

Literature of the management of physical education based on the Scopus database: A bibliometric review

Feby Elra Perdima^{1abcd*} , Muhammad Kristiawan^{2abc} , Davi Sofyan^{3abce} ,
Nagoor Meera Abdullah^{4bcd} , Nurhuda^{5bc} 

Universitas Dehasen, Indonesia¹
Universitas Bengkulu, Indonesia¹
Universitas Majalengka, Indonesia²
Universiti Teknologi Mara, Malaysia⁴
Universitas Islam Riau, Indonesia⁵

Received: 19 October 2022; Accepted 13 December 2022; Published 17 December 2022
Ed 2022; 7(3): 473-482

ABSTRACT

Effective management is required to aid students in positively developing their character and skills during the physical education learning process. The goal of this study is to conduct a bibliometric analysis of management in physical education publications that have been published in Scopus. The study focuses on the productivity of publishing management in physical education papers on Scopus, on the most prestigious journals, authors, and articles, and on an analysis of keywords that frequently appear in management in physical education articles published on Scopus. The search yields 598 documents that were published in the Scopus database between 2017 and 2021. The majority of publications are written by Webster, C.A., who has six published articles. The most active scientific journal is the Journal of Physical Education and Sport, which has 26 published articles. With 41 links, the United States has the most total link strength of any nation. With 122 instances, "physical education" is the term that is used most frequently. The newest keywords include "big data," "COVID-19," "diet," "sports management," and "knowledge." The most read article on the subject of management in physical education was "Domain-Specific Physical Activity and Mental Health: A Meta-analysis." The research's limitation is that the author is only able to use data from the Scopus database and is only able to use sources that are journal articles; however, the Scopus database also contains other types of sources, including proceedings, book chapters, editorials, notes, erratums, books, and book series. This study contributes to the development of new concepts in the study of physical education management, and it is necessary to conduct future research related to this research theme, which is one of the areas that can be studied more deeply in order to produce learning products according to the needs and developments of the times.

Keywords: Management; physical education; bibliometrics; scopus

 [https://doi.org/10.25299/sportarea.2022.vol7\(3\).10734](https://doi.org/10.25299/sportarea.2022.vol7(3).10734)

OPEN ACCESS



Copyright © 2022 Feby Elra Perdima, Muhammad Kristiawan, Davi Sofyan, Nagoor Meera Abdullah, Nurhuda

Corresponding Author: Feby Elra Perdima, Physical Education, Health and Recreation, Faculty of Teacher Training and Education, Universitas Dehasen, Bengkulu, Indonesia
Email: feby.elra@unived.ac.id

How to Cite: Perdima, F. E., Kristiawan, M., Sofyan, D., Abdullah, N. M., & Nurhuda. (2022). Literature of the management of physical education based on the Scopus database: A bibliometric review. *Journal Sport Area*, 7(3), 473-482. [https://doi.org/10.25299/sportarea.2022.vol7\(3\).10734](https://doi.org/10.25299/sportarea.2022.vol7(3).10734)

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

INTRODUCTION

Education helps students develop their character, skills, and minds in a better path while also fostering their moral convictions and intellectual growth. Every educational level, from elementary school through high school, includes sports and physical education as required courses in their curricula. Additionally, this demonstrates the equality of sports and physical education with other topics and their rejection as minorities (Sofyan et al., 2022). This indicates that pupils acquire knowledge beyond simple awareness or a rise in value as a result of assessments or exercises (Kosim, 2018). A key element in achieving educational objectives in schools is management of the learning process (Suryobroto, 2004). In accordance with that, the administration of the educational system can be used to determine the quality of the educational system (Pratasavitskaya & Stensaker, 2010). Additionally, a study by Omur and Mehmetshah (2021) claims that effective administration is essential for the basic idea of arranging in educational institutions. Numerous researchers from different nations have looked into physical education and management. Wu (2021) examines the effects of personality traits on knowledge concealment through a comparison of technology-based online and physical education. In addition, Ekwaru et al. (2021) studied the cost-effectiveness and return on investment of school-based health promotion programs for the prevention of chronic diseases. Murphy et al. (2021) examined the importance of primary field experiences for primary generalist physical education teachers. Buke et al. (2021) investigated the impact of smartphone addiction on physical activity.

Many bibliometric researches have been conducted on physical education topics related to technology in physical education (Calabuig-Moreno et al., 2020) talent identification (Zheng & Liu, 2020), sustainable influence of physical education for university students (Xu, et al., 2021), inclusive education and physical education (Britto et al., 2017), traditional game learning models (Alpen et al., 2022), 2013 curriculum research in physical education (Gazali et al., 2020). However, bibliometric analysis with management topics in physical education is still very rare. Therefore, researchers are trying to fill the gaps and explore new perspectives for further research.

The motivation behind this research is the dearth of bibliometric analysis-based studies that address management in physical education learning. Therefore, academics have been forced to close the gaps and consider fresh angles for additional study. It has been demonstrated that bibliometric analysis is a trustworthy method for locating and analyzing research in the literature and for developing a system for analyzing the literature to find publishing trends and patterns (Sofyan et al., 2022). Because so many studies are being published in almost all knowledge domains, bibliometric reviews have become a common research endeavor (Aziz et al., 2022). Based on bibliometric analysis and visualization, this report offers a thorough and current overview of the literature on management in physical education learning. In addition to generating ideas for new research, it also strives to satisfy the desires and needs of researchers, teacher educators, and practitioners to collect reliable and well-documented data. Therefore, the primary objectives of this research are to map educational management research and examine the evolution of scholarly publications in the field of physical education learning.

We believe that this article helps readers, researchers, and academics have a better understanding of the most recent publication trends in management research in physical education, which may be utilized to support more physical education-related research investigations. This document gives researchers a summary of the management in physical education-related research that will be done. In this study, popular journals, representative nations, and important institutions related to management in physical education are identified. The author's keyword base is also examined, along with influential management in physical education topics, and the evolution of the main author keyword over the last five years in various fields is also revealed.

METHOD

Selecting and Searching Databases

A thorough search was done in the Scopus database, which contains top-notch scientific research, in accordance with the goals of this study. This bibliographic database includes details on high-quality, multidisciplinary research that has had a significant impact on the world and allows for the consolidation of data sets to contribute to this research (Santamaria-Granados et al., 2021), additionally to the databases that

previous scholars from around the world have most usually used (Abdullah, 2021; Sweileh, 2020; Yang et al., 2021). Because it has more documents than Web of Science and Pubmed, the Scopus database was chosen (Sweileh, 2020), it has been widely referenced in earlier studies (Khiste & Paithankar, 2017). This review uses data that was exported to Microsoft Excel using the Publish or Perish (PoP) and Research Information Systems (RIS) formats (Abdullah, 2021). The data gathered comprises the author's name, the source of the document, the publication's year, title, scientific source, topic, and format.

Data Retrieval

On February 9, 2022, a word search was done in the Scopus database to collect article metadata. TITLE-ABS-KEY was the keyword search term used to retrieve the data ("physical education" AND "management"). This metadata search filter is restricted to just papers written in English; only articles, conference papers, and reviews; only selected publication stages with final paper status; and only documents from the years 2017 through 2021. A total of 599 papers were found using the keyword search term. In bibliometric analysis, the minimum amount of metadata required for analysis varies significantly (Sofyan et al., 2022), as well as the minimum and maximum metadata standards that can be evaluated, are not specified (Sofyan et al., 2022). The quantity of metadata numbers for bibliometric analysis, as well as the minimum and maximum metadata standards that can be evaluated, are not stated. The quantity of validated publications is anticipated to meet the necessary 300 papers for bibliometric analysis, and this study has fulfilled the minimal criteria (Donthu et al., 2021).

Data Analysis

Between 2017 until 2021, data analysis of 598 papers on subjects linked to management of physical education was discovered. For first export to Microsoft Excel, Publish or Perish (PoP), and tools VOSviewer program for subsequent analysis, this review was exported in Comma-separated Values (CSV) and Research Information Systems (RIS) formats. The CSV file is exported into an excel file for manual analysis before being analyzed using the tools stated above. This is done to look for signs of duplicate papers and filter those out. 598 documents pertaining to the management of physical education are the data to be analyzed once one double document is discovered during manual analysis. The information gathered comprises the author's name, the source of the document, the year and title of publishing, the nation, the journal, the topic, and the kind of publication. The VOSviewer tool from Van Eck & Waltman enabled bibliometric analysis and mapping of articles on physical education management activities (Van Eck & Waltman, 2010). According to Van Eck and (Van Eck & Waltman, 2010), VOS viewer uses visual cues based on mapping processes to transform CSV data into diagrams or clusters.

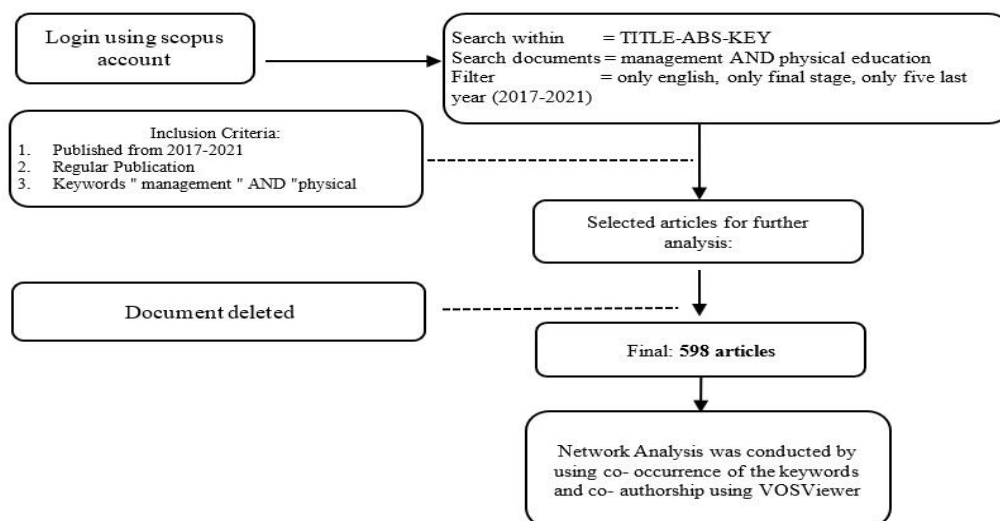


Figure 1. Article Metadata Search Design from Scopus

RESULTS AND DISCUSSION

The findings of the bibliometric analysis in accordance with the study questions are presented in this section. It begins with a review of the literature that focuses on its development over time, as well as its function and publications across nations, institutions, and document kinds. Reviewing the most popular papers or journals, well-known authors whose academic manuscripts have received numerous citations, as well as articles based on scientific works, are the next two steps. Third, consider the co-authorship analysis, co-citation analysis, and co-occurrence analysis with author keyword analysis units for their analyses of the patterns of collaboration between authors and countries, connections or ties between authors and journals, and terms or keywords.

Trends and Profiles of Productivity

Publication trends can be seen from the number of publications produced during the current year. In 2017, the number of publications was 96 Scopus documents; in 2018 there were 102 documents on Scopus; in 2019 there were publications of 102 scientific papers on Scopus; in 2020 there were 133 publications of scientific papers on Scopus, and finally in 2021 there were 165 publications on Scopus. Based on information obtained from 2017 to 2021, the trend of publications related to physical education management tends to increase from year to year, although in 2018 and 2019 there was no increase or decrease in the number of documents published.

Before delving into bibliometric analysis, this study identified less obvious publication descriptors such as leading author, source type, subject category, and funder. Table 1 shows briefly some different limitations for analysis. First, based on the most prolific author in physical education management research, Webster, C.A., affiliated with the School of Sport, Exercise and Rehabilitation Sciences, University of Birmingham, Dubai, was the most prolific author with a total of six documents. His areas of expertise are physical activity promotion, physical education, teacher communication, and expert teaching. He also received 3773 citations and an h-index of 36. His article, which received good responses from readers and other writers, was entitled, "Integrating movement in academic classrooms: understanding, applying, and advancing the knowledge base", and was published in the journal *Obesity Reviews* in 2015 with a total of 252 citations. Other authors are in Table 1.

Table 1. Publication Profile for Management and Physical Education Fields

No.	Category	Profil
1	Author	Webster, C.A. (6 doc), Weaver, R.G. (5 doc), Eberman, L.E. (4 doc), Ensign, J. (4 doc), Kulinna, P.H. (4 doc), Lubans, D.R. (4 doc), Skovgaard, T. (4 doc).
2	Subject Areas	Medicine (308), Social Sciences (179), Health Professions (170), Computer Science (93), Engineering (75), Environmental Science (38), Psychology (32), Arts and Humanities (28), Physics and Astronomy
3	Funding Sponsor	National Institutes of Health (10), Eunice Kennedy Shriver National Institute of Child Health and Human Development
4	Source Type	National Heart, Lung, and Blood Institute (5), National Institute for Health Research (5), Australian Research Council (4), National Health and Medical Research Council (4), National Office for Philosophy and Social Sciences (4), and Robert Wood Johnson Foundation (4).

Second, the subject area that publishes the most academic texts related to physical education management is medicine, with a total of 308 documents. Social Sciences (179), followed by Health Professions (170). Third, the National Institutes of Health, part of the US Department of Health and Human Services, is the national medical research institute, making important discoveries that improve health and save lives. Research results are the largest funders in providing financial contributions to research and publications from each author. The presence of funders is one of the keys to increasing the quality of research in a country, university, organization, and author. From the publication data of scientific papers obtained from Scopus data, it is focused on the Source Title aspect. In the Scopus database, the *Journal of Physical Education and Sport*, being the most active scientific source in publishing related to physical education management, is the most dominant

with 25 documents. Table 1 shows other scientific sources. Only eight scientific sources have a total of more than 12 publications.

Co-Authorship Base on Author and Country

When two or more people are named as co-authors on the same publication, it is quite likely that they have worked together in some capacity, which is what co-authorship reveals as a metric of research collaboration (Landi, 2018). The potential for author names to be identical, which is one of the drawbacks of bibliometric studies, and they express caution about it (Sofyan et al., 2022). 942 authors out of 1,871 authors were discovered to have a connection to management in physical education based on the minimal requirement that each author owns one document and the minimum number of citations is four. The total connection strength of each of the 942 authors will be determined, as well as the link strength to other authors. The author with the greatest total link strength will be selected. Webster C.A., Gillham K., Nathan N., Oldmeadow C., Reeves P., Searles A., Sutherland R., Wiggers J., and Wolfenden L., had the largest total link strength of 35. A network map of co-authorships with author and country analysis units is displayed in Figures 2 and 3.

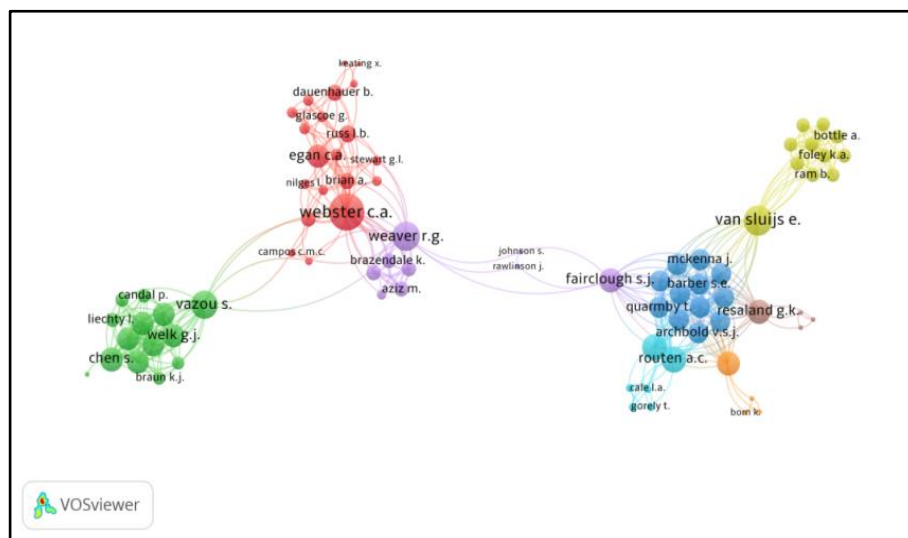


Figure 2. Network Visualization Base Co-Authorship Analysis Unit Authors

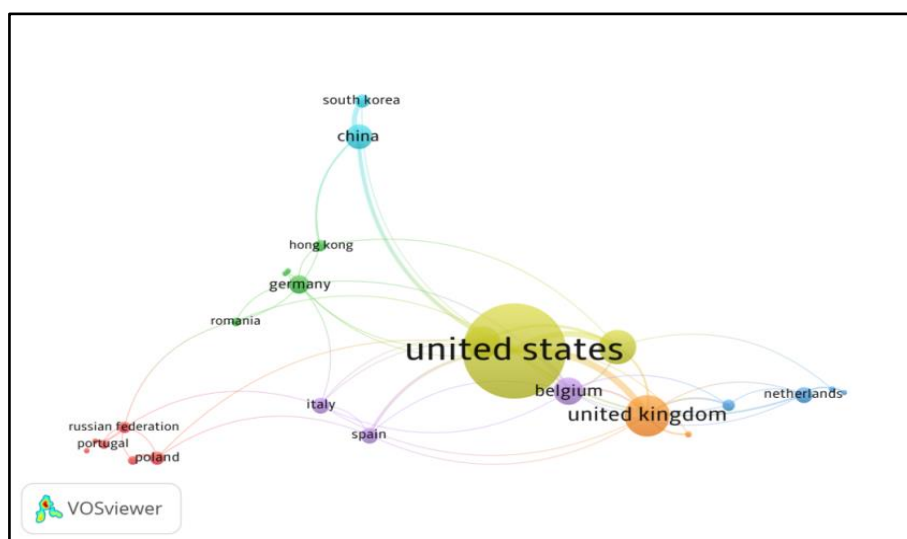


Figure 3. Map of The Co-Authorship Visualization Network with Country Analysis Units

27 out of 68 countries are related to management in physical education, with each country owning a minimum of 5 papers, and there are a minimum of 0 citations. The total link strength of each of the 27

countries, as well as the link strength with other countries, will be computed. The nation with the strongest overall linkage will be chosen. With 161 documents, 1,364 citations, and 41 total link strengths, the United States surpassed all other nations in total link strength. Australia (22, 418, 15) and the United Kingdom (26, 354, 18) came in second and third, respectively.

Analysis Keyword

Through this study, we may discover the major areas of interest for the researcher and build a conceptual framework. Additionally, it can highlight significant developments in management and physical education research. Finding keywords and terms that appear together in a single article is referred to as their incidence. In order to locate numerous publications that are related to the research study's issue, keyword design is a crucial element that must not be disregarded (Sofyan et al., 2022). The association between keywords and terms that occur together on the network map is demonstrated by this analysis (Van Eck & Waltman, 2010); (Zupic & Cater, 2015). The examination of co-authorship crucial to ensure that researchers are widely used and used as a knowledge base that references sources when conducting their research since bibliometrics is a quantitative analysis of bibliographic aspects of scientific publications (Sofyan et al., 2022). Next, utilize the VOSviewer program and concentrate on the author's keywords. The analysis of information depiction performed using VOSviewer on 598 article titles found in the Scopus database reveals that the research illustration keyword appears the most frequently.

The 10 leading scientific publication keywords in the Scopus database and their bibliometric characteristics (including the number of occurrences and links) and total link strength. "Physical Education" is the keyword that appears the most, which is 122 times and has a total link strength of 84. Next, "physical activity" (48, 70), "school" (26, 54), "adolescents" (24, 30), "sports" (23, 28), "children" (18, 40), "college physical education" (17, 6), "management system" (15, 7), "exercise" (14, 16), and "students" (13, 23), ranking from two to ten). Visualization of item density of words with high-frequency keys is presented in Figure 4.

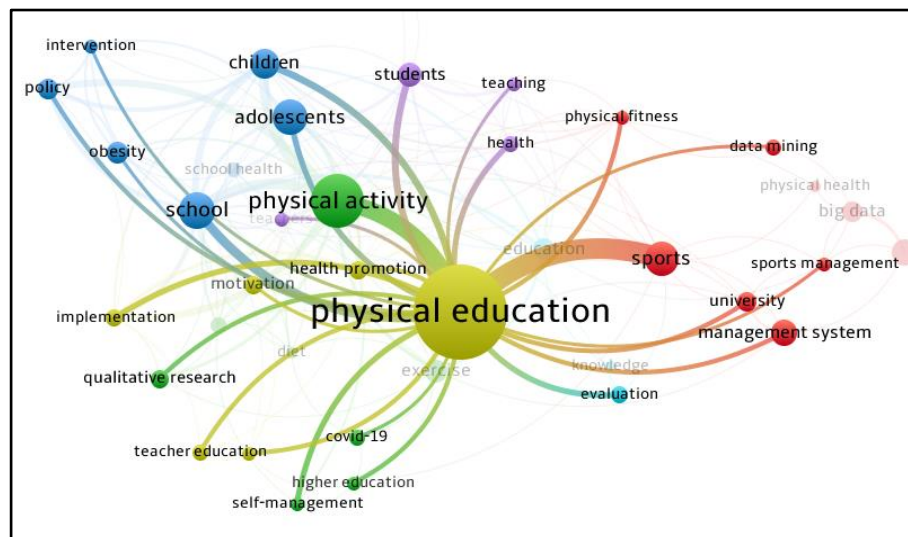


Figure 4. Keyword Item Density Visualization

Figure 5 shows the latest keywords related to management in physical education. "Big data" became the newest keyword with 12 occurrences and a total link strength of 7. Furthermore, "covid-19" came in second with 6 occurrences and a total link strength of 4, "diet" (5, 8), "college physical education" (17, 6), and "knowledge" (5, 2) are in positions three to five. This latest keyword can be a reference for future writers to serve as a basis for designing research based on these keywords.

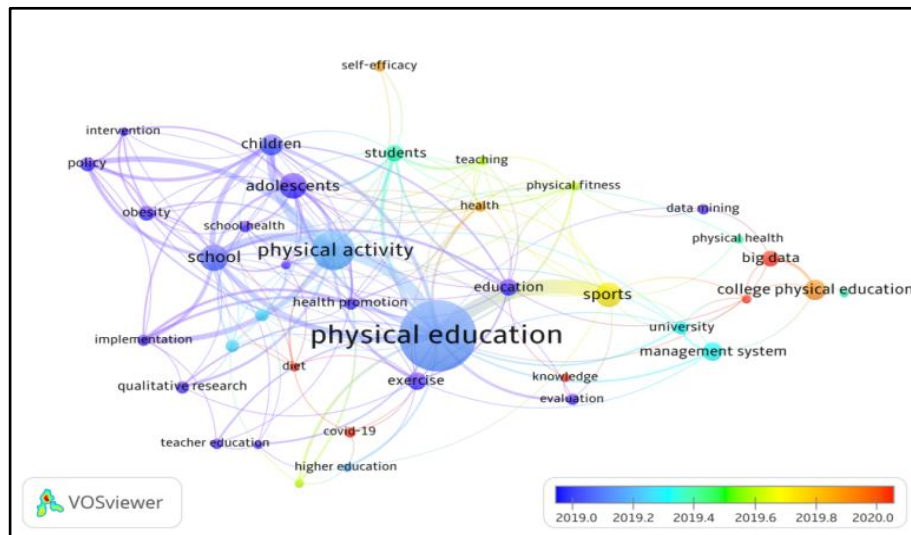


Figure 5. The Latest Keywords

Physical educators need flexible skills that can be adapted to various instructional environments. Due to the diversity of venues in which physical education is taught, the word “spaces” is used in the plural. Throughout the school year, teachers at secondary schools with ample resources may rotate their classes between a classroom, a weight room, a swimming pool, a gymnasium, and outdoor teaching locations (Cothran & Kulinna, 2014). Therefore, physical education teachers must be able to adapt the learning process to the stages of student development so that malpractice does not occur in teaching. Skills in organizing and managing classes are very important for physical education teachers, so that learning objectives can be achieved in accordance with what has been determined in the learning objectives.

Based on the most popular articles related to management in physical education, we can see how the role of management in physical education has a real impact on student development. Scientific work publication written by Alvarez-Bueno et al. (2017), with the title “Academic achievement and physical activity: A meta-analysis”, which discusses the influence of physical activity (PA) on various fields of academic achievement and classroom behavior and how the different characteristics of PA interventions can change their effects. PA, in particular physical education, improves classroom behavior and benefits several aspects of academic achievement, particularly math-related skills, reading, and grades combined in adolescents. From this article, we can draw the conclusion that classroom management by teachers in providing interventions for students during the learning process can have a positive effect on behavior change for students, especially in increasing academic achievement. It is clear that the role of the teacher in this position cannot be replaced, even though the growth and development of technology are very rapid. In changing behavior, this role cannot be replaced by the greatness of technology.

It is obviously the importance of the teacher in managing the class is one of the determining factors in the success of learning so that teachers must always develop competence in improving their professionalism as teachers, including personality competence, pedagogic competence, social competence, and professional competence.

CONCLUSION

This research intends to analyze bibliometric articles published in the Scopus database on management and physical education. The search results found 598 documents that were published in the Scopus database from 2017-2021. Based on the results in the Scopus database, the findings said that the number of publications has increased from year to year. The limitation of this research is that the author is only limited to Scopus base information and is also limited to the type of journal article source. On the other hand, in the Scopus database there are still types of source documents such as: proceedings, book chapters, editorials, notes, erratum, books, letters, and book series. However, the number of articles from the types of documents and sources that the

authors limit is very small, and in the author's opinion, it will not have a significant effect on this research. The analysis carried out can provide knowledge about research development in aspects of management and physical education and can be a source of data for teachers, lecturers, schools, universities, and the world of education.

ACKNOWLEDGEMENTS

Thank you to the reviewers who have analyzed and reviewed this manuscript, so that improvements for the benefit of this article will be even better.

CONFLICT OF INTEREST

The authors state that this research does not have a conflict of interest with any party.

REFERENCES

- Abdullah, K. H. (2021). Mapping of Marine Safety Publications Using VOSviewer. *ASM Science Journal*, 16(July), 1–9. <https://doi.org/10.32802/asmscj.2021.774>
- Abdullah, K. H., & Sofyan, D. (2022). Middle Managers and Dilemmas in the Organisation. *Asian Journal of Research in Business and Management*, 4(2), 35–49. <https://doi.org/10.55057/ajrbm.2022.4.2.4>
- Abdullah, K.H., Sofyan, D., Roslan, M., Mohd Shukri, N., & A. Hammood, W. (2022). Biodiversity Management: A Bibliometric Analysis of Scopus Database Publications. *Asian Journal Of Fundamental And Applied Sciences*, 3(3), 41-53.
- Alpen, J., Dlis, F., Hernawan, Widiastuti, Apriani, L., Kurniawan, E., & Sofyan, D. (2022). Trends in Scientific Publication of Traditional Game Learning Models in Physical Education and Sports in Indonesia: A Bibliometric Analysis. *Journal Sport Area*, 7(2), 214–226. [https://doi.org/10.25299/sportarea.2022.vol7\(2\).9072](https://doi.org/10.25299/sportarea.2022.vol7(2).9072)
- Alvarez-Bueno, C., Pesce, C., Caverro-Redondo, I., Sanchez-Lopez, M., Garrido-Miguel, M., & Martinez-Vizcaino, V. (2017). Academic Achievement and Physical Activity: A Meta-Analysis. *Pediatrics*, 140(6). <https://doi.org/10.1542/PEDS.2017-1498>
- Aziz, F. S. A., Harith, S. H., Abdullah, K. H., & Sofyan, D. (2022). Trends and Evolution of Road User behaviour Research: A Bibliometric Review. *International Journal of Information Science and Management*, 20(3), 69–93.
- Britto, P. R., Lye, S. J., Proulx, K., Yousafzai, A. K., Matthews, S. G., Vaivada, T., Perez-Escamilla, R., Rao, N., Ip, P., Fernald, L. C. H., MacMillan, H., Hanson, M., Wachs, T. D., Yao, H., Yoshikawa, H., Cerezo, A., Leckman, J. F., & Bhutta, Z. A. (2017). Nurturing Care: Promoting Early Childhood Development. *The Lancet*, 389(10064), 91–102. [https://doi.org/10.1016/S0140-6736\(16\)31390-3](https://doi.org/10.1016/S0140-6736(16)31390-3)
- Buke, M., Egesoy, H., & Unver, F. (2021). The Effect of Smartphone Addiction on Physical Activity Level in Sports Science Undergraduates. *Journal of Bodywork and Movement Therapies*, 28, 530–534. <https://doi.org/10.1016/J.JBMT.2021.09.003>
- Calabuig-Moreno, F., González-Serrano, M. H., Fombona, J., & García-Tascón, M. (2020). The Emergence of Technology in Physical Education: A General Bibliometric Analysis with a Focus on Virtual and Augmented Reality. *Sustainability (Switzerland)*, 12(7), 1–23. <https://doi.org/10.3390/su12072728>
- Cothran, D., & Kulinna, P. (2014). Classroom Management in Physical Education. In *In Handbook of classroom management* (pp. 249–270). Routledge. [https://doi.org/10.1016/S0140-6736\(01\)28466-9](https://doi.org/10.1016/S0140-6736(01)28466-9)
- Donthu, N., Kumar, S., Mukherjee D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285-296. <https://doi.org/10.1016/j.jbusres.2021.04.070>

- Ekwaru, J. P., Ohinmaa, A., Dabravolskaj, J., Maximova, K., & Veugelers, P. J. (2021). Cost-Effectiveness and Return on Investment of School-Based Health Promotion Programmes for Chronic Disease Prevention. *European Journal of Public Health*, 31(6), 1183–1189. <https://doi.org/10.1093/EURPUB/CKAB130>
- Gazali, N., Cendra, R., Saputra, H. D., Saad, N. B., Winarno, M. E., Hanief, Y. N., ... & Tulyakul, S. Trends and patterns of 2013 curriculum research in physical education: Bibliometric analysis from 2013-2020. *Multilateral: Jurnal Pendidikan Jasmani dan Olahraga*, 20(3), 179-199. <http://dx.doi.org/10.20527/multilateral.v20i3.11656>
- Hafiar, H., Limilia, P., Prastowo, A. A., Amin, K., & Sofyan, D. (2022). Research and Publication Trends: Sports Branding on the Movie. *ProTVF*, 6(2), 164. <https://doi.org/10.24198/ptvf.v6i2.39909>
- Kosim, K. (2018). Efektivitas Penggunaan Metode Pengertian Organisasi Meningkatkan Hasil Belajar PKN Kelas V SDN I Dukuhmaja pada Penelitian Tindakan Kelas (PTK) Kecamatan Luragung Kabupaten Kuningan. *Pedagogi: Jurnal Penelitian Pendidikan*, 5(1).
- Khiste, G. P., & Paithankar, R. R. (2017). Analysis of Bibliometric term in Web of Science. *International Research Journal*, 1(32), 78–83.
- Landi, D. (2018). Toward a Queer Inclusive Physical Education. *Physical Education and Sport Pedagogy*, 23(1), 1–15. <https://doi.org/10.1080/17408989.2017.1341478>
- Murphy, F., Marron, S., & Coulter, M. (2021). Primary Field Experiences: Critical for Primary Generalist Physical Education Teachers? *European Physical Education Review*, 27(4), 761–778. <https://doi.org/10.1177/1356336X21991188>
- Omur, I., & Mehmetshah, K. (2021). *Scientific horizon in the context of social crises*. December, 104–108.
- Pratasavitskaya, H., & Stensaker, B. (2010). Quality Management in Higher Education: Towards a Better Understanding of an Emerging Field. *Quality in Higher Education*, 16(1), 37–50. <https://doi.org/10.1080/13538321003679465>
- Santamaria-Granados, L., Mendoza-Moreno, J. F., & Ramirez-Gonzalez, G. (2021). Tourist Recommender Systems Based on Emotion Recognition—A Scientometric Review. *Future Internet*, 13(1), 1–38. <https://doi.org/10.3390/fi13010002>
- Sofyan, D. (2022a). The Development of Sports Management Research in Indonesia in the Early Twenty-First Century: A Bibliometric Analysis. *Indonesian Journal of Sport Management*, 2(1), 28–37. <https://doi.org/10.31949/ijsm.v2i1.2248>
- Sofyan, D., & Abdullah, K. H. (2022b). College Sport Publication Trends Over 15 Decades: A Bibliometric Analysis. *Khizanah Al-Hikmah: Jurnal Ilmu Perpustakaan, Informasi, dan Kearsipan*, 10(1), 69–82. <https://doi.org/10.24252/kah.v10i1a7>
- Sofyan, D., & Abdullah, K. H. (2022c). Scientific Developments in Educational Innovation Research in Indonesia and Malaysia: A Scientometric Review. *International Journal of Educational Innovation and Research*, 1(1), 42–51. <https://doi.org/10.31949/ijeir.v1i1.2312>
- Sofyan, D., Abdullah, K. H., Akinci, A. Y., Oluwatoyin, I. M., Rojo, J. R., Shompong, S., & Tanucan, J. C. M. (2022d). Sports activities during the Covid 19 pandemic: A Bibliometric Analysis. *Journal of Metrics Studies and Social Science*, 1(1), 50–60. <https://doi.org/10.56916/jmsss.v1i1.76>
- Sofyan, D., Abdullah, K. H., & Hafiar, H. (2022e). The Philosophy of Sport and Physical Education: Four Decade Publication Trends via Scientometric Evaluation. *Physical Education Theory and Methodology*, 22(3), 437–449. <https://doi.org/10.17309/tmfv.2022.3.20>
- Suryobroto, S. (2004). Peningkatan Kemampuan Manajemen Guru Pendidikan Jasmani. *Jurnal Pendidikan Jasmani Indonesia*, 4(9), 89-93.

- Sweileh, W. M. (2020). Bibliometric Analysis of Peer-Reviewed Literature on Food Security in the Context of Climate Change from 1980 to 2019. *Agriculture and Food Security*, 9(1), 1–15. <https://doi.org/10.1186/s40066-020-00266-6>
- van Eck, N. J., & Waltman, L. (2010). Software Survey: VOSviewer, a Computer Program for Bibliometric Mapping. *Scientometrics*, 84(2), 523–538. <https://doi.org/10.1007/s11192-009-0146-3>
- Wu, J. (2021). Impact of Personality Traits on Knowledge Hiding: A Comparative Study on Technology-Based Online and Physical Education. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/FPSYG.2021.791202>
- Xu, Q., Yin, J. (2021). Application of Random Forest Algorithm in Physical Education. *Hindawi Scientific Programming*, 2021, 1-10. <https://doi.org/10.1155/2021/1996904>
- Yang, K., Lee, H., Kim, S., Lee, J., & Oh, D.-G. (2021). KCI vs. WoS: Comparative Analysis of Korean and International Journal Publications in Library and Information Science. *Journal of Information Science Theory and Practice*, 9(3), 76–106. <https://doi.org/10.1633/JISTaP.2021.9.3.6>
- Zheng, Y. and Liu, S. (2020). Bibliometric Analysis for Talent Identification by the Subject–Author–Citation Three-Dimensional Evaluation Model in the Discipline of Physical Education. *Library Hi Tech*, 40(1), 479-490. 62-79. <https://doi.org/10.1108/LHT-12-2019-0248>
- Zupic, I., & Cater, T. (2015). Bibliometric Methods in Management and Organization. *Organizational Research Methods*, 18(3), 1–44. <https://doi.org/10.1177/1094428114562629>