., Mahanta, A. K., Kumar, S., & Maiti, P. (2018). Controlled drug delivery vehicles for cancer treatment and their performance. *Signal Transduction and Targeted Therapy*, 3(1), 7. <https://doi.org/10.1038/s41392-017-0004-3>
- Story, A., Aldridge, R. W., Smith, C. M., Garber, E., Hall, J., Ferenando, G., Possas, L., Hemming, S., Wurie, F., Luchenski, S., Abubakar, I., McHugh, T. D., White, P. J., Watson, J. M., Lipman, M., Garfein, R., & Hayward, A. C. (2019). Smartphone-enabled video-observed versus directly observed treatment for tuberculosis: A multicentre, analyst-blinded, randomised, controlled superiority trial. *The Lancet*, 393(10177), 1216–1224. [https://doi.org/10.1016/S0140-6736\(18\)32993-3](https://doi.org/10.1016/S0140-6736(18)32993-3)
- Subhash, S., & Cudney, E. A. (2018). Gamified learning in higher education: A systematic review of the literature. *Computers in Human Behavior*, 87, 192–206. <https://doi.org/10.1016/j.chb.2018.05.028>
- Sudaryadi, I., Rahmawati, A. N., & Rizqiyah, M. (2020). Effect of handphone EMF radiation on survival rate and morphological reproductive organ changes of fruit fly (*Drosophila melanogaster* Meigen, 1830). 040030. <https://doi.org/10.1063/5.0015846>
- Sun, K., Xiao, B., Liu, D., & Wang, J. (2019). Deep High-Resolution Representation Learning for Human Pose Estimation. *2019 IEEE/CVF Conference on Computer*

- Vision and Pattern Recognition (CVPR), 5686–5696.
<https://doi.org/10.1109/CVPR.2019.00584>
- Sundarasan, S., Chinna, K., Kamaludin, K., Nurunnabi, M., Baloch, G. M., Khoshaim, H. B., Hossain, S. F. A., & Sukayt, A. (2020). Psychological Impact of COVID-19 and Lockdown among University Students in Malaysia: Implications and Policy Recommendations. *International Journal of Environmental Research and Public Health*, 17(17), 6206. <https://doi.org/10.3390/ijerph17176206>
- Theobald, E. J., Hill, M. J., Tran, E., Agrawal, S., Arroyo, E. N., Behling, S., Chambwe, N., Cintrón, D. L., Cooper, J. D., Dunster, G., Grummer, J. A., Hennessey, K., Hsiao, J., Iranon, N., Jones, L., Jordt, H., Keller, M., Lacey, M. E., Littlefield, C. E., ... Freeman, S. (2020). Active learning narrows achievement gaps for underrepresented students in undergraduate science, technology, engineering, and math. *Proceedings of the National Academy of Sciences*, 117(12), 6476–6483. <https://doi.org/10.1073/pnas.1916903117>
- Toninelli, E., Ndagano, B., Vallés, A., Sephton, B., Nape, I., Ambrosio, A., Capasso, F., Padgett, M. J., & Forbes, A. (2019). Concepts in quantum state tomography and classical implementation with intense light: A tutorial. *Advances in Optics and Photonics*, 11(1), 67. <https://doi.org/10.1364/AOP.11.000067>
- Topol, E. J. (2019). High-performance medicine: The convergence of human and artificial intelligence. *Nature Medicine*, 25(1), 44–56. <https://doi.org/10.1038/s41591-018-0300-7>
- Venkata Ramana, N., Nagesh, P., Lanka, S., & Karri, R. R. (2019). Big Data Analytics and IoT Gadgets for Tech Savvy Cities. In S. Omar, W. S. Haji Suhaili, & S. Phon-Amnuaisuk (Eds.), *Computational Intelligence in Information Systems* (Vol. 888, pp. 131–144). Springer International Publishing. https://doi.org/10.1007/978-3-030-03302-6_12
- Wali, A. Z., & Omaid, M. E. (2020). The Use of Smartphones as an Educational Tool in the Classroom: Lecturers' Perceptions. *International Journal of Emerging Technologies in Learning (IJET)*, 15(16), 238. <https://doi.org/10.3991/ijet.v15i16.14179>
- Wang, P., Wu, P., Wang, J., Chi, H.-L., & Wang, X. (2018). A Critical Review of the Use of Virtual Reality in Construction Engineering Education and Training. *International Journal of Environmental Research and Public Health*, 15(6), 1204. <https://doi.org/10.3390/ijerph15061204>
- Wang, S., Zheng, L., Cai, G., Liu, N., Liao, M., Li, Y., Zhang, X., & Lin, J. (2019). A microfluidic biosensor for online and sensitive detection of Salmonella typhimurium using fluorescence labeling and smartphone video processing. *Biosensors and Bioelectronics*, 140, 111333. <https://doi.org/10.1016/j.bios.2019.111333>
- Wibawa, B., & . P. (2019). The Development Of Blended Learning Based On Handphone For Computer System Subject On Xi Grade Of Smkn 1 Bengkulu City. *Humanities & Social Sciences Reviews*, 7(3), 497–502. <https://doi.org/10.18510/hssr.2019.7373>
- Yip, J., Wong, S.-H., Yick, K.-L., Chan, K., & Wong, K.-H. (2019). Improving quality of teaching and learning in classes by using augmented reality video. *Computers & Education*, 128, 88–101. <https://doi.org/10.1016/j.compedu.2018.09.014>
- Yu, F., Yan, L., Wang, N., Yang, S., Wang, L., Tang, Y., Gao, G., Wang, S., Ma, C., Xie, R., Wang, F., Tan, C., Zhu, L., Guo, Y., & Zhang, F. (2020). Quantitative

- Detection and Viral Load Analysis of SARS-CoV-2 in Infected Patients. *Clinical Infectious Diseases*, 71(15), 793–798. <https://doi.org/10.1093/cid/ciaa345>
- Zhao, G., Liu, S., Lopez, C., Lu, H., Elgueta, S., Chen, H., & Boshkoska, B. M. (2019). Blockchain technology in agri-food value chain management: A synthesis of applications, challenges and future research directions. *Computers in Industry*, 109, 83–99. <https://doi.org/10.1016/j.compind.2019.04.002>
- Zubiaga, A., Aker, A., Bontcheva, K., Liakata, M., & Procter, R. (2019). Detection and Resolution of Rumours in Social Media: A Survey. *ACM Computing Surveys*, 51(2), 1–36. <https://doi.org/10.1145/3161603>
- Zwanenburg, A., Vallières, M., Abdalah, M. A., Aerts, H. J. W. L., Andrearczyk, V., Apte, A., Ashrafinia, S., Bakas, S., Beukinga, R. J., Boellaard, R., Bogowicz, M., Boldrini, L., Buvat, I., Cook, G. J. R., Davatzikos, C., Depeursinge, A., Desseroit, M.-C., Dinapoli, N., Dinh, C. V., ... Löck, S. (2020). The Image Biomarker Standardization Initiative: Standardized Quantitative Radiomics for High-Throughput Image-based Phenotyping. *Radiology*, 295(2), 328–338. <https://doi.org/10.1148/radiol.2020191145>
-

Copyright Holder :

© Rejeki Nur et.al. (2023).

First Publication Right :

© World Psychology

This article is under:

