Issued by English study program of IAIN Palopo

Review: Online Learning during Covid-19 Pandemic

Nugroho Nugroho
nugroho2210@gmail.com
Language and Art Faculty, Universitas Indraprasta PGRI, Jakarta, Indonesia

Abstract

This study used a systematic literature review. It followed the seven stages of Petticrew and Robert's systematic review: defining the research question or hypothesis, determining the type of study, conducting a comprehensive literature search, filtering the search results, assessing the included studies, synthesizing the studies, and assessing heterogeneity among studies(Petticrew & Roberts, 2006). The researcher used Publish or Perish and Atlas.ti 8 to help this study. This study aims to determine the form and effectiveness of the influence of online learning during the Covid-19 pandemic. The study results found that there were psychological and physical effects and learning outcomes of students during online learning. This study also found several strategies used during online learning. This study suggests that the government through universities should provide adequate infrastructure for lecturers and students to organize online learning during Covid-19. Standards for managing and training lecturers to organize online education should be carried out as soon as possible. Counseling guidance for students who have problems needs to be prepared by both the government and universities.

Keywords: covid-19; Online Learning; Systematic Literature Review

Introduction

Large-Scale Social Restriction Policy (PSBB) through Government Regulation Number 21 of 2020 concerning Large-Scale Social Restrictions in the Context of Accelerating Handling of Coronavirus Disease 2019 (COVID-19). Large-Scale Social Restrictions (PSBB) are restrictions on certain activities of residents in an area

suspected of being infected with COVID-19 in such a way as to prevent the possible spread of COVID-19 (Ayu, Candra, Wibawa, Kadek, & Arieska, 2021). The education in Indonesia and other countries gets the impact of the COVID-19. Many countries carry out online learning during the COVID-19 pandemic (Al-Kumaim, Mohammed, et al., 2021; Chaudhary, 2021; Huang, 2020; Jojoa, Lazaro, Garcia-Zapirain, Gonzalez, & Urizar, 2021; Kidd & Murray, 2020; Noah & Gbemisola, 2020; Pete & Soko, 2020). Educational instructors must be responsive to adapt to changes in learning from offline to online to secure the learning process (Faizah, Ambarwati, & Rahayu, 2021). Many countries have also carried out various studies on the effectiveness of online learning during the pandemic.

This literature review's research strategy is based on a systematic approach to critically analyzing the implementation of distant learning (Cachón-Zagalaz et al., 2020). To create an acceptable and orderly format of the text, we followed the items to publish systematic reviews and meta-analyses of the PRISMA declaration to produce this systematic review (Kusmaryono, Jupriyanto, & Kusumaningsih, 2021). We found relevant literature by performing a systematic review, following the recommended reporting items for systematic review and meta-analysis (PRISMA) standards, to investigate the issues faced by teachers in online classes during the COVID-19 epidemic (Na & Jung, 2021).

This researcher's goal is to review the literature on distance learning (1) determining the quality and effectiveness of distance learning; (2) investigating the constraints, opportunities, challenges, and predictions of future distance learning; and (3) making recommendations for improving distance learning implementation (Cachón-Zagalaz et al., 2020). The research looks at how distant learning is used in higher education (up to 70%) and primary-secondary education (up to 30%) (Kusmaryono et al., 2021). This study will look at how it has affected and will affect children aged 0 to 12 years in the future after schools have been closed for months. This page aims to learn about the studies done on children in times of captivity, particularly those who are minors. The literature review took place in the last few

weeks of May 2020, focusing on the Web of Science (WOS) database with the help of Scopus and Dialnet, exploring University Instructors' Challenges and Design Opportunities in Online Teaching During the COVID-19 Pandemic (Na & Jung, 2021).

The literature review was conducted in the last few weeks of October 2021, focusing on got from Publish or Perish. The study aims to analyze online learning strategies, effects, and recommendations during the Covid-19 pandemic.

Method

This study was conducted based on a systematic review procedure in the social sciences, proposed by Petticrew and Roberts (2006). A systematic review adheres closely to "a set of scientific methods. That explicitly aims to limit systematic error (bias), particularly by attempting to identify, assess and synthesize all relevant studies (of any design) to answer a particular question (or series of questions)" (Petticrew & Roberts, 2006). This study followed the seven stages of Petticrew and Roberts's systematic review: defining the research question or hypothesis, determining the type of study, conducting a comprehensive literature search, filtering the search results, assessing the included studies, synthesizing the studies, and assessing heterogeneity among studies.

Research questions are 'questions that the research project seeks to answer. Selecting research questions is an essential element of both quantitative and qualitative research. Investigations will require data collection and analysis, and methodologies for this will vary widely. Good research questions seek to increase knowledge of important topics and are usually narrow and specific (Mattick, Johnston, & de la Croix, 2018).

The research question is clearly defined as follows:

1. What have effects of online learning during the COVID-19 pandemic been identified?
2. What have online learning strategies been identified in studies on online learning during the COVID-19 pandemic?
3. What support has been suggested to promote online learning?
   After determining which types of studies to include or exclude, several

databases and search terms were selected to perform the literature search. Search articles using Publish or Perish from the Google Scholar database. Concerning search terms, six search terms are used to construct the search string with the following Boolean expressions A1 OR A2 AND "A3" OR A4 AND A5 OR A6. Table 1 shows the terms used for the search.

Table 1. Words in search

A1. Effect
A2. Impact
A3. Online learning
A4. E-Learning
A5. Covid-19
A6. Pandemic

The literature provisions consisted of national and international journals with a full publication year of the last two years. In this selection criteria, write the type of research article (review articles, research articles) and research articles that can be accessed in total (full text).
- Inclusion criteria are general characteristics of the literature used
- Exclusion criteria are literature characteristics that do not include the criteria and therefore had to be excluded from the study for various reasons.

Table 2. Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Empirical studies investigating online learning	Empirical studies outside of the COVID-19 pandemic
Online learning in college	Online learning outside of college
Empirical studies during the COVID-19 pandemic	Empirical studies do not use online learning theory

123

Empirical studies that use online learning as a theory	Only abstract articles
Empirical studies that apply online learning components	The article does not convey the results of the research
Articles that yield results	Duplicate of the same research
Articles in English	Article not in English
Approved manuscripts that meet the inclusion criteria above Empirical studies outside of online learning	Article Unable to download

Results

Search literature in this study using the Publish or Perish application. Search through Google Scholar database. This literature search was completed in November 2021. The search for titles and keywords with the terms of effect OR impact AND "online learning" OR e-learning AND covid OR pandemic resulted in 323 articles related to the research title.

The first step of checking duplication using Mendeley found 265 articles 83 (Scopus), 5 (Medline), 126 (Google Scholar), 7 (Copernicus), 4 (EBSCO), 6 (Web of Science), 5 (ERIC), 4 (ScienceDirect), 5 (ProQuest), 9 (IEE), 5 (SRRN), and 8 (NCBI). The next step is the title, keywords, and abstract of the articles obtained are read. Inclusion criteria were applied to select relevant articles. In this process, 53 articles were obtained, 15 (Scopus), 1 (Medline), 27 (Google Scholar), 1 (IEEE), 1 (Web of Science), 1 (EBSCO), 1 (ScienceDirect), and 4 (NCBI). In the third step, the selection was carried out by reading the title and abstract and the contents of 53 articles by using inclusion and exclusion criteria. A total of 32 articles were issued, 8 (Scopus), 22 (Google Scholar), 1 (NCBI), and 1 (EBSCO). Finally, 21 articles were selected as the most relevant studies.

Table 3. Number of articles

Steps	Number of Article	Exclude	Include
1	323	58	265
2	265	212	53
3	53	32	21
4			21

Discussion

Based on the research questions set, the content of 21 articles was analyzed. The followings are the discussion.

1. **What have effects of online learning during the COVID-19 pandemic been identified?**

Online education focuses primarily on classrooms and recreational areas rather than helping students learn skills and prepare them for future business and management (Chaudhary, 2021). Educational barriers negatively impact student outcomes, with social and communication technical assessment challenges moving UAE business students' online learning and learning outcomes during the COVID19 pandemic (Shishakly & Sabah, 2021). Students are dissatisfied with the online learning methods and the teacher's ability to teach information online (Silalahi, 2021). Boredom and lack of attention can affect the recipient when sitting in front of a computer screen, interfering with student understanding. It harms student progress (Al-Baher, Flouh, & Al-Sulaihat, 2020). In synchronous and asynchronous contexts, fewer strategies that encourage interaction are used in teaching and learning activities than input methods (Fabriz, Mendzheritskaya, & Stehle, 2021).

Due to ineffective and lost e-Learning technology, students experience it psychologically (Hasan & Bao, 2020). The students were anxious for various reasons,

125

including that many of them were from far away. The peer learning process is harmed by a lack of engagement with teachers and peers, affecting outcomes. The primary source is the inspection and evaluation process (Sharma, 2020). There is a Moderate to the high-stress level indicated by MBA/PGDM students participating in a survey of various MBA/PGDM colleges in India (Bagnal, Kanungo, & Paldon, 2021). Lecture materials are difficult to reach because learning is not interactive and communicative (Alchamdani et al., 2020). Students are common among students: introversion, antagonism, lack of direction, neuroticism, and closeness to experience. The difference between engineering and non-engineering students is that online learning encourages engineering students to be more individualistic, asocial, disrespectful, and irresponsible (Wirjodirdjo, Iva Maftuhah, Maflahah, & Davito Prabandewa Hertadi, 2021).

During the e-learning process, students participating in the study experienced an increase in body pain, and the duration and intensity of pain increased with the time and severity of desktop/laptop use (Yaseen & Salah, 2021). While the beneficial effects of e-learning platforms on institutions, teachers, and students in this study. E-learning, used for higher education in India, challenges educational institutions, teachers, and students. The government of India has established Vidya Daan, YUKTI, and Bharat Podhe online (Sk, 2021). Students can now access relevant multimedia through digital social media, which has helped break the monotony of classroom teaching. Resources include videos, lecture notes, presentations, and broader internet access to resources and specialists. College students often use social media (Dutta & Dutta, 2020). The results showed that online learning had a positive and significant impact on student performance. This way of learning strongly influences their learning achievement, self-efficacy, and learning motivation. Sources of effects come from how learning materials are delivered, how classes are held, and the educators themselves (Hendryka et al., 2021).

2. What have online learning strategies been identified in studies on online learning during the COVID-19 pandemic?

The University provides a flexible digital pathway through course materials and resources, conducts online lectures, accepts student work submissions, interacts with students, and guides each student to meet their learning goals (Shishakly & Sabah, 2021). Cognitive constructivism considers a computer-supported collaborative learning environment (CSCL) to be a tool for promoting learning by provoking personal knowledge and then rearranging that knowledge during social interaction. Social constructivism focuses on the intersubjectivity and co-construction of knowledge rather than on the individual dimensions of knowledge construction to conduct online learning. Teaching activities are through online distance learning (ODL), known as e-learning (Al-Kumaim, Alhazmi, et al., 2021). One of the learning strategies used in online learning is through video. Videos can be customized for use and motivate students (Wagiran, Rahdiyanta, Wibowo, Sati, & Badu, 2020).

Many online education technology companies have tried to take advantage of the situation by providing free online classes or linking e-learning modules with restrictions on subscription terms (Bagnal et al., 2021). The University, through its advisors, instructs all institutes to continue classes in an online mode as appropriate and to use available ICT tools for use in academic discourse. Many institutions have used different social media platforms for knowledge dissemination (Dutta & Dutta, 2020). This learning method is supported by several applications such as Zoom, Google Classroom, and Microsoft Teams that allow lecturers and students to interact together even though everyone is at home (Hendryka et al., 2021; Sharma, 2020; Silalahi, 2021). The Google Classroom web service is ideal for use in lectures. It helps save time, organize learning, and improve communication with students. The use of Google Classroom has not been able to enhance students' cognitive and affective abilities in applying hand hygiene behavior. Use WhatsApp as an instant messaging application as a non-face-to-face online interaction model. In addition, online

learning can be done with Facebook and Instagram (Alchamdani et al., 2020). Students can continue the semester by taking courses virtually. For schools, materials are broadcast on national TV starting March 15, 2020, and beginning March 22, 2020. The ministry is activating a distance learning platform where students can continue their classes using the University's e-learning system (Alkhawaja, Sobihah, & Afthanorhan, 2021).

3. What support has been suggested to promote online learning?

Training is essential to improve the academic staff's qualifications and technical skills during the ongoing COVID-19 situation (Shishakly & Sabah, 2021). For online programs to be successful, curriculum, facilitators, technology, and students must be carefully considered and balanced to take full advantage of the strengths of this format and, at the same time, avoid the pitfalls that can result from its weaknesses (Sharma, 2020). The government needs to ensure adequate internet network access in all regions and campuses provide subsidized internet quotas for students. So that lecture activities can run smoothly and as expected (Alchamdani et al., 2020).

Lecturers can create interactive media to support online learning so that students can understand the material that is explained well (Silalahi, 2021). "The implementation of online education must be more closely monitored by emphasizing the rules of turning on the camera during the teaching and learning process. It would be even better if a supervisor who can monitor accompanies lectures during class. We recommend increasing students' learning motivation so that there is no significant decline (Hendryka et al., 2021). Higher education authorities may introduce online and academic counseling to students going through a time where online learning is new every day and adapting. It suddenly becomes a challenge for many newly joined management students who have heavy course loads throughout the day. Tedious assignments must be submitted (Bagnal et al., 2021).

Colleges must provide training opportunities to faculty for effective teaching through virtual platforms. It is simply because many faculties have not used digital

technology and E-learning resources before this pandemic in Nepal (Chaudhary, 2021). To increase e-learning systems, top management must understand the fundamental role of mandatory training as a Covid-19 pandemic, and instructor trust must be increased by providing training and support (Alkhawaja et al., 2021). Jordanian private universities should pay great attention to online education, providing it with suitable infrastructure, as this can enrich the cognitive skills received, increase students' behavioral level, and actively contribute to improving the academic achievement of students. Universities should hold specialized courses in online education and relevant periodic meetings that ensure the effectiveness of the educational process and which is reflected in students' academic achievements in terms of understanding educational materials and analyzing their strengths (Al-Baher et al., 2020).

Teachers and students suggest continuous faculty development. They recommend reducing cognitive load and increasing interactivity during online teaching. Those in the clinical year suggest ways to start Case-Based learning online. However, some argue that there should be revision classes and psychomotor instruction after the COVID-19 pandemic is under control. To improve quality, they suggest purchasing premium software and other surveillance software to detect fraud and plagiarism (Mukhtar, Javed, Arooj, & Sethi, 2020).

Conclusion

The view is that online education is primarily focused on classrooms and recreational areas rather than helping students learn skills and prepare for the future. Online learning encourages engineering students to be more individualistic, asocial, disrespectful, and irresponsible. During the e-learning process, students participating in this study experienced an increase in body pain, and the duration and intensity of pain increased with increasing duration and severity of desktop/laptop or tablet use.

The University provides flexible learning through materials and resources, conducts online lectures, accepts student work submissions, interacts with students, and guides each student to meet learning goals successfully. Cognitive constructivism considers computer-supported collaborative learning environments to be tools for promoting learning by provoking personal knowledge and then rearranging that knowledge during social interaction.

Higher education authorities can introduce online and academic counseling to students going through a time where online learning is new every day and adapting. It suddenly becomes a challenge for many newly joined management students who have heavy course loads throughout the day, and tedious assignments must be submitted. Universities should pay great attention to online education, providing it with the appropriate infrastructure. It can enrich the cognitive skills received, increase student behavior, and actively contribute to improving student academic achievement.

The study suggests the government through universities should provide adequate infrastructure for lecturers and students to organize online learning during Covid-19. Standards for managing and training lecturers to organize online education should be carried out as soon as possible. Counseling guidance for students with disabilities needs to be prepared by both the government and universities.

References

Al-Baher, I. A., Flouh, R. F., & Al-Sulaihat, R. (2020). The Effect of Online Learning on The Academic Achievement Among Students of Jordanian Private Universities in Light of The Covid-19 Pandemic, Based on The Variables of Comprehension and Analysis from The Perspective of Faculty Members. *Technium Social Sciences Journal*, *7*, 242–255. Retrieved from https://techniumscience.com/index.php/socialsciences/article/view/332/124

Al-Kumaim, N. H., Alhazmi, A. K., Mohammed, F., Gazem, N. A., Shabbir, M. S., & Fazea, Y. (2021). Exploring the impact of the covid-19 pandemic on university

students' learning life: An integrated conceptual motivational model for sustainable and healthy online learning. *Sustainability (Switzerland)*, *13*(5), 1–21. https://doi.org/10.3390/su13052546

Al-Kumaim, N. H., Mohammed, F., Gazem, N. A., Fazea, Y., Alhazmi, A. K., & Dakkak, O. (2021). Exploring the Impact of Transformation to Fully Online Learning During COVID-19 on Malaysian University Students' Academic Life and Performance. *International Journal of Interactive Mobile Technologies*, *15*(5), 140–158. https://doi.org/10.3991/ijim.v15i05.20203

Alchamdani, A., Fatmasari, F., Rahmadani Anugrah, E., Putri Sari, N., Putri, F., & Astina, A. (2020). The Impact of Covid19 Pandemic on Online Learning Process in the College at Southeast Sulawesi. *Jurnal Kesehatan Lingkungan*, *12*(1si), 129. https://doi.org/10.20473/jkl.v12i1si.2020.129-136

Alkhawaja, M. I., Sobihah, M., & Afthanorhan, A. (2021). Technology Anxiety and its Impact on E-Learning System Actual Use in Jordan Public Universities during the Coronavirus Disease Pandemic. *European Journal of Educational Research*, *10*(4), 1639–1647.

Ayu, P., Candra, C., Wibawa, G., Kadek, N., & Arieska, C. (2021). *Kebijakan Pmerintah dalam Menangani Covid-19*. *3*(1), 10–18. Retrieved from https://www.kemdikbud.go.id/main/blog/2020/03/se-mendikbud-pelaksanaan-kebijakan-pendidikan-dalam-masa-darurat-penyebaran-covid19

Bagnal, G., Kanungo, K., & Paldon, T. (2021). Psychological Impact of Covid-19 and Online Learning on Higher Education (Mba / Pgdm) Students in India : an Exploratory Research on Whether Genders Perceive Stress Differently ? *UGC Care Journal*, *44*(August).

Cachón-Zagalaz, J., Sánchez-Zafra, M., Sanabrias-Moreno, D., González-Valero, G., Lara-Sánchez, A. J., & Zagalaz-Sánchez, M. L. (2020). Systematic Review of the Literature About the Effects of the COVID-19 Pandemic on the Lives of School Children. *Frontiers in Psychology*, *11*(October), 1–8. https://doi.org/10.3389/fpsyg.2020.569348

Chaudhary, M. K. (2021). Impact of Covid-19 on the Higher Education in Nepal: the Mindset of Students and Faculties Towards Online Teaching Learning Practice. . *PalArch's Journal of Archaeology of Egypt/Egyptology*, *18*(1), 3936–3942. Retrieved from https://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=149976021&site=ehost-live

Dutta, A., & Dutta, D. A. (2020). Impact of Digital Social Media on Indian Higher Education: Alternative Approaches of Online Learning during COVID-19 Pandemic Crisis. *International Journal of Scientific and Research Publications (IJSRP)*, *10*(05), 604–611. https://doi.org/10.29322/ijsrp.10.05.2020.p10169

Fabriz, S., Mendzheritskaya, J., & Stehle, S. (2021). Impact of Synchronous and Asynchronous Settings of Online Teaching and Learning in Higher Education on Students' Learning Experience During COVID-19. *Frontiers in Psychology*, *12*(October), 1–16. https://doi.org/10.3389/fpsyg.2021.733554

Faizah, U., Ambarwati, R., & Rahayu, D. A. (2021). From offline to online learning: Various efforts to secure the learning process during covid-19 outbreaks. *Journal of Physics: Conference Series*, *1747*(1). https://doi.org/10.1088/1742-6596/1747/1/012002

Hasan, N., & Bao, Y. (2020). Impact of "e-Learning crack-up" perception on psychological distress among college students during COVID-19 pandemic: A mediating role of "fear of academic year loss." *Children and Youth Services Review*, *118*(July), 105355. https://doi.org/10.1016/j.childyouth.2020.105355

Hendryka, K., Christjia, R., Chandra, W. A., Pedra, D., Timbuleng, M. B. P. H., Vincentius, K., … Hosoda, T. (2021). The impact of online learning during the Covid-19 pandemic (case study: Private University in Jakarta). *International Journal of Emerging Technology and Advanced Engineering*, *11*(8), 72–79. https://doi.org/10.46338/IJETAE0821_09

Huang, J. (2020). Successes and Challenges: Online Teaching and Learning of Chemistry in Higher Education in China in the Time of COVID-19. *Journal of Chemical Education*, *97*(9), 2810–2814.

https://doi.org/10.1021/acs.jchemed.0c00671

Jojoa, M., Lazaro, E., Garcia-Zapirain, B., Gonzalez, M. J., & Urizar, E. (2021). The impact of covid 19 on university staff and students from iberoamerica: Online learning and teaching experience. *International Journal of Environmental Research and Public Health*, *18*(11). https://doi.org/10.3390/ijerph18115820

Kidd, W., & Murray, J. (2020). The Covid-19 pandemic and its effects on teacher education in England: how teacher educators moved practicum learning online. *European Journal of Teacher Education*, *43*(4), 542–558. https://doi.org/10.1080/02619768.2020.1820480

Kusmaryono, I., Jupriyanto, J., & Kusumaningsih, W. (2021). A Systematic Literature Review on the Effectiveness of Distance Learning: Problems, Opportunities, Challenges, and Predictions. *International Journal of Education*, *14*(1), 62–69. https://doi.org/10.17509/ije.v14i1.29191

Mattick, K., Johnston, J., & de la Croix, A. (2018). How to write a good research question. *Clinical Teacher*, *15*(2), 104–108. https://doi.org/10.1111/tct.12776

Mukhtar, K., Javed, K., Arooj, M., & Sethi, A. (2020). Advantages, limitations and recommendations for online learning during covid-19 pandemic era. *Pakistan Journal of Medical Sciences*, *36*(COVID19-S4), S27–S31. https://doi.org/10.12669/pjms.36.COVID19-S4.2785

Na, S., & Jung, H. (2021). Exploring university instructors' challenges in online teaching and design opportunities during the covid-19 pandemic: A systematic review. *International Journal of Learning, Teaching and Educational Research*, *20*(9), 308–327. https://doi.org/10.26803/ijlter.20.9.18

Noah, O. O., & Gbemisola, K. O. (2020). Impact of Google Classroom as an Online Learning Delivery during COVID-19 Pandemic: The Case of a Secondary School in Nigeria. *Journal of Education, Society and Behavioural Science*, *33*(9), 53–61. https://doi.org/10.9734/jesbs/2020/v33i930259

Pete, J., & Soko, J. J. (2020). Preparedness for online learning in the context of Covid-19 in selected Sub-Saharan African countries. *Asian Journal of Distance*

Education, *15*(2), 37–47. Retrieved from http://www.asianjde.org

Petticrew, M., & Roberts, H. (2006). *Systematic Reviews in the Social Sciences: A Practical Guide* (1st ed.). Massachusetts: Blackwell Publishing.

Sharma, R. (2020). ONLINE LEARNING AND IT'S POSITIVE AND NEGATIVE IMPACT IN HIGHER EDUCATION DURING COVID-19. *EPRA International Journal of Multidisciplinary Research (IJMR)-Peer Reviewed Journal*, *6*(9), 2455–3662. https://doi.org/10.36713/epra2013

Shishakly, R., & Sabah, A. (2021). Challenges of Online Learning Systems during COVID-19 in the UAE universities and its Effect on Business Students' Academic. *American Journal of Online and Distance Learning*, *3*(1), 1–24.

Silalahi, M. V. (2021). Impact of Covid-19 on Student Satisfaction Level on Online Learning in Universities. *International Journal of Education & Curriculum Application*, *4*(2), 99–106. https://doi.org/10.31764/ijeca.v4i2.5004

Sk, M. S. (2021). Impact of Covid-19 on E-Learning At Higher Education in India. *Towards Excellence*, *13*(1), 184–191. https://doi.org/10.37867/te130118

Wagiran, W., Rahdiyanta, D., Wibowo, A. E., Sati, O. L., & Badu, M. R. (2020). Online learning of mechanical engineering subject in the Covid-19 era: Strategy, platform, and media. *Journal of Physics: Conference Series*, *1700*(1). https://doi.org/10.1088/1742-6596/1700/1/012027

Wirjodirdjo, B., Iva Maftuhah, D., Maflahah, I., & Davito Prabandewa Hertadi, C. (2021). The Impact of Utilizing Online Technology in The Learning-Teaching Process During the Covid-19 Pandemic on Personal Behavior of Engineering and Non-Engineering Students. *Management Science and Industrial Engineering*, 27–33. https://doi.org/10.1145/3460824.3460829

Yaseen, Q., & Salah, H. (2021). The Impact of E-learning During COVID-19 Pandemic on Body Aches Among Students in a Palestinian University. *International Journal of Sport, Exercise and Health Research*, *5*(1), 1–18. https://doi.org/10.21203/rs.3.rs-778931/v1 License: