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Academic performance of online physical education learning during COVID-19 outbreak: systematic literature review

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ABSTRACT

In the COVID-19 outbreak, a strong learning strategy is essential to achieving success in student academic performance. This study aims to find out the academic performance of online physical education courses as the COVID-19 outbreak spreads globally. This study's objective is to assess how online physical education performed during the COVID-19 pandemic. This study follows the preferred reporting items for systematic review and meta-analyses (PRISMA). Science Direct, Taylor and Francis online, PubMed, Scopus, Springer, and Wiley online library are the databases that are deployed to look for papers about studies. Online search references are found by using a procedure that involves typing in terms of physical education programs during the COVID-19 outbreak for each database. To achieve three articles as results after the screening procedure, the author's selection criteria for inclusion and exclusion were applied to the search results from the 263 articles that were created from the complete database. The review's conclusion is teaching online physical education during the COVID-19 outbreak still produces good academic performance. The usage of technology to teach all of the students during COVID-19 online is the primary reason for maintaining student academic performance.

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1. INTRODUCTION

First coronavirus outbreak appeared in Wuhan, China in 2019 [1]–[5]. The coronavirus has spread various around the world including in Indonesia. This virus has also become a trend in various mass media because has many causing deaths. This virus also causes schools, places entertainment, and facilities sports to close so a strategy is needed to prevent transmission [6]–[8]. During the lockdown activity physical use permanently maintain the health and fitness of students, a survey from Luo *et al.* [9] shows 25.86% of students aged 10-20 years did not conduct physical activity during the lockdown period. We cannot disregard that since it will lead to their poor health.

COVID-19 pandemic has given a huge impact on education [10], [11]. The learning process could not be going on normally. The usual study conducted right in class now must be held online with the use of various technology existing in education [12], [13]. The spread of this virus into Indonesia has impacted the policy government to carry out a lockdown, this policy impacts the lack of physical activities carried out by the

community, increases sedentary levels in adults [14], [15], an increasing number of hours of sleep, and increasing screen time frequency using smartphone or television [16]. The teacher must change the method of learning that they designed before because learning could not again be conducted face-to-face in the classroom [17]. The closure of the school during the pandemic era due to teachers and student cannot interact directly, it will create the spread of the COVID-19 virus rapidly. With learning from the house, it is hoped that the COVID-19 pandemic will get quickly end [18]. Learning with a method that doesn't normal and new is something challenging for teachers and challenges must answer with the right teaching strategy to ensure students' teaching-learning process amid the pandemic situation [19]. Fast change happens in the teaching process in the classroom and becomes virtual from their home [20], as well as the emerge of technology used by the teacher worldwide [21]–[23].

Several factors influence learning outcomes carried out by the teacher in a hybrid manner to students at school, such as deep teacher skills teaching and performance in practice sport, tactics and decision making, motivation, self-belief and independence, interpersonal skills, responsibility answer, and study cooperative ability. The adoption of this hybrid learning model instructors who have grasped its usage with the draft will benefit, while using this hybrid learning model, the teacher will not be rigid since they already know the steps to take when teaching. To ensure that the instructor has a thorough comprehension of the subject matter, he or she should study the concept of this hybrid learning and practice it while correcting concepts and practice [24]. Moreover, a study by Firdaus *et al.* [25] stated that the academic performance of physical education will experience an increase when the motivation learning possessed by students is also high.

Factors other as body mass index and fitness physical no enough to influence the results of to study if the motivation study students still belong low, so the teachers have to be capable to push student motivation so that their academic performance will increase. The fitness level of students will increase their concentration on study and passion for learning which has a positive effect on the results learned. The psychological element is connected well with friendship [26], and the perception of cognitive ability neither can ignore, though it seems not too urgent however facts show that the perception of the student's cognitive ability will influence the results of the study [27].

A mastery of the learning approach to the student will make students actively follow the learning process [28], and active students will result good academic performance [29]. An experimental study conducted by Sgrò *et al.* [30] explained that learning by using a tactical game model will increase the results of academic performance because it feels like a real game for the student. Furthermore, previous study [31] reported achievement in a student's academic performance is rather difficult to develop together with height achievement in sports, which causes time spent by outstanding athletes longer on the training ground compared to studying in the classroom.

Movement of the student during the COVID-19 outbreak has to be maintained and physical education becomes an urgent subject for ensuring student movement during the pandemic [32]. The use of zoom during a pandemic becomes an interesting solution used for face-to-face teaching. Satisfaction students rated is good but the self-efficacy of teachers and students experience a decline [33].

Problems of learning have made experts in thinking some solutions, flipped learning begins generally used when the coronavirus spreads, and it has resulted in good academic performance of the pupil [34]. Along with the fast progress of technology and height frequency smartphone use by school-aged children has caused low results in their academic performance. For instance, Sánchez-Miguel *et al.* [35] argue the level of a child who uses their smartphone tall at the time of school day or on holiday tend to own poor academic performance, and vice versa when a child seldom use cellphone both a school day or holiday tend to own good academic performance. This should be noted by parents and students, who should consider what feasible interventions they might do to ensure that youngsters are not overly reliant on cell phones and that the academic performance are satisfactory.

Based on the many studies described before, it seems that there is no review article trying to collect references about the academic performance of online physical education learning during the outbreak of COVID-19. Then, the present study aims to create a systematic literature review regarding the academic performance of physical education online learning during COVID-19 outbreak. This study is important because we have to know what has already happened in our education especially in physical education subjects when it is conducted online. It is challenging to teach students practical content online during the COVID-19 plague [36], similar to teaching physical education. Thus, it is important to investigate whether or not student academic performance is still favorable or becoming worse. This study will assess and explain to educators and stakeholder how students performed academically within the online physical education learning process in the COVID-19 outbreak.

2. RESEARCH METHOD

The method used for writing this article is a systematic literature review. Articles analyzed obtained from results searched on six databases as shown in Figure 1, namely: i) Science direct; ii) Taylor and Francis Online; iii) PubMed; iv) Scopus; v) Springer; and v) Wiley online library. On searches in the Science Direct database using the keywords "academic performance," AND "physical education," AND "online learning," the authors obtain 36 article results searches. Then, the writer searches for the Taylor and Francis online database with the keywords "academic performance" AND "physical education" AND "online learning" and obtains results search of as many as 65 articles. In the PubMed database with the keywords "academic performance" AND "physical education," there are 99 articles found. On searching references in the Scopus database author obtained three articles. On searching, references in the springer database author obtained 55 articles. Then for the final search in Wiley online library database, the author obtained five articles. A whole keyword search to obtain the articles related to the academic performance of the online physical education conducted during COVID-19 outbreak was held on January 22, 2023, at 16.00 Indonesian local time.

After doing searches on the six databases so the total obtained articles were as many as 263. Initial screening of the article was done to see if it had any duplicate content from other articles. After conducting the analysis, it was encountered that three articles were identical to another article, thus the authors cleared those references. The article's title and abstract are initially subjected to screening by the following writer, who then verifies the criteria for inclusion and exclusion and discards any submissions that do not fit the requirements. Table 1 shows the inclusion and exclusion criteria. After being scrutinized for the title and abstract, a total of 23 articles remains. Finally, the author filters the remaining articles on stage by downloading them in their entirety, reading them, and considering their inclusion. After reading the whole article, the author determines that only three articles met the inclusion criteria that the author had previously established.

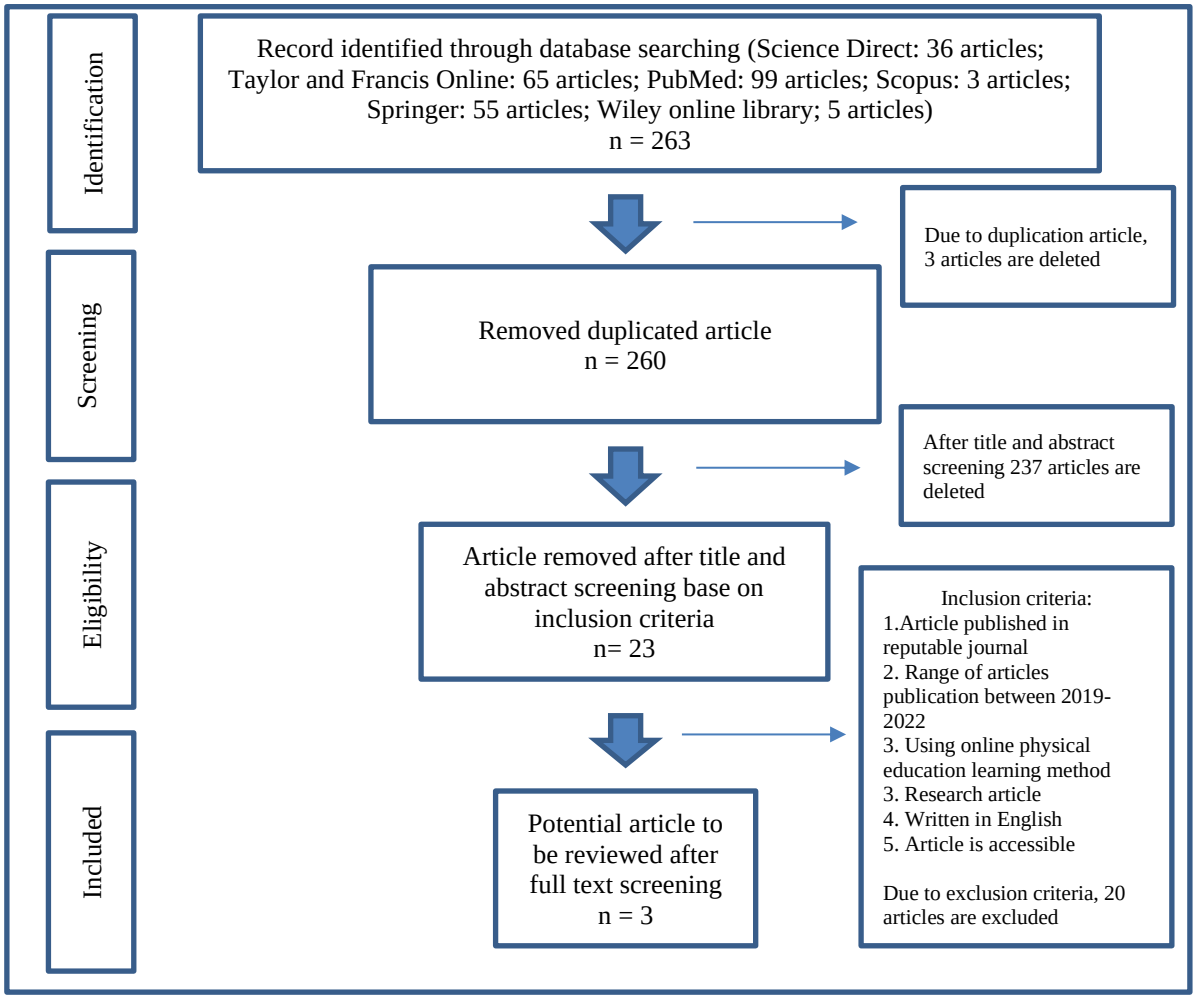

Figure 1. PRISMA flowchart of the study selection process

Table 1. Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Articles from reputable international journals	Articles publish by non-reputable international journal
Articles published in the range 2019-2022 years (during COVID-19 outbreak)	Published of the articles besides 2019-2022 years
Using online physical education learning method	Physical education learning carried out offline
The type of article is original research articles	Review articles, conference papers, books, book chapters, repositories
Articles that are written in English	Non-English writing articles
Full-text articles can be downloaded	Full-text articles are not accessible

3. RESULTS AND DISCUSSION

In this section, it is explained the results of the research and at the same time is given the comprehensive discussion. Results can be presented in figures, graphs, tables and other search results of the articles from the six databases obtained 263 articles and after passing initial screening until the end so fulfilling article inclusion criteria totaling three articles. Table 2 will describe the country distribution, the number of articles, and the journal category while Table 3 will outline the results analysis article related to the researcher, goal research, subject research, research instruments, statistical analysis, and results research.

Table 2. Number of articles, country, and journal category used in the study

Country	Number of articles	Journal category
Canada	1	Quartile 1 in Scopus
Indonesia	1	Quartile 2 in Scopus
Spanyol	1	Quartile 1 in Scopus

Table 3. Matrix results search articles related to the academic performance of online physical education learning during the COVID-19 outbreak

Research	Objective	Method (study design, subject, and instrument)	Statistical analysis	Results
[37]	To measure lecturer attendance, online learning activities, and online formative assessment	SD: not stated S: 367 university students I: timestamp, quiz score, LMS, assignment score, midterm score, and the final score	Structural equation models	The lecturer's attendance did not affect the academic performance of the student but it promoted performance by leveraging online learning engagement
[38]	To assess the relationship between self-confidence, academic stress, coping strategies and academic achievements	SD: Correlation S: 90 junior high school I: self-confidence, academic stress and coping strategy questionnaire, the average score for the final semester examination	Bivariate correlation and regression analysis	First, self-confidence was related to academic achievement, second, academic stress was related to academics' achievement, and third, the coping strategy was related to academic achievement
[39]	To investigate how characteristics such as technological competence, game-based learning, accessibility, and pleasure impact the acceptability of the use of video games as a learning aid in the setting of physical education, as well as its influence on academic success in the subject itself	SD: quasi-experiment S: 166 secondary school students I: technology acceptance model (TAM) model; Physical Activity Enjoyment Scale; Individual Technical Basketball Test	Regression	Accessibility, enjoyment, technological competence, and learning through video games, have an impact on students' acceptance of video games as an educational tool and how this positive relationship leads to enhanced academic performance in physical education

SD: study design; S: samples; I: instruments /measures

Academic performance in physical education done online at the higher education level suggested that there is no significant difference among the academic performance in blended learning as well as learning carried out in full class. Although blended learning has reduced time among students and teachers by as much as 30 to 79% however similar academic performance results still exist [40]. Similarly, an investigation from Rakha [41] explained that students studying via online webinar tools do not always mean they will be able to get high results in learning. Teachers must reconsider developing online learning solutions to encourage students to be more involved in their studies. Moreover, Chou [42] have also revealed that implementing online learning is unquestionably a viable option and becomes a solution during the COVID-19 plague, yet assessments made by instructors for students do not always match, especially in indirect learning. Students in online learning should currently read and watch the information provided by the

teacher on the instructional tool used since several documents read and viewed has an influence on the results of a successful study [43], on the other hand, additionally, students are happy with physical education in the classroom, which influences the outcome of the excellent study [44].

Online learning performance is influenced by a number of factors, the first of which is the availability of suitable technology resources [7]. Technology provides a long-term solution to the learning process. During the COVID-19 outbreak, researchers used technology to enhance learning, and then instructors and lecturers could carry out the learning process to gain outcomes from good research as well. However, they also have to selectively choose the media to use because it will influence student engagement [45]. From the perspective of the instructor, online learning is beneficial since it increases an individual's capacity to teach a lot of time for family, students can study according to the level of speed comprehending information, and their ability to grasp learning technology [46]. Indeed, the usage of video conferencing is an extremely beneficial implementation of typical learner practice as learning sports. Teachers and students might participate in practicing movement series through video conferences, and with present technology, it is believed that student fitness would be constantly alert, allowing for the best study outcomes. The presence of technology during COVID-19 also has shortcomings for the teacher who does not currently have sufficient internet connectivity in an area, and students who do not yet own a smartphone or laptop will be limited in their ability to use video conferencing technology as well as the financial issue for the pupil [47].

Although several forms of current technology assist the teacher in carrying out learning, the teacher must be a consistent learning teacher. The instructor must be capable of using different existing technologies such as zoom meetings, Google Classroom, WhatsApp, Telegram [48], e-learning [49], massive open online course (MOOC), and Ding Talk, which are all widely utilized by teachers and lecturers. Online learning can provide challenges for internal teachers who evaluate students. To address this issue, tool observation is a way for watching student activities while learning is taking place [50]. The use of virtual reality such as metaverse technology for learning physical education appears a good solution for increasing the success of students' academic performance, they could communicate horse away and do a physical activity such as playing basketball virtually [51]. The second indicator is the knowledge of teachers and students, where having knowledge and skills in operating a technology will support a much more optimal online learning process in physical education classes. The third indicator is internet quota is one of the supporting factors for organizing online learning, without internet quota students will not be able to take part in online learning at home [36].

4. CONCLUSION

The study results of the articles reviewed show that studying physical education online during the COVID-19 pandemic is already sufficient, however, it cannot be denied that in the application in the school, there are still various constraints faced by teachers, such as problems with an internet connection, students who do not have cellphones, so that both students and teachers must learn together to face those issues. Previous studies have examined a number of psychological topics, including student self-confidence, lecturer attendance rates, and the usage of video games to boost students' academic performance while they study physical education online. Future studies may be able to look at the online learning process from the perspective of parental and principal control, in order to improve students' comprehension and competency with a subject. The involvement of parents in making sure their children have learnt properly is helpful, as is the responsibility of the school administrator in assessing teacher performance in the classroom and offering assistance to help them develop their online teaching abilities.

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