



The Role of Social Media in Supporting Open and Distance Learning

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ABSTRACT

Today's education has developed very rapidly, also supported by technological developments which are increasing day by day. It is undeniable that people are competing with each other to gain knowledge wherever and whenever. Advances in technology are really very helpful in the educational process. With the development of technology, of course, this is not too bothered, because technology has solved this problem. Through technology, various social media appear that can support the learning process, both directly and distance and open learning. The purpose of this study is to determine the role of social media in supporting distance and open learning. The method used in this research is a quantitative research method with a research design in the form of a survey. The data in this study were obtained by filling out a questionnaire on the Google form link. The results of this study are that the role of social media in supporting distance and open learning plays a very important role. Because social media has a variety of applications that support distance and open learning. The conclusion from this study is that social media plays a very important role in supporting distance and open learning. Through social media, students can carry out online learning without having to be in the same place as the teacher so that they can study anytime and anywhere, because this is a hallmark of distance and open learning. The limitation in this study is that the researcher only conducted research at the school level. The researcher also hopes that further researchers will expand research to a higher level and the researcher also hopes that in the future other researchers will emerge who can develop this research and focus on one part of social media.

Keywords: *Distance, Open Learning, Social Media*

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INTRODUCTION

Technological advances in education offer many advantages in today's world of education (Scherer et al., 2019). Various applications were created to support the learning process. The development of technology is closely related to the development of education (Jin et al., 2019). Therefore, education today cannot develop without the intervention of technology. In the world of education, technology acts as a facilitator in the development

of education through online media (Mishra et al., 2020). Technology will make it possible to replace teachers in the future, as it will automate the learning process while providing assignments (Shafique et al., 2020). With the advancement of technology every day, schools can increase the effectiveness of learning by using various technologies as learning media. However, with the rapid development of this technology, it must also be able to keep up with the times. The world of education needs to make the best use of current technology through positive innovations (Wang et al., 2020). Of course, with technology, all work becomes easier and faster. In this case, schools are expected to be able to maximize the use of technology as a means of infrastructure and facilitator to improve the quality of existing teaching.

The development of technology is increasingly modern, causing people to depend on technology. Technology is a basic need that is required for everyone (Rissman et al., 2020). From young to old, from experts to ordinary people, they use technology in their daily activities (Ahmed et al., 2021). In addition to everyday life, technology also has its own place in the teaching and learning process in education (Kraus et al., 2018). Today's technology leads to a variety of online learning applications that are more creative, less monotonous and fun for students (Cakir et al., 2019). Global demands demand that the world of education always develop in accordance with the demands of current technology (Appio et al., 2019), especially to support the utilization of technology and develop the quality of education. These changing demands require the world of education to be innovative and creative in the delivery of learning content.

One form of technological development is the emergence of social media (Moghanibashi-Mansourieh, 2020). Today social media is used by many people, from young to old no one uses social media. Social media is used not only as an online communication tool (Zimmerman et al., 2021), but also for other purposes, such as education (Tsao et al., 2021). This social media allows for remote or online interaction without having to meet in one place, allowing students to complete their distance learning (Farooq et al., 2020). Examples of distance learning through social media are the use of Zoom meetings, WhatsApp, YouTube and many others (Almarzooq et al., 2020). Distance and open learning from social media is very easy to implement and the advantage of using social media is that it can be accessed by users anywhere and anytime.

Distance and open learning is learning that is carried out on the condition that teachers and students are not in the same room or separate and the implementation of learning is also carried out online (Chan et al., 2020). Under these circumstances, the role of social media is needed to facilitate long-distance communication between teachers and students. Social media serves as a link between teachers and students (Soleimani et al., 2020). In addition, social media can also serve as a tool for distance and open learning activities (Verdoliva, 2020). Social media must be able to overcome students' problems in implementing distance and open learning, because social media is the only option to implement distance and open learning. So it can be said that distance and open learning is impossible without social media.

REVIEW OF LITERATUR

Social Media

Social media is an online dating tool for long-distance communication (Olteanu et al., 2019). It expands communication without the limitations of time and space. Social media combats the problem of limited human communication. With the help of these social media, anyone can communicate despite being separated by great distance or time, no matter the day or night (Lwin et al., 2020). Social media has a huge impact on life today. Social media allows anyone to meet people anywhere in the world. When a person uses social media well in their life, it creates a positive impact on them. On social media one can build relationships and connections with millions of people, but also take action and basically social media can expand friendships.

Smart people are able to play the role of social media in their well-being, making it easier to learn anytime and anywhere, making it easier to create and submit assignments, making it easier for people to get information, finding too much information (Shareef et al., 2019). Anyone can be whatever they want to be. Social media adds a new vocabulary to one's life that is not only real but also unreal (Fawaz & Samaha, 2021). Social media will never have boundaries like the real world. A person can be different on social media in their life, both materially and in their own family. These are all positive effects of social media, but it all comes down to who is using it. Social media is just a communication medium that should be used wisely and appropriately.

Distance and Open Learning

Distance and open learning is an educational change aimed at those who are limited in terms of time and place in terms of achieving their education (Gill et al., 2019). Distance learning is a form of learning where teachers and students are not in the same place and in its implementation are involved with the help of supporting tools such as cellphones and other communication tools (Ranal et al., 2023). At the same time, open learning is a solution to learning problems related to time and place (Al Maarif et al., 2023). This open distance learning reduces face-to-face teaching to a minimum. As a result, students also learn independently according to their own abilities, as teachers and students are separated (Maryati et al., 2022). This distance learning and open learning facilitates the work of students who live geographically far from the school and also reduces the school's transportation costs while they are learning at home (Tian et al., 2020). This is an indication of regular changes in the education system. This open and distance learning was implemented during the Corona Pandemic that occurred yesterday in 2021 (Li et al., 2020). The solution is distance learning and open learning, so students can still learn when the system is used at home. Distance and open learning have both positive and negative effects on their implementation. However, this technology is the safest solution for remote use.

Some previous researchers' views on the role of social media in supporting distance and open learning. First (Ramdani et al., 2021), He examined the study of the Potential Utilization of Tiktok Social Media as an Online Learning Internal Learning Media and obtained research results that prove that Tiktok can be an interesting and fun learning. The

use of the Tiktok application as a learning tool aims to help students and teachers in learning. Therefore, this study aims to show that Tiktok social media can be an alternative and interactive learning media in online learning. The method used is a literature study that analyzes fourteen articles on the development of Tik Tok as a learning medium. The results show that the use of Tik Tok social media as a learning tool can improve student performance and creativity in online learning. Students can freely express their creativity through Tiktok with various features, making Tiktok an effective learning tool to create interactive online learning. This study contributes to Tiktok social media as an interactive learning tool for e-learning teachers and students. Second (Hughes et al., 2019), She investigated the use of social media to support pedagogical learning on campus and conducted research showing that social media supports collaborative learning and makes it more effective by allowing students to engage in dialog or discussion remotely and participate without having to join the conversation in a specific geographical location. The use of social media enhances interaction by increasing students' flexibility and independence. In addition, they can share information, send files to other students more easily and quickly and establish effective communication.

The purpose of this research is to examine the role of social media in supporting distance and open learning. It also explains how distance and open learning is implemented with the help of social media. With the help of social media, distance and open learning on social media should be strengthened and supported. In this case, social media actually supports distance learning and open learning because it is supported by the means of communication used in online learning. The benefits of social media have sparked the researcher's interest in the role of social media in supporting distance and open learning. Therefore, the researcher decided to investigate the role of social media in supporting distance and open learning.

RESEARCH METHODOLOGY

The method used in this research is quantitative method (Liang et al., 2019). This quantitative research method produces data in the form of numbers obtained by filling out questionnaires on Google Forms and given to students as research subjects (Heirendt et al., 2019). In addition, this quantitative method allows for systematic, planned, and structured research. This quantitative research method is widely used in research. This quantitative method is defined as the process of systematically and tangibly discovering a phenomenon by collecting data and then measuring and verifying its accuracy by filling out questionnaires and interviewing stakeholders (Baugh, 2001). This research is mostly done through statistical research where quantitative data is collected through research studies. This quantitative research method provides information that is truly accurate and realistic because the end result is in the form of numbers.

The type of research is a test whose purpose is to test the use of technology in distance and open learning (Yang et al., 2020). The researcher's data collection technique is to seek and collect factual and current information in the field. Data collection at the point of observation is a quantitative analysis technique for research data. In data analysis,

this is done by describing and describing the data collected without changing the source of the data obtained (Tian et al., 2020). The first step in this quantitative research is to find the root of the problem or formulate the problem, then conduct a literature review, formulate a hypothesis, determine the methodology to be used, determine the research instrument or tool, and conduct data analysis. and the last one ends.

RESULT AND DISCUSSION

Over time, due to technological developments, the learning process is constantly adjusting to various innovations in human life. As one of the factors that influence the quality of education, the ever-evolving technology has a significant impact on learning. One of the technologies that support learning is social media, especially for distance learning and open learning. This social media is an online interactive tool that can be used anywhere, anytime without any limitation. Social media removes the barriers of human communication in the real world. It allows people to communicate even when distance and time separate them. That is why distance learning and open social media are the most important keys to achieve this. One can take distance classes through Zoom, Google Meet, and WhatsApp without having to meet the teacher in person.

The role of social media is very urgent in the implementation of distance learning, because social media allows teachers and students to communicate even though they are not in the same place, and it also facilitates the active interaction of students and teachers in its implementation because it is supported through social media applications specifically designed to implement distance and open learning. The use of social media becomes a solution for distance and open education and is recommended for use in distance and open education. Distance learning and open learning saves space and time because it can be done anywhere, anytime. However, there are some things that need to be considered, namely signal and internet connection because distance learning really needs both of these things. This distance course can win in terms of space and time, but financially it is still uncertain. The reason is that students have to spend money to buy packages online and even official schools need money for school transportation.

The use of social media to support distance and open learning is highly recommended. There are many social media that support distance and open learning. A lot can be captured on social networks, on social networks you can also get information faster and more precisely, even if the event takes place in another city, but it also arrives quickly due to the influence of social networks. You can learn from anything on social media, such as YouTube. One can independently access the learning materials provided in a way that also supports distance and open learning that is done independently and without teacher guidance. With this distance and open learning, since students and teachers are in different places, more students are suitable for self-learning. And it is expected that teachers are able to master social media as a medium to support distance and open learning.

There are many opportunities and challenges in using social media in the world of distance and open learning. The opportunities obtained can be in the form of breadth for

time and implementation of learning, facilitating distance and open learning and making it easier for students to get information, while also minimizing the cost of student transformation. It also creates independent learners because they are able to learn the material themselves and remove the limitations that occur in the real world. While the challenges that must be faced in using social media in distance and open learning are, first, students must have a cellphone as a communication tool, second, students must set aside a little money to buy an internet package because most social media applications require internet access. Third, the signal, it is feared that areas located far from the city do not have internet access so it is difficult to carry out the learning process remotely and openly. In addition, distance and open learning using social media is not directly supervised by the teacher, so students become less focused on receiving material and fear that students are not serious in learning.

Figure 1: Opportunity score for the role of social media in supporting open and distance learning

ASPECT	
Opportunities for the role of social media in supporting open and distance learning	
Agree	Disagree
70	30

Based on Figure 1 above, it can be concluded that the potential role of social media in supporting distance and open learning offers great opportunities for students. Most respondents gave positive answers and reactions to the possible role of social media in supporting distance and open learning to encourage the development of the quality of distance and open learning. The results of the survey conducted as part of the survey also show that social media is very important in distance and open learning. One of the main advantages of the social media intelligence model is that it offers a variety of applications that can be easily and quickly communicated and used as learning media to support distance and open learning processes.

Figure 2: Social media role challenge score in supporting open and distance learning

ASPECT	
Opportunities for the role of social media in supporting open and distance learning	
Agree	Disagree
70	30

Based on the results of the research completed with a questionnaire containing statements from student respondents, it can be concluded that the role of social media in supporting distance learning faces several challenges. These challenges can be in the form of challenges in the implementation of distance learning which can be limited by the network and requires the use of packages. The internal challenge of the students is also whether they are serious in carrying out the learning, since they are not under the direct protection of the teacher. However, the utilization of technology in distance and open learning offers many advantages that can facilitate the process of distance and open learning, especially for people who have limited space and time to carry out face-to-face learning.

At this stage of the research, the researcher did not contact the school directly to conduct the research, but instead shared a survey link created with Google Forms. The questionnaire contains statements that are given five answers, namely strongly agree, agree, undecided, disagree and strongly disagree. then students choose one of the multiple choices. The purpose of sharing the survey was to provide relevant and up-to-date information about the researcher's study on the role of social media in supporting distance and open learning. The knowledge test was conducted by filling out a questionnaire with google form. The survey contained 15 statements, including statements about the role of social media in supporting distance and open learning. The results of filling out the questionnaire against the statements that the researcher prepared provided the following information:

NO	Statement	SS	S	RR	TS	STS
1	I feel the role of social media can be helpful in distance and open learning	60%	40%			
2	I feel that social media has a positive impact on distance and open learning	33,3%	50%	16,7%		
3	I feel that social media can facilitate the process of distance and open learning	70%	30%			
4	I feel that social media can support distance and open learning.	66.6%	33.3%			
5	I think that the development of social media should be followed by every educational institution.	55%	45%			
6	I feel that social media can make it easier to understand open and distance learning.	50%	50%			
7	I think social media is very suitable to be applied in distance and open learning.	70%	30%			
8	I think that with social media the distance and open learning process will run more effectively.	50%	50%			
9	I think social media as a transformation in distance and open learning has an interest in each other.	50%	50%			
10	I feel that with social media information is quickly obtained.	60,7%	39,3%			
11	I feel that with social media the organizing process becomes easier.	60 %	40 %			
12	I feel that every learner should be able to master social media because social media has many benefits in its use.	50%	50%			
13	I feel that the open and distance learning process will improve if	66,7%	33,3%			

	social media is used.					
14	I feel that social media can change the way students learn.	50%	50%			
15	I think the use of social media in distance and open learning does not consume a lot of time.	33,3%	50%	16,7%		

Figure 1: Table of questionnaire filling by students

Description:

SS = Strongly Agree

S = Agree

RR = Undecided

TS = Disagree

STS = Strongly Disagree

The table above is data obtained from filling out a questionnaire containing statements filled in by students. The statements consist of 15 statements relating to the role of social media in supporting distance and open learning. The assessment stage consists of 5 categories, namely strongly agree, disagree, undecided, disagree, and strongly disagree. The highest assessment result is 70% with a strongly agree category related to the statement "I feel that social media can facilitate the distance and open learning process". The second highest assessment result is 66.7% with the same category, namely strongly agreeing regarding the statement "I feel that the distance and open learning process will improve if social media is used" and also the statement "I feel that social media can support distance and open learning". From the results of filling out the questionnaire, it can be concluded that on average students give a positive response to the role of social media in supporting distance and open learning.

CONCLUSION

Based on the research results supporting the role of social media in distance and open learning, it can be concluded that social media influences and plays an important role in distance and open learning. Students believe that social media can support distance learning and open learning. Students also believe that the presence of social media provides convenience and opportunities for students to complete tasks and gather information. The existence of social media brings many opportunities for distance and open learning. Students become more accustomed to independent learning, time is used efficiently, and tasks are completed quickly. When you learn how to use social media, it aims to be one of the resources that students can use to develop their learning skills and experiences in a flexible and interactive way. In addition, this remote and open learning minimizes transportation costs and other training costs. There are some challenges when using social media in open and distance learning, especially the internet. Open and distance learning relies heavily on the internet, so there are concerns that open and distance learning will be difficult to implement in signal-prone areas. Schools should carefully consider the potential risks and benefits of using technology and take steps to ensure that it is used ethically and responsibly as part of the educational transformation in

open and distance learning. There are many things that can be taken from social media, including information from learning materials. Everything in this world has its good and bad points. Social media is one of them and is behind the criticism from people who think it is bad. But on the other hand, there is a lot of information about social networking that can be used as learning and knowledge. Looking further, social media can even outperform books as a source of information.

REFERENCES

- Ahmed, I., Ahmad, M., Rodrigues, J. J. P. C., Jeon, G., & Din, S. (2021). A deep learning-based social distance monitoring framework for COVID-19. *Sustainable Cities and Society*, 65, 102571. <https://doi.org/10.1016/j.scs.2020.102571>
- Al Maarif, M. F., Afifah, R. A. N., Choirunnisa, A., Jannah, A. M., Zanuar, M. Y., Saddhono, K., & Yingxiang, S. (2023). Integrating and Strengthening National Vision in the Community as an Effort to Prevent Radicalization and Foster Love for the Motherland. *Pengabdian: Jurnal Abdimas*, 1(1), 20–29. <https://doi.org/10.55849/abdimas.v1i1.151>
- Almarzooq, Z. I., Lopes, M., & Kochar, A. (2020). Virtual Learning During the COVID-19 Pandemic. *Journal of the American College of Cardiology*, 75(20), 2635–2638. <https://doi.org/10.1016/j.jacc.2020.04.015>
- Appio, F. P., Lima, M., & Paroutis, S. (2019). Understanding Smart Cities: Innovation ecosystems, technological advancements, and societal challenges. *Technological Forecasting and Social Change*, 142, 1–14. <https://doi.org/10.1016/j.techfore.2018.12.018>
- Baugh, L. R. (2001). Quantitative analysis of mRNA amplification by in vitro transcription. *Nucleic Acids Research*, 29(5), 29e–229. <https://doi.org/10.1093/nar/29.5.e29>
- Cakir, F., He, K., Xia, X., Kulis, B., & Sclaroff, S. (2019). Deep Metric Learning to Rank. *2019 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 1861–1870. <https://doi.org/10.1109/CVPR.2019.00196>
- Chan, A. K. M., Nickson, C. P., Rudolph, J. W., Lee, A., & Joynt, G. M. (2020). Social media for rapid knowledge dissemination: Early experience from the COVID -19 pandemic. *Anaesthesia*, 75(12), 1579–1582. <https://doi.org/10.1111/anae.15057>
- Farooq, A., Laato, S., & Islam, A. K. M. N. (2020). Impact of Online Information on Self-Isolation Intention During the COVID-19 Pandemic: Cross-Sectional Study. *Journal of Medical Internet Research*, 22(5), e19128. <https://doi.org/10.2196/19128>
- Fawaz, M., & Samaha, A. (2021). E-learning: Depression, anxiety, and stress symptomatology among Lebanese university students during COVID-19 quarantine. *Nursing Forum*, 56(1), 52–57. <https://doi.org/10.1111/nuf.12521>
- Gill, S. S., Tuli, S., Xu, M., Singh, I., Singh, K. V., Lindsay, D., Tuli, S., Smirnova, D., Singh, M., Jain, U., Pervaiz, H., Sehgal, B., Kaila, S. S., Misra, S., Aslanpour, M. S., Mehta, H., Stankovski, V., & Garraghan, P. (2019). Transformative effects of IoT, Blockchain and Artificial Intelligence on cloud computing: Evolution, vision, trends and open challenges. *Internet of Things*, 8, 100118. <https://doi.org/10.1016/j.iot.2019.100118>
- Heirendt, L., Arreckx, S., Pfau, T., Mendoza, S. N., Richelle, A., Heinken, A., Haraldsdóttir, H. S., Wachowiak, J., Keating, S. M., Vlasov, V., Magnúsdóttir, S., Ng, C. Y., Preciat, G., Žagare, A., Chan, S. H. J., Aurich, M. K., Clancy, C. M.,
-

-
- Modamio, J., Sauls, J. T., ... Fleming, R. M. T. (2019). Creation and analysis of biochemical constraint-based models using the COBRA Toolbox v.3.0. *Nature Protocols*, 14(3), 639–702. <https://doi.org/10.1038/s41596-018-0098-2>
- Hughes, C., Swaminathan, V., & Brooks, G. (2019). Driving Brand Engagement Through Online Social Influencers: An Empirical Investigation of Sponsored Blogging Campaigns. *Journal of Marketing*, 83(5), 78–96. <https://doi.org/10.1177/0022242919854374>
- Jin, W., Zhang, H., Liu, S., & Zhang, H. (2019). Technological innovation, environmental regulation, and green total factor efficiency of industrial water resources. *Journal of Cleaner Production*, 211, 61–69. <https://doi.org/10.1016/j.jclepro.2018.11.172>
- Kraus, S., Palmer, C., Kailer, N., Kallinger, F. L., & Spitzer, J. (2018). Digital entrepreneurship: A research agenda on new business models for the twenty-first century. *International Journal of Entrepreneurial Behavior & Research*, ahead-of-print (ahead-of-print). <https://doi.org/10.1108/IJEBR-06-2018-0425>
- Li, S., Wang, Y., Xue, J., Zhao, N., & Zhu, T. (2020). The Impact of COVID-19 Epidemic Declaration on Psychological Consequences: A Study on Active Weibo Users. *International Journal of Environmental Research and Public Health*, 17(6), 2032. <https://doi.org/10.3390/ijerph17062032>
- Liang, C., Amelung, W., Lehmann, J., & Kästner, M. (2019). Quantitative assessment of microbial necromass contribution to soil organic matter. *Global Change Biology*, 25(11), 3578–3590. <https://doi.org/10.1111/gcb.14781>
- Lwin, M. O., Lu, J., Sheldenkar, A., Schulz, P. J., Shin, W., Gupta, R., & Yang, Y. (2020). Global Sentiments Surrounding the COVID-19 Pandemic on Twitter: Analysis of Twitter Trends. *JMIR Public Health and Surveillance*, 6(2), e19447. <https://doi.org/10.2196/19447>
- Maryati, A., Ameer, A., & Egie, J. (2022). Utilization of Animiz Animation Application in Arabic Class 2 Madrasah Tsanawiyah Lessons at Diniyyah Pasia Modern Islamic Boarding School. *Scientechno: Journal of Science and Technology*, 1(1), 25–45. <https://doi.org/10.55849/scientechno.v1i1.3>
- 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, 100012. <https://doi.org/10.1016/j.ijedro.2020.100012>
- Moghanibashi-Mansourieh, A. (2020). Assessing the anxiety level of Iranian general population during COVID-19 outbreak. *Asian Journal of Psychiatry*, 51, 102076. <https://doi.org/10.1016/j.ajp.2020.102076>
- Olteanu, A., Castillo, C., Diaz, F., & Kıcıman, E. (2019). Social Data: Biases, Methodological Pitfalls, and Ethical Boundaries. *Frontiers in Big Data*, 2, 13. <https://doi.org/10.3389/fdata.2019.00013>
- Ramdani, N. S., Nugraha, H., & Hadiapurwa, A. (2021). POTENSI PEMANFAATAN MEDIA SOSIAL TIKTOK SEBAGAI MEDIA PEMBELAJARAN DALAM PEMBELAJARAN DARING. *Akademika*, 10(02), 425–436. <https://doi.org/10.34005/akademika.v10i02.1406>
- Ranal, A., Husniyah, H., Fienti, Y., Putri, S. A., Lenin, F., Musrika, M., Diana, D., & Xin, D. (2023). Physical Activity Training Education for the Elderly at Nursing Homes. *Pengabdian: Jurnal Abdimas*, 1(1), 14–19. <https://doi.org/10.55849/abdimas.v1i1.143>
-

-
- Rissman, J., Bataille, C., Masanet, E., Aden, N., Morrow, W. R., Zhou, N., Elliott, N., Dell, R., Heeren, N., Huckestein, B., Cresko, J., Miller, S. A., Roy, J., Fennell, P., Cremmins, B., Koch Blank, T., Hone, D., Williams, E. D., De La Rue Du Can, S., ... Helseth, J. (2020). Technologies and policies to decarbonize global industry: Review and assessment of mitigation drivers through 2070. *Applied Energy*, 266, 114848. <https://doi.org/10.1016/j.apenergy.2020.114848>
- Scherer, R., Siddiq, F., & Tondeur, J. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education. *Computers & Education*, 128, 13–35. <https://doi.org/10.1016/j.compedu.2018.09.009>
- Shafique, K., Khawaja, B. A., Sabir, F., Qazi, S., & Mustaqim, M. (2020). Internet of Things (IoT) for Next-Generation Smart Systems: A Review of Current Challenges, Future Trends and Prospects for Emerging 5G-IoT Scenarios. *IEEE Access*, 8, 23022–23040. <https://doi.org/10.1109/ACCESS.2020.2970118>
- Shareef, M. A., Mukerji, B., Dwivedi, Y. K., Rana, N. P., & Islam, R. (2019). Social media marketing: Comparative effect of advertisement sources. *Journal of Retailing and Consumer Services*, 46, 58–69. <https://doi.org/10.1016/j.jretconser.2017.11.001>
- Soleimani, M., Kalhor, A., & Mirzadeh, H. (2020). Transformation-induced plasticity (TRIP) in advanced steels: A review. *Materials Science and Engineering: A*, 795, 140023. <https://doi.org/10.1016/j.msea.2020.140023>
- Tian, C., Fei, L., Zheng, W., Xu, Y., Zuo, W., & Lin, C.-W. (2020). Deep learning on image denoising: An overview. *Neural Networks*, 131, 251–275. <https://doi.org/10.1016/j.neunet.2020.07.025>
- Tsao, S.-F., Chen, H., Tisseverasinghe, T., Yang, Y., Li, L., & Butt, Z. A. (2021). What social media told us in the time of COVID-19: A scoping review. *The Lancet Digital Health*, 3(3), e175–e194. [https://doi.org/10.1016/S2589-7500\(20\)30315-0](https://doi.org/10.1016/S2589-7500(20)30315-0)
- Verdoliva, L. (2020). Media Forensics and DeepFakes: An Overview. *IEEE Journal of Selected Topics in Signal Processing*, 14(5), 910–932. <https://doi.org/10.1109/JSTSP.2020.3002101>
- Wang, C., Tan, X. P., Tor, S. B., & Lim, C. S. (2020). Machine learning in additive manufacturing: State-of-the-art and perspectives. *Additive Manufacturing*, 36, 101538. <https://doi.org/10.1016/j.addma.2020.101538>
- Yang, F., Yang, H., Fu, J., Lu, H., & Guo, B. (2020). Learning Texture Transformer Network for Image Super-Resolution. *2020 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 5790–5799. <https://doi.org/10.1109/CVPR42600.2020.00583>
- Zimmerman, K. O., Akinboyo, I. C., Brookhart, M. A., Boutzoukas, A. E., McGann, K. A., Smith, M. J., Maradiaga Panayotti, G., Armstrong, S. C., Bristow, H., Parker, D., Zadrozny, S., Weber, D. J., Benjamin, D. K., & FOR THE ABC SCIENCE COLLABORATIVE. (2021). Incidence and Secondary Transmission of SARS-CoV-2 Infections in Schools. *Pediatrics*, 147(4), e2020048090. <https://doi.org/10.1542/peds.2020-048090>
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