

Implementation of management science in physical education subjects: A systematic literature review

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Article Information:

Submitted: 18 July 2024; Accepted: 12 August 2024; Published: 28 August 2024

ABSTRACT

Problems: There is still a lack of research that focuses on identifying the implementation of management science in physical education. Addressing this gap is crucial as it can lead to improved student outcomes and more efficient use of resources. Furthermore, optimizing physical education through management science can contribute to a more comprehensive educational experience, emphasizing the importance of physical activity on students' performance and well-being. **Purpose:** The primary aim of this systematic literature review is to generate practical recommendations that will empower educators and policymakers to optimize physical education. By conducting a comprehensive analysis, this research seeks to offer valuable guidance for teachers in curriculum design, class management, and the effective evaluation of physical education programs. Additionally, it is advisable to incorporate these implications into the conclusion section of the work. **Methods:** This research uses the PICO method which the author applies in searching articles to reveal new findings. In the data collection stage, articles were collected via Google Scholar and Crossref. **Results:** The author found 954 articles resulting from searches via Google Scholar and Crossref via Publish or Perish, then extracted until the author found 7 articles that met all the. **Conclusion:** Based on a comprehensive analysis of seven research articles, it is evident that the application of management science in physical education is predominantly driven by educators across various educational levels. These findings underscore the pivotal role of effective management by physical education teachers, encompassing learning planning, implementation, and evaluation, to significantly enhance student learning outcomes. Despite the limited number of relevant studies, the results highlight the critical importance of further exploring the application of management in physical education. Further research is needed on various aspects of the application of management science in physical education. Collaboration between physical education experts and management can produce innovative interdisciplinary approaches in the development and implementation of physical education programs.

Keywords: management science, technology, physical education.

 <https://doi.org/10.24036/patriot.v%vi%i.1082>



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Introduction

Physical education in the era of globalization has a very important role in forming a healthy and characterful generation. Physical education is an integral part of the overall education system (Akbar et al., 2020). Physical education not only aims to improve physical skills, but also to build discipline, and teamwork, and foster leadership skills (Kovaleva & Motuzenko, 2023). Effective leadership in physical education by a teacher with the guidance of students in understanding their physical abilities, organizing sports activities, and fostering self-confidence and decision-making abilities (Yang & Jr., 2023; Gazali et al., 2022). Physical education programs in schools provide opportunities for students to increase fitness levels, identify weaknesses, and develop lifelong skills, contributing to full and productive lives (Kliziene et al., 2023). A study by Ramires et al. (2023) with the research title "Physical Education for Health Among School-Aged Children and Adolescents: A Scoping Review of Reviews" shows that Physics Education (PE) classes have a positive impact on physical, social, affective, and cognitive domains, promoting

physical activity, cardiorespiratory fitness, body mass index, fundamental motor skills, enjoyment, motivation, autonomy, cooperation, problem-solving, memory, attention, concentration, and decision making. Physical education has a holistic effect on all components of life starting from physical development, cognitive, emotional, and social aspects of students (Kusuma et al., 2023; Slukhenska et al., 2023). Effective physical education requires the integration of various aspects of the discipline to support overall student growth. However, the challenges in implementing physical education are quite complex, especially related to effective management of resources, time, and curriculum.

Overcoming management problems in an activity requires good management knowledge. Management is a series of resource management activities within an organization/activities by human resources within the implementation to achieve goals (Sherly et al., 2020). Management is the core of the implementation of all operational activities in an activity. With good management, of course the organization's goals will be achieved optimally, and conversely, without good management, the organization's goals will be very difficult to achieve. Effective management involves the arrangement and coordination of various resources, such as human, financial, and material, to ensure that every part of the organization works harmoniously toward the established goals (Anvari & Janjaria, 2023). This requires careful planning, efficient organizing, precise directing, and continuous controlling. Planning is a critical initial step, where objectives are set, and strategies to achieve them are formulated (Cogoljević et al., 2017). Organizing involves arranging resources and activities into a logical and efficient structure (Setiyawati et al., 2023). Directing is the process of motivating and guiding employees to work optimally. Controlling is the process of monitoring and evaluating performance to ensure that organizational goals are achieved according to plan (Nadžaković & Bajramović, 2022).

The motivation behind this research is the lack of studies based on Semantic literature review analysis that discuss management in physical education learning. Therefore, researchers are closing the gap and considering new angles for additional studies. Taking into account the application of management science integration in physical education is very important to achieve optimal results in the field. A study by Perdima et al. (2022) emphasizes that effective management is very important to develop students' character and skills positively during the physical education learning process. Management techniques play an important role in improving the quality of teaching, student engagement, and overall efficiency in physical education classes (Liang, 2022). Management science provides important tools and strategies to effectively manage and improve the physical education learning process. By integrating modern management technology (Liang, 2022), applying the principles of management theory such as planning, organizing, implementing, and evaluating physical education Rodji et al. (2022), and utilizing digitalization to optimize course selection (Saputro, 2023 Tuerah & Monigir, 2019), the field of physical education can be simplified and improved. For example, the application of time management theory can help teachers plan and organize sports activities so that they can be carried out efficiently and effectively. In addition, human resource management can be used to develop physical education teachers' abilities in teaching and motivating students. These methods not only improve efficiency but also the quality of physical education itself.

Technological advances have an impact on various aspects of life, including the world of education (Pebriyandi et al., 2021). The implementation of management science in physical education can involve the use of technology and innovation in the learning process so as to further improve the quality of learning. Information management technology, for example, can be used to manage student data, monitor their progress, and design exercise programs to suit individual needs. The use of this technology can also assist in evaluation and assessment, which is an important part of the physical education process. Thus, integrating management science into physical education can have a significant positive impact on achieving educational goals. This research aims to identify relevant and effective implementation of management science in physical education through a literature study. By investigating various management approaches and techniques that have been applied in various educational contexts, this research aims to produce practical recommendations that can assist educators and policymakers in optimizing physical education.

Through in-depth analysis, it is hoped that this research can provide applicable guidance for teachers in designing curricula, managing classes, and evaluating physical education programs effectively.

Method

At the data collection stage, the author collected articles via Google Scholar and Crossref with the search engine "Publish or Perish" by entering various keywords relevant to research variables such as "Application of Management Science in Physical Education". Entering these keywords into one of the databases will produce articles that are relevant to the research variables being carried out.

The author collected articles with publication years from 2014 to 2024, for journal novelty the author searched for journals on a large scale. In the last 10 years, the PICO method is a method that authors apply in searching articles to uncover new findings (Kuettel & Larsen, 2020). A description of the PICO method can be seen in Table 1 below:

Table 1. PICO Method

PICO	Information
P (problem/ Population)	Lack of application of management science in physical education
I (Interevensi)	Implementation of management science in physical education
C (Comparison)	Don't use comparisons
O (Outcome)	Forms of application of management in physical education from relevant research

The application of the PICO method will help the author in finding related articles needed as supporting data in this research. For example, by asking several questions and searching for articles with the keywords (Physical Education/Physical Education), (students), or (management science), these keywords can be directly entered into the publish or perish search engine system by searching Google Scholar and Crossref. In this way, the author managed to collect the necessary articles. Then the next step that the author takes is the data extraction stage, the reference that the author uses in this method is to use inclusion and exclusion criteria so that the data becomes more specific, and if the author finds an article that does not match the criteria it will be discarded (Ratih & Susanna, 2018). We can see descriptions of the Inclusion and Exclusion criteria methods in Table 2.

Table 2. Inclusion and Exclusion Criteria

Type	Inclusion	Exclusion
Publication Year	2014-2024	Under 2014
Research Variable	Application of management science in physical education	Application of management science in institutions other than education
Article Type	Research/Journal Articles	Research report (thesis, thesis, dissertation)
Participants	Student, Teacher, Education, Lecturer	Practitioner Private employees, entrepreneurs
Scope of Discussion	Physical Education	
Outcomes	Implementation of management science in physical education	

The author found that there were 954 articles resulting from searches via Google Scholar and CrossRev via Publish or Perish, then the articles that had been collected would be managed through several

stages of filtering, the first filtering the author discarded 159 articles because the year the article was published was less than 2014, after studying it more deeply the author discarded another 770 articles because they did not match the specified variables, namely the implementation of management science in physical education, then the author discarded another 7 articles because they were not research articles (journals) but books and theses, after observing again the author discarded another 17 articles because they were not contains solutions for the variables you want to observe and the participants do not meet the inclusion criteria, until the author finds that there are 7 articles that meet all the requirements to be included as samples and will be included as research data for review, for more clarity we can see the information in the image below This.

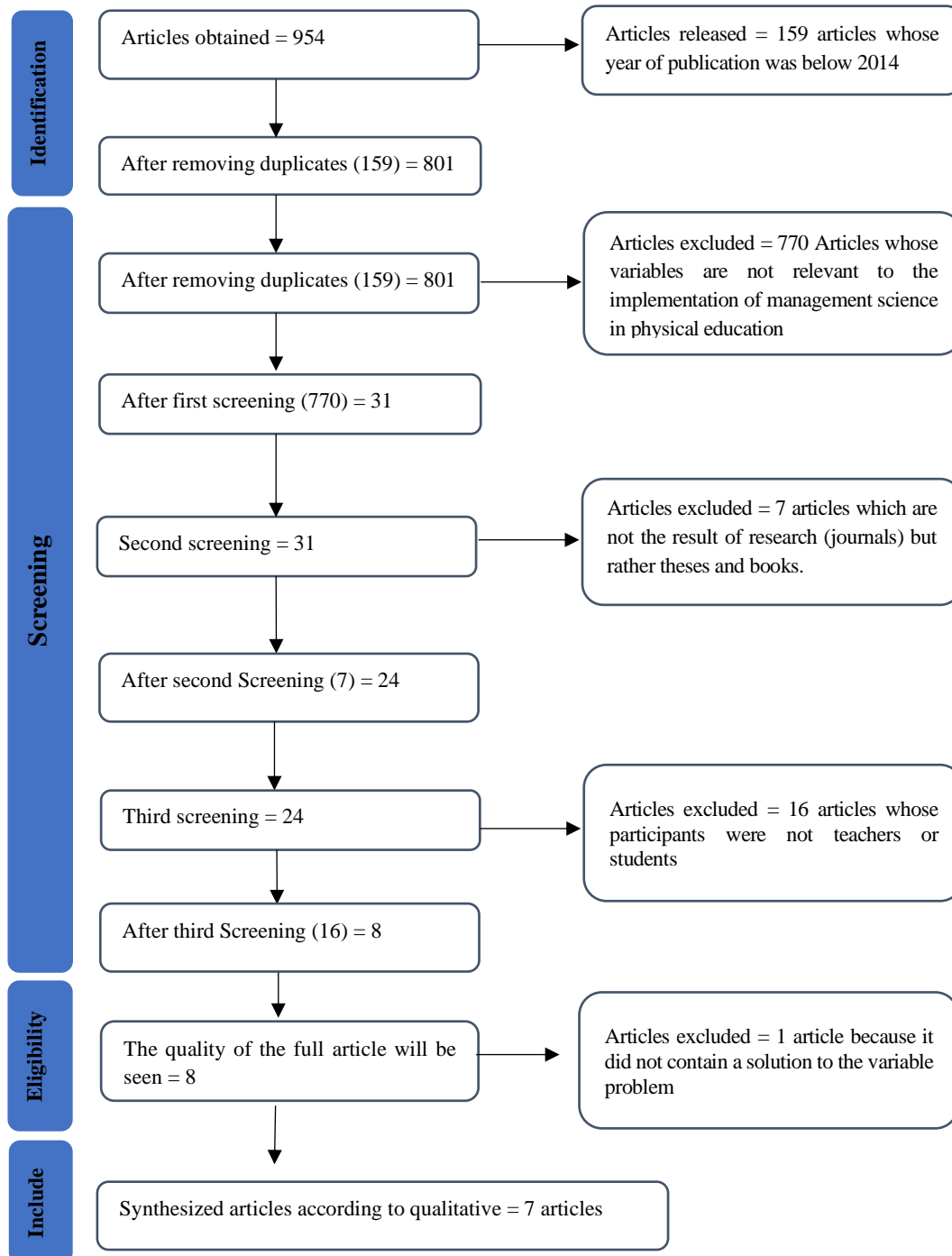


Figure 1. Prisma Flowchart

Result

From the results step by step during the author's analysis of the articles to look for articles that truly meet all the criteria to become research data, it was concluded that 7 articles met the requirements with descriptions of learning articles in Physical Education. Description of review articles on physical education subjects in Table 3 below:

Table 3. Presentation of Review Articles on Management in Physical Education

No	Author Name and Year	Article Linkage	Research Purposes	Results
1	(Shandi, 2018)	Implementation of physical education management based on the 2013 high school curriculum in the city of Bima	Achievements of management implementation in physical education learning	Management in physical education from planning, implementation and evaluation of learning is included in the very strong category as evidenced by the fact that the results of the grades obtained.
2	(Lismana et al., 2024)	Implementation of physical education learning management from planning, implementation and evaluation	Understand the learning management carried out by junior high school teachers	With the implementation of management in physical education learning, it is known that the planning and implementation and evaluation of learning are good enough but not yet optimal, with teachers tending to only fulfill formal obligations without further optimization.
3	(Irawan et al., 2020)	Implementation of learning management for physical education teachers in elementary schools in the city of Bima	Management survey of planning, implementation and evaluation in learning	An overview of the implementation of learning management for elementary school physical education teachers in the city of Bima. First, the planning in the form of learning tools has been made by the teacher even though there are KKG group results or looking at examples on the internet. Second, the implementation of learning is still not optimal according to the plans made. Third, the process of implementing learning evaluation has been carried out in various ways that have been studied by teachers.
4	(Soedjono et al., 2023)	Implementation of competency management for high school level physical education teachers	Survey of the level of professionalism of high school teachers	Based on the management carried out, it shows that the professional level of high school physical education teachers in Semarang City is not very high, this is because teachers are stuck in their comfort zone. Comfortable in teaching, so they are reluctant to learn with various learning

				models, they have difficulty following a curriculum that continues to change so that learning tools must also change. Availability of inadequate facilities and infrastructure. Make it a conclusion for high school physical education teachers, especially in the city of Semarang, to further improve their competence both in teaching and in administration so that they can have an impact on students.
5	(Dewi & Roberto, 2018)	Implementation of management in learning in Islamic-based schools	Knowing the suitability and characteristics of Islamic-based learning between schools	The implementation of management of Islamic-based physical education learning in the city of Bengkulu through learning process standards succeeded in determining the level of suitability and characteristics of learning through an integrated Islamic concept between schools in the research sample.
6	(Lismana, 2022)	Physical Education Learning Management in improving Student Character	Management of physical education learning at SMPIT Khairunnas, Bengkulu City	The management of physical education learning has been carried out well. However, there are several factors that need to be improved, namely regarding teacher preparation in completing learning equipment such as the syllabus before learning activities are carried out. The lesson plans are prepared so as not to give the impression that when carrying out their duties, a PJOK teacher is only carrying out his obligations or only fulfilling the demands of his superiors, which in the end will result in student learning outcomes being less than optimal.
7	(Rodji et al., 2022)	Implementation of management in physical education to foster kinesthetic intelligence at Madrasah Ibtidayyah (MI) Al-Firdaus and MI Yanuri	Implementation of physical education in increasing intelligence through a management approach	In its implementation, the principles and functions of management have been carried out quite well and systematically. However, it has not been fully supported by teachers so that the process and implementation of physical education learning management in developing

students' kinesthetic intelligence is still centered on the physical education teacher.

Discussion

Based on the results presentation table, the articles obtained were based on the extraction results from the number of articles found via the Publish or Perish article search engine using the Google Scholar and Crossref databases, obtaining 954 articles. From all the articles found, extraction was carried out to find articles that matched the research variables and an outcome from the PICO method, namely articles that discussed the application of management science in the field of physical education. Therefore, 7 articles were obtained that had gone through various extraction stages and had been studied in depth and described in Table 3.1. This shows that there is still little research on management topics in the field of physical education.

From the seven articles that have been reviewed, it can be seen that the direction of the overall application of management science into the learning context of physical education, sports, and health in schools is carried out by teachers as educators. In research Shandi (2018) management is carried out in physical education learning which is based on the 2023 curriculum at the junior high school (SMA) level from the context of planning, implementation, and evaluation of learning carried out by teachers. Research Lismana et al. (2024) conducted learning management carried out by junior high school (SMP) teachers including planning, implementation, and evaluation of learning. Research Irawan et al. (2020) on management was carried out in the context of planning, implementation, and evaluation in physical education learning for elementary school (SD) teachers. Research Soedjono et al. (2023) carry out management of the professionalism of high school (SMA) physical education teachers. Research Dewi & Roberto (2018) carry out learning management in the context of suitability and learning characteristics based on integrated Islamic concepts between related schools. Research Lismana (2022) on learning management in the context of improving student character in integrated Islamic junior high schools (SMPIT). As well as research by Rodji et al. (2022) implementing learning management in physical education as a context for fostering aesthetic intelligence in Madrasah Ibtidaiyah (MI).

All research articles that were reviewed in depth were found to direct learning management carried out by physical education teachers in schools with different research results and different levels of education were also studied. This means that the application of management has been carried out at various levels of education, although not many have been found in the Goggle Scholar database. From the seven articles, there are several basic findings that management cannot only be directed as managing learning in terms of planning, implementation, and evaluation for better. However, findings from research by Lismana (2022) show that management can improve students' character, and research (Rodji et al., 2022) shows that management can foster students' kinesthetic intelligence in physical education subjects at school. Meanwhile, five other research articles (Dewi & Roberto, 2018; Irawan et al., 2020; Lismana et al., 2024; Shandi, 2018; Soedjono et al., 2023) found that management is carried out as a form of implementation in The process of activities carried out by physical education teachers include lesson planning, learning implementation, and learning evaluation.

Overall, from the seven articles that were reviewed in depth, the similarities found were that the research was carried out in the context of learning management for teachers of physical education subjects in schools which included the stages of learning planning that was made, the implementation of learning that was based on the plans that were made, as well as evaluations that were carried out as stage of determining the success of a basic competency in physical education, sports and health (PJOK) subjects at an educational level. fundamental differences were found that the implementation of management was carried out at different educational levels, research (Dewi & Roberto, 2018; Irawan et al., 2020; Rodji et al., 2022) implemented learning management at the elementary school level (SD and MI), research (Lismana, 2022; Lismana et al., 2024)) on learning management carried out at the secondary school level(SMP and SMPIT), and research (Shandi, 2018; Soedjono et al., 2023) on management carried out in

physical education learning at the secondary school level upper (high school).

Based on an analysis of seven articles that were reviewed in depth, the author makes a statement that the application of management science in physical education has been carried out as proven by the findings of the articles even though only a few studies were found that were relevant to the research variables. The application of management is carried out in the context of learning carried out by physical education teachers including learning planning, learning implementation, and learning evaluation. Good management by physical education teachers in learning can also be done to improve student character and foster student kinesthetic intelligence. Therefore, management knowledge is an important thing that teachers need to master, especially in physical education, to make the learning process effective and efficient and can shape student character.

The findings from the in-depth review of articles imply that physical education teachers can develop their managerial skills, which will increase their ability to manage physical education classes and programs. Applying management science in the context of physical education, teachers can increase the effectiveness of teaching through better planning, organizing, implementing, and evaluating, which ultimately improves the quality of student learning.

The results of this research open up opportunities for further, more in-depth research on various aspects of the application of management science in physical education, including case studies, experiments, and program evaluation. Additionally, this research can encourage collaboration between physical education experts and management, which can result in innovative interdisciplinary approaches in the development and implementation of physical education programs. By systematically reviewing the literature, this research provides a comprehensive view of how management principles can be applied in physical education and how this can bring benefits to students, teachers, and the education system as a whole.

Conclusion

Based on a comprehensive analysis of seven research articles, it is evident that the application of management science in physical education is predominantly driven by educators across various educational levels. These findings unequivocally underscore the pivotal role of effective management by physical education teachers, encompassing learning planning, implementation, and evaluation, to significantly enhance student learning outcomes. Notably, the studies compellingly demonstrate how management in physical education extends beyond traditional planning and evaluation, exerting a substantial influence on student character development as well as aesthetic and kinesthetic intelligence. Despite the limited number of relevant studies, the results incontrovertibly emphasize the critical importance of further exploring the application of management in physical education.

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