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Improving Student Achievement in Qur'an Hadith Lessons Through Animated Videos

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ABSTRACT

Background. The development of Information and Communication Technology (ICT) in the world of education is increasing. Teachers are required to be more creative and innovative in choosing suitable media when delivering learning materials, one of which is animated videos. Animated videos are audiovisual media that can attract students' attention and present objects in detail, making it easier for students to understand the learning material.

Purpose. The purpose of this research is to improve student achievement in Qur'an Hadith lessons through animated videos. Another goal is to increase students' motivation so that they do not feel bored or disinterested during the learning process.

Method. The research method used is a quantitative approach with a survey model.

Results. The research method used is a quantitative approach with a survey model.

Conclusion. The limitation of this study is that the researcher only used animated videos for teaching Qur'an Hadith. The researcher hopes that future studies can conduct similar research with different subjects.

KEYWORDS

Animated Video, Technology, Qur'an Hadith

INTRODUCTION

The development of information and communication technology in this day and age has a huge impact on people's lives in the economic, social, and educational fields (Chong et al., 2018; M. Li et al., 2018). Such rapid development requires all parties to have creativity and skills in using various applications when solving a problem, especially in the field of Education by using various new applications that can develop technology for the learning process and improve a person's skills, quality or potential (Galon & Bruni, 2019; Saad et al., 2020; Springmann et al., 2018). The development of technology, information, and communication has a great impact on the development of science and provides progress in the digital world and the internet which is influential in the field of education (Maredia et al., 2018; Siarohin et al., 2019; Tscholl et al., 2018).

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The internet is a technology that can be likened to a tool to unite the world in the field of communication. The internet has become the technology that is most in demand by the world community because by using a tool in the form of a mobile phone with a quota, everyone can communicate over a very long distance even if it is both domestically and abroad (Abbas et al., 2018; Dong et al., 2020; S. Li et al., 2018). Increasingly sophisticated technology can make it easier for people in their daily lives and have a positive impact on educational aspects. academic outcomes (George Amalarethinam & Emima, 2024).

In modern times, technology and the internet are considered as a fast way to complete a job, facilitate activities, and even as a support in the world of education (Basar et al., 2019; Hu et al., 2018; Thomford et al., 2018). Education is an effort in the formation of personality, thinking and broad insight in order to be able to think about what steps to take in the future in order to become better, and become an educated person (Nicola et al., 2020; Wang et al., 2020; Zhong et al., 2020). The benefits of technology and the internet are very much felt by the world of education, namely by using applications that can support the smooth teaching and learning process so that learning is more innovative and not boring (Boutaba et al., 2018; Harris et al., 2019; Patra et al., 2018). The existence of technology and the internet can also make it easier for educators to deliver learning materials and also make it easier for students to understand the material presented.

Before the development of technology like today, educators only relied on lecture methods, so that classroom conditions became standard and students found it difficult to develop their creativity and potential (Kim, 2020; Lundervold & Lundervold, 2019; Radianti et al., 2020). In addition to the lecture method, educators also only depend on the medium of books that only contain dense writing. Thus, this learning strategy becomes less effective if applied in the teaching and learning process because most students will feel bored and bored so that they cannot understand the material delivered by the teacher (L. Liu et al., 2020; Son et al., 2020; Zhao et al., 2019). Thanks to the government's efforts to improve the quality of education in Indonesia, advanced technologies have been created that can support the sustainability of the learning process. With this difficulty, it is hoped that educators can also adapt to existing developments so that they can guide their students.

One of the technologies that can be used to make it easier for teachers and students in the learning process is by using an animated video application. Animated video is one of the technologies in the form of videos and audiovisuals to make it easier for students to understand the learning material and can also attract students' attention when learning so that they do not feel bored and bored during the learning process (C. Liu & Elms, 2019; Siarohin et al., 2019; Wu et al., 2018). Teachers are required to be able to use every type of technology, especially animated videos before being introduced to their students. Animated videos are one of the media that is suitable to be used when the learning process takes place because students can become more serious about listening to the material conveyed through the animation (Bello-Bravo & Pittendrigh, 2018; Housten et al., 2020; Shinta et al., 2019). The use of animated videos can also increase students' creativity and achievement in the teaching and learning process.

Animated videos are a tool that supports classroom activities in order to present objects in detail (Jawed et al., 2019; McCarthy et al., 2018). With the development of this technology, students prefer learning accompanied by pictures, audio, both animated videos, therefore the creativity of teachers is very much needed in creating learning media that attracts students' interest in learning. The learning strategies used by educators are expected to be more attractive to students so that a conducive learning process is achieved (Fischer & Krauss, 2018; O'Shea et al., 2018; Oztemel & Gursev, 2020). Schools are expected to be able to hold special training for teachers in the use of learning media, one of which is animation videos, both directly and indirectly. So that

teachers have the ability to develop the animation media (Baltrusaitis et al., 2019; Selvaraju et al., 2020; Son et al., 2020). One of the subjects that can utilize this animation media is the Qur'an hadith so that it can foster students' enthusiasm in learning Islamic religious education.

The Qur'an and hadith are as a guide and guideline for Muslims, where it is recommended to study, apply and teach fellow Muslims (Abdelaal et al., 2019; PhD student, The Department of the History and Source Studies of Central Asian People, Tashkent State Institute of Oriental Studies, Tashkent, Uzbekistan. et al., 2019; Rostam & Malim, 2021). Learning the Qur'an hadith is a component of Islamic religious education. By studying this subject is a form of devotion to deepen the religious knowledge adhered to. Not only the Qur'an, hadith is also a source of law in Islam where if the law is not found in the Qur'an, it can be seen in the related hadiths (Al Eid & Arnout, 2020; Azmi et al., 2019; Shaw, 2019). Hadith is also a detail of the law that has been stated in the Qur'an. By studying the Qur'an, students are expected to be able to understand and practice it in their daily lives, so as to benefit themselves and others both in this world and the hereafter.

This study also has several studies that are relevant to those conducted by previous researchers. Among them is researching how to use animated videos in the subject of al-qur'an hadith to improve student achievement (Abbas et al., 2018). The results found from the research on comprehensive system testing turned out to be able to perform every function normally and also have good abilities. Regarding the application of learning media carried out by students, where this can increase student achievement and enthusiasm for learning (Azizah et al., 2021). So that a classroom atmosphere is created that attracts students' interest and is not monotonous, which can complicate the smooth teaching and learning process (Amini et al., 2018). Thus, it will make it easier to achieve the goal of national education, which is to educate the nation's life and develop Indonesian people as a whole.

This research is related to previous studies which are related to the development of learning media in the animated video method in various subjects, one of which is Al-Quran Hadith. The impact of the application provides innovation for continuous learning. One of the materials of this Al-Quran Hadith subject is the memorization of the surah and its understanding of its meaning. Animated videos can give a very interesting impression of learning so as to increase students' enthusiasm in the educational process. Convenience is not only felt by students, but also has an impact on educators as they are greatly helped in carrying out their duties in delivering material to students. The school also gets a favorite criterion among others because it has implemented technology-based educational media.

The purpose of this study is to find out how the benefits of the use of animated videos on the subject of the Qur'an hadith. This research is also to find out students' interest and talent in the use of animated video media for all lessons, this also depends on how the educator uses and develops it. Educators' creativity is very necessary in designing animations related to the compatibility of images or animations with the material discussed at that time. For how to make it, teachers can see and learn tutorials on making animated videos that have been widely found on social media today. It is hoped that the use of this animated video will be used as well as possible effectively and efficiently so that educational goals in improving student achievement can be achieved, so that it can be developed in other subjects.

RESEARCH METHODOLOGY

The researcher used a quantitative method with a survey model and in-depth interviews with one of the madrasas in Padang, one of which is Madrasah Aliyah Negeri 2 Padang. The survey method used is directly related to the purpose of the research which will analyze directly to the

places of students related to the use of animated videos in the learning of the Qur'an hadith which is useful for improving student achievement (Bienhaus & Haddud, 2018; Goldford et al., 2018; Kaya & Bilge, 2019). Meanwhile, the interview process that was carried out in depth was useful to obtain deeper results about the extent to which the remaining achievements could be improved in the study of the qur'an hadith through the use of this animated video to be carried out. This research was conducted in the 2022/2023 school year, this time was used because of the large number of students who enjoyed or loved animated characters in which there was education.

The source of this study comes from educators and students from Madrasah Aliyah Negeri 2 Padang which has been researched by researchers through questionnaires or google forms that have been disseminated online so as to produce various kinds of responses related to the use of animated videos (Anglemyer et al., 2020; Bryant et al., 2019; Tu, 2018). From the questionnaire or google form, the researcher found out the extent to which educators and students applied animated videos in learning to improve student achievement in learning. The use of animated videos applied in every school or madrasah is useful to support the learning process which currently uses more advanced technology such as mobile phones, laptops, computers, and so on (Nainggolan et al., 2018; Safitri et al., 2021; Saraswati et al., 2020). From here, we can find out the extent to which animated videos can develop, whether they can help learning or there are still many obstacles or obstacles that still exist.

The research data that has been analyzed quantitatively is by using a google form or questionnaire which is sent to educators and learners as a whole which aims to see the percentage of each question that has been disseminated to learners and educators (Brusasco et al., 2019; Owen et al., 2020; Rezaei et al., 2019). The results of the data obtained, which were carried out by survey and questionnaire, will be described in the discussion and results later. The questionnaire link or list of questions that have been created and disseminated is then collected in a data. The percentages will be depicted through a bar chart and studied with previous research and relevant and correct expert opinions (Caliskan et al., 2019; Feehan et al., 2018; Xu et al., 2018). Suggestions and criticisms from validators are used as references, guidelines, and foundations to renovate or change the descriptions of the questionnaire that the researcher disseminates. This media can also serve as a substitute for more modern media.

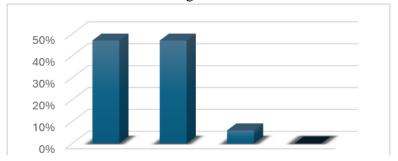
RESULT AND DISCUSSION

The development of information and communication technology in this day and age has a very large influence, one of which is on the aspect of education, where everything is required to be able to use existing technologies. This also affects students and educators who are required to be able to use every new modern technology. Emerging technologies can be used by educators and students in carrying out the learning process in order to improve the quality of the school and student achievement when learning. The learning media that develops are in the form of audio, visual, and audiovisual. One of the audiovisual media is in the form of animated videos that can help teachers in delivering learning materials. The application of animated videos in learning has received many positive responses from educators and students because it is considered to be able to provide a smooth teaching and learning process.

Based on the results of the research conducted by the researcher through a questionnaire that has been distributed using a google form that has been filled out by 50 people consisting of educators and also students at Madrasah Aliyah Negeri 2 Padang. From the questions asked in the questionnaire, educators and students mostly agreed with the use of animated video applications that aim to improve student achievement in learning, one of which is in the subject of the Qur'an

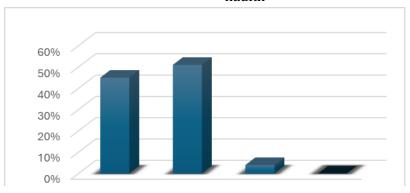
hadith. The use of animated videos can make it easier for teachers when delivering learning materials. With the animated video, teachers no longer need to speak at length in front of the classroom to make students bored and feel bored while studying. Researchers have conducted surveys through several questionnaires through google forms so that they can find out the interest of educators and students in using learning media in the form of animated videos to improve student achievement, some questionnaire research data will be presented in the form of bar charts as follows, including:

Figure 1. The use of animated videos in learning can make it easier for teachers to deliver material



Based on the distribution of questionnaires that have been conducted by researchers to students and educators, 44% percent of 50 people who said strongly agreed with this option, 45% of 50 people who thought that the animated video option in lessons could make it easier for teachers to deliver learning materials, 3% of 50 people who had the option did not agree with this option. The use of animated videos in learning makes it very easy for educators and students to improve the teaching and learning process, with the use of this video the teacher does not explain the learning materials too much. Not everything went smoothly, one of which was constrained by a network that was very difficult to reach so that it had an impact on students during learning. Because the network is one of the big obstacles for educators and students in using this application.

Figure 2. Animated videos can make it easier for students to understand the learning of the Qur'an hadith



Education at this time where technology is increasingly developing, it can affect student learning such as being very addicted to online games on mobile phones. Educators in dealing with these problems are expected to guide students to the use of technology in a more useful direction, especially in the field of learning. The solution to the above problem is that educators can use animated videos as a method to improve students' understanding and educators can also make these animated videos to improve student achievement in every learning, especially the subject of Al Quran Hadith. Judging from the student and teacher respondents, 48% of students and teachers voted strongly in favor of the use of animated videos that can make it easier for students to understand learning, especially the Qur'an hadith. Statements of approval reached 50% and

disagreed 2%. This means that the strategies used by educators using video media can make it easier for students to understand learning, because many of the students prefer learning in the form of images, audio, and visuals rather than just lecture techniques with solid writing.

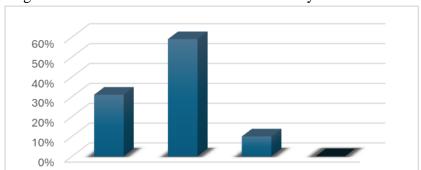


Figure 3. Animated videos can be used at every level of school

Educators in this day and age are no longer difficult to find what techniques should be applied in classroom activities because there are many tutorials that can be learned by themselves. However, at each school level, of course, the strategies used by teachers must be adjusted to the age of education, such as children in general prefer learning in the form of pictures and games. It is different with teenagers at the high school level, high school and so on. However, unlike the use of animated video learning media, this can be applied at various levels of school, because in general this media is the most preferred by students according to the statement above which shows that the number of people who strongly agree, namely 38% and agree as much as 58%. With this, the school is expected to meet the needs of students and educators, both educational facilities and infrastructure, so that it can support the student learning process.

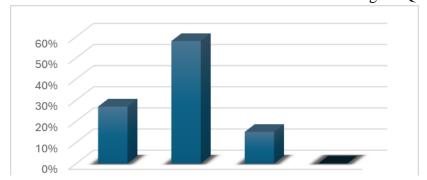
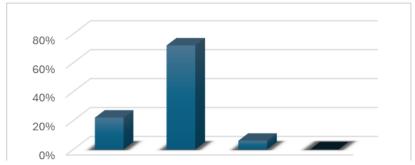


Figure 4. Media animation videos that are suitable for use in learning the Qur'an hadith

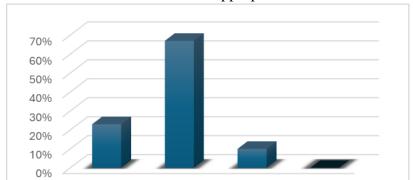
Learning Al Quran hadith in schools at this time where technology is increasingly developing such as in learning materials about various types of hadith such as sahih hadith, maudu' and dhaif hadith. So from this material, educators can use animated videos, for example, teachers use the Animaker and Doratoon applications, from these applications, all educators can use new defense methods. Educators can use animations such as Nusa and Rara cartoons as characters. This video media is very suitable for use by educators at all levels of education so that the teaching and learning process in the classroom is not too rigid and makes students motivated again to participate in learning. This is evidenced by the statement of strongly agreeing which reached 28% and 58% agreeing and disagreeing 14%. All educators should change the old learning methods to technology-based learning so that educators can balance the development of the times and education at this time.

Figure 5. The use of animated videos in Qur'an hadith lessons can improve student achievement



The level of student achievement in schools at this time must be improved again by all schools because in general education in Indonesia is starting to decline due to the misuse of technology, so at this time educators are required to improve the achievement of their students. Educational technology at this time can be used by educators in improving student achievement such as the use of animated videos. In the use of the application, educators can accelerate learning that attracts more attention to the student, especially in the subject of Al Quran Hadith, which is usually quite difficult for students to understand because in general the learning meter contains about the Qur'an and hadiths from the Prophet Muhammad (saw). Students are required to understand from each of these hadiths, so that students are not bored in learning, students must be able to choose better learning methods and strategies.

Figure 6. Animated videos are the most appropriate medium to use in learning



Animated videos are the most appropriate media that can be used by educators in all types of learning and at every level of education, especially in the subject of learning the Qur'an Hadith. This subject is a category that is difficult to understand and understand. Educators in making this animated video that is presented to students in the Qur'an Hadith lesson should not be too ambiguous because this meter discusses the Qura'n and hadith which is the source of Islamic law and as a handle for Muslims in the world from the time of the Prophet Muhammad until the Day of Resurrection, so educators must pay attention again and must be careful again in making the learning media so that students understand and understand the material. So the application of the media is very helpful for the work of educators in explaining the Qur'an Hadith material to students in today's all-technological era.

60% 50% 40% 30% 20% 10%

Figure 7. Students prefer to learn with animated videos rather than just by the lecture method

The lecture method is learning that is used by educators using explanations only where the explanation is developed by educators from books, such methods are used in ancient learning styles and now it is very rare to find such methods only in a few schools that are found. Based on respondents from educators and students, there are 38% who strongly agree with the benefits of animated videos and 58% who answer yes and 4% who feel less agree with this. Therefore, schools at this time have begun to use technology, such as educators applying animated learning videos so that students can understand the material. Previously, educators must be able to learn and master the knowledge of educational technology, so that they can guide students in the use of this technology in classroom learning activities. In addition, the revolution of strategies implemented by educators must indeed change and provide updates so that the teaching and learning process in the classroom runs smoothly.

70% 60% 50% 40% 30% 20% 10%

Figure 8. Animated videos can make the learning atmosphere more effective

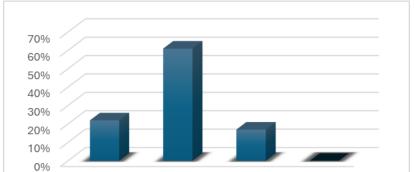
Problems that can occur in the classroom include that students often do not pay attention, listen, and listen to the material delivered by the teacher in front of the class so that they do not master the material optimally and optimally. And the problem that can be felt by teachers is the limitations of teachers in mastering technology which is currently developing very rapidly. In addition, the facilities in schools are inadequate so that educators and students are limited in developing their creativity. From some of these problems, educators can use solutions, including using animated videos as learning, especially in the subject of the Qur'an Hadith in order to minimize the problems that exist in the school so that it becomes the best school and is in great demand by every student in the new school year. In addition, effective and efficient learning is created so that learning goals can be achieved.



Figure 9. Animated videos are a supporting medium in learning

There are so many educational technology media that are developing at this time, educators can choose what kind of media and methods will be used in learning to be a support in the teaching and learning process. One of the media used by educators is the creation of interesting and better animated videos. Every lesson can use the media, including in the subject of the Qur'an Hadith, both at the school level of Madrasah Tsanawiyah Negeri and Madrasah Aliyah Negeri. This method of learning using animated videos will develop every era, so for all educators, it is recommended to implement the creation of animated video learning media in order to support the educational process at school and there are many more types of learning media that can be used by educators to maximize learning activities in the classroom.

Figure 10. The easiest media animation video for educators or learners to create and use



The goal of education in educating the nation's children requires conducive cooperation for educators, students, and the school community so that the purpose of the organization runs smoothly. Therefore, educators are required to be able to sort out strategic learning methods for delivering material to students with their own uniqueness. Of the many media that can be used, it is the technique of using video that attracts more attention from students. However, not a few educators also feel difficulties in making the animated video learning media, such as those who are less able in designing and choosing the match of images, sounds, and animated characters with the material concerned. So it is hoped that schools can provide small training, both direct and non-direct, to educators so that they can present material with free videos of animation creatively.

CONCLUSION

From the discussion above, the researcher can explain the final conclusion from what has been carried out previously regarding the use of animated videos and their use in learning, especially in the subject of the Qur'an hadith with the aim of improving student achievement. Animated videos are one of the learning media that can be used by educators in delivering material to students. Animated video is a media that uses moving image elements accompanied by audio as a complement such as videos, movies and so on. Thus, it can be interpreted that animated videos are a

combination of audio media and visual media as attracting students' attention, so that they are able to present in detail objects that can help dilemmatic lessons. The advantages that can be achieved with the application of this media include increasing the effectiveness and fitness of hard-to-reach materials. In addition, animated videos can be repeated and describe an event in a real way. This media can be applied in various subjects in any school, one of which is learning the Qur'an hadith.

The researcher conducted a survey through a questionnaire by presenting ten related questions about the use of animated videos when learning that focused on the subject of the Qur'an hadith. Al-Quran hadith is one of the subjects that can apply animation video media with the creativity of educators with the subject in question. Educators can see tutorials that have been found on various social media so that they can understand how to apply good and correct learning media. Educators can start with planning in advance, namely adjusting learning according to the teaching materials that have been set by the curriculum related to how to carry out special monitoring. From this media, not only advantages and benefits can be obtained, besides that there are also disadvantages when applying it. Among the weaknesses found is that it requires a considerable amount of money, so that educators' time is drained a lot. Students are also not all able to digest the video playback well following the information conveyed, thus hindering educational goals. Therefore, educators are expected to be able to choose which media are suitable related to the material to be discussed so that the learning process can run well and achieve the goals of national education.

SUGGESTION

Based on the results of the analysis, researchers who conducted a direct survey on the use of animated videos as a learning medium that aims to improve student achievement in the world of education get relevant and maximum results for its use in the teaching and learning process. From all the discussions explained here, the researcher realizes that his research is still far from perfect and hopes for his criticism and suggestions in order to improve it. It is expected that schools will provide and fulfill facilities and infrastructure that can help the smooth teaching and learning process. In addition, schools are also expected to provide special training to students and teachers so that they do not fall far behind the development of increasingly sophisticated technology and can be used as a learning medium. The researcher also hopes that the next researcher can carry out the same research but with different subjects or media in improving student achievement. So that this research is not interrupted only here, in order to support the continuation of learning and the achievement of the goals of national education.

ACKNOWLEDGMENTS

The researcher would like to thank every respondent who has responded and answered all questions and statements that have been disseminated through questionnaires or questionnaires through online google forms. With these answers or responses, it can make it easier for researchers to conduct research on how to use animated videos and their use as a learning medium to improve student achievement when learning. Hopefully this research can provide benefits and positive impacts for future readers and researchers.

AUTHORS' CONTRIBUTION

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; In-vestigation.

Author 3: Data curation; Investigation.

REFERENCES

- Abbas, N., Zhang, Y., Taherkordi, A., & Skeie, T. (2018). Mobile Edge Computing: A Survey. *IEEE Internet of Things Journal*, 5(1), 450–465. https://doi.org/10.1109/JIOT.2017.2750180
- Abdelaal, H. M., Ahmed, A. M., Ghribi, W., & Youness Alansary, H. A. (2019). Knowledge Discovery in the Hadith According to the Reliability and Memory of the Reporters Using Machine Learning Techniques. *IEEE Access*, 7, 157741–157755. https://doi.org/10.1109/ACCESS.2019.2944118
- Al Eid, N. A., & Arnout, B. A. (2020). Crisis and disaster management in the light of the Islamic approach: COVID -19 pandemic crisis as a model (a qualitative study using the grounded theory). *Journal of Public Affairs*. https://doi.org/10.1002/pa.2217
- Amini, F., Riche, N. H., Lee, B., Leboe-McGowan, J., & Irani, P. (2018). Hooked on data videos: Assessing the effect of animation and pictographs on viewer engagement. *Proceedings of the 2018 International Conference on Advanced Visual Interfaces*, 1–9. https://doi.org/10.1145/3206505.3206552
- Anglemyer, A., Moore, T. H., Parker, L., Chambers, T., Grady, A., Chiu, K., Parry, M., Wilczynska, M., Flemyng, E., & Bero, L. (2020). Digital contact tracing technologies in epidemics: A rapid review. *Cochrane Database of Systematic Reviews*, 2020(8). https://doi.org/10.1002/14651858.CD013699
- Azizah, N., Mochsif, N. D. A., & Kusairi, S. (2021). Review of video-based interactive multimedia needs for senior high school physics learning. 050026. https://doi.org/10.1063/5.0043436
- Azmi, A. M., Al-Qabbany, A. O., & Hussain, A. (2019). Computational and natural language processing based studies of hadith literature: A survey. *Artificial Intelligence Review*, *52*(2), 1369–1414. https://doi.org/10.1007/s10462-019-09692-w
- Baltrusaitis, T., Ahuja, C., & Morency, L.-P. (2019). Multimodal Machine Learning: A Survey and Taxonomy. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 41(2), 423–443. https://doi.org/10.1109/TPAMI.2018.2798607
- Basar, E., Di Renzo, M., De Rosny, J., Debbah, M., Alouini, M.-S., & Zhang, R. (2019). Wireless Communications Through Reconfigurable Intelligent Surfaces. *IEEE Access*, 7, 116753–116773. https://doi.org/10.1109/ACCESS.2019.2935192
- Bello-Bravo, J., & Pittendrigh, B. R. (2018). Scientific Animations Without Borders (SAWBO): Animating IPM Information and Education Everywhere. *Outlooks on Pest Management*, 29(2), 58–61. https://doi.org/10.1564/v29_apr_02
- Bienhaus, F., & Haddud, A. (2018). Procurement 4.0: Factors influencing the digitisation of procurement and supply chains. *Business Process Management Journal*, 24(4), 965–984. https://doi.org/10.1108/BPMJ-06-2017-0139
- Bond, K. T., & Ramos, S. R. (2019). Utilization of an Animated Electronic Health Video to Increase Knowledge of Post- and Pre-Exposure Prophylaxis for HIV Among African American Women: Nationwide Cross-Sectional Survey. *JMIR Formative Research*, *3*(2), e9995. https://doi.org/10.2196/formative.9995
- Boutaba, R., Salahuddin, M. A., Limam, N., Ayoubi, S., Shahriar, N., Estrada-Solano, F., & Caicedo, O. M. (2018). A comprehensive survey on machine learning for networking: Evolution, applications and research opportunities. *Journal of Internet Services and Applications*, 9(1), 16. https://doi.org/10.1186/s13174-018-0087-2
- Brusasco, C., Santori, G., Bruzzo, E., Trò, R., Robba, C., Tavazzi, G., Guarracino, F., Forfori, F., Boccacci, P., & Corradi, F. (2019). Quantitative lung ultrasonography: A putative new

- algorithm for automatic detection and quantification of B-lines. *Critical Care*, 23(1), 288. https://doi.org/10.1186/s13054-019-2569-4
- Bryant, C., Szejda, K., Parekh, N., Deshpande, V., & Tse, B. (2019). A Survey of Consumer Perceptions of Plant-Based and Clean Meat in the USA, India, and China. *Frontiers in Sustainable Food Systems*, *3*, 11. https://doi.org/10.3389/fsufs.2019.00011
- Caliskan, S., Guney, Z., Sakhieva, R. G., Vasbieva, D. G., & Zaitseva, N. A. (2019). Teachers' Views on the Availability of Web 2.0 Tools in Education. *International Journal of Emerging Technologies in Learning (IJET)*, 14(22), 70. https://doi.org/10.3991/ijet.v14i22.11752
- Chong, J., Soufan, O., Li, C., Caraus, I., Li, S., Bourque, G., Wishart, D. S., & Xia, J. (2018). MetaboAnalyst 4.0: Towards more transparent and integrative metabolomics analysis. *Nucleic Acids Research*, 46(W1), W486–W494. https://doi.org/10.1093/nar/gky310
- Dong, E., Du, H., & Gardner, L. (2020). An interactive web-based dashboard to track COVID-19 in real time. *The Lancet Infectious Diseases*, 20(5), 533–534. https://doi.org/10.1016/S1473-3099(20)30120-1
- Feehan, L. M., Geldman, J., Sayre, E. C., Park, C., Ezzat, A. M., Yoo, J. Y., Hamilton, C. B., & Li, L. C. (2018). Accuracy of Fitbit Devices: Systematic Review and Narrative Syntheses of Quantitative Data. *JMIR MHealth and UHealth*, 6(8), e10527. https://doi.org/10.2196/10527
- Fischer, T., & Krauss, C. (2018). Deep learning with long short-term memory networks for financial market predictions. *European Journal of Operational Research*, 270(2), 654–669. https://doi.org/10.1016/j.ejor.2017.11.054
- Galon, J., & Bruni, D. (2019). Approaches to treat immune hot, altered and cold tumours with combination immunotherapies. *Nature Reviews Drug Discovery*, 18(3), 197–218. https://doi.org/10.1038/s41573-018-0007-y
- Goldford, J. E., Lu, N., Bajić, D., Estrela, S., Tikhonov, M., Sanchez-Gorostiaga, A., Segrè, D., Mehta, P., & Sanchez, A. (2018). Emergent simplicity in microbial community assembly. *Science*, *361*(6401), 469–474. https://doi.org/10.1126/science.aat1168
- Harris, P. A., Taylor, R., Minor, B. L., Elliott, V., Fernandez, M., O'Neal, L., McLeod, L., Delacqua, G., Delacqua, F., Kirby, J., & Duda, S. N. (2019). The REDCap consortium: Building an international community of software platform partners. *Journal of Biomedical Informatics*, 95, 103208. https://doi.org/10.1016/j.jbi.2019.103208
- Housten, A. J., Kamath, G. R., Bevers, T. B., Cantor, S. B., Dixon, N., Hite, A., Kallen, M. A., Leal, V. B., Li, L., & Volk, R. J. (2020). Does Animation Improve Comprehension of Risk Information in Patients with Low Health Literacy? A Randomized Trial. *Medical Decision Making*, 40(1), 17–28. https://doi.org/10.1177/0272989X19890296
- Hu, H., Gu, J., Zhang, Z., Dai, J., & Wei, Y. (2018). Relation Networks for Object Detection. 2018 IEEE/CVF Conference on Computer Vision and Pattern Recognition, 3588–3597. https://doi.org/10.1109/CVPR.2018.00378
- Jawed, S., Amin, H. U., Malik, A. S., & Faye, I. (2019). Classification of Visual and Non-visual Learners Using Electroencephalographic Alpha and Gamma Activities. *Frontiers in Behavioral Neuroscience*, 13, 86. https://doi.org/10.3389/fnbeh.2019.00086
- Kaya & Bilge. (2019). Deep Metric Learning: A Survey. *Symmetry*, 11(9), 1066. https://doi.org/10.3390/sym11091066
- Kim, J. (2020). Learning and Teaching Online During Covid-19: Experiences of Student Teachers in an Early Childhood Education Practicum. *International Journal of Early Childhood*, *52*(2), 145–158. https://doi.org/10.1007/s13158-020-00272-6

- Lawson, A. P., & Mayer, R. E. (2021). The Power of Voice to Convey Emotion in Multimedia Instructional Messages. *International Journal of Artificial Intelligence in Education*. https://doi.org/10.1007/s40593-021-00282-y
- Li, M., Lu, J., Chen, Z., & Amine, K. (2018). 30 Years of Lithium-Ion Batteries. *Advanced Materials*, 30(33), 1800561. https://doi.org/10.1002/adma.201800561
- Li, S., Xu, L. D., & Zhao, S. (2018). 5G Internet of Things: A survey. *Journal of Industrial Information Integration*, 10, 1–9. https://doi.org/10.1016/j.jii.2018.01.005
- Liu, C., & Elms, P. (2019). Animating student engagement: The impacts of cartoon instructional videos on learning experience. *Research in Learning Technology*, 27(0). https://doi.org/10.25304/rlt.v27.2124
- Liu, L., Ouyang, W., Wang, X., Fieguth, P., Chen, J., Liu, X., & Pietikäinen, M. (2020). Deep Learning for Generic Object Detection: A Survey. *International Journal of Computer Vision*, 128(2), 261–318. https://doi.org/10.1007/s11263-019-01247-4
- Lundervold, A. S., & Lundervold, A. (2019). An overview of deep learning in medical imaging focusing on MRI. *Zeitschrift Für Medizinische Physik*, 29(2), 102–127. https://doi.org/10.1016/j.zemedi.2018.11.002
- Maredia, M. K., Reyes, B., Ba, M. N., Dabire, C. L., Pittendrigh, B., & Bello-Bravo, J. (2018). Can mobile phone-based animated videos induce learning and technology adoption among low-literate farmers? A field experiment in Burkina Faso. *Information Technology for Development*, 24(3), 429–460. https://doi.org/10.1080/02681102.2017.1312245
- McCarthy, E., Tiu, M., & Li, L. (2018). Learning Math with Curious George and the Odd Squad: Transmedia in the Classroom. *Technology, Knowledge and Learning*, 23(2), 223–246. https://doi.org/10.1007/s10758-018-9361-4
- Nainggolan, E. R., Asymar, H. H., Nalendra, A. R. A., Anton, Sulaeman, F., Sidik, Radiyah, U., & Susafarati. (2018). The Implementation of Augmented Reality as Learning Media in Introducing Animals for Early Childhood Education. 2018 6th International Conference on Cyber and IT Service Management (CITSM), 1–6. https://doi.org/10.1109/CITSM.2018.8674350
- Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., Agha, M., & Agha, R. (2020). The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *International Journal of Surgery*, 78, 185–193. https://doi.org/10.1016/j.ijsu.2020.04.018
- O'Shea, T. J., Roy, T., & Clancy, T. C. (2018). Over-the-Air Deep Learning Based Radio Signal Classification. *IEEE Journal of Selected Topics in Signal Processing*, 12(1), 168–179. https://doi.org/10.1109/JSTSP.2018.2797022
- Owen, C., Till, K., Weakley, J., & Jones, B. (2020). Testing methods and physical qualities of male age grade rugby union players: A systematic review. *PLOS ONE*, *15*(6), e0233796. https://doi.org/10.1371/journal.pone.0233796
- Oztemel, E., & Gursev, S. (2020). Literature review of Industry 4.0 and related technologies. *Journal of Intelligent Manufacturing*, 31(1), 127–182. https://doi.org/10.1007/s10845-018-1433-8
- Patra, J. K., Das, G., Fraceto, L. F., Campos, E. V. R., Rodriguez-Torres, M. del P., Acosta-Torres, L. S., Diaz-Torres, L. A., Grillo, R., Swamy, M. K., Sharma, S., Habtemariam, S., & Shin, H.-S. (2018). Nano based drug delivery systems: Recent developments and future prospects. *Journal of Nanobiotechnology*, 16(1), 71. https://doi.org/10.1186/s12951-018-0392-8

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- Radianti, J., Majchrzak, T. A., Fromm, J., & Wohlgenannt, I. (2020). A systematic review of immersive virtual reality applications for higher education: Design elements, lessons learned, and research agenda. *Computers & Education*, 147, 103778. https://doi.org/10.1016/j.compedu.2019.103778
- Rezaei, A., Schramm, G., Willekens, S. M. A., Delso, G., Van Laere, K., & Nuyts, J. (2019). A Quantitative Evaluation of Joint Activity and Attenuation Reconstruction in TOF PET/MR Brain Imaging. *Journal of Nuclear Medicine*, 60(11), 1649–1655. https://doi.org/10.2967/jnumed.118.220871
- Rostam, N. A. P., & Malim, N. H. A. H. (2021). Text categorisation in Quran and Hadith: Overcoming the interrelation challenges using machine learning and term weighting. *Journal of King Saud University Computer and Information Sciences*, 33(6), 658–667. https://doi.org/10.1016/j.jksuci.2019.03.007
- Saad, W., Bennis, M., & Chen, M. (2020). A Vision of 6G Wireless Systems: Applications, Trends, Technologies, and Open Research Problems. *IEEE Network*, 34(3), 134–142. https://doi.org/10.1109/MNET.001.1900287
- Safitri, D., Lestari, I., Maksum, A., Ibrahim, N., Marini, A., Zahari, M., & Iskandar, R. (2021). Web-Based Animation Video for Student Environmental Education at Elementary Schools. *International Journal of Interactive Mobile Technologies (IJIM)*, 15(11), 66. https://doi.org/10.3991/ijim.v15i11.22023
- Saraswati, D. L., Dinihari, Y., Nurrahmah, A., Sari, T. A., & Wiyanti, E. (2020). The application of using video scribe on geometry optics material. *Journal of Physics: Conference Series*, 1464(1), 012005. https://doi.org/10.1088/1742-6596/1464/1/012005
- Selvaraju, R. R., Cogswell, M., Das, A., Vedantam, R., Parikh, D., & Batra, D. (2020). Grad-CAM: Visual Explanations from Deep Networks via Gradient-Based Localization. *International Journal of Computer Vision*, 128(2), 336–359. https://doi.org/10.1007/s11263-019-01228-7
- Shaw, W. M. K. (2019). What is "Islamic" Art?: Between Religion and Perception (1st ed.). Cambridge University Press. https://doi.org/10.1017/9781108622967
- Shinta, A., Hanif*, M., Gunarhadi, G., & Roemintoyo, R. (2019). Motion Graphic Animation Videos to Improve the Learning Outcomes of Elementary School Students. *European Journal of Educational Research*, 8(4), 1245–1255. https://doi.org/10.12973/eu-jer.8.4.1245
- Siarohin, A., Lathuiliere, S., Tulyakov, S., Ricci, E., & Sebe, N. (2019). Animating Arbitrary Objects via Deep Motion Transfer. 2019 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2372–2381. https://doi.org/10.1109/CVPR.2019.00248
- Son, C., Hegde, S., Smith, A., Wang, X., & Sasangohar, F. (2020). Effects of COVID-19 on College Students' Mental Health in the United States: Interview Survey Study. *Journal of Medical Internet Research*, 22(9), e21279. https://doi.org/10.2196/21279
- Springmann, M., Clark, M., Mason-D'Croz, D., Wiebe, K., Bodirsky, B. L., Lassaletta, L., de Vries, W., Vermeulen, S. J., Herrero, M., Carlson, K. M., Jonell, M., Troell, M., DeClerck, F., Gordon, L. J., Zurayk, R., Scarborough, P., Rayner, M., Loken, B., Fanzo, J., ... Willett, W.

- (2018). Options for keeping the food system within environmental limits. *Nature*, *562*(7728), 519–525. https://doi.org/10.1038/s41586-018-0594-0
- Thomford, N., Senthebane, D., Rowe, A., Munro, D., Seele, P., Maroyi, A., & Dzobo, K. (2018). Natural Products for Drug Discovery in the 21st Century: Innovations for Novel Drug Discovery. *International Journal of Molecular Sciences*, 19(6), 1578. https://doi.org/10.3390/ijms19061578
- Tscholl, D. W., Handschin, L., Neubauer, P., Weiss, M., Seifert, B., Spahn, D. R., & Noethiger, C. B. (2018). Using an animated patient avatar to improve perception of vital sign information by anaesthesia professionals. *British Journal of Anaesthesia*, 121(3), 662–671. https://doi.org/10.1016/j.bja.2018.04.024
- Tu, M. (2018). An exploratory study of Internet of Things (IoT) adoption intention in logistics and supply chain management: A mixed research approach. *The International Journal of Logistics Management*, 29(1), 131–151. https://doi.org/10.1108/IJLM-11-2016-0274
- Wang, C., Horby, P. W., Hayden, F. G., & Gao, G. F. (2020). A novel coronavirus outbreak of global health concern. *The Lancet*, 395(10223), 470–473. https://doi.org/10.1016/S0140-6736(20)30185-9
- Wu, Y., Yuan, C.-H., & Pan, C.-I. (2018). Entrepreneurship Education: An Experimental Study with Information and Communication Technology. *Sustainability*, 10(3), 691. https://doi.org/10.3390/su10030691
- Xu, Q., Xu, Y., Sun, H., Chan, Q., Shi, K., Song, A., & Wang, W. (2018). Quantitative intravoxel incoherent motion parameters derived from whole-tumor volume for assessing pathological complete response to neoadjuvant chemotherapy in locally advanced rectal cancer: IVIM Assessing pCR in Rectal Cancer. *Journal of Magnetic Resonance Imaging*, 48(1), 248–258. https://doi.org/10.1002/jmri.25931
- Zhao, Z.-Q., Zheng, P., Xu, S.-T., & Wu, X. (2019). Object Detection With Deep Learning: A Review. *IEEE Transactions on Neural Networks and Learning Systems*, 30(11), 3212–3232. https://doi.org/10.1109/TNNLS.2018.2876865
- Zhong, B.-L., Luo, W., Li, H.-M., Zhang, Q.-Q., Liu, X.-G., Li, W.-T., & Li, Y. (2020). Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: A quick online cross-sectional survey. *International Journal of Biological Sciences*, 16(10), 1745–1752. https://doi.org/10.7150/ijbs.45221

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