

Post-pandemic face-to-face learning: Perspectives from physical education teachers

Wahyu Ragil Kurniawan^{abcde*}, Mugiyo Hartono^{abc},
Dwi Gansar Santi Wijayanti^{abc}

Universitas Negeri Semarang, Indonesia

Received: 16 November 2022; Accepted 01 March 2023; Published 27 March 2023
Ed 2023; 8(1): 87-94

ABSTRACT

Returning to the face-to-face learning system for physical education, the researchers got several responses and responses from the stakeholders, one of which was the teacher. The purpose of this study was to determine the perceptions of physical education teachers in carrying out face-to-face learning activities in the post-pandemic. The method used is descriptive quantitative research. Data collection was carried out using a list of main questions that were used to guide this research, one of which was, "How do teachers respond to the return of the face-to-face system after the pandemic, which requires students to return to school to attend physical education directly?" The data analysis technique used is data reduction, data presentation, and drawing conclusions. The results of this study found one point that represents the response of teachers' perceptions about the advantages and disadvantages of learning activities from their point of view in conceptualizing the offline physical education learning approach by paying attention to identical prevention patterns in the post-pandemic period. The conclusions of this study indicate that teachers have a variety of views that contain elements of strengths and weaknesses in carrying out physical education learning activities with a face-to-face system after spending a long time during the pandemic using an online system. Next, the researcher's suggestion for further research is that a special study can be carried out on how to design a learning approach that is relevant to the post-pandemic conditions of physical education in elementary schools.

Keywords: Face to face; teacher; perception; physical education; post pandemic

 [https://doi.org/10.25299/sportarea.2023.vol8\(1\).10965](https://doi.org/10.25299/sportarea.2023.vol8(1).10965)

OPEN ACCESS 

Copyright © 2023 Wahyu Ragil Kurniawan, Mugiyo Hartono, Dwi Gansar Santi Wijayanti

Corresponding Author: Wahyu Ragil Kurniawan, Department of Physical Education For Elementary School, Faculty of Sports Science, Universitas Negeri Semarang, Semarang, Indonesia.
Email: wahyuragil@mail.unnes.ac.id

How to Cite: Kurniawan, W. R., Hartono, M., & Wijayanti, D. G. S. (2023). Post-pandemic face-to-face learning: Perspectives from physical education teachers. *Journal Sport Area*, 8(1), 87-94. [https://doi.org/10.25299/sportarea.2023.vol8\(1\).10965](https://doi.org/10.25299/sportarea.2023.vol8(1).10965)

Authors' Contribution: a – Study Design; b – Data Collection; c – Statistical Analysis; d – Manuscript Preparation; e – Funds Collection

INTRODUCTION

The impact of the virus pandemic remains. On January 12, 2020, the World Health Organization (WHO) officially named an emerging infectious disease that is troubling everyone around the world, coronavirus disease 2019 (COVID-19) (Li et al., 2022). The rapid changes as a result of the spread of this virus have changed all systems in education. Thus, the dynamics of online education, across different contexts during the pandemic, have taken on a considerable role in the educational literature to date (Peimani & Kamalipour, 2021). As an educator, you must then consider the best way to recover and rebuild after the lockdown because it is very important to discuss how to PE with the new version of the previous paradigm (Blain et al., 2022).

Previous studies have shown a lack of teacher competency in promoting maximum learning success. Teachers ignore developing student readiness and competence to engage in online learning due to the pandemic (Pham & Ho, 2020).

During the worldwide COVID-19 pandemic, many countries have embraced virtual learning techniques in their schools and colleges. Some institutions in Indonesia choose virtual learning platforms, while others are unable to start their online teaching activities, especially in remote areas (Saha et al., 2022). With the development of information and communication technology (ICT), online learning environments have been introduced in many countries to provide teachers with wider and more flexible learning opportunities (Li et al., 2022). Unfortunately, in previous studies, it was found that many educational institutions were reported not to be equipped with technology for online teaching modes, and this led to a decline in learning (Abid et al., 2021). The instructor's role in adapting content for online learning is important, and the chances of success are lowered when the instructor is familiar with face-to-face teaching (Adnan, 2020).

The return of the face-to-face learning system in schools has elicited several comments from several parties. One of them is about how to practice preventing virus transmission in learning activities (Kurniawan et al., 2021). An understanding of complying with health protocols will not only help the community improve the quality of their health individually and for their families but also assist in the realization of government programs. For this to happen, the public must comply with health protocols (Rita & Kasitai, 2021). Behind the tough obstacles and challenges for education during and after the COVID-19 pandemic, there must be an opportunity or opportunity to come up with the best solution for dealing with the reality of the COVID-19 pandemic, as long as it is able to use the creative potential of existing resources (Indrawati, 2020). Teachers, as the frontline in ensuring that the learning process takes place for students, have different views regarding the implementation of social distancing policies in the post-pandemic COVID-19 (Sit & Assingkiy, 2020). However, there is no research that shows a variety of responses from teachers, especially in physical education, in dealing with the return of an offline learning system in schools.

When the impact of COVID-19 on the changing immediate landscape of higher education teaching, learning, and assessment is considered, it is difficult to ignore the level of competence of teaching staff in designing and delivering more appropriate and applicable curriculum (Alvarez, 2020). Online learning during the "new normal" era is undoubtedly different from "normal" online learning. Before the outbreak, online learning could be designed in a way that integrated the use of digital technology with face-to-face activity (Lee & Dashew, 2011). Several technical issues have been reported as online learning problems during the pandemic, such as the availability of technology devices and the readiness of the teachers (Sumer et al., 2021). Therefore, the term "new normal" for online learning can be contextually defined as pandemic emergency learning (PEL), since well-planned online learning experiences are significantly different from those delivered remotely in response to an emergency situation. PEL creates inequalities as teachers, students, and parents are not well-prepared for this transition (Rahiem, 2021).

Many students are bored and feel isolated during learning during the pandemic, and their longing to learn with face-to-face interactions with teachers and friends emerged as a result of several previous studies. In some countries, students claimed that PEL with many interactive activities could not replace face-to-face classroom environments (Kedra & Kaltsidis, 2020). There are some observations that students expect their teachers to improve their teaching styles, expand discussions, and reduce homework assignments. This shows that during PEL, teachers tend to burden students as independent learners by giving lots of assignments with minimal explanations (Bakker & Wagner, 2020).

Education is dynamic, therefore physical education teachers must be ready to always improve their pedagogical skills in many situations, especially in the post-pandemic period. In Indonesia, teachers must prepare themselves to deliver teaching and learning transitions in the era of the new academic year in a post-pandemic situation (Kedra & Kaltsidis, 2020). This study was conducted to observe the teachers' general perceptions of the situation of returning to face-to-face offline learning in physical education subjects, taking into account the points of the new rules in the post-pandemic period. The urgency of this research: this study needs to be done to be able to see the responses from the teachers and also to help in determining the right form of activity to be applied in physical education in the post-pandemic.

METHOD

This study uses descriptive research because the researcher describes the teachers' perception of the return of face-to-face offline learning for physical education subjects in elementary schools in the post-pandemic period (strengths, weaknesses, conveniences, and difficulties in doing offline learning after a long time using the online system). Participants in this study were 140 PE teachers at a primary school in Central Java. The instrument used in this study consisted of 15 questionnaires containing open-ended questions that were made online using a Google Form. The instrument was distributed to the participants using the online WhatsApp platform. The results of questionnaires that have been filled out by participants are recorded by the research team, and then data reduction or data sorting with the same code is carried out. The next step is to display the data, and the last stage is making conclusions.

RESULTS AND DISCUSSION

Based on the first research questionnaire findings regarding the implementation of physical education, All teachers are in the same condition, namely returning to carry out offline physical education learning at school. Second, about the teachers' views on the differences and similarities of online and offline physical education learning. Almost all of them stated that the similarity between online and offline learning lies in the form of the process itself. As for the material or curriculum, both online and offline, the teachers must prepare learning tools and, of course, have a main goal that must be achieved.

Next, we will talk about the ease and difficulty of learning online and offline. Most teachers agree that the ease of implementing online learning is more flexible in time and place, allowing for more exploration of technology and new student experiences, while in offline learning, students are required to attend according to a schedule at school directly into learning. The teachers agree that online learning and offline learning have differences in the way teachers carry out the learning process. In offline learning, teachers and students meet at one place and time, but in online learning, they cannot even use zoom as a medium because they are separated by distance.

The main question regarding the responses or perceptions of teachers about the return of the offline learning system in physical education also received many diverse responses. Most of them feel that something is different because after a long time following online learning, they can be more "relaxed" in managing and implementing it. The results of this study found one point that represents the response of the teachers' perceptions about the advantages and disadvantages of learning activities from their point of view in conceptualizing the offline physical education learning approach by paying attention to identical prevention patterns in the post-pandemic period. The results of the teachers' responses are shown in table form as follows:

Table 1. Grouping the Results of the Teachers' Response

No.	Strengths	Qty	Percentage	Weakness	Qty	Percentage
1	Students are more monitored	100/140	71,42%	It is possible to cut study hours	122/140	87,14%
2	Easy to make students more focused	127/140	90,71%	Often gets provocation from students' parents	98/140	70%
3	Easy and fast response if there are students who need help	104/140	74,28%	There is a risk of contracting or transmitting covid	133/140	95%
4	The material standards provided are clear	92/140	65,71%	Limited knowledge of technology	131/140	93,57%
5	Teachers' creativities are more developed in conceptualizing learning approaches	132/140	94,28%	Insufficient Availability of Facilities and Infrastructure	110/140	78,57%

94.2% is the highest score for the superiority of the face-to-face learning system offline. It was found that the perception of the teacher was expressed in the comments of 132 out of 140 total participants, who commented, "Teachers' creativity is more developed in conceptualizing learning approaches". Whereas, regarding the comments on the weakness of the face-to-face system in the post-pandemic period, the highest percentage was obtained, reaching 95% of answers, 133 out of 140 participants gave the perception "There is

a risk of contracting or transmitting COVID” because the current situation, until this article was written, was still not perfectly clean from COVID-19. Second, regarding the advantages of face-to-face learning, with a value of 90.71%, comments were found about “making students more focused”. 127 teachers felt that with face-to-face learning, it was easier for them to direct students. 93.57%, or 131 out of 140 participants, had the perception that teachers will have limited technological knowledge if learning is always carried out with the concept of face-to-face offline because they cannot take advantage of existing opportunities and technology to further develop.

The grouping of the results of the responses and or perceptions of the teachers was carried out in order to find out how big the percentage of the answers was from the same respondents. then, with a percentage of 74, 28% of the teacher’s response is that with face-to-face time at this time, they are easier to respond to students and can respond quickly if there are students who need help. While 87.14% of physical education teachers have this perception, in a state of face-to-face learning after the pandemic, it would be very possible for teachers to cut or reduce learning hours, or it could be said that it was not in accordance with the supposed meeting schedule. With an offline face-to-face system, 100 teachers provide perceptions of answers, allowing them to more easily monitor and monitor students. and 92 teachers gave a response about whether the standard of the material provided would be more clearly accepted by students. On the other hand, the weakness that emerged was from the responses of the participants, one of which was about the lack of availability of facilities and infrastructure, with answers from 110 out of 140 teachers. Besides that, the weakness was also felt by the teachers after returning to running learning with the offline system, one of which was often provoked by parents. student. Evidently, 98 teachers experienced this. All the details of the results of the responses of the teachers as respondents can be seen in Table 1.

The post-COVID-19 world demands every company digitally overhaul. Digitalization has spread to all corners of the world, and adjustments to the new order of life have been slowly adapted by all people in the world (Sharma & Alvi, 2021). Indonesia is one of the countries affected and has followed all the consequences of this post-pandemic period. The learning system in the pandemic era with all the online learning and the use of technology has accomplished so much, and now it has slowly returned to a new life order, with learning being carried out face-to-face in schools (Tadesse & Muluye, 2020).

Post-pandemic, there have been many comments regarding online learning, which is always associated with several risks such as lack of teacher presence, minimal interaction with peers, lack of motivation from students, sloppy time schedule management, and a lack of individual learning abilities (Cole et al., 2004). This is in accordance with the results of the study, which gave rise to comments on the perceptions of physical education teachers in the excess of learning with the offline system, one of which was that students are easier to monitor with offline learning. This explains how students interact with teachers to interact with their peers. In the post-pandemic era, educators and students are forced to use technology as frequently as possible (Hill et al., 2020). Learning systems using e-learning, with the main capital being the internet network, websites, telecommunications, radio, video recording, etc., must be carried out by the teacher in various activities such as delivering lectures, providing learning materials, and even in terms of assignments (Mad et al., 2020). This theory is proven to be one of the advantages of online learning: teachers will have more leverage in using technology. However, if the learning system has returned to being offline, it is feared that the weakness is that teachers have increasingly limited opportunities to use technology.

Previous studies explained and reflected on teacher subjectivity about online classes, saying “We have efficacy but lack infrastructure” (Kundu & Bej, 2021). These results match the results of recent research showing that teachers tend to feel that the current school infrastructure with an offline learning system really needs to be improved because the conditions and existence are still very inadequate. So that the teacher’s comments in face-to-face learning after this pandemic concern the completeness of the infrastructure, this needs to be a concern.

Although academic performance levels were comparable in both methods, face-to-face activities performed better than online activities using the internet. According to previous research, class dynamics and social activities, which are an important part of regular face-to-face learning, encourage more student involvement, easier communication between teachers and students, and the ability for teachers to more easily direct students

about what they should do (Kemp & Grieve, 2014). There is a match with this study; it can be seen from the teacher's comments about the advantages of face-to-face learning that there is a perception that face-to-face makes it easier for teachers to control students and for students to ask questions of the teacher so that a quick response can be given.

Learning can run effectively with good preparation and adequate infrastructure to support activities, so all education providers need to make preparations, starting with improvement and revitalization in terms of facilities, infrastructure, and resources (Faizah et al., 2021). A good learning system is one that has the readiness and quality of adequate resources; thus, the return of this direct face-to-face system certainly has various impacts on physical education teachers, one of which is that their resource capabilities really need to be improved in terms of pedagogical skills in designing a physical education learning approach that relates to post-pandemic situations (Wibawa & Suharjo, 2021).

Offline learning certainly has its own drawbacks and problems, especially in the current post-COVID-19 pandemic era (Tamine et al., 2019). Since the emergence of COVID-19 in Indonesia, the government has firmly requested that all teaching and learning processes be carried out online. This is done so that students and teachers do not carry out offline learning, which triggers or risks the spread of the increasingly widespread COVID-19 virus. However, after the situation was considered normal, the original system was returned, with all students able to study by going to school.

Compared to offline classes, online classes give students more free time than offline classes. In addition, students can manage their time well and have enough rest (Cho & Kim, 2021). However, if it is done online, like it or not, teachers need technology both for learning and communicating with each other (Bayerlein et al., 2021). In addition, students sometimes cannot hear what the teacher is saying due to a poor connection. Also, the task of recording is very stressful, especially when our phone's storage suddenly runs out when we are almost done. Students will have more activities in class that make them more confident in dealing with certain things. Like speaking in front of many people, interacting with people face-to-face, and making friends with them (Singh et al., 2021).

CONCLUSION

The conclusion of this study shows that teachers have various views that contain elements of strengths and weaknesses in carrying out physical education learning activities, given the situation of returning online after almost two years and now having to return to face-to-face instruction. Teacher perceptions on the positive side of the current physical education learning situation include: students are more monitored; it is easy to make students more focused; it is easy and quick to respond if there are students who need help; the standard material provided is clear; and teacher creativity is more developed in conceptualizing learning approaches. Meanwhile, perceptions from the negative side of current learning include that teachers can have their study hours cut short, teachers often get provocations from parents of students, there is a risk of contracting or transmitting COVID, teachers will have limited technological knowledge, and the availability of facilities and infrastructure is inadequate. The conclusions of this study are consistent with the statement from the previous research. Physical education teachers are at the forefront of the preparation and implementation of the physical education learning process. With things returning to normal, physical education teachers perceptions of physical education also vary as to how they deal with the current system.

The limitations of this research are the lack of samples used and the fact that the scope used is only physical education teachers in elementary school. On the other hand, there are no suggestions in this study regarding the effective learning models to be applied in physical education in the post-pandemic era. So the suggestion for further research is that a special study can be carried out on how to design learning approaches that are relevant to the post-pandemic conditions of physical education in elementary schools while continuing to use technology and paying attention to the health protocols.

ACKNOWLEDGEMENTS

The research team would like to thank all parties who have helped so that this research can be completed and published. Remarks were delivered to the Faculty of Sports Science, Universitas Negeri Semarang,

Indonesia, which has funded the implementation of this research. Next, remarks were conveyed to the Central Java Provincial Education Office, which has given permission for the implementation of this research. Then thanks were conveyed to all physical education teachers who were sampled in this study and who came from all regions in the province of Central Java, Indonesia.

CONFLICT OF INTEREST

The authors declared that there were no conflicts of interest in writing this article.

REFERENCES

- Abid, T., Zahid, G., Shahid, N., & Bukhari, M. (2021). Online Teaching Experience during the COVID-19 in Pakistan: Pedagogy-Technology Balance and Student Engagement. *Fudan Journal of the Humanities and Social Sciences*, 14(3), 367-391. <https://doi.org/10.1007/s40647-021-00325-7>
- Adnan, M. (2020). Online Learning Amid the COVID-19 Pandemic: Students Perspectives. *Journal of Pedagogical Sociology and Psychology*, 2(1), 45-51. <https://doi.org/10.33902/jpsp.2020261309>
- Alvarez, A. (2020). The Phenomenon of Learning at a Distance Through Emergency Remote Teaching Amidst the Pandemic Crisis. *Asian Journal of Distance Education*, 15(1), 144-153. <https://doi.org/10.5281/zenodo.3881529>
- Bakker, A., & Wagner, D. (2020). Pandemic: Lessons for Today and Tomorrow? In *Educational Studies in Mathematics*, 104(1), 1-4. <https://doi.org/10.1007/s10649-020-09946-3>
- Bayerlein, L., Hora, M. T., Dean, B. A., & Perkiss, S. (2021). Developing skills in higher education for post-pandemic work. *Labour & Industry: A Journal of the Social and Economic Relations of Work*, 31(4), 418-429. <https://doi.org/10.1080/10301763.2021.1966292>
- Blain, D. O., Standage, M., & Curran, T. (2022). Physical education in a post-COVID world: A blended-gamified approach. *European Physical Education Review*, 28(3), 757-776. <https://doi.org/10.1177/1356336X221080372>
- Cho, M. K., & Kim, M. Y. (2021). Factors Affecting Learning Satisfaction in Face-to-Face and non-Face-to-Face Flipped Learning among Nursing Students. *International Journal of Environmental Research and Public Health*, 18(16), 2-13. <https://doi.org/10.3390/ijerph18168641>
- Cole, M. S., Feild, H. S., & Harris, S. G. (2004). Student Learning Motivation and Psychological Hardiness: Interactive Effects on Students' Reactions to a Management Class. *Academy of Management Learning & Education*, 3(1), 64-85. <https://doi.org/10.5465/amle.2004.12436819>
- 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), 1-7. <https://doi.org/10.1088/1742-6596/1747/1/012002>
- Hill, C., Rosehart, P., st. Helene, J., & Sadhra, S. (2020). What Kind of Educator does the World Need Today? Reimagining Teacher Education in Post-Pandemic Canada. *Journal of Education for Teaching*, 46(4), 565-575. <https://doi.org/10.1080/02607476.2020.1797439>
- Indrawati, B. (2020). Tantangan dan Peluang Pendidikan Tinggi dalam Masa dan Pasca Pandemi Covid-19. *Jurnal Kajian Ilmiah*, 20(1), 39-48. <https://doi.org/10.31599/jki.v1i1.261>
- Kedra, K., & Kaltsidis, C. (2020). Effects of the Covid-19 Pandemic on University Pedagogy: Students' Experiences and Considerations. *European Journal of Education Studies*, 7(8), 17-29. <https://doi.org/10.46827/ejes.v7i8.3176>

- Kemp, N., & Grieve, R. (2014). Face-to-Face or Face-to-Screen? Undergraduates' Opinions and Test Performance in Classroom vs. Online Learning. *Frontiers in Psychology*, 5(11) 1-11. <https://doi.org/10.3389/fpsyg.2014.01278>
- Kundu, A., & Bej, T. (2021). We Have Efficacy But Lack Infrastructure: Teachers' Views on Online Teaching Learning during COVID-19. *Quality Assurance in Education*, 29(4). <https://doi.org/10.1108/QAE-05-2020-0058>
- Kurniawan, W. R., Setiawan, I., Santi Wijayanti, D. G., Rozi, F., & Alfriani, F. (2021). Technical Readiness of Physical Education Teachers to Face Online Learning Challenges Due the COVID-19 Pandemic. *Jp.Jok (Jurnal Pendidikan Jasmani, Olahraga Dan Kesehatan)*, 5(1). <https://doi.org/10.33503/jp.jok.v5i1.1678>
- Lee, R. A., & Dashew, B. (2011). Designed Learner Interactions in Blended Course Delivery. *Journal of Asynchronous Learning Network*, 15(1). <https://doi.org/10.24059/olj.v15i1.183>
- Li, N., Taconis, R., & den Brok, P. (2022). Chinese Teachers' Perceptions of an Online Teacher Course and Its Results. *Learning Environments Research*, 25(1), 115-139. <https://doi.org/10.1007/s10984-021-09353-2>
- Mad, S., Omar, N. A., Sarudin, E. S., & Aziz, N. H. (2020). Perception and Intention to use E-learning from Students' Point of View- An Evidence from Malaysia Local University. *Journal of Computing Research and Innovation*, 5(2), 11-20. <https://doi.org/10.24191/jcrinn.v5i2.163>
- Peimani, N., & Kamalipour, H. (2021). Online Education in the Post Covid-19 Era: Students' Perception and Learning Experience. *Education Sciences*, 11(10). <https://doi.org/10.3390/educsci11100633>
- Pham, H. H., & Ho, T. T. H. (2020). Toward a 'New Normal' with E-Learning in Vietnamese Higher Education during the Post COVID-19 Pandemic. *Higher Education Research and Development*, 39(7), 1327-1331. <https://doi.org/10.1080/07294360.2020.1823945>
- Rahiem, M. D. H. (2021). Indonesian University Students' Likes and Dislikes about Emergency Remote Learning during the COVID-19 Pandemic. *Asian Journal of University Education*, 17(1), 1-18. <https://doi.org/10.24191/ajue.v17i1.11525>
- Rita, & Kasitai, R. (2021). Persepsi Masyarakat mengenai Kesadaran mematuhi Protokol Kesehatan. *Jurnal Keperawatan Florence Nightingale*, 4(1), 20-23. <https://doi.org/10.52774/jkfn.v4i1.65>
- Saha, S. M., Pranty, S. A., Rana, M. J., Islam, M. J., & Hossain, M. E. (2022). Teaching during a Pandemic: do University Teachers prefer Online Teaching?. *Heliyon*, 8(1), 1-9. <https://doi.org/10.1016/j.heliyon.2021.e08663>
- Sharma, A., & Alvi, I. (2021). Evaluating Pre and Post COVID 19 Learning: an Empirical Study of Learners' Perception in Higher Education. *Education and Information Technologies*, 26(6), 7015-7032. <https://doi.org/10.1007/s10639-021-10521-3>
- Singh, J., Steele, K., & Singh, L. (2021). Combining the Best of Online and Face-to-Face Learning: Hybrid and Blended Learning Approach for COVID-19, Post Vaccine, & Post-Pandemic World. *Journal of Educational Technology Systems*, 50(2), 140-171. <https://doi.org/10.1177/00472395211047865>
- Sit, M., & Assingkiy, M. S. (2020). Persepsi Guru tentang Social Distancing pada Pendidikan AUD Era New Normal. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 5(2), 1009-1023. <https://doi.org/10.31004/obsesi.v5i2.756>
- Sumer, M., Douglas, T., & Sim, K. N. (2021). Academic development through a pandemic crisis: Lessons learnt from three cases incorporating technical, pedagogical and social support. *Journal of University Teaching and Learning Practice*, 18(5), 1-14. <https://doi.org/10.53761/1.18.5.1>

- Tadesse, S., & Muluye, W. (2020). The Impact of COVID-19 Pandemic on Education System in Developing Countries: A Review. *Open Journal of Social Sciences*, 8(10), 159-170. <https://doi.org/10.4236/jss.2020.810011>
- Tamine, L., Soulier, L., Nguyen, G. H., & Souf, N. (2019). Offline Versus Online Representation Learning of Documents using External Knowledge. *ACM Transactions on Information Systems*, 37(4), 1-34. <https://doi.org/10.1145/3349527>
- Wibawa, A. C., & Suharjo, B. (2021). Sustainability of Education in Post-Pandemic: Challenges and Opportunity. *International Journal of Educational Management and Innovation*, 2(3), 356-366. <https://doi.org/10.12928/ijemi.v2i3.3906>